

FCC and ISED Test Report

Apple Inc
Model: A3448



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

Prepared for: Apple Inc
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Document 75964010-36 Issue 02

SIGNATURE

A. Lawson

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Andrew Lawson	Chief Engineer (EMC)	Authorised Signatory	21 January 2026

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	Sreemon Jayachandran Nair	21 January 2026	<i>[Signature]</i>
	Adam Holloway	21 January 2026	<i>[Signature]</i>
	Connor Lee	21 January 2026	<i>[Signature]</i>

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: 2024, Issue 4 (2025-07) 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	30-October-2025
2	Update to ISED RSS-247	21-January-2026

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: 2024, Issue 4 (2025-07) and Issue 5 (2018-04) + A2 (2021-02)
Start of Test	23-September-2025
Finish of Test	16-October-2025
Name of Engineer(s)	Sreemon Jayachandran Nair, Adam Holloway and Connor Lee
Related Document(s)	ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024



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, 2.2 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)

Table 2

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 2.4 GHz WLAN				
2.1	15.207, 2.2 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)

Table 3

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 5 GHz WLAN				
2.1	15.207, 2.2 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)

Table 4

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 6 GHz WLAN				
2.1	15.207, 2.2 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)

Table 5



Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - Narrowband				
2.1	15.207, 2.2 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10 (2020)

Table 6

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	Main Power	AC to DC Power Adapter with USB-C output.	No
USB Port 1	1.5 m	Power/Data	USB Type-C	Yes
USB Port 2	1.5 m	Power/Data	USB Type-C	Yes
Audio Jack Port	1 m	Analogue Audio Output	3.5 mm Jack	No

Table 7

1.4.3 Test Configuration

Configuration	Description
AC Powered	The EUT was powered from a 115 V 60 Hz AC supply using an AC to DC adapter with USB-C output and MagSafe cable. PSU Model: A2676 • A mouse was used to terminate USB Port 1. • A set of headphones were used to terminate the Audio Jack Port. • USB Port 2 was unterminated.

Table 8

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.
Narrowband	The EUT was powered and placed in a link with another customer provided slave device.

Table 9

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.

Serial Number	Hardware Version	Software Version
C2WXM4N3TQ	REV1.0	25A12710v
C9F095H7T7	REV1.0	25A12710v

Table 10

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: A3448, Serial Number: C2WXM4N3TQ			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3448, Serial Number: C9F095H7T7			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 11

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	Sreemon Jayachandran Nair	UKAS
Configuration and Mode: AC Powered - 2.4 GHz WLAN		
AC Power Line Conducted Emissions	Adam Holloway	UKAS
Configuration and Mode: AC Powered - 5 GHz WLAN		
AC Power Line Conducted Emissions	Adam Holloway	UKAS
Configuration and Mode: AC Powered - 6 GHz WLAN		
AC Power Line Conducted Emissions	Adam Holloway	UKAS
Configuration and Mode: AC Powered - Narrowband		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 12

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, 2.2 and 8.8

2.1.2 Equipment Under Test and Modification State

A3448, S/N: C2WXM4N3TQ - Modification State 0
A3448, S/N: C9F095H7T7 - Modification State 0

2.1.3 Date of Test

23-September-2025 to 16-October-2025

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.

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.

A Peak detector pre-scan of the EUT emissions profile was measured across the appropriate frequency range.

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

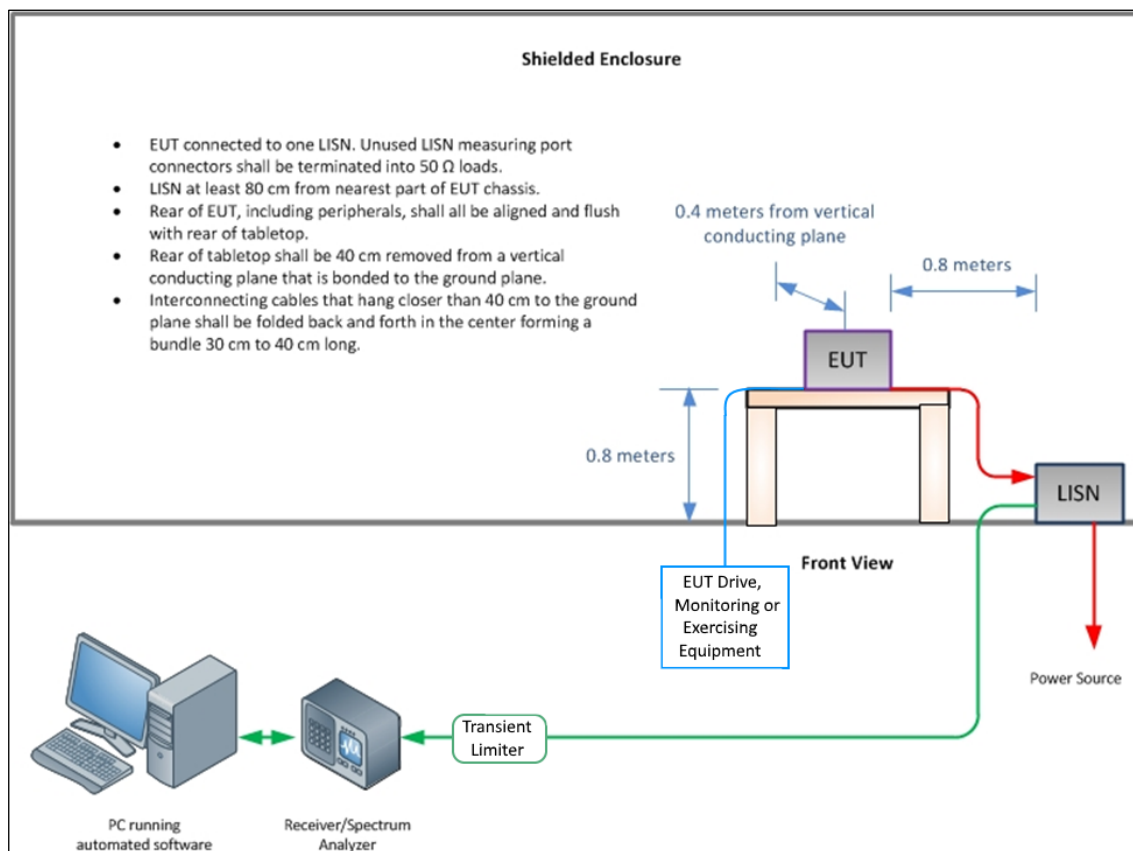


Figure 1 - Conducted Disturbance

2.1.7 Environmental Conditions

Ambient Temperature 19.5 – 24.2 °C
Relative Humidity 39.9 - 51.8 %

2.1.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.207

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

Table 13

*Decreases with the logarithm of the frequency.

2.1.9 Test Results

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

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

Detailed results are shown below.

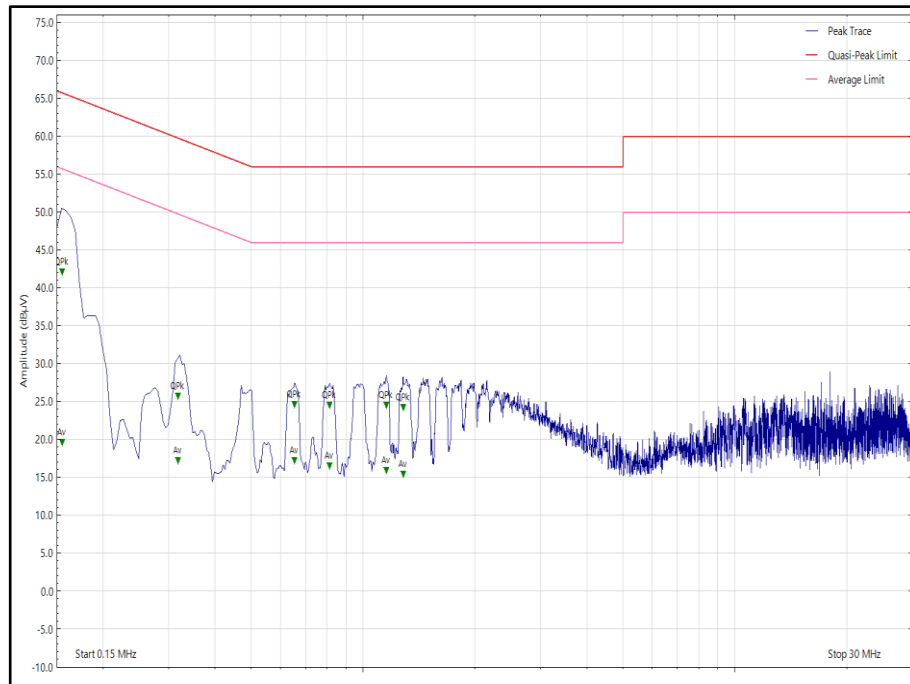


Figure 2 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.155	41.43	65.70	-24.27	Q-Peak
0.155	18.91	55.70	-36.79	CISPR Avg
0.318	25.04	59.80	-34.76	Q-Peak
0.318	16.54	49.80	-33.26	CISPR Avg
0.654	23.87	56.00	-32.13	Q-Peak
0.654	16.47	46.00	-29.53	CISPR Avg
0.812	23.77	56.00	-32.23	Q-Peak
0.812	15.82	46.00	-30.18	CISPR Avg
1.154	23.80	56.00	-32.20	Q-Peak
1.154	15.26	46.00	-30.74	CISPR Avg
1.284	23.52	56.00	-32.48	Q-Peak
1.284	14.74	46.00	-31.26	CISPR Avg

Table 14

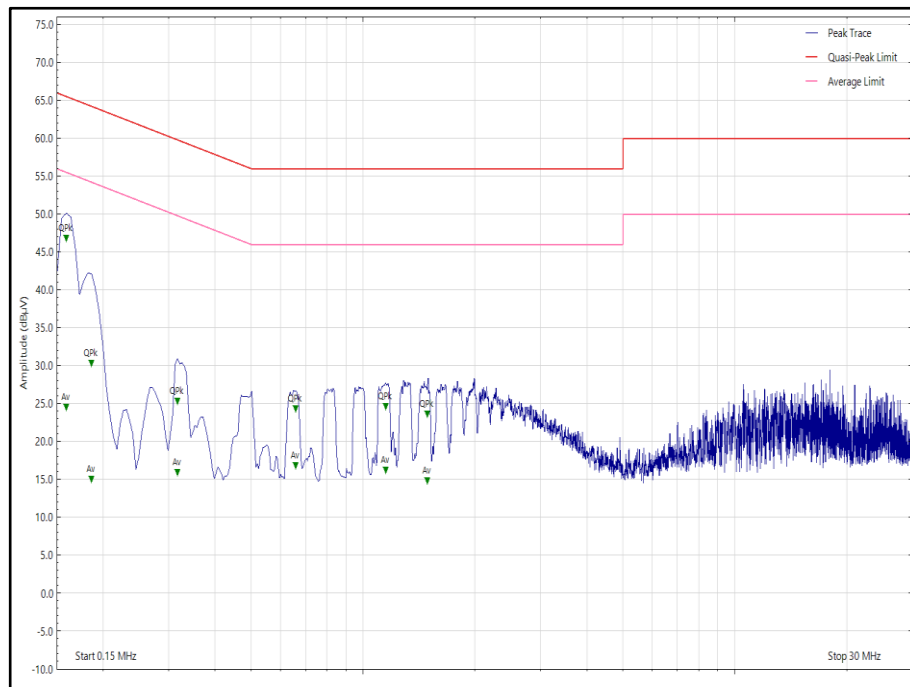


Figure 3 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.159	46.08	65.50	-19.42	Q-Peak
0.159	23.85	55.50	-31.65	CISPR Avg
0.186	29.64	64.20	-34.56	Q-Peak
0.186	14.37	54.20	-39.83	CISPR Avg
0.317	24.63	59.80	-35.17	Q-Peak
0.317	15.18	49.80	-34.62	CISPR Avg
0.659	23.65	56.00	-32.35	Q-Peak
0.659	16.11	46.00	-29.89	CISPR Avg
1.150	23.94	56.00	-32.06	Q-Peak
1.150	15.48	46.00	-30.52	CISPR Avg
1.491	22.87	56.00	-33.13	Q-Peak
1.491	14.11	46.00	-31.89	CISPR Avg

Table 15

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

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

Detailed results are shown below.

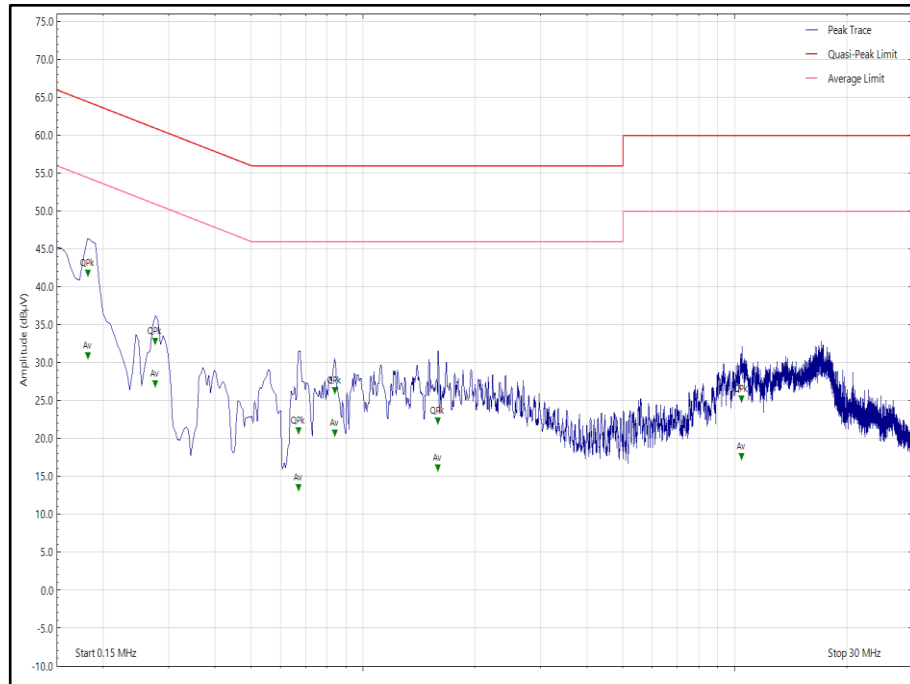


Figure 4 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.182	41.07	64.40	-23.33	Q-Peak
0.182	30.22	54.40	-24.18	CISPR Avg
0.276	32.08	60.90	-28.82	Q-Peak
0.276	26.48	50.90	-24.42	CISPR Avg
0.672	20.29	56.00	-35.71	Q-Peak
0.672	12.79	46.00	-33.21	CISPR Avg
0.839	25.60	56.00	-30.40	Q-Peak
0.839	20.01	46.00	-25.99	CISPR Avg
1.590	21.60	56.00	-34.40	Q-Peak
1.590	15.39	46.00	-30.61	CISPR Avg
10.438	24.47	60.00	-35.53	Q-Peak
10.438	16.88	50.00	-33.12	CISPR Avg

Table 16

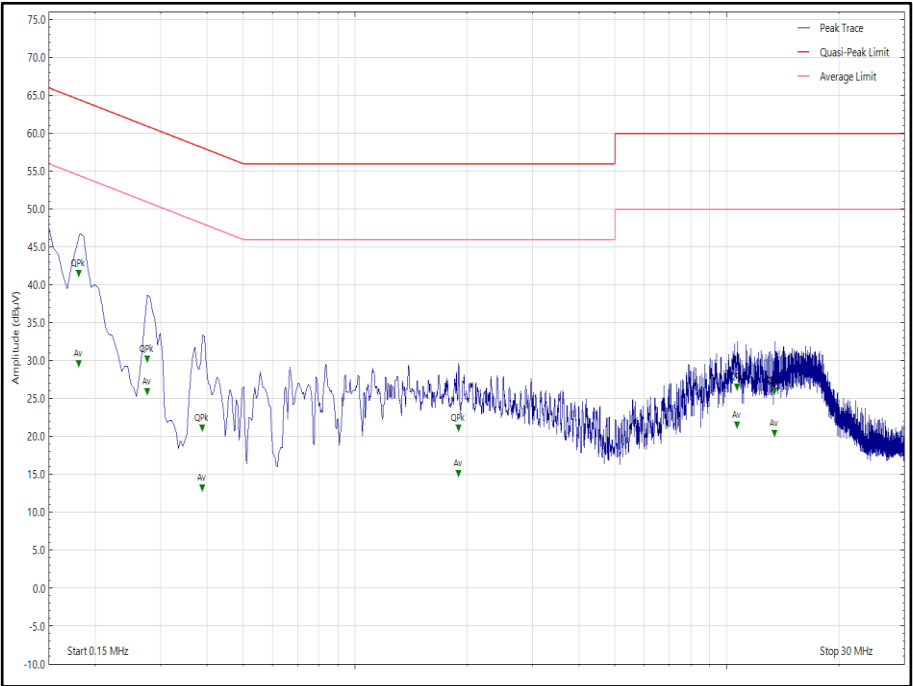


Figure 5 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.181	40.80	64.40	-23.60	Q-Peak
0.181	28.91	54.40	-25.49	CISPR Avg
0.276	29.55	60.90	-31.35	Q-Peak
0.276	25.19	50.90	-25.71	CISPR Avg
0.389	20.39	58.10	-37.71	Q-Peak
0.389	12.48	48.10	-35.62	CISPR Avg
1.896	20.40	56.00	-35.60	Q-Peak
1.896	14.38	46.00	-31.62	CISPR Avg
10.672	25.85	60.00	-34.15	Q-Peak
10.672	20.86	50.00	-29.14	CISPR Avg
13.456	25.30	60.00	-34.70	Q-Peak
13.456	19.67	50.00	-30.33	CISPR Avg

Table 17



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

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

Detailed results are shown below.

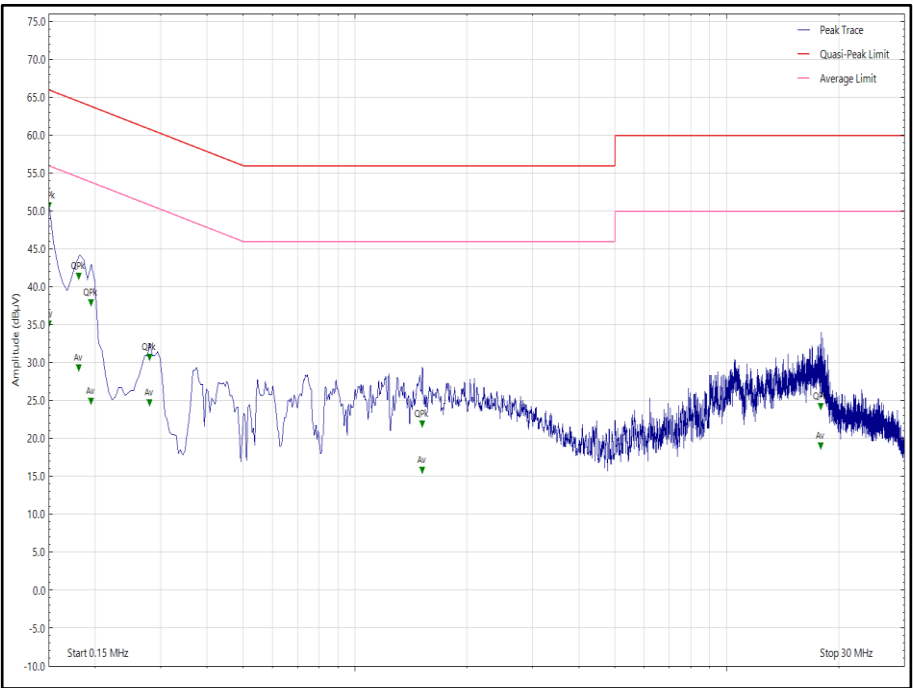


Figure 6 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.150	49.94	66.00	-16.06	Q-Peak
0.150	34.39	56.00	-21.61	CISPR Avg
0.181	40.69	64.40	-23.71	Q-Peak
0.181	28.58	54.40	-25.82	CISPR Avg
0.195	37.19	63.80	-26.61	Q-Peak
0.195	24.19	53.80	-29.61	CISPR Avg
0.280	30.04	60.80	-30.76	Q-Peak
0.280	23.99	50.80	-26.81	CISPR Avg
1.518	21.18	56.00	-34.82	Q-Peak
1.518	15.16	46.00	-30.84	CISPR Avg
17.872	23.54	60.00	-36.46	Q-Peak
17.872	18.34	50.00	-31.66	CISPR Avg

Table 18

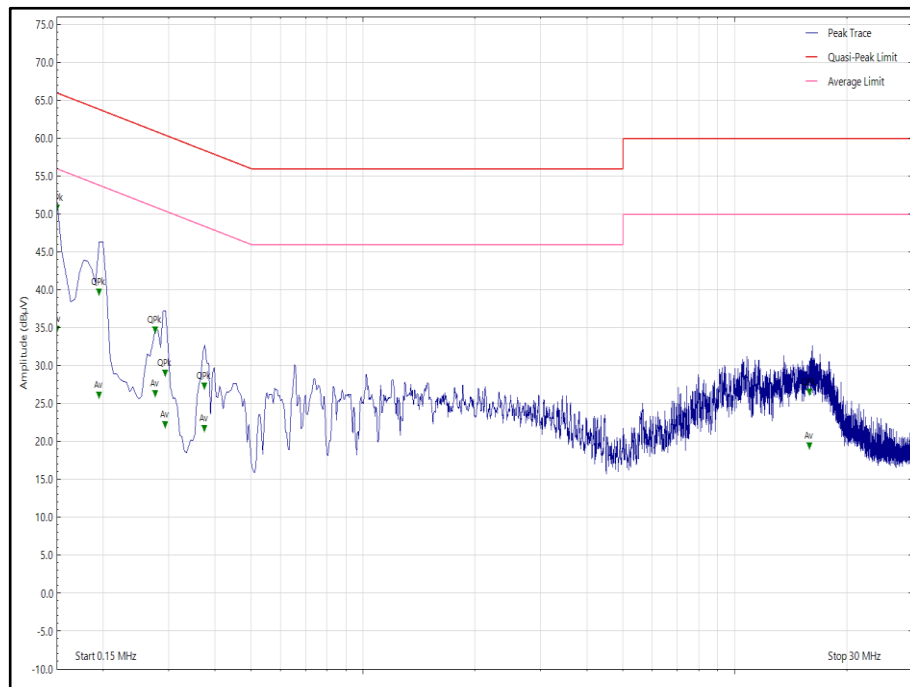


Figure 7 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.150	50.07	66.00	-15.93	Q-Peak
0.150	34.10	56.00	-21.90	CISPR Avg
0.195	39.03	63.80	-24.77	Q-Peak
0.195	25.39	53.80	-28.41	CISPR Avg
0.276	33.96	60.90	-26.94	Q-Peak
0.276	25.65	50.90	-25.25	CISPR Avg
0.294	28.33	60.40	-32.07	Q-Peak
0.294	21.48	50.40	-28.92	CISPR Avg
0.375	26.57	58.40	-31.83	Q-Peak
0.375	21.04	48.40	-27.36	CISPR Avg
15.883	25.80	60.00	-34.20	Q-Peak
15.883	18.75	50.00	-31.25	CISPR Avg

Table 19

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

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

Detailed results are shown below.

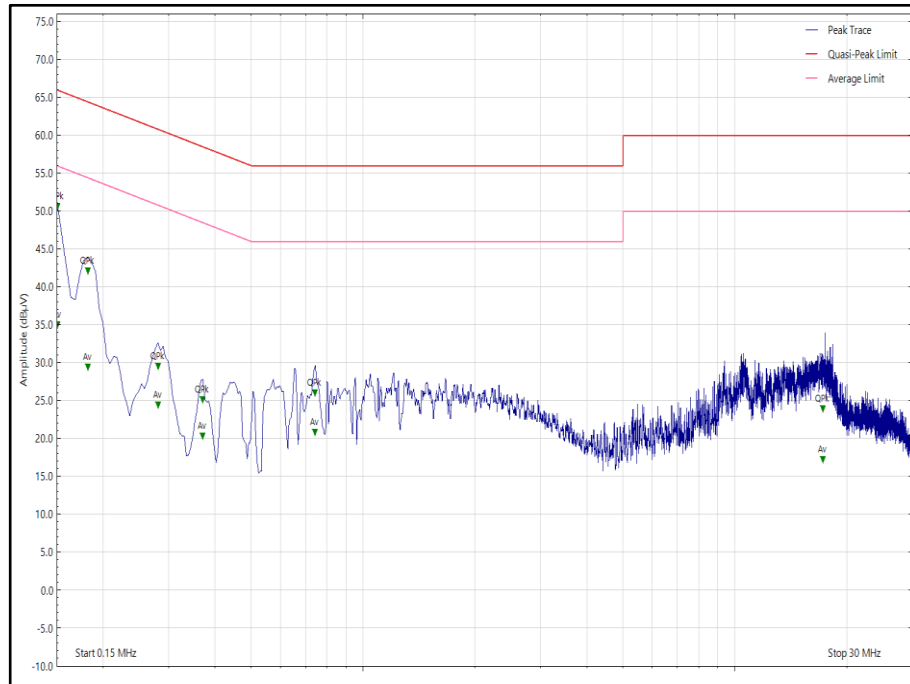


Figure 8 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.151	49.86	66.00	-16.14	Q-Peak
0.151	34.28	56.00	-21.72	CISPR Avg
0.182	41.42	64.40	-22.98	Q-Peak
0.182	28.75	54.40	-25.65	CISPR Avg
0.281	28.82	60.80	-31.98	Q-Peak
0.281	23.70	50.80	-27.10	CISPR Avg
0.370	24.43	58.50	-34.07	Q-Peak
0.370	19.63	48.50	-28.87	CISPR Avg
0.744	25.27	56.00	-30.73	Q-Peak
0.744	20.11	46.00	-25.89	CISPR Avg
17.273	23.25	60.00	-36.75	Q-Peak
17.273	16.47	50.00	-33.53	CISPR Avg

Table 20

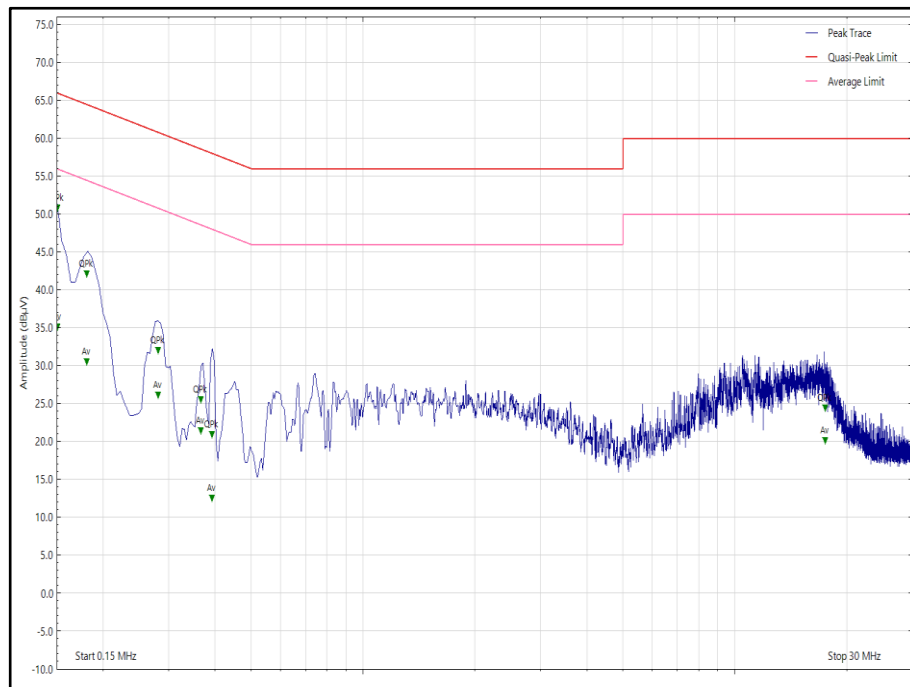


Figure 9 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.151	50.06	66.00	-15.94	Q-Peak
0.151	34.40	56.00	-21.60	CISPR Avg
0.181	41.42	64.40	-22.98	Q-Peak
0.181	29.78	54.40	-24.62	CISPR Avg
0.281	31.35	60.80	-29.45	Q-Peak
0.281	25.42	50.80	-25.38	CISPR Avg
0.366	24.85	58.60	-33.75	Q-Peak
0.366	20.69	48.60	-27.91	CISPR Avg
0.393	20.19	58.00	-37.81	Q-Peak
0.393	11.82	48.00	-36.18	CISPR Avg
17.511	23.75	60.00	-36.25	Q-Peak
17.511	19.44	50.00	-30.56	CISPR Avg

Table 21

Results for Configuration and Mode: AC Powered - Narrowband

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

Detailed results are shown below.

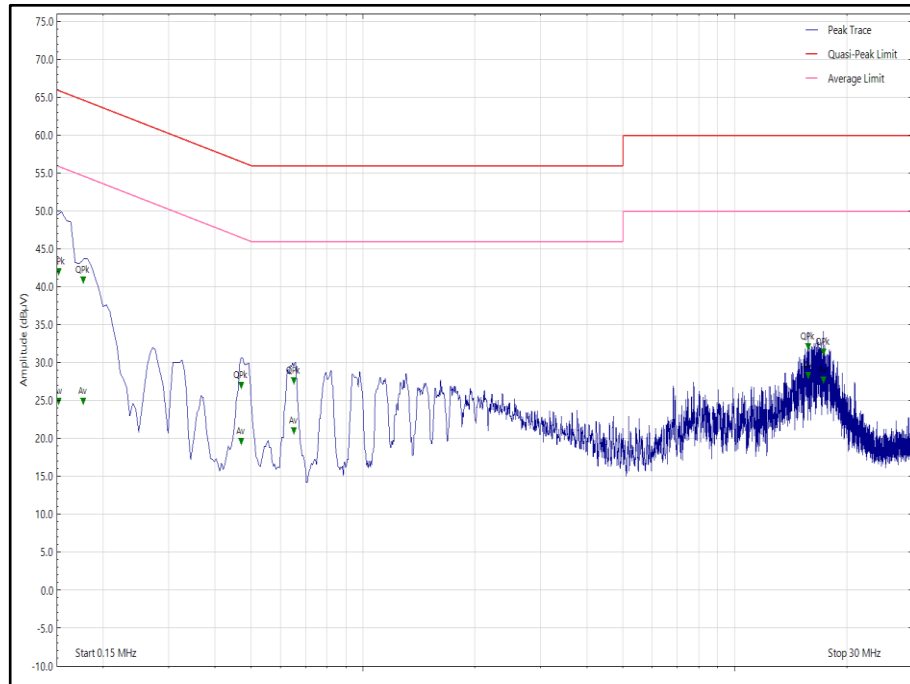


Figure 10 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector
0.152	41.31	65.90	-24.59	Q-Peak
0.152	24.19	55.90	-31.71	CISPR Avg
0.177	40.22	64.60	-24.38	Q-Peak
0.177	24.22	54.60	-30.38	CISPR Avg
0.470	26.27	56.50	-30.23	Q-Peak
0.470	18.89	46.50	-27.61	CISPR Avg
0.653	26.90	56.00	-29.10	Q-Peak
0.653	20.30	46.00	-25.70	CISPR Avg
15.743	31.38	60.00	-28.62	Q-Peak
15.743	27.59	50.00	-22.41	CISPR Avg
17.317	30.72	60.00	-29.28	Q-Peak
17.317	27.01	50.00	-22.99	CISPR Avg

Table 22

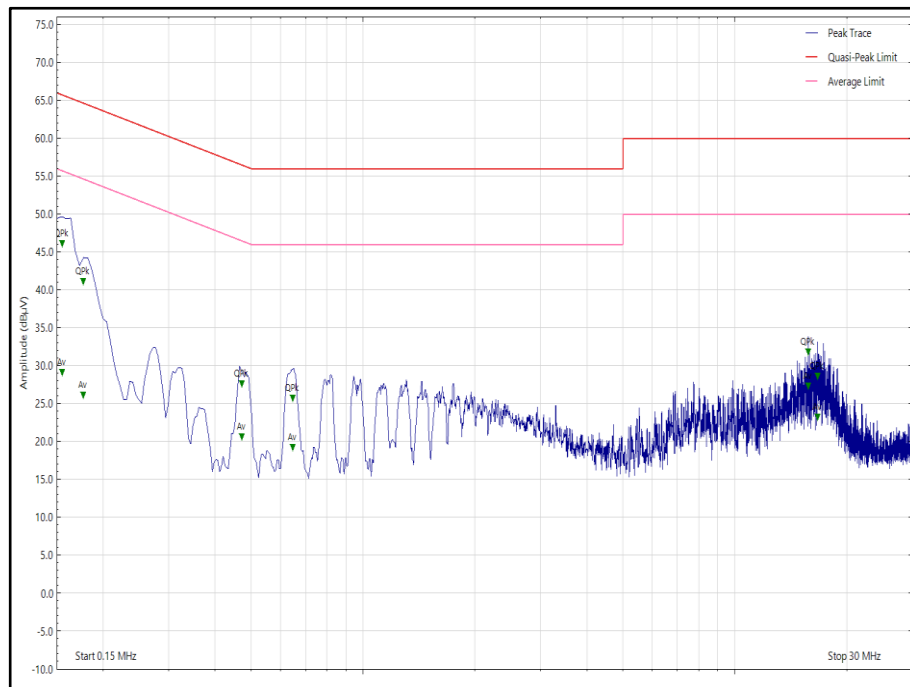


Figure 11 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.155	45.37	65.80	-20.43	Q-Peak
0.155	28.41	55.80	-27.39	CISPR Avg
0.177	40.41	64.60	-24.19	Q-Peak
0.177	25.37	54.60	-29.23	CISPR Avg
0.472	26.91	56.50	-29.59	Q-Peak
0.472	19.96	46.50	-26.54	CISPR Avg
0.647	25.05	56.00	-30.95	Q-Peak
0.647	18.51	46.00	-27.49	CISPR Avg
15.741	31.14	60.00	-28.86	Q-Peak
15.741	26.61	50.00	-23.39	CISPR Avg
16.683	27.86	60.00	-32.14	Q-Peak
16.683	22.49	50.00	-27.51	CISPR Avg

Table 23



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
Emissions Software	TUV SUD	EmX V3.5.4	5125	-	Software
Test Receiver	Rohde & Schwarz	ESW44	5802	12	25-Oct-2025
Transient Limiter	Hewlett Packard	11947A	2378	12	28-Oct-2025
Cable (N to N, 2 m)	Junkosha	MWX221-02000AMSAMS/B	5725	6	12-Dec-2025
Cable (N-Type to N-Type, 8 m)	Junkosha	MWX221-08000NMSNMS/B	7054	12	01-Jun-2026
LISN (CISPR 16, Single Phase)	Rohde & Schwarz	ESH3-Z5	1390	12	04-Feb-2026
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5471	12	14-May-2026

Table 24



3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Fluke	79 Series III	498	12	26-Feb-2026
Milliohm Meter	VICI	2682132	7012	12	21-May-2026

Table 25



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
AC Power Line Conducted Emissions	150 kHz to 30 MHz, LISN ± 3.3 dB

Table 26

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.