

FCC and ISED Test Report

Apple Inc
Model: A3240



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: BCGA3240

IC: 579C-A3240

COMMERCIAL-IN-CONFIDENCE

Document 75962766-12 Issue 01

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Connor Lee	Senior Engineer	Authorised Signatory	18 November 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	Nathan Harrison	18 November 2024	
	Callum Pennells	18 November 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.



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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	18-November-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	28-October-2024
Finish of Test	29-October-2024
Name of Engineer(s)	Nathan Harrison Callum Pennells
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 (2020)
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 (2020)
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 (2020)
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 (2020)
Configuration and Mode: AC Powered - Thread				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)
Configuration and Mode: AC Powered - Narrowband				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)

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 – All Modes				
AC Power Port	2 m	Power	AC to DC power adapter with USB-C output.	No
AC Power Port	2 m	Power	3 Pin Power Cable	No
USB 1 Port	1 m	Data	USB Type C	No
USB 2 Port	1 m	Data	USB Type C	No
Audio Jack Port	1 m	Data	Audio Jack 3.5mm	No

Table 3

1.4.3 Test Configuration

Configuration	Description
AC Powered	The EUT was powered from a 120 V 60 Hz AC supply via an AC to DC power adapter with USB-C output. PSU model: A2164 The Audio Jack Port was unterminated. A mouse was used to terminate the USB 1 Port. A keyboard was used to terminate the USB 2 Port.

Table 4

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 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: A3240		
Serial Number	Hardware Version	Software Version
K370G52GP4	REV1.0	24C62
K46H322D6D	REV1.0	24C62
G2N9GVGGYG	REV1.0	24A12461c

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: A3240, Serial Number: K370G52GP4			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3240, Serial Number: K46H322D6D			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3240, Serial Number: G2N9GVGGYG			
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 - 2.4 GHz Bluetooth		
AC Power Line Conducted Emissions	Nathan Harrison	UKAS
Configuration and Mode: AC Powered - 2.4 GHz WLAN		
AC Power Line Conducted Emissions	Nathan Harrison	UKAS
Configuration and Mode: AC Powered - 5 GHz WLAN		
AC Power Line Conducted Emissions	Nathan Harrison	UKAS
Configuration and Mode: AC Powered - 6 GHz WLAN		
AC Power Line Conducted Emissions	Nathan Harrison	UKAS
Configuration and Mode: AC Powered - Thread		
AC Power Line Conducted Emissions	Callum Pennells	UKAS
Configuration and Mode: AC Powered - Narrowband		
AC Power Line Conducted Emissions	Nathan Harrison	UKAS

Table 8

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

A3240, S/N: K370G52GP4 - Modification State 0
A3240, S/N: K46H322D6D - Modification State 0
A3240, S/N: G2N9GVGGYG - Modification State 0

2.1.3 Date of Test

28-October-2024 to 29-October-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 (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

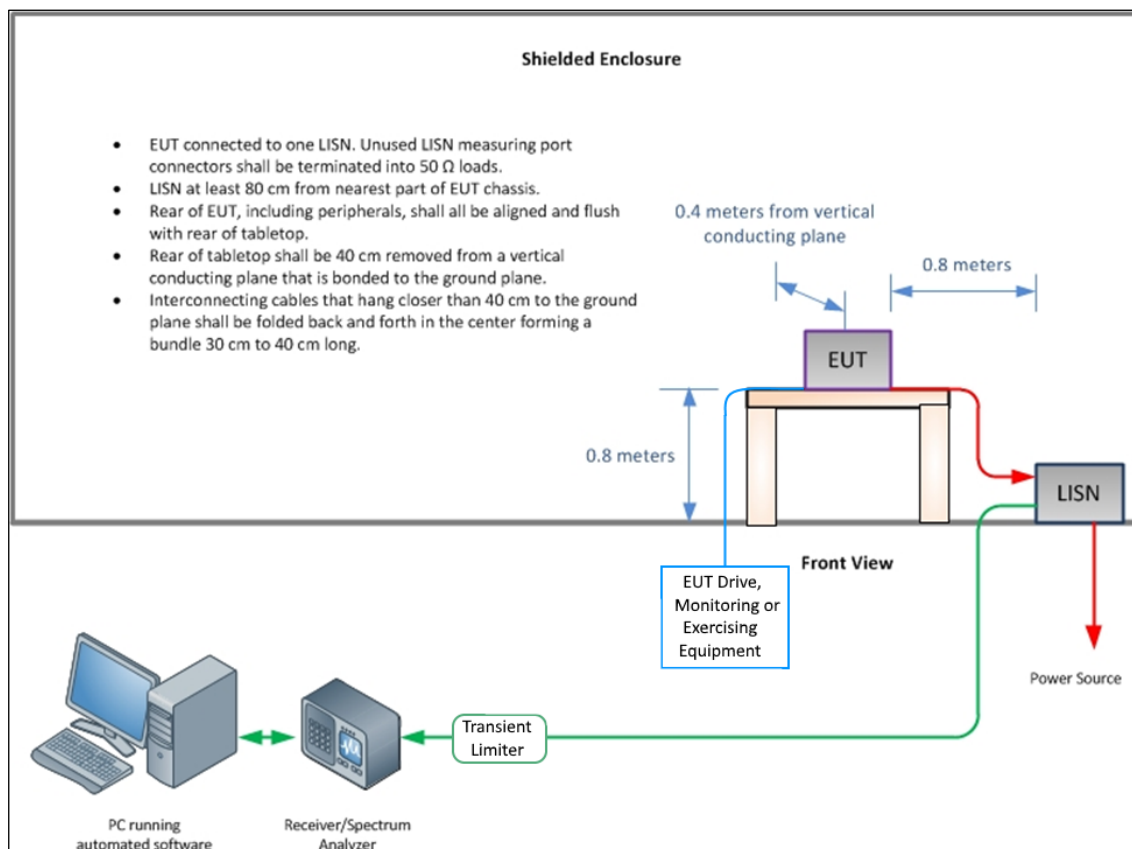


Figure 1 - Conducted Disturbance

2.1.7 Environmental Conditions

Ambient Temperature	20.6 – 22.1°C
Relative Humidity	48.2 - 50.1 %
Atmospheric Pressure	1013.0 - 1015.1 mbar

2.1.8 Specification Limits

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	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 9

*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: 50 Hz

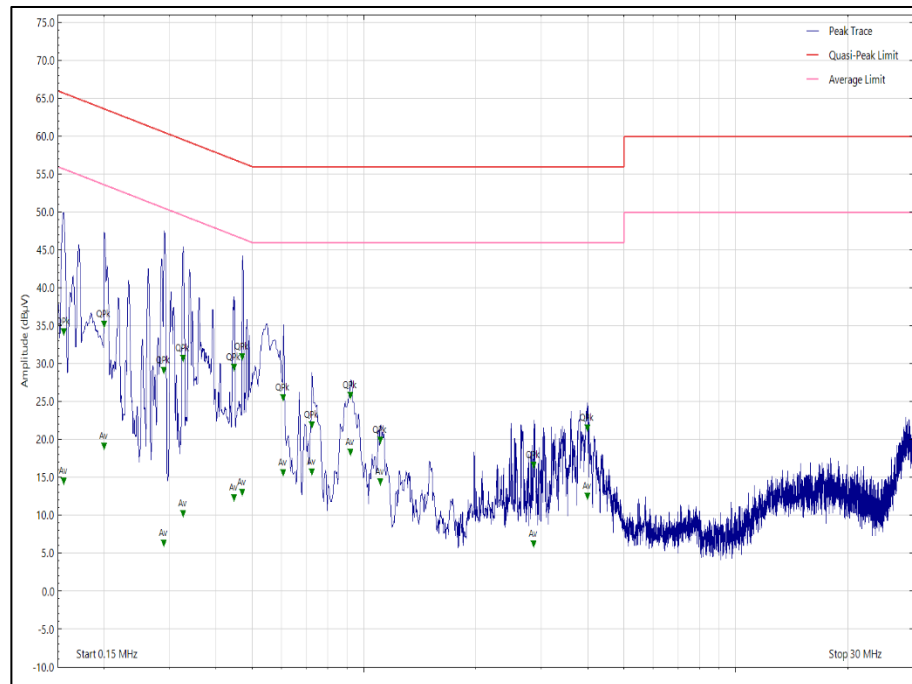


Figure 2 – AC Power Port Live Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.156	33.52	65.70	-32.18	Q-Peak
0.156	13.82	55.70	-41.88	CISPR Avg
0.200	34.48	63.60	-29.12	Q-Peak
0.200	18.45	53.60	-35.15	CISPR Avg
0.290	5.65	50.50	-44.85	CISPR Avg
0.290	28.45	60.50	-32.05	Q-Peak
0.326	9.50	49.60	-40.10	CISPR Avg
0.326	29.99	59.60	-29.61	Q-Peak
0.447	11.62	46.90	-35.28	CISPR Avg
0.447	28.84	56.90	-28.06	Q-Peak
0.471	12.33	46.50	-34.17	CISPR Avg
0.471	30.25	56.50	-26.25	Q-Peak
0.607	24.77	56.00	-31.23	Q-Peak
0.607	14.88	46.00	-31.12	CISPR Avg
0.724	21.24	56.00	-34.76	Q-Peak
0.724	15.01	46.00	-30.99	CISPR Avg
0.921	25.08	56.00	-30.92	Q-Peak
0.921	17.61	46.00	-28.39	CISPR Avg
1.108	13.76	46.00	-32.24	CISPR Avg
1.108	19.17	56.00	-36.83	Q-Peak
2.865	5.51	46.00	-40.49	CISPR Avg
2.865	15.94	56.00	-40.06	Q-Peak
3.991	20.85	56.00	-35.15	Q-Peak
3.991	11.86	46.00	-34.14	CISPR Avg

Table 10 – AC Power Port Live Line Emissions Results

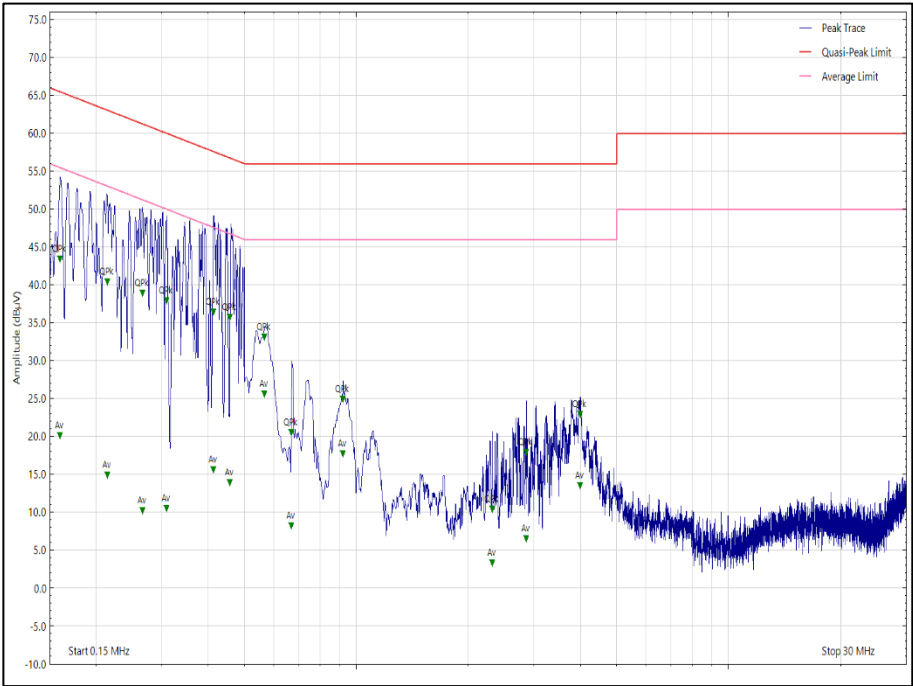


Figure 3 – AC Power Port Neutral Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.160	42.71	65.50	-22.79	Q-Peak
0.160	19.44	55.50	-36.06	CISPR Avg
0.214	14.20	53.10	-38.90	CISPR Avg
0.214	39.69	63.10	-23.41	Q-Peak
0.266	38.15	61.20	-23.05	Q-Peak
0.266	9.57	51.20	-41.63	CISPR Avg
0.309	37.19	60.00	-22.81	Q-Peak
0.309	9.84	50.00	-40.16	CISPR Avg
0.413	35.72	57.60	-21.88	Q-Peak
0.413	14.94	47.60	-32.66	CISPR Avg
0.457	13.19	46.70	-33.51	CISPR Avg
0.457	34.98	56.70	-21.72	Q-Peak
0.567	24.93	46.00	-21.07	CISPR Avg
0.567	32.39	56.00	-23.61	Q-Peak
0.670	7.50	46.00	-38.50	CISPR Avg
0.670	19.84	56.00	-36.16	Q-Peak
0.921	24.25	56.00	-31.75	Q-Peak
0.921	16.98	46.00	-29.02	CISPR Avg
2.315	2.59	46.00	-43.41	CISPR Avg
2.315	9.77	56.00	-46.23	Q-Peak
2.860	17.21	56.00	-38.79	Q-Peak
2.860	5.81	46.00	-40.19	CISPR Avg
3.986	12.78	46.00	-33.22	CISPR Avg
3.986	22.19	56.00	-33.81	Q-Peak

Table 11 – AC Power Port Neutral Line Emissions Results

AC Powered - 2.4 GHz WLAN

Applied supply voltage: 120 V AC

Applied supply frequency: 60 Hz

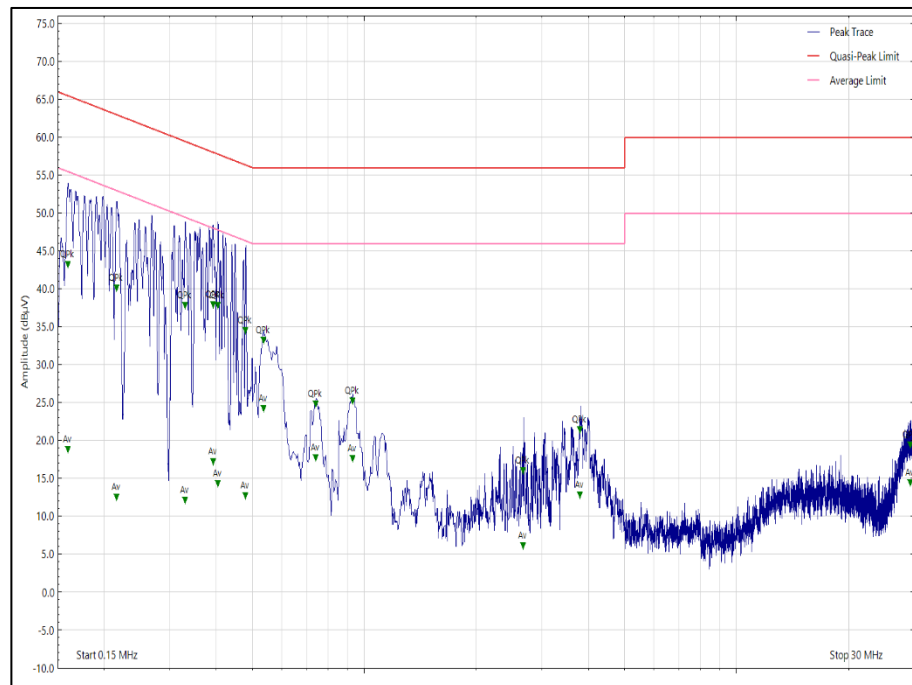


Figure 4 – AC Power Live Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.160	42.47	65.50	-23.03	Q-Peak
0.160	18.08	55.50	-37.42	CISPR Avg
0.216	11.85	53.00	-41.15	CISPR Avg
0.216	39.36	63.00	-23.64	Q-Peak
0.330	11.42	49.40	-37.98	CISPR Avg
0.330	37.10	59.40	-22.30	Q-Peak
0.392	16.56	48.00	-31.44	CISPR Avg
0.392	37.16	58.00	-20.84	Q-Peak
0.404	13.67	47.80	-34.13	CISPR Avg
0.404	37.05	57.80	-20.75	Q-Peak
0.479	12.06	46.40	-34.34	CISPR Avg
0.479	33.78	56.40	-22.62	Q-Peak
0.536	23.51	46.00	-22.49	CISPR Avg
0.536	32.50	56.00	-23.50	Q-Peak
0.741	17.00	46.00	-29.00	CISPR Avg
0.741	24.11	56.00	-31.89	Q-Peak
0.929	24.55	56.00	-31.45	Q-Peak
0.929	16.88	46.00	-29.12	CISPR Avg
2.672	15.33	56.00	-40.67	Q-Peak
2.672	5.48	46.00	-40.52	CISPR Avg
3.799	12.08	46.00	-33.92	CISPR Avg
3.799	20.73	56.00	-35.27	Q-Peak
29.316	18.74	60.00	-41.26	Q-Peak
29.316	13.73	50.00	-36.27	CISPR Avg

Table 12 – AC Power Port Live Line Emissions Results

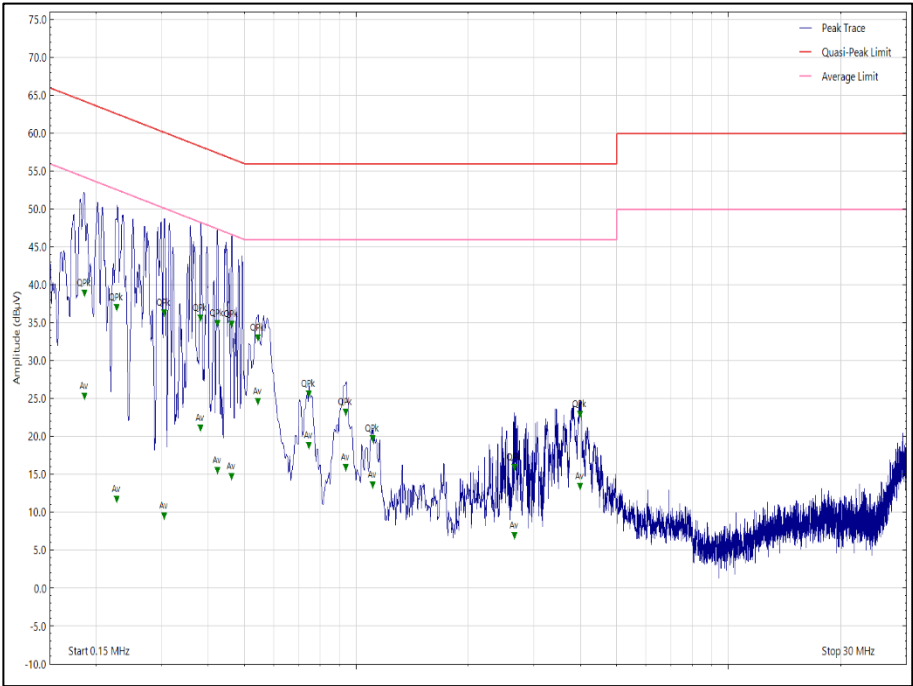


Figure 5 – AC Power Port Neutral Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.186	38.20	64.20	-26.00	Q-Peak
0.186	24.64	54.20	-29.56	CISPR Avg
0.227	36.30	62.50	-26.20	Q-Peak
0.227	11.02	52.50	-41.48	CISPR Avg
0.305	8.79	50.10	-41.31	CISPR Avg
0.305	35.57	60.10	-24.53	Q-Peak
0.381	34.88	58.20	-23.32	Q-Peak
0.381	20.43	48.20	-27.77	CISPR Avg
0.423	34.17	57.40	-23.23	Q-Peak
0.423	14.81	47.40	-32.59	CISPR Avg
0.462	14.00	46.70	-32.70	CISPR Avg
0.462	34.08	56.70	-22.62	Q-Peak
0.545	23.87	46.00	-22.13	CISPR Avg
0.545	32.32	56.00	-23.68	Q-Peak
0.746	18.14	46.00	-27.86	CISPR Avg
0.746	24.89	56.00	-31.11	Q-Peak
0.938	15.26	46.00	-30.74	CISPR Avg
0.938	22.53	56.00	-33.47	Q-Peak
1.108	12.88	46.00	-33.12	CISPR Avg
1.108	19.01	56.00	-36.99	Q-Peak
2.659	6.26	46.00	-39.74	CISPR Avg
2.659	15.26	56.00	-40.74	Q-Peak
3.990	12.77	46.00	-33.23	CISPR Avg
3.990	22.20	56.00	-33.80	Q-Peak

Table 13 – AC Power Port Neutral Line Emissions Results

AC Powered - 5 GHz WLAN

Applied supply voltage: 120 V AC

Applied supply frequency: 60 Hz

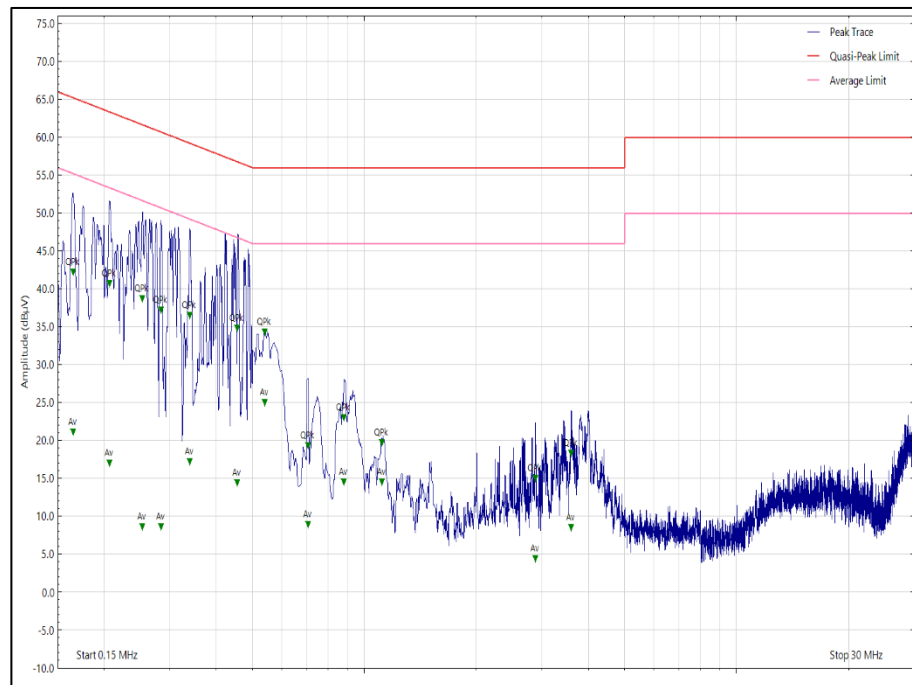


Figure 6 – AC Power Port Live Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.165	41.48	65.20	-23.72	Q-Peak
0.165	20.42	55.20	-34.78	CISPR Avg
0.207	16.33	53.30	-36.97	CISPR Avg
0.207	39.98	63.30	-23.32	Q-Peak
0.253	38.00	61.60	-23.60	Q-Peak
0.253	7.97	51.60	-43.63	CISPR Avg
0.284	36.50	60.70	-24.20	Q-Peak
0.284	7.90	50.70	-42.80	CISPR Avg
0.340	16.49	49.20	-32.71	CISPR Avg
0.340	35.77	59.20	-23.43	Q-Peak
0.456	13.77	46.80	-33.03	CISPR Avg
0.456	34.08	56.80	-22.72	Q-Peak
0.541	24.35	46.00	-21.65	CISPR Avg
0.541	33.55	56.00	-22.45	Q-Peak
0.706	8.18	46.00	-37.82	CISPR Avg
0.706	18.63	56.00	-37.37	Q-Peak
0.880	22.27	56.00	-33.73	Q-Peak
0.880	13.85	46.00	-32.15	CISPR Avg
1.113	13.78	46.00	-32.22	CISPR Avg
1.113	18.98	56.00	-37.02	Q-Peak
2.878	14.37	56.00	-41.63	Q-Peak
2.878	3.72	46.00	-42.28	CISPR Avg
3.593	7.78	46.00	-38.22	CISPR Avg
3.593	17.66	56.00	-38.34	Q-Peak

Table 14 – AC Power Port Live Line Emissions Results

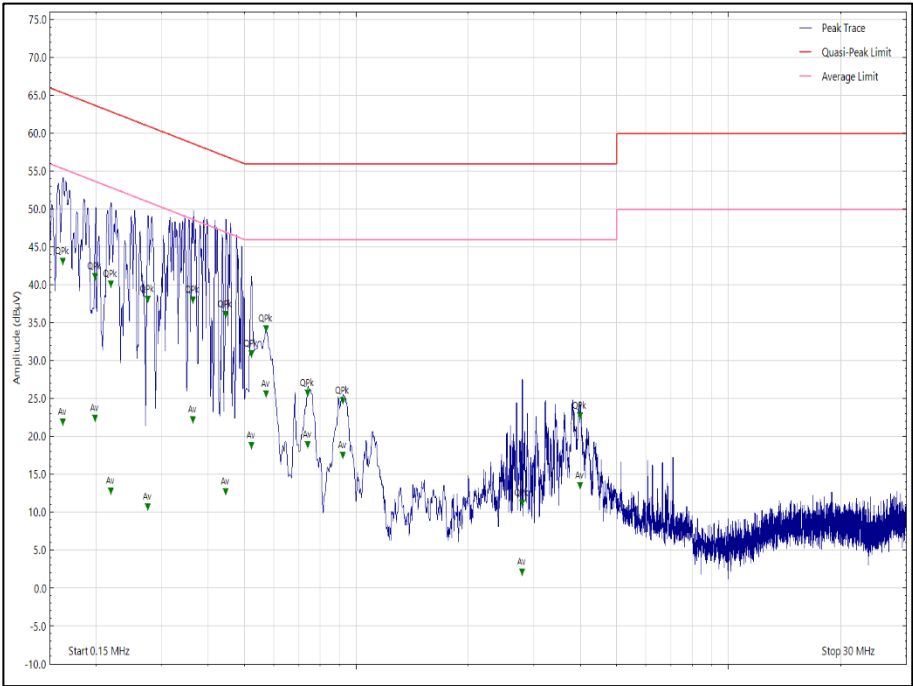


Figure 7 – AC Power Neutral Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.163	42.38	65.30	-22.92	Q-Peak
0.163	21.20	55.30	-34.10	CISPR Avg
0.199	40.42	63.60	-23.18	Q-Peak
0.199	21.73	53.60	-31.87	CISPR Avg
0.219	12.13	52.80	-40.67	CISPR Avg
0.219	39.41	62.80	-23.39	Q-Peak
0.275	10.03	51.00	-40.97	CISPR Avg
0.275	37.41	61.00	-23.59	Q-Peak
0.364	21.47	48.60	-27.13	CISPR Avg
0.364	37.27	58.60	-21.33	Q-Peak
0.445	12.06	47.00	-34.94	CISPR Avg
0.445	35.35	57.00	-21.65	Q-Peak
0.523	18.12	46.00	-27.88	CISPR Avg
0.523	30.19	56.00	-25.81	Q-Peak
0.572	33.48	56.00	-22.52	Q-Peak
0.572	24.93	46.00	-21.07	CISPR Avg
0.741	25.05	56.00	-30.95	Q-Peak
0.741	18.18	46.00	-27.82	CISPR Avg
0.921	16.81	46.00	-29.19	CISPR Avg
0.921	24.01	56.00	-31.99	Q-Peak
2.788	1.45	46.00	-44.55	CISPR Avg
2.788	10.51	56.00	-45.49	Q-Peak
3.987	22.03	56.00	-33.97	Q-Peak
3.987	12.85	46.00	-33.15	CISPR Avg

Table 15 – AC Power Port Neutral Line Emissions Results

AC Powered - 6 GHz WLAN

Applied supply voltage: 120 V AC

Applied supply frequency: 60 Hz

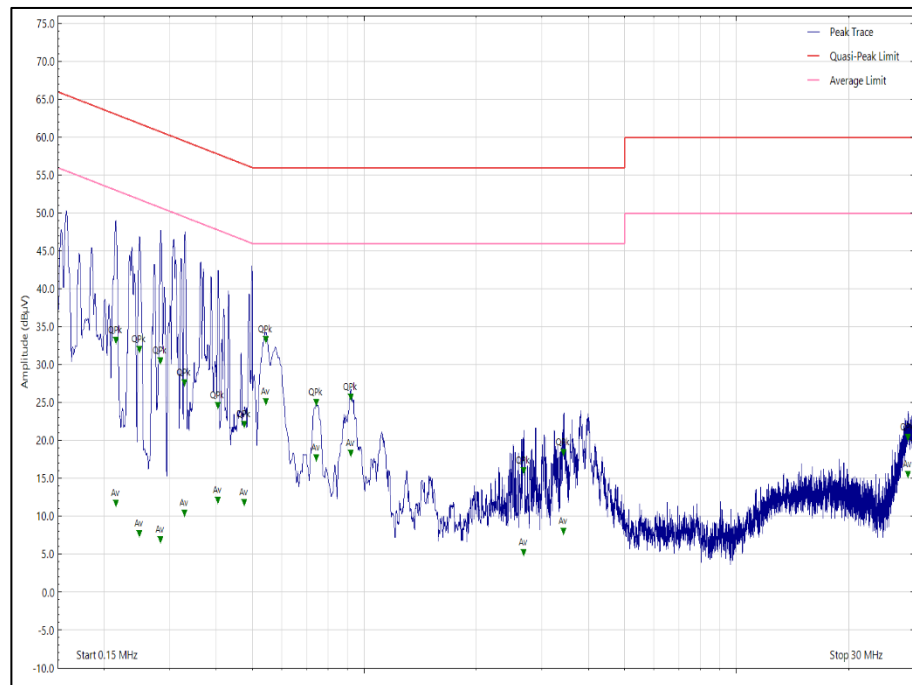


Figure 8 – AC Power Port Live Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.215	32.48	63.00	-30.52	Q-Peak
0.215	10.99	53.00	-42.01	CISPR Avg
0.249	7.05	51.80	-44.75	CISPR Avg
0.249	31.26	61.80	-30.54	Q-Peak
0.283	6.19	50.70	-44.51	CISPR Avg
0.283	29.80	60.70	-30.90	Q-Peak
0.329	9.71	49.50	-39.79	CISPR Avg
0.329	26.93	59.50	-32.57	Q-Peak
0.404	11.46	47.80	-36.34	CISPR Avg
0.404	23.87	57.80	-33.93	Q-Peak
0.476	11.12	46.40	-35.28	CISPR Avg
0.476	21.43	56.40	-34.97	Q-Peak
0.544	24.40	46.00	-21.60	CISPR Avg
0.544	32.59	56.00	-23.41	Q-Peak
0.742	17.04	46.00	-28.96	CISPR Avg
0.742	24.28	56.00	-31.72	Q-Peak
0.921	25.01	56.00	-30.99	Q-Peak
0.921	17.57	46.00	-28.43	CISPR Avg
2.681	4.51	46.00	-41.49	CISPR Avg
2.681	15.32	56.00	-40.68	Q-Peak
3.432	7.28	46.00	-38.72	CISPR Avg
3.432	17.74	56.00	-38.26	Q-Peak
28.873	19.73	60.00	-40.27	Q-Peak
28.873	14.81	50.00	-35.19	CISPR Avg

Table 16 – AC Power Port Live Line Emissions Results



Figure 9 – AC Power Port Neutral Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.184	41.07	64.30	-23.23	Q-Peak
0.184	25.05	54.30	-29.25	CISPR Avg
0.224	39.06	62.70	-23.64	Q-Peak
0.224	12.32	52.70	-40.38	CISPR Avg
0.283	37.64	60.70	-23.06	Q-Peak
0.283	9.60	50.70	-41.10	CISPR Avg
0.357	19.81	48.80	-28.99	CISPR Avg
0.357	36.47	58.80	-22.33	Q-Peak
0.409	35.78	57.70	-21.92	Q-Peak
0.409	13.59	47.70	-34.11	CISPR Avg
0.470	34.17	56.50	-22.33	Q-Peak
0.470	11.67	46.50	-34.83	CISPR Avg
0.535	23.23	46.00	-22.77	CISPR Avg
0.535	31.81	56.00	-24.19	Q-Peak
0.576	25.07	46.00	-20.93	CISPR Avg
0.576	31.98	56.00	-24.02	Q-Peak
0.746	18.21	46.00	-27.79	CISPR Avg
0.746	25.03	56.00	-30.97	Q-Peak
0.929	16.54	46.00	-29.46	CISPR Avg
0.929	23.79	56.00	-32.21	Q-Peak
3.025	16.11	56.00	-39.89	Q-Peak
3.025	5.47	46.00	-40.53	CISPR Avg
4.004	11.61	46.00	-34.39	CISPR Avg
4.004	21.22	56.00	-34.78	Q-Peak

Table 17 – AC Power Port Neutral Line Emissions Results



AC Powered - Thread

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

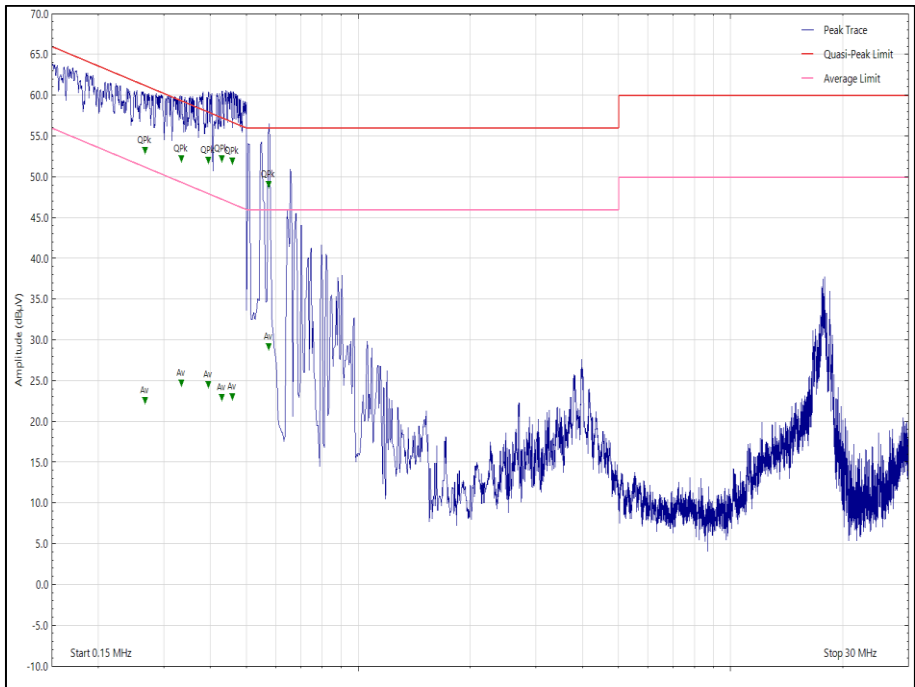


Figure 10 – AC Power Port Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.267	52.57	61.20	-8.63	Q-Peak
0.267	21.91	51.20	-29.29	CISPR Avg
0.335	51.53	59.30	-7.77	Q-Peak
0.335	24.02	49.30	-25.28	CISPR Avg
0.395	51.40	58.00	-6.60	Q-Peak
0.395	23.91	48.00	-24.09	CISPR Avg
0.430	22.33	47.30	-24.97	CISPR Avg
0.430	51.52	57.30	-5.78	Q-Peak
0.458	51.30	56.70	-5.40	Q-Peak
0.458	22.40	46.70	-24.30	CISPR Avg
0.575	48.44	56.00	-7.56	Q-Peak
0.575	28.52	46.00	-17.48	CISPR Avg

Table 18 – AC Power Port Live Line Emissions Results

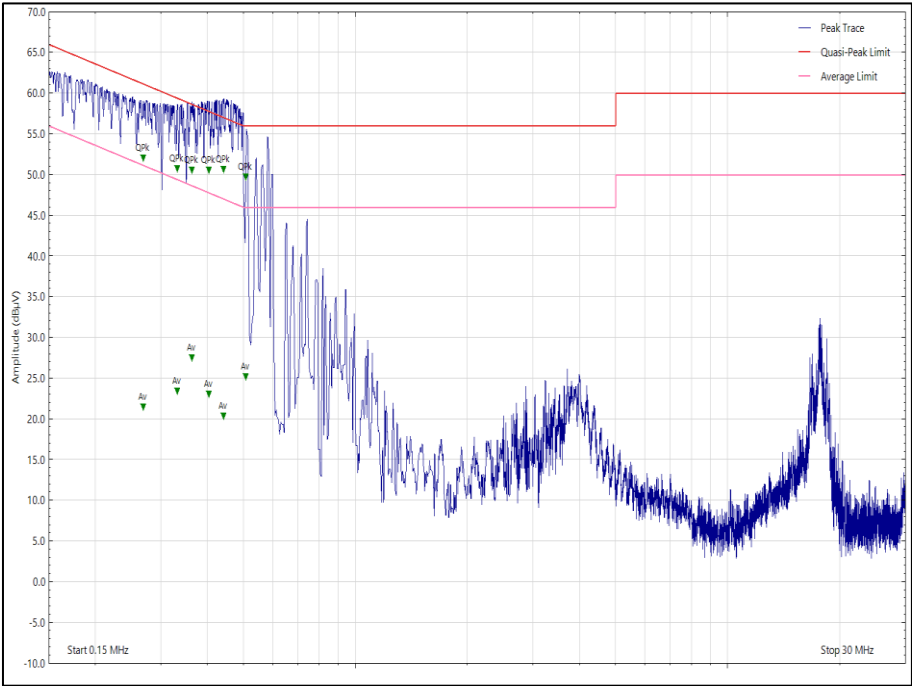


Figure 11 – AC Power Port Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.269	20.81	51.20	-30.39	CISPR Avg
0.269	51.41	61.20	-9.79	Q-Peak
0.332	22.76	49.40	-26.64	CISPR Avg
0.332	50.03	59.40	-9.37	Q-Peak
0.364	26.82	48.60	-21.78	CISPR Avg
0.364	49.92	58.60	-8.68	Q-Peak
0.404	22.36	47.80	-25.44	CISPR Avg
0.404	49.88	57.80	-7.92	Q-Peak
0.442	19.71	47.00	-27.29	CISPR Avg
0.442	50.02	57.00	-6.98	Q-Peak
0.508	24.54	46.00	-21.46	CISPR Avg
0.508	49.06	56.00	-6.94	Q-Peak

Table 19 – AC Power Port Neutral Line Emissions Results

AC Powered - Narrowband

Applied supply voltage: 120 V AC

Applied supply frequency: 60 Hz

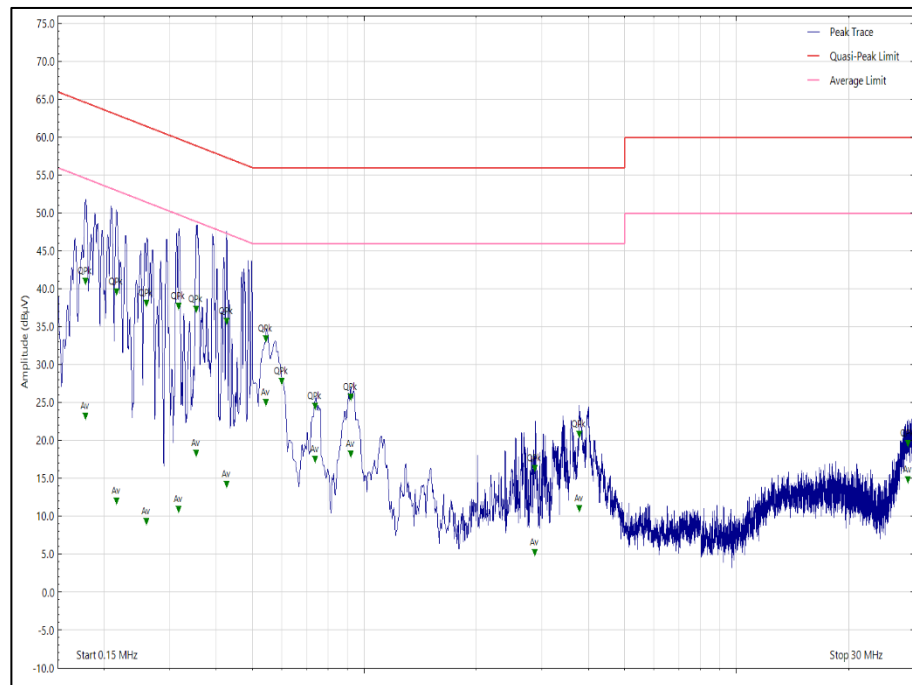


Figure 12 – AC Power Port Live Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.178	40.32	64.60	-24.28	Q-Peak
0.178	22.56	54.60	-32.04	CISPR Avg
0.216	38.94	63.00	-24.06	Q-Peak
0.216	11.36	53.00	-41.64	CISPR Avg
0.260	37.40	61.40	-24.00	Q-Peak
0.260	8.66	51.40	-42.74	CISPR Avg
0.317	36.95	59.80	-22.85	Q-Peak
0.317	10.26	49.80	-39.54	CISPR Avg
0.354	36.56	58.90	-22.34	Q-Peak
0.354	17.66	48.90	-31.24	CISPR Avg
0.426	13.53	47.30	-33.77	CISPR Avg
0.426	35.01	57.30	-22.29	Q-Peak
0.544	24.30	46.00	-21.70	CISPR Avg
0.544	32.67	56.00	-23.33	Q-Peak
0.601	27.06	56.00	-28.94	Q-Peak
0.737	16.83	46.00	-29.17	CISPR Avg
0.737	23.83	56.00	-32.17	Q-Peak
0.920	25.03	56.00	-30.97	Q-Peak
0.920	17.52	46.00	-28.48	CISPR Avg
2.873	4.54	46.00	-41.46	CISPR Avg
2.873	15.59	56.00	-40.41	Q-Peak
3.776	20.14	56.00	-35.86	Q-Peak
3.776	10.36	46.00	-35.64	CISPR Avg
28.887	18.95	60.00	-41.05	Q-Peak
28.887	14.09	50.00	-35.91	CISPR Avg

Table 20 – AC Power Port Live Line Emissions Results

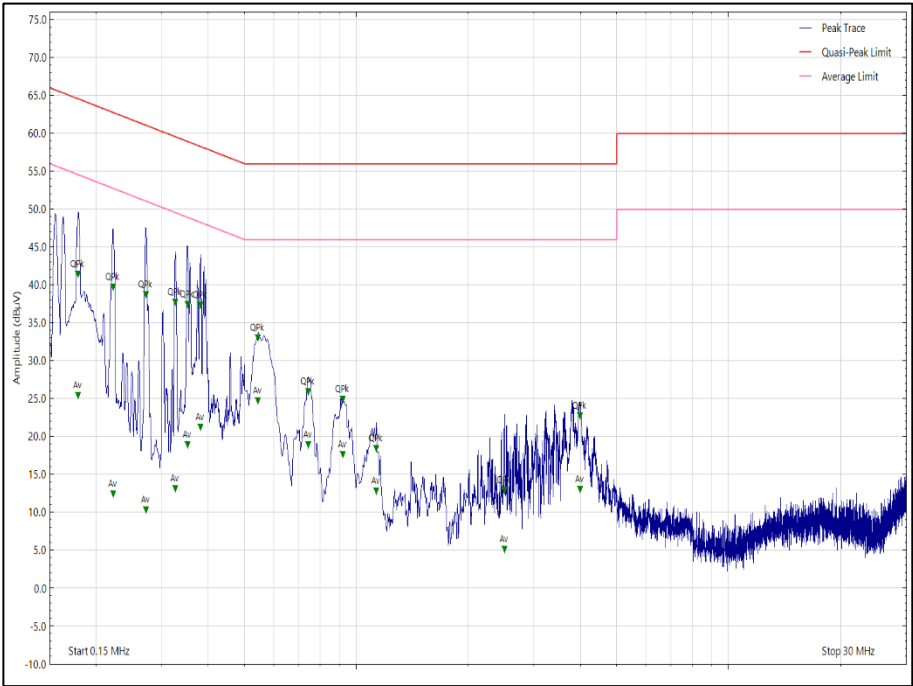


Figure 13 – AC Power Port Neutral Line - 150 kHz to 30 MHz



Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.179	24.67	54.60	-29.93	CISPR Avg
0.179	40.74	64.60	-23.86	Q-Peak
0.222	11.74	52.80	-41.06	CISPR Avg
0.222	39.01	62.80	-23.79	Q-Peak
0.272	9.62	51.10	-41.48	CISPR Avg
0.272	37.96	61.10	-23.14	Q-Peak
0.326	12.44	49.60	-37.16	CISPR Avg
0.326	37.01	59.60	-22.59	Q-Peak
0.352	18.19	48.90	-30.71	CISPR Avg
0.352	36.74	58.90	-22.16	Q-Peak
0.381	20.49	48.30	-27.81	CISPR Avg
0.381	36.62	58.30	-21.68	Q-Peak
0.545	24.03	46.00	-21.97	CISPR Avg
0.545	32.33	56.00	-23.67	Q-Peak
0.742	18.26	46.00	-27.74	CISPR Avg
0.742	25.22	56.00	-30.78	Q-Peak
0.920	16.92	46.00	-29.08	CISPR Avg
0.920	24.20	56.00	-31.80	Q-Peak
1.131	12.13	46.00	-33.87	CISPR Avg
1.131	17.70	56.00	-38.30	Q-Peak
2.498	4.41	46.00	-41.59	CISPR Avg
2.498	12.26	56.00	-43.74	Q-Peak
3.991	12.33	46.00	-33.67	CISPR Avg
3.991	22.02	56.00	-33.98	Q-Peak

Table 21 – AC Power Port 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
Transient Limiter	Hewlett Packard	11947A	1032	12	02-Jan-2025
LISN (CISPR 16, Single Phase)	Rohde & Schwarz	ESH3-Z5	1390	12	01-Feb-2025
Test Receiver	Rohde & Schwarz	ESU40	3506	12	17-Apr-2025
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB 40	5478	12	13-May-2025
3m Semi-Anechoic Chamber	MVG	EMC Chamber 12	5621	36	07-Aug-2026
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

Table 22

TU - Traceability Unscheduled



3 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 23

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.