FCC and ISED Test Report

Apple Inc
Model: A3114

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

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

FCC ID: BCGA3114 IC: 579C-A3114

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Document 75959606-07 Issue 01

SIGNATURE			
AJ Lawson.			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Andrew Lawson	Chief Engineer, EMC	Authorised Signatory	01 December 2023

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	Muhammad Enam	01 December 2023	
Testing	Jonas Ayipah	01 December 2023	
Testing	Nathan Harrison	01 December 2023	

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 15C, ISED RSS-247 and ISED RSS-GEN: 2021, Issue 2 (02-2017) and Issue 5 (04-2018) + A2 (02-2021) 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	01 December 2023

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A3114
Serial Number(s)	C4Y1W4D755 and JFMG464XQG
Hardware Version(s)	REV 1.0
Software Version(s)	23C22a and 23A32771a - Thread
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 15C: 2021 ISED RSS-247: Issue 2 (02-2017) ISED RSS-GEN: Issue 5 (04-2018) + A2 (02-2021)
Start of Test	25-October-2023
Finish of Test	23-November-2023
Name of Engineer(s)	Muhammad Enam, Jonas Ayipah and Nathan Harrison
Related Document(s)	ANSI C63.10 (2020) ANSI C63.10 (2013)

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C, 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) ANSI C63.10 (2013)
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) ANSI C63.10 (2013)
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) ANSI C63.10 (2013)
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) ANSI C63.10 (2013)
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) ANSI C63.10 (2013)
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) ANSI C63.10 (2013)

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
USB Port 1	2 m	Data	USB Type-C	No
USB Port 2	Unterminated	Data	USB Type-C	No
Audio Jack Port	0.5 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 115 V 60 Hz AC supply via an AC to DC adapter, model: A2743. A set of headphones was used to terminate the EUT's 3.5 mm audio jack port. A USB-C to USB-A adapter and optical mouse were used to terminate the USB Port 1. USB Port 2 was unterminated.

Table 4

1.4.4 Modes of Operation

Mode	Description
2.4 GHz Bluetooth	The EUT was connected to a R&S CMW 500 test set. The EUT was configured to display video on the EUT screen whilst playing audio through the headphones. The display was set to maximum brightness and sleep mode was disabled.
2.4 GHz WLAN	The EUT was continuously pinging to the IP Address of a Wi-Fi router. The EUT was configured to display video on the EUT screen whilst playing audio through the headphones. The display was set to maximum brightness and sleep mode was disabled.
5 GHz WLAN	The EUT was continuously pinging to the IP Address of a Wi-Fi router. The EUT was configured to display video on the EUT screen whilst playing audio through the headphones. The display was set to maximum brightness and sleep mode was disabled.
6 GHz WLAN	The EUT was continuously pinging to the IP Address of a Wi-Fi router. The EUT was configured to display video on the EUT screen whilst playing audio through the headphones. The display was set to maximum brightness and sleep mode was disabled.
Thread	The EUT was placed in a link with another customer provided sample. The EUT was configured to display video on the EUT screen. As the EUT was in a diagnostic state for this mode of operation, audio output was unable to be exercised. The display was set to maximum brightness and sleep mode was disabled.
Narrowband	The EUT was placed in a link with another customer provided sample. The EUT was configured to display video on the EUT screen whilst playing audio through the headphones. The display was set to maximum brightness and sleep mode was disabled.

Table 5

1.5 Deviations from the Standard

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

1.6 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: A3114, Serial Number: C4Y1W4D755			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3114, Serial Number: JFMG464XQG			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 6

1.7 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	Muhammad Enam	UKAS
Configuration and Mode: AC Powered - 2.4 GHz WLAN		
AC Power Line Conducted Emissions	Jonas Ayipah	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	Muhammad Enam	UKAS
Configuration and Mode: AC Powered - Narrowband		
AC Power Line Conducted Emissions	Muhammad Enam	UKAS

Table 7

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, Clause 15.207
ISED RSS-247, Clause 3.1
ISED RSS-GEN, Clause 8.8

2.1.2 Equipment Under Test and Modification State

A3114, S/N: C4Y1W4D755 - Modification State 0
A3114, S/N: JFMG464XQG - Modification State 0

2.1.3 Date of Test

25-October-2023 to 23-November-2023

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 a Line Impedance Stabilisation Network (LISN).

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

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

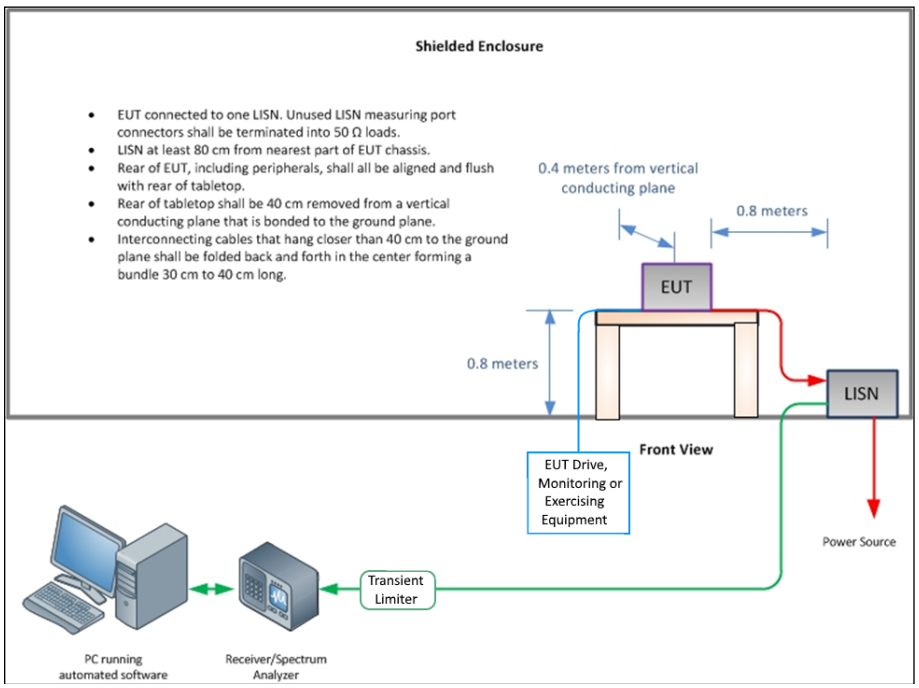

Figure 1 - Conducted Emissions

FCC 47 CFR Part 15, Limit Clause 15.207 and ISED RSS-GEN, Limit Clause 8.8

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 8

*Decreases with the logarithm of the frequency.

2.1.7 Environmental Conditions

Ambient Temperature	20.3 - 22.7 °C
Relative Humidity	46.3 - 59.8 %
Atmospheric Pressure	992.1 - 997.5 mbar

2.1.8 Test Results

Results for Configuration and Mode: AC Powered - 2.4 GHz Bluetooth

Applied supply voltage: 115 V AC
Applied supply frequency: 60 Hz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.155	53.90	65.70	-11.80	Q-Peak
0.155	22.78	55.70	-32.92	CISPR Avg
0.169	51.26	65.00	-13.74	Q-Peak
0.169	21.67	55.00	-33.33	CISPR Avg
0.186	31.49	54.20	-22.71	CISPR Avg
0.186	49.60	64.20	-14.60	Q-Peak
0.202	28.39	53.50	-25.11	CISPR Avg
0.202	47.77	63.50	-15.73	Q-Peak
0.221	16.04	52.80	-36.76	CISPR Avg
0.221	45.83	62.80	-16.97	Q-Peak
0.250	43.05	61.80	-18.75	Q-Peak
0.250	13.77	51.80	-38.03	CISPR Avg
0.277	15.65	50.90	-35.25	CISPR Avg
0.277	41.13	60.90	-19.77	Q-Peak
0.318	11.35	49.80	-38.45	CISPR Avg
0.318	38.58	59.80	-21.22	Q-Peak
0.372	35.71	58.50	-22.79	Q-Peak
0.372	12.19	48.50	-36.31	CISPR Avg
0.453	6.83	46.80	-39.97	CISPR Avg
0.453	32.35	56.80	-24.45	Q-Peak
0.527	5.54	46.00	-40.46	CISPR Avg
0.527	29.95	56.00	-26.05	Q-Peak

Table 9 - Live Line Emissions Results

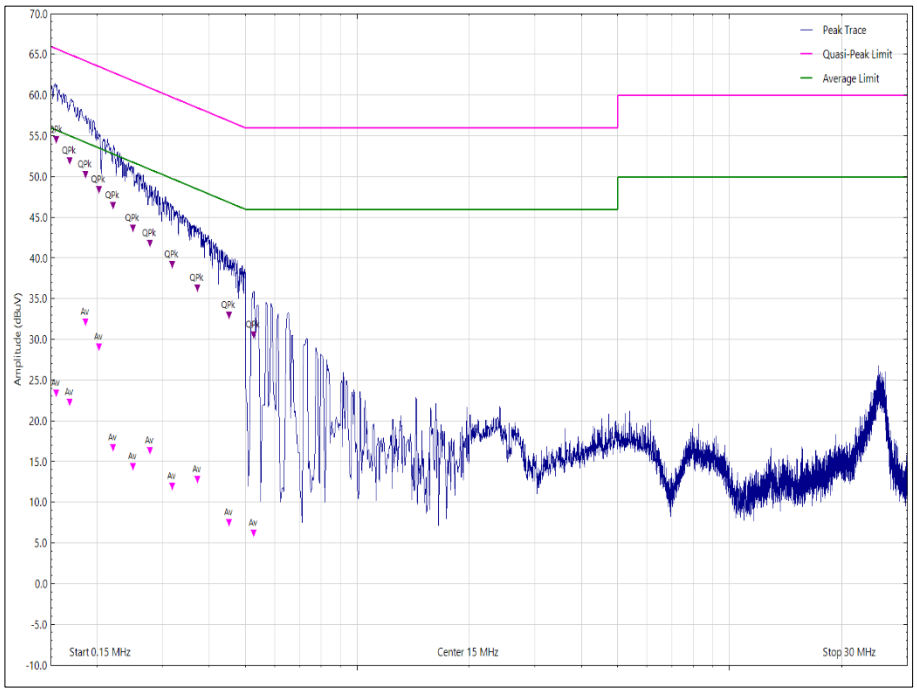

Figure 2 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	20.76	55.90	-35.14	CISPR Avg
0.152	51.07	65.90	-14.83	Q-Peak
0.158	19.78	55.60	-35.82	CISPR Avg
0.158	49.61	65.60	-15.99	Q-Peak
0.169	18.84	55.00	-36.16	CISPR Avg
0.169	47.41	65.00	-17.59	Q-Peak
0.181	24.30	54.40	-30.10	CISPR Avg
0.181	45.53	64.40	-18.87	Q-Peak
0.193	33.67	53.90	-20.23	CISPR Avg
0.193	47.06	63.90	-16.84	Q-Peak
0.228	39.49	62.50	-23.01	Q-Peak
0.228	11.35	52.50	-41.15	CISPR Avg
0.257	9.40	51.50	-42.10	CISPR Avg
0.257	36.37	61.50	-25.13	Q-Peak
0.285	22.25	50.70	-28.45	CISPR Avg
0.285	34.30	60.70	-26.40	Q-Peak
0.340	30.01	59.20	-29.19	Q-Peak
0.340	6.04	49.20	-43.16	CISPR Avg
0.413	4.48	47.60	-43.12	CISPR Avg
0.413	25.85	57.60	-31.75	Q-Peak

Table 10 - Neutral Line Emissions Results

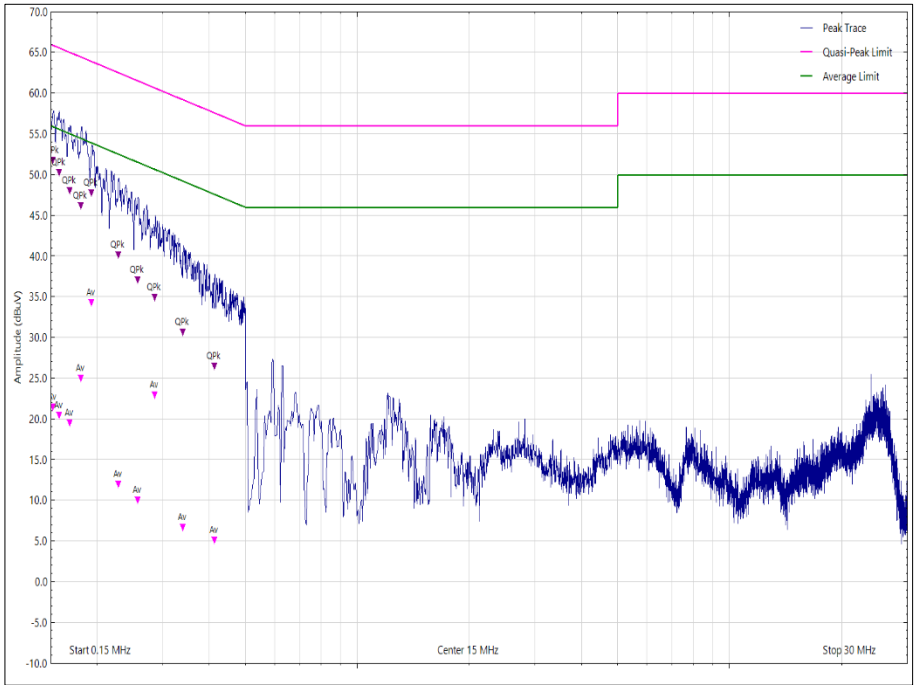

Figure 3 - Neutral Line - 150 kHz to 30 MHz

Results for Configuration and Mode: AC Powered - 2.4 GHz WLAN

Applied supply voltage: 115 V AC
Applied supply frequency: 60 Hz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.154	55.17	65.80	-10.63	Q-Peak
0.154	24.39	55.80	-31.41	CISPR Avg
0.168	52.78	65.00	-12.22	Q-Peak
0.168	23.03	55.00	-31.97	CISPR Avg
0.176	51.40	64.70	-13.30	Q-Peak
0.176	21.47	54.70	-33.23	CISPR Avg
0.195	49.01	63.80	-14.79	Q-Peak
0.195	34.51	53.80	-19.29	CISPR Avg
0.207	47.11	63.30	-16.19	Q-Peak
0.207	20.46	53.30	-32.84	CISPR Avg
0.218	16.05	52.90	-36.85	CISPR Avg
0.218	45.74	62.90	-17.16	Q-Peak

Table 11 - Live Line Emissions Results

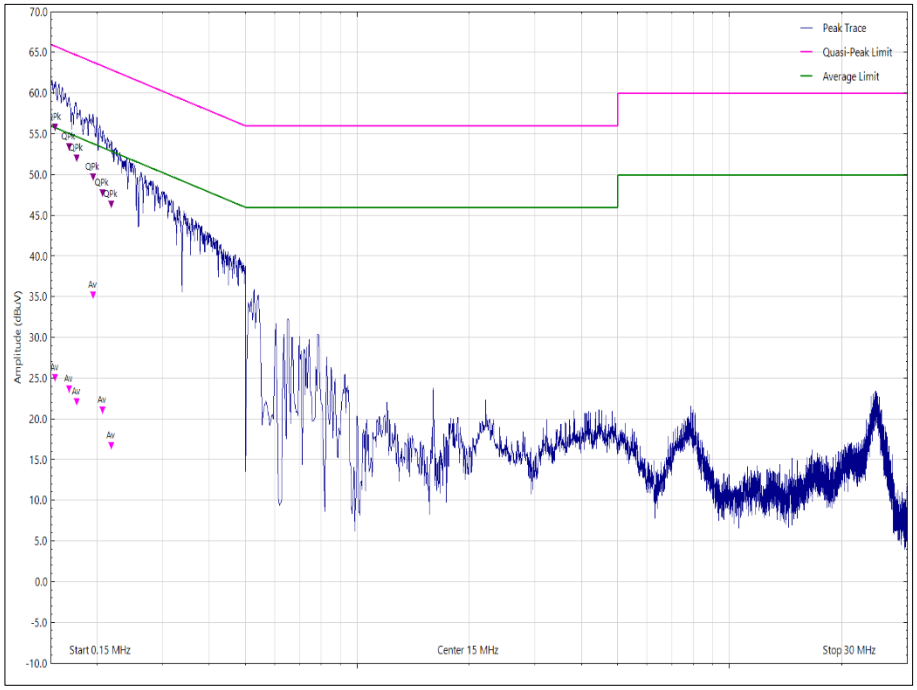

Figure 4 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.156	52.42	65.70	-13.28	Q-Peak
0.156	21.70	55.70	-34.00	CISPR Avg
0.168	20.73	55.10	-34.37	CISPR Avg
0.168	49.91	65.10	-15.19	Q-Peak
0.186	30.75	54.20	-23.45	CISPR Avg
0.186	48.41	64.20	-15.79	Q-Peak
0.205	21.48	53.40	-31.92	CISPR Avg
0.205	45.27	63.40	-18.13	Q-Peak
0.218	14.58	52.90	-38.32	CISPR Avg
0.218	43.47	62.90	-19.43	Q-Peak
0.229	42.38	62.50	-20.12	Q-Peak
0.229	13.49	52.50	-39.01	CISPR Avg

Table 12 - Neutral Line Emissions Results

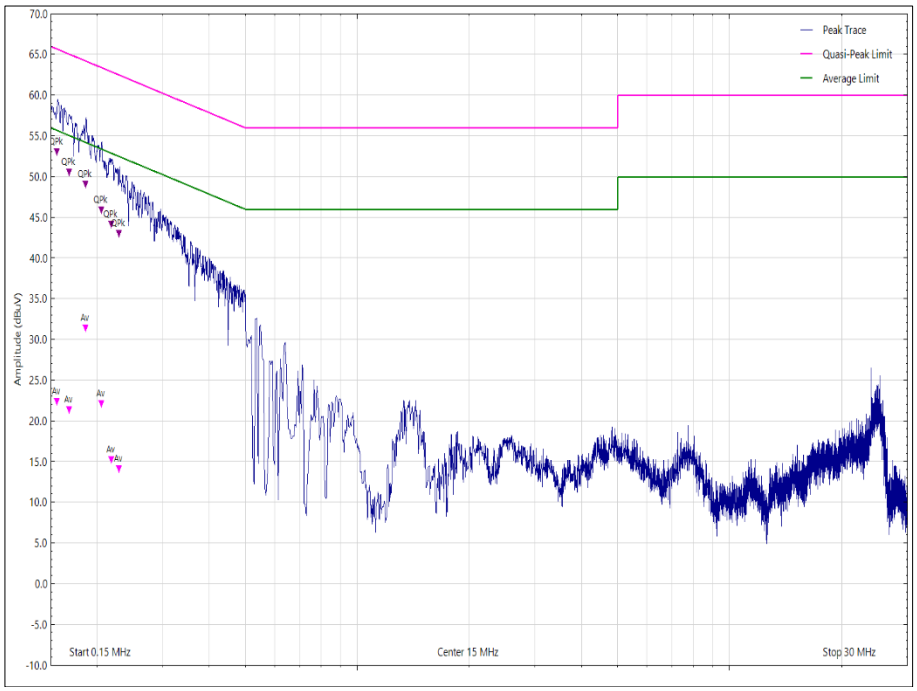

Figure 5 - Neutral Line - 150 kHz to 30 MHz

Results for Configuration and Mode: AC Powered - 5 GHz WLAN

Applied supply voltage: 115 V AC
Applied supply frequency: 60 Hz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.154	56.42	65.80	-9.38	Q-Peak
0.154	25.59	55.80	-30.21	CISPR Avg
0.185	29.49	54.30	-24.81	CISPR Avg
0.185	52.73	64.30	-11.57	Q-Peak
0.213	19.22	53.10	-33.88	CISPR Avg
0.213	49.56	63.10	-13.54	Q-Peak
0.240	47.07	62.10	-15.03	Q-Peak
0.240	16.99	52.10	-35.11	CISPR Avg
0.274	15.87	51.00	-35.13	CISPR Avg
0.274	44.63	61.00	-16.37	Q-Peak
0.320	41.71	59.70	-17.99	Q-Peak
0.320	13.40	49.70	-36.30	CISPR Avg

Table 13 - Live Line Emissions Results

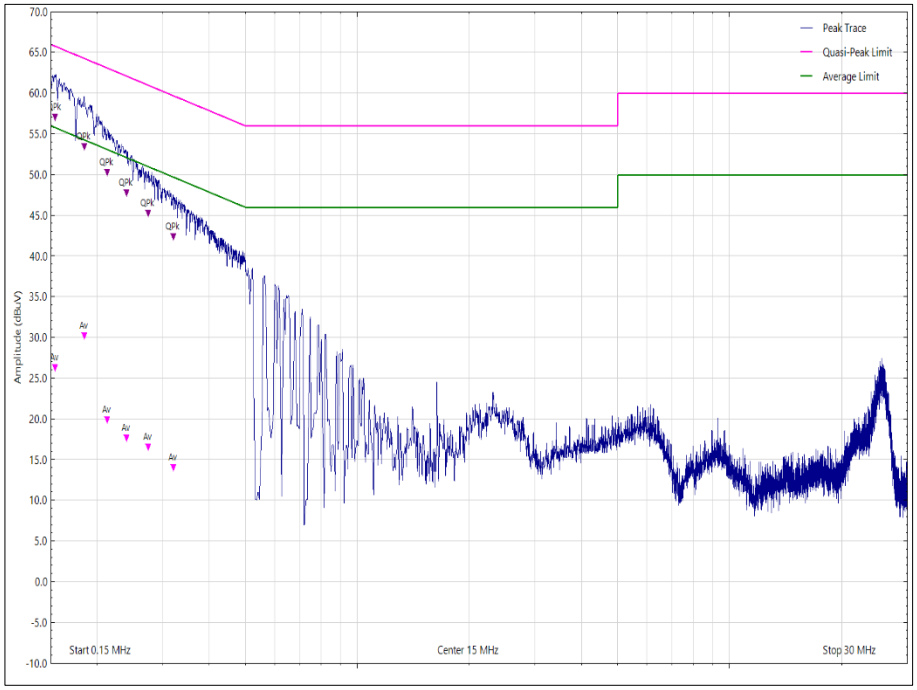

Figure 6 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.151	26.15	55.90	-29.75	CISPR Avg
0.151	57.12	65.90	-8.78	Q-Peak
0.164	25.13	55.20	-30.07	CISPR Avg
0.164	55.15	65.20	-10.05	Q-Peak
0.181	52.91	64.40	-11.49	Q-Peak
0.181	26.42	54.40	-27.98	CISPR Avg
0.202	28.24	53.50	-25.26	CISPR Avg
0.202	50.46	63.50	-13.04	Q-Peak
0.232	47.35	62.40	-15.05	Q-Peak
0.232	17.20	52.40	-35.20	CISPR Avg
0.267	14.81	51.20	-36.39	CISPR Avg
0.267	44.39	61.20	-16.81	Q-Peak

Table 14 - Neutral Line Emissions Results

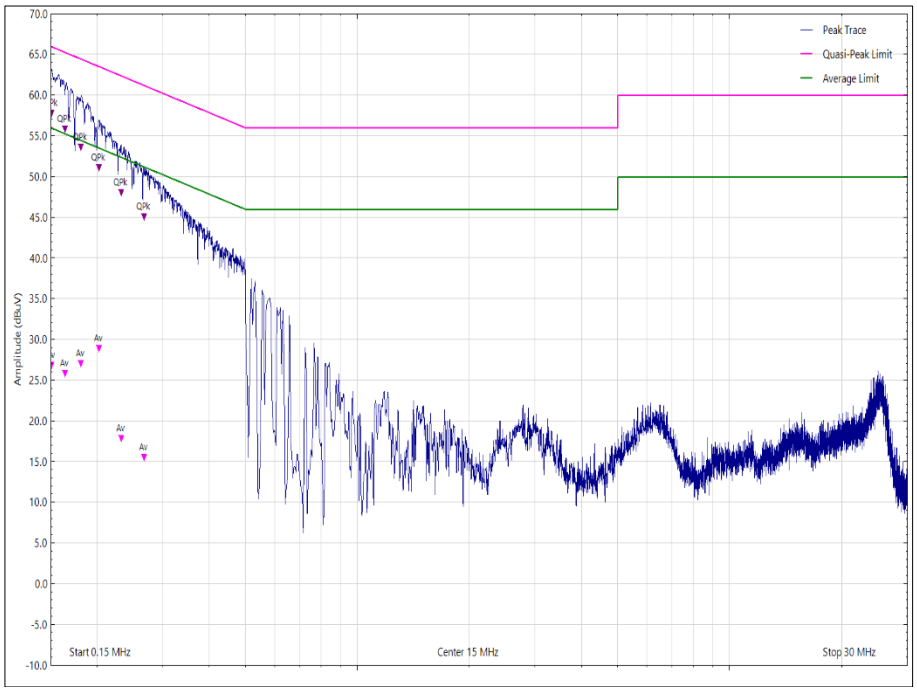

Figure 7 - Neutral Line - 150 kHz to 30 MHz

Results for Configuration and Mode: AC Powered - 6 GHz WLAN

Applied supply voltage: 115 V AC
Applied supply frequency: 60 Hz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	55.86	65.90	-10.04	Q-Peak
0.152	25.37	55.90	-30.53	CISPR Avg
0.171	53.41	64.90	-11.49	Q-Peak
0.171	23.82	54.90	-31.08	CISPR Avg
0.198	50.48	63.70	-13.22	Q-Peak
0.198	32.79	53.70	-20.91	CISPR Avg
0.229	47.13	62.50	-15.37	Q-Peak
0.229	17.23	52.50	-35.27	CISPR Avg
0.253	45.07	61.60	-16.53	Q-Peak
0.253	15.46	51.60	-36.14	CISPR Avg
0.278	17.46	50.90	-33.44	CISPR Avg
0.278	43.36	60.90	-17.54	Q-Peak

Table 15 - Live Line Emissions Results

Figure 8 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.151	56.52	66.00	-9.48	Q-Peak
0.151	26.04	56.00	-29.96	CISPR Avg
0.173	23.93	54.80	-30.87	CISPR Avg
0.173	53.09	64.80	-11.71	Q-Peak
0.205	24.49	53.40	-28.91	CISPR Avg
0.205	49.09	63.40	-14.31	Q-Peak
0.235	16.12	52.30	-36.18	CISPR Avg
0.235	45.77	62.30	-16.53	Q-Peak
0.277	17.92	50.90	-32.98	CISPR Avg
0.277	42.08	60.90	-18.82	Q-Peak
0.336	37.98	59.30	-21.32	Q-Peak
0.336	10.96	49.30	-38.34	CISPR Avg

Table 16 - Neutral Line Emissions Results

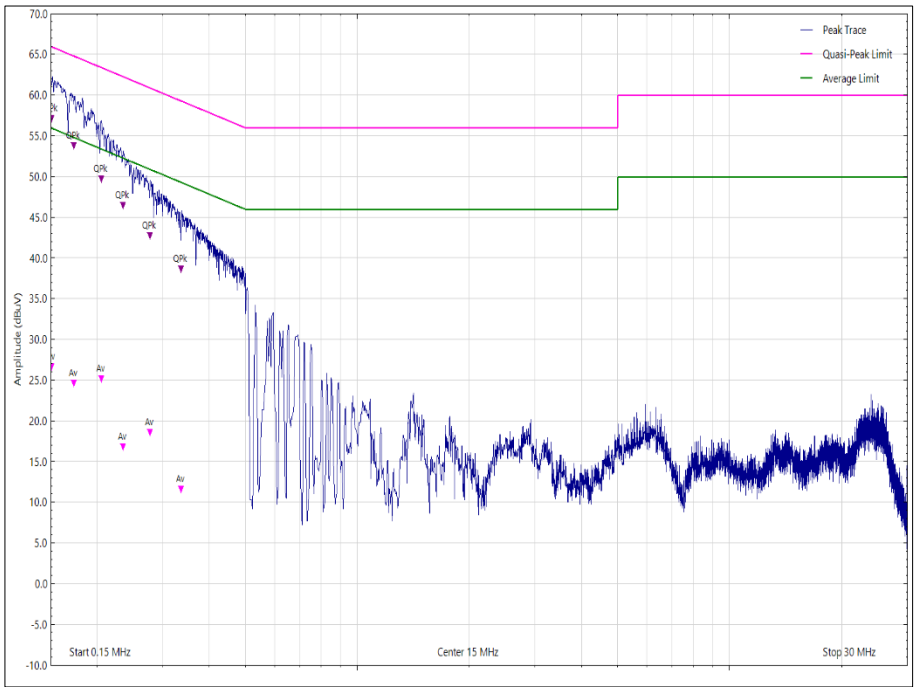

Figure 9 - Neutral Line - 150 kHz to 30 MHz

Results for Configuration and Mode: AC Powered - Thread

Applied supply voltage: 115 V AC
Applied supply frequency: 60 Hz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.156	42.46	65.70	-23.24	Q-Peak
0.156	15.12	55.70	-40.58	CISPR Avg
0.168	15.54	55.10	-39.56	CISPR Avg
0.168	41.11	65.10	-23.99	Q-Peak
0.179	25.85	54.50	-28.65	CISPR Avg
0.179	40.63	64.50	-23.87	Q-Peak
0.191	39.16	64.00	-24.84	Q-Peak
0.191	24.93	54.00	-29.07	CISPR Avg
0.214	12.02	53.00	-40.98	CISPR Avg
0.214	35.27	63.00	-27.73	Q-Peak

Table 17 - Neutral Line Emissions Results

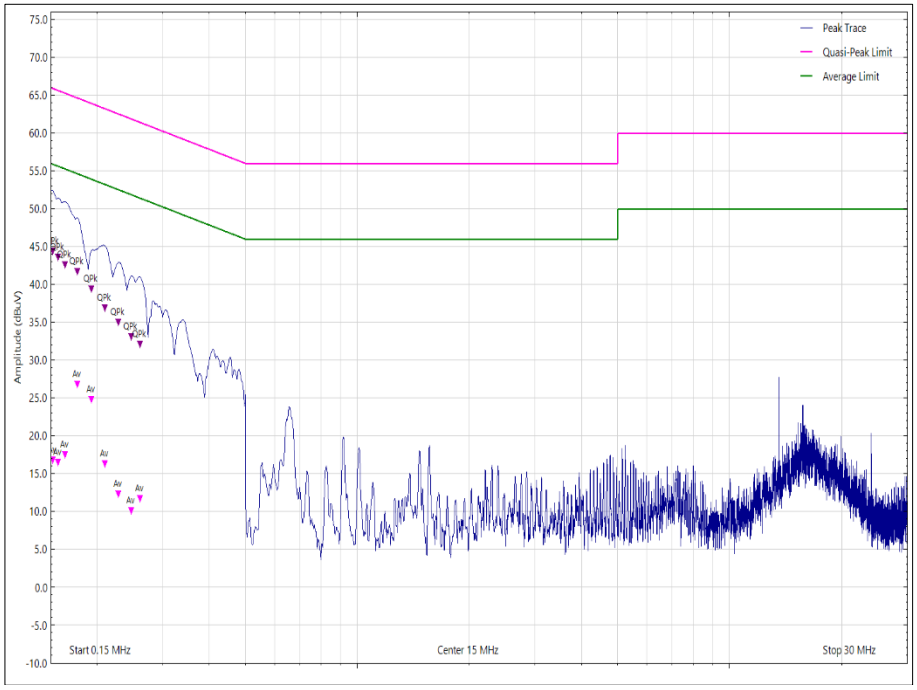

Figure 10 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	16.15	55.90	-39.75	CISPR Avg
0.152	43.67	65.90	-22.23	Q-Peak
0.157	42.91	65.60	-22.69	Q-Peak
0.157	15.84	55.60	-39.76	CISPR Avg
0.164	16.83	55.30	-38.47	CISPR Avg
0.164	41.91	65.30	-23.39	Q-Peak
0.177	41.04	64.60	-23.56	Q-Peak
0.177	26.13	54.60	-28.47	CISPR Avg
0.193	38.66	63.90	-25.24	Q-Peak
0.193	24.15	53.90	-29.75	CISPR Avg
0.210	36.21	63.20	-26.99	Q-Peak
0.210	15.58	53.20	-37.62	CISPR Avg
0.228	34.27	62.50	-28.23	Q-Peak
0.228	11.63	52.50	-40.87	CISPR Avg
0.247	32.44	61.80	-29.36	Q-Peak
0.247	9.40	51.80	-42.40	CISPR Avg
0.261	31.39	61.40	-30.01	Q-Peak
0.261	11.01	51.40	-40.39	CISPR Avg

Table 18 - Live Line Emissions Results

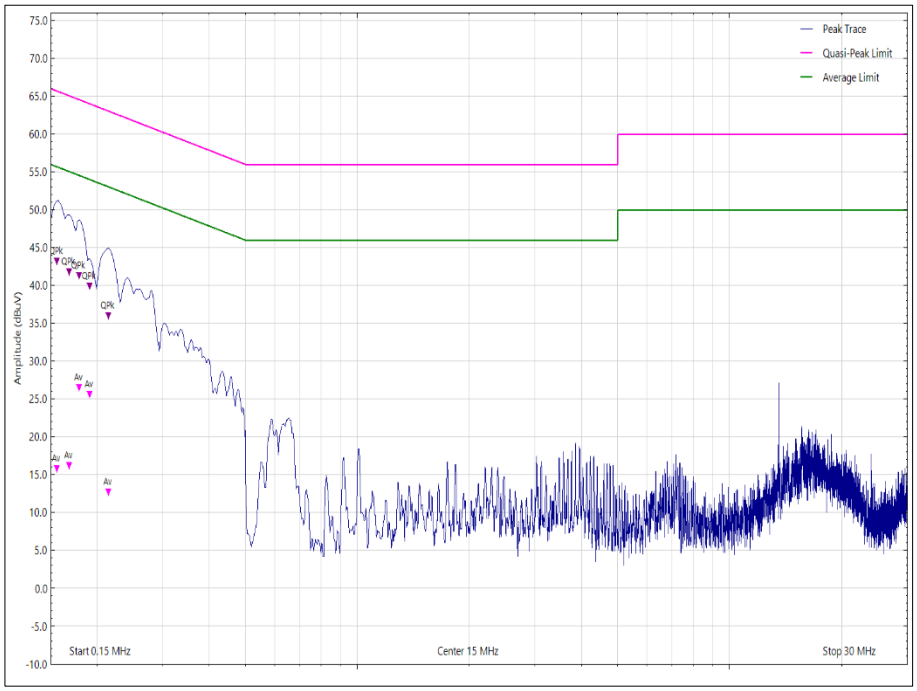

Figure 11 - Live Line - 150 kHz to 30 MHz

Results for Configuration and Mode: AC Powered - Narrowband

Applied supply voltage: 115 V AC
Applied supply frequency: 60 Hz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	57.08	65.90	-8.82	Q-Peak
0.152	26.24	55.90	-29.66	CISPR Avg
0.168	54.95	65.10	-10.15	Q-Peak
0.168	24.87	55.10	-30.23	CISPR Avg
0.185	52.92	64.30	-11.38	Q-Peak
0.185	30.39	54.30	-23.91	CISPR Avg
0.219	49.08	62.90	-13.82	Q-Peak
0.219	18.83	52.90	-34.07	CISPR Avg
0.244	46.78	62.00	-15.22	Q-Peak
0.244	16.71	52.00	-35.29	CISPR Avg
0.299	18.19	50.30	-32.11	CISPR Avg
0.299	42.83	60.30	-17.47	Q-Peak
0.388	15.78	48.10	-32.32	CISPR Avg
0.388	38.22	58.10	-19.88	Q-Peak
0.487	13.76	46.20	-32.44	CISPR Avg
0.487	34.37	56.20	-21.83	Q-Peak
0.513	7.07	46.00	-38.93	CISPR Avg
0.513	33.20	56.00	-22.80	Q-Peak
0.554	8.54	46.00	-37.46	CISPR Avg
0.554	31.83	56.00	-24.17	Q-Peak
0.584	31.09	56.00	-24.91	Q-Peak
0.584	12.18	46.00	-33.82	CISPR Avg
0.616	5.18	46.00	-40.82	CISPR Avg
0.616	29.94	56.00	-26.06	Q-Peak
0.652	10.35	46.00	-35.65	CISPR Avg
0.652	28.53	56.00	-27.47	Q-Peak

Table 19 - Live Line Emissions Results

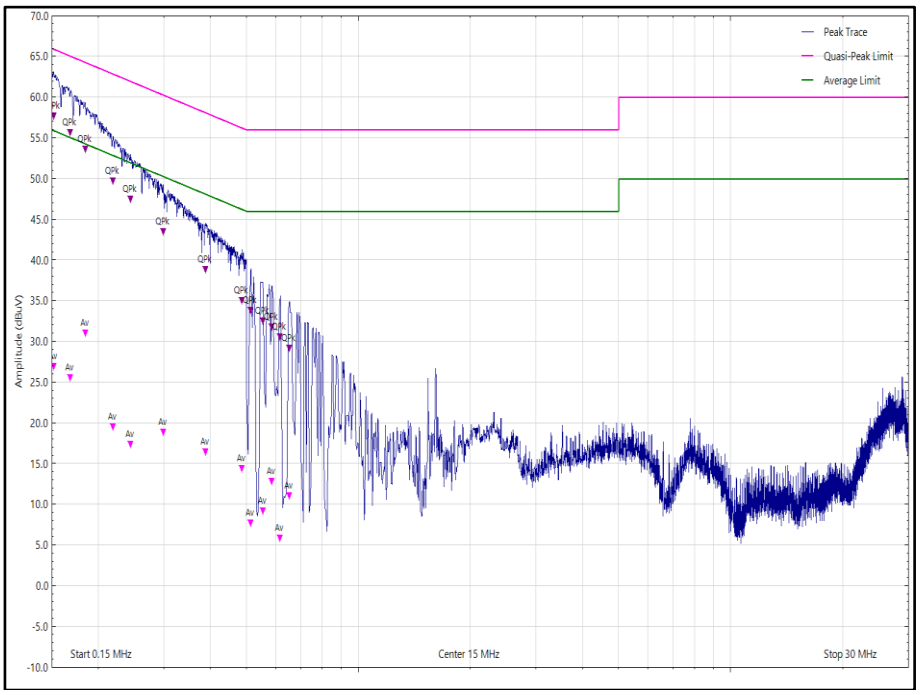

Figure 12 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.156	24.74	55.70	-30.96	CISPR Avg
0.156	55.31	65.70	-10.39	Q-Peak
0.175	52.60	64.70	-12.10	Q-Peak
0.175	22.74	54.70	-31.96	CISPR Avg
0.188	51.12	64.10	-12.98	Q-Peak
0.188	33.42	54.10	-20.68	CISPR Avg
0.198	49.81	63.70	-13.89	Q-Peak
0.198	32.65	53.70	-21.05	CISPR Avg
0.223	46.84	62.70	-15.86	Q-Peak
0.223	16.94	52.70	-35.76	CISPR Avg
0.270	13.91	51.10	-37.19	CISPR Avg
0.270	42.91	61.10	-18.19	Q-Peak
0.307	39.94	60.00	-20.06	Q-Peak
0.307	12.82	50.00	-37.18	CISPR Avg
0.393	34.95	58.00	-23.05	Q-Peak
0.393	11.85	48.00	-36.15	CISPR Avg
0.478	8.47	46.40	-37.93	CISPR Avg
0.478	31.35	56.40	-25.05	Q-Peak
0.527	5.10	46.00	-40.90	CISPR Avg
0.527	29.45	56.00	-26.55	Q-Peak
0.571	27.70	56.00	-28.30	Q-Peak
0.571	9.38	46.00	-36.62	CISPR Avg
0.607	5.59	46.00	-40.41	CISPR Avg
0.607	26.58	56.00	-29.42	Q-Peak

Table 20 - Neutral Line Emissions Results

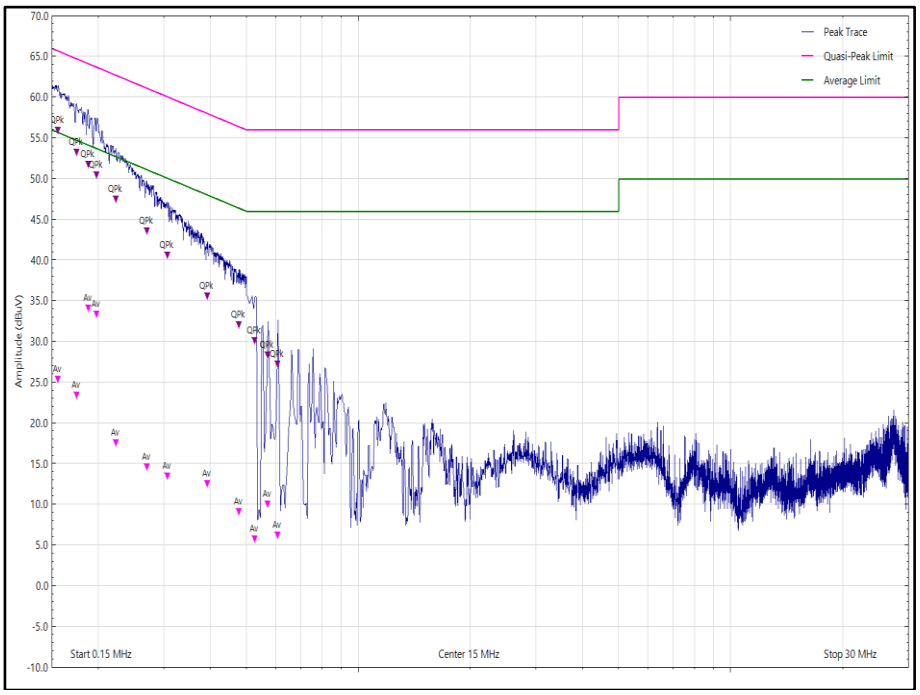

Figure 13 - Neutral Line - 150 kHz to 30 MHz

2.1.9 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 12 and EMC Chamber 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Screened Room 12	MVG	EMC-3	5621	36	07-Aug-2026
Screened Room (1)	Rainford	Rainford	1541	12	24-Aug-2024
Emissions Software	TUV SUD	EmX V3.1.12	5125	-	Software
Test Receiver	Rohde & Schwarz	ESU40	3506	12	30-Mar-2024
EMC Test Receiver	Rohde & Schwarz	ESW44	6334	12	31-Jan-2024
Transient Limiter	Hewlett Packard	11947A	2377	12	02-Mar-2024
Termination (50ohm)	Meca	405-1	550	12	24-Nov-2023
Cable (N-Type to N-Type, 2 m)	Junkosha	MWX221-02000AMSAMS/B	5729	6	05-Dec-2023
Cable (N-Type to N-Type, 8 m)	Junkosha	MWX221-08000NMSNMS/B	6321	12	04-Feb-2024
LISN (CISPR 16, Single Phase)	Rohde & Schwarz	ESH3-Z5	1390	12	02-Feb-2024

Table 21

3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5478	12	21-Apr-2024

Table 22

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 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.