

FCC and ISED Test Report

Apple Inc
Model: A3449



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

Prepared for: Apple Inc
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(UK) LIMITED
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Document 75964010-12 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 TUV SUD 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	Adam Holloway	21 January 2026	<i>[Signature]</i>
	Matthew Dawkins	21 January 2026	<i>[Signature]</i>
	Sreemon Jayachandran Nair	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)	Adam Holloway, Matthew Dawkins, Sreemon Jayachandran Nair 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 Mode(s) 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

1.4.5 Deviations from the Standard

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



1.4.7 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: A3449		
Serial Number	Hardware Version	Software Version
CMVW7DFJ77	REV1.0	25B40a
C14J4Q6M29	REV1.0	25B38

Table 10

1.5 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: A3449, Serial Number: CMVW7DFJ77			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3449, Serial Number: C14J4Q6M29			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 11



1.6 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	Adam Holloway, Matthew Dawkins and Sreemon Jayachandran Nair	UKAS
Configuration and Mode: AC Powered - 2.4 GHz WLAN		
AC Power Line Conducted Emissions	Adam Holloway and Matthew Dawkins	UKAS
Configuration and Mode: AC Powered - 5 GHz WLAN		
AC Power Line Conducted Emissions	Adam Holloway and Matthew Dawkins	UKAS
Configuration and Mode: AC Powered - 6 GHz WLAN		
AC Power Line Conducted Emissions	Adam Holloway and Matthew Dawkins	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

A3449, S/N: CMVW7DFJ77 - Modification State 0
A3449, S/N: C14J4Q6M29 - 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 (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

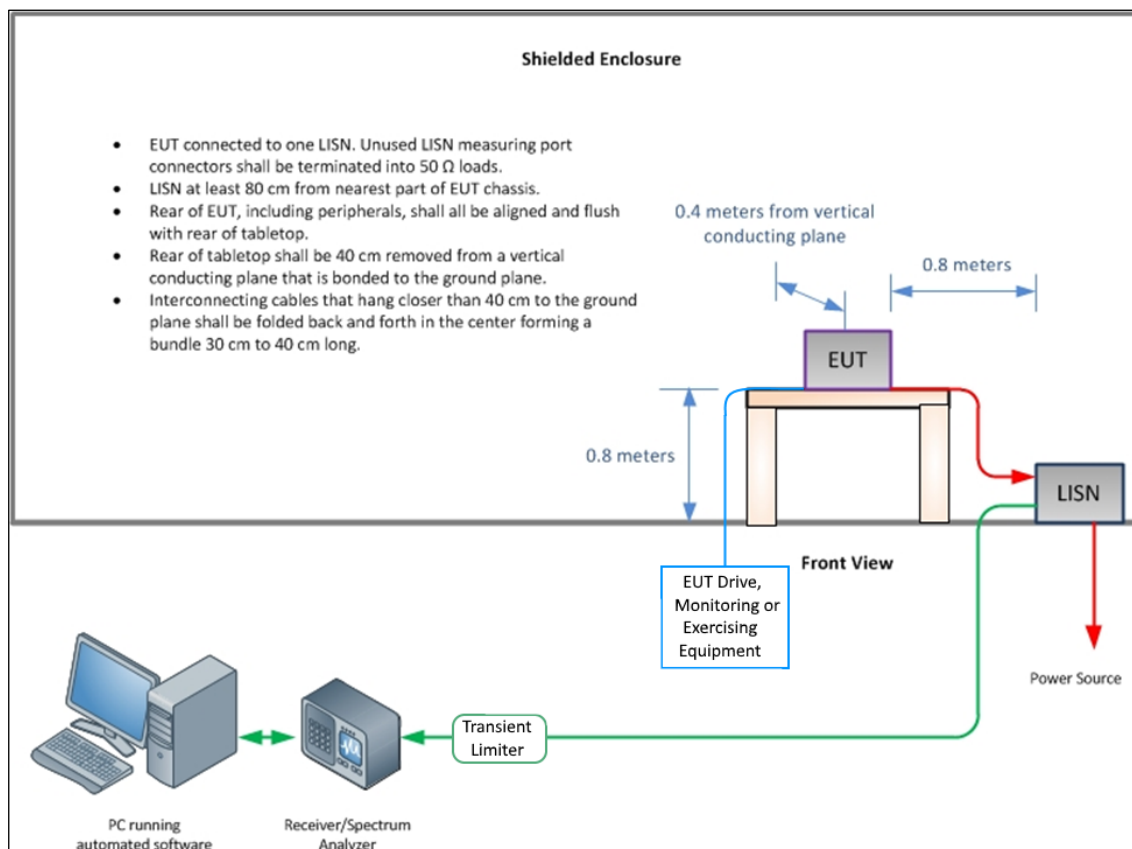


Figure 1 - Conducted Disturbance

2.1.7 Environmental Conditions

Ambient Temperature 19.5 - 23.7 °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.

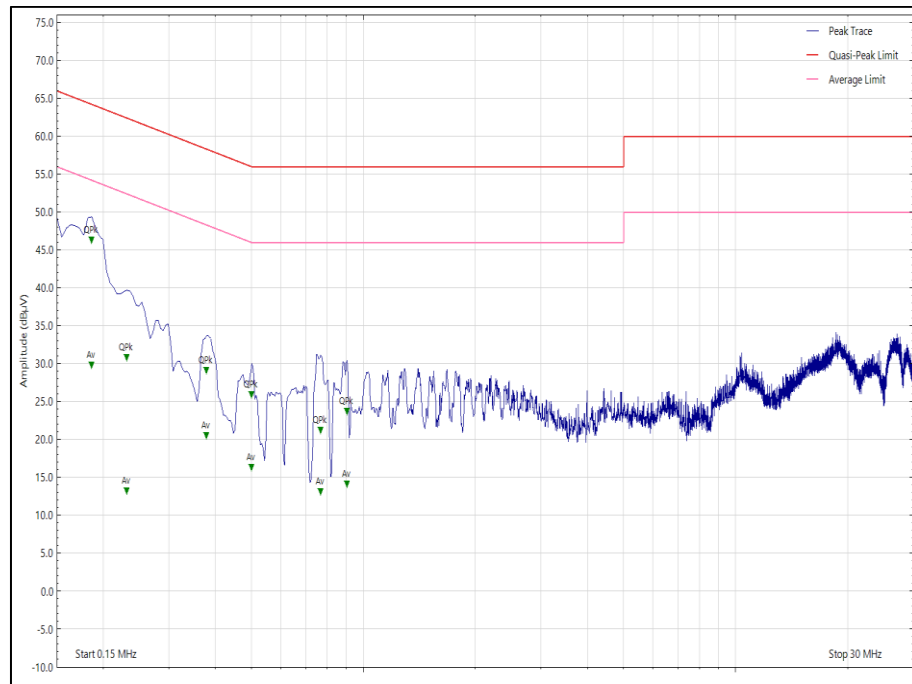


Figure 2 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.186	45.62	64.20	-18.58	Q-Peak
0.186	29.06	54.20	-25.14	CISPR Avg
0.231	30.12	62.40	-32.28	Q-Peak
0.231	12.55	52.40	-39.85	CISPR Avg
0.379	28.37	58.30	-29.93	Q-Peak
0.379	19.85	48.30	-28.45	CISPR Avg
0.501	25.17	56.00	-30.83	Q-Peak
0.501	15.61	46.00	-30.39	CISPR Avg
0.767	20.51	56.00	-35.49	Q-Peak
0.767	12.45	46.00	-33.55	CISPR Avg
0.902	23.02	56.00	-32.98	Q-Peak
0.902	13.46	46.00	-32.54	CISPR Avg

Table 14

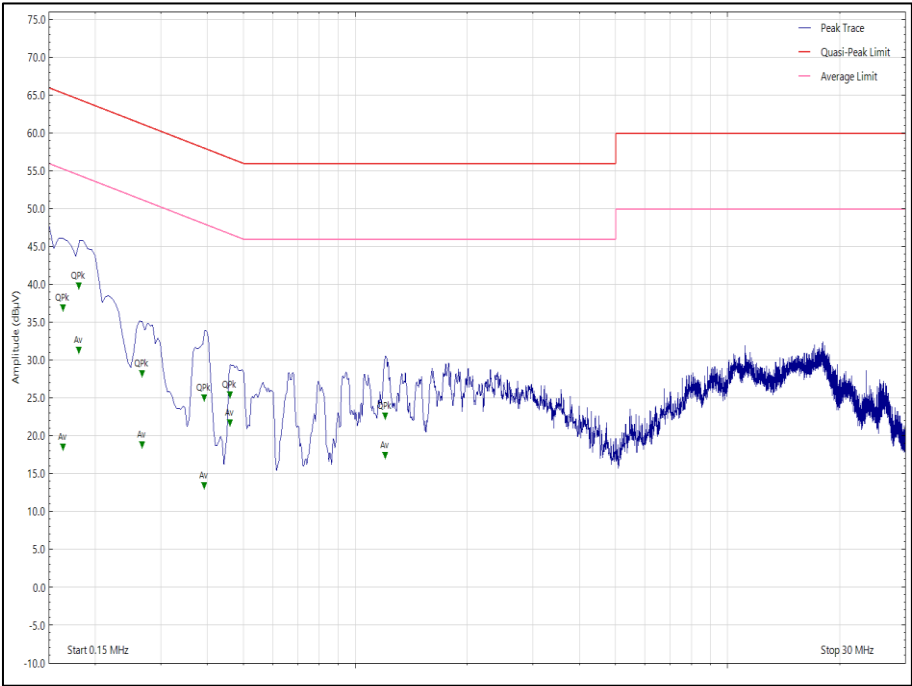


Figure 3 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.164	36.19	65.30	-29.11	Q-Peak
0.164	17.82	55.30	-37.48	CISPR Avg
0.181	39.14	64.40	-25.26	Q-Peak
0.181	30.64	54.40	-23.76	CISPR Avg
0.267	27.48	61.20	-33.72	Q-Peak
0.267	18.16	51.20	-33.04	CISPR Avg
0.393	24.32	58.00	-33.68	Q-Peak
0.393	12.72	48.00	-35.28	CISPR Avg
0.460	24.68	56.70	-32.02	Q-Peak
0.460	20.97	46.70	-25.73	CISPR Avg
1.204	21.87	56.00	-34.13	Q-Peak
1.204	16.73	46.00	-29.27	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.

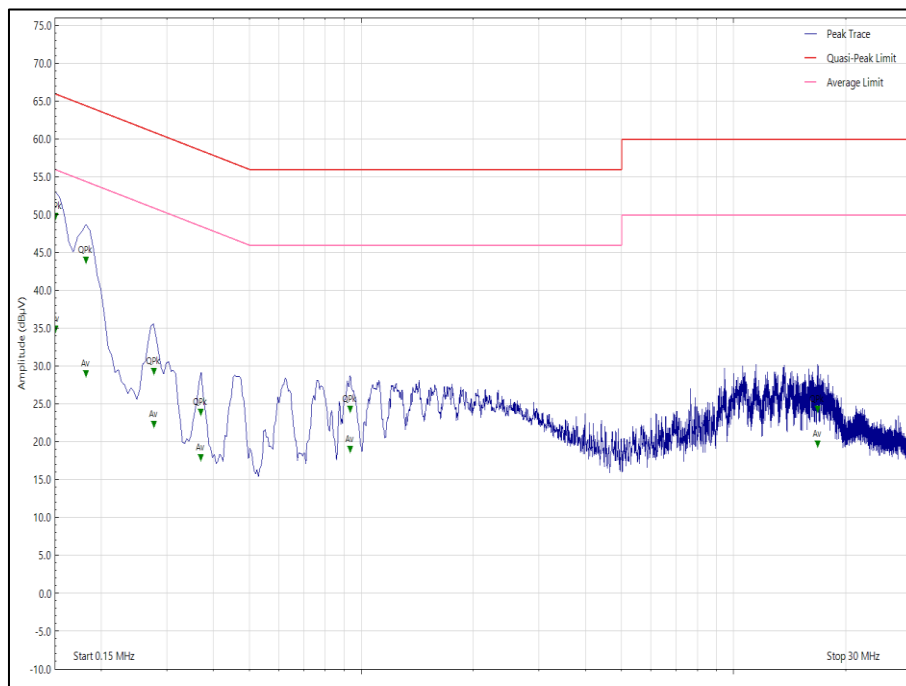


Figure 4 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.151	49.04	66.00	-16.96	Q-Peak
0.151	34.19	56.00	-21.81	CISPR Avg
0.182	43.24	64.40	-21.16	Q-Peak
0.182	28.29	54.40	-26.11	CISPR Avg
0.277	28.65	60.90	-32.25	Q-Peak
0.277	21.64	50.90	-29.26	CISPR Avg
0.370	23.20	58.50	-35.30	Q-Peak
0.370	17.21	48.50	-31.29	CISPR Avg
0.933	23.61	56.00	-32.39	Q-Peak
0.933	18.27	46.00	-27.73	CISPR Avg
16.828	23.66	60.00	-36.34	Q-Peak
16.828	18.97	50.00	-31.03	CISPR Avg

Table 16

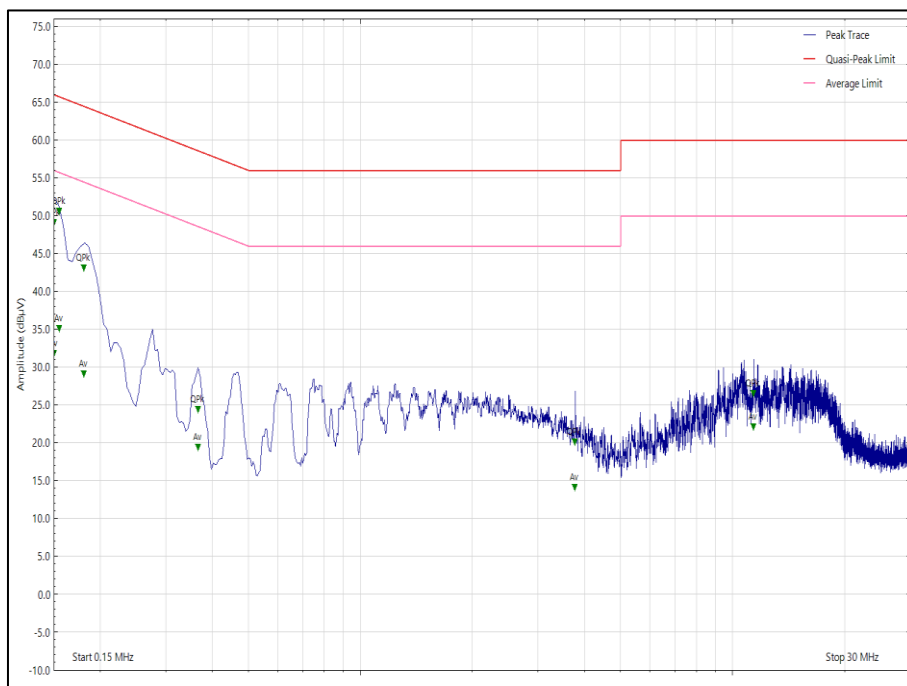


Figure 5 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.150	31.13	56.00	-24.87	CISPR Avg
0.150	48.35	66.00	-17.65	Q-Peak
0.155	34.40	55.70	-21.30	CISPR Avg
0.155	49.84	65.70	-15.86	Q-Peak
0.181	28.41	54.40	-25.99	CISPR Avg
0.181	42.35	64.40	-22.05	Q-Peak
0.366	18.70	48.60	-29.90	CISPR Avg
0.366	23.70	58.60	-34.90	Q-Peak
3.773	13.42	46.00	-32.58	CISPR Avg
3.773	19.38	56.00	-36.62	Q-Peak
11.391	21.40	50.00	-28.60	CISPR Avg
11.391	25.79	60.00	-34.21	Q-Peak

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.

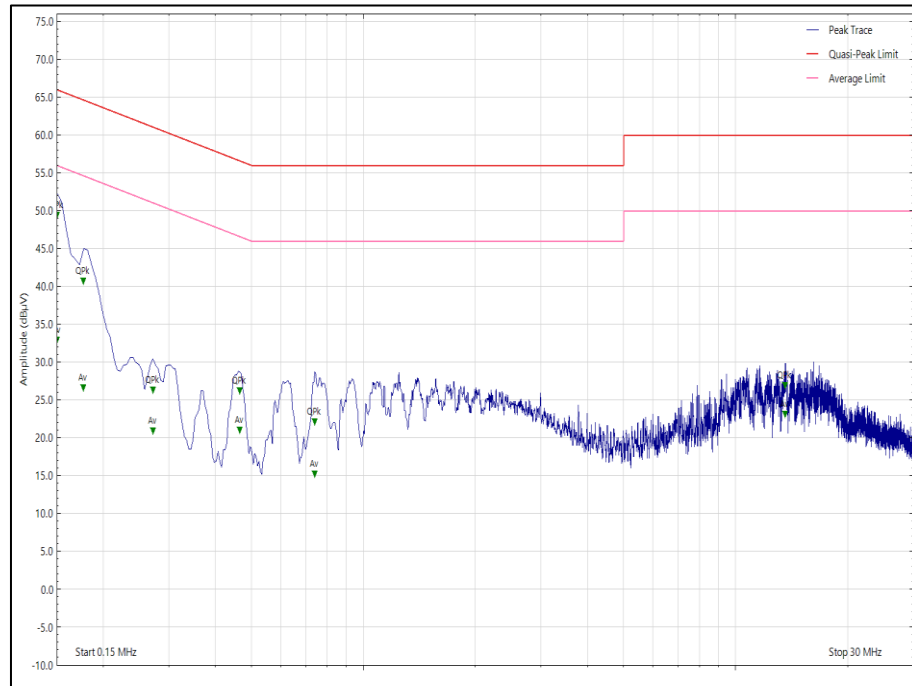


Figure 6 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.150	48.68	66.00	-17.32	Q-Peak
0.150	32.16	56.00	-23.84	CISPR Avg
0.177	39.96	64.60	-24.64	Q-Peak
0.177	25.89	54.60	-28.71	CISPR Avg
0.272	25.65	61.10	-35.45	Q-Peak
0.272	20.23	51.10	-30.87	CISPR Avg
0.465	25.51	56.60	-31.09	Q-Peak
0.465	20.31	46.60	-26.29	CISPR Avg
0.740	21.41	56.00	-34.59	Q-Peak
0.740	14.57	46.00	-31.43	CISPR Avg
13.588	26.17	60.00	-33.83	Q-Peak
13.588	22.42	50.00	-27.58	CISPR Avg

Table 18

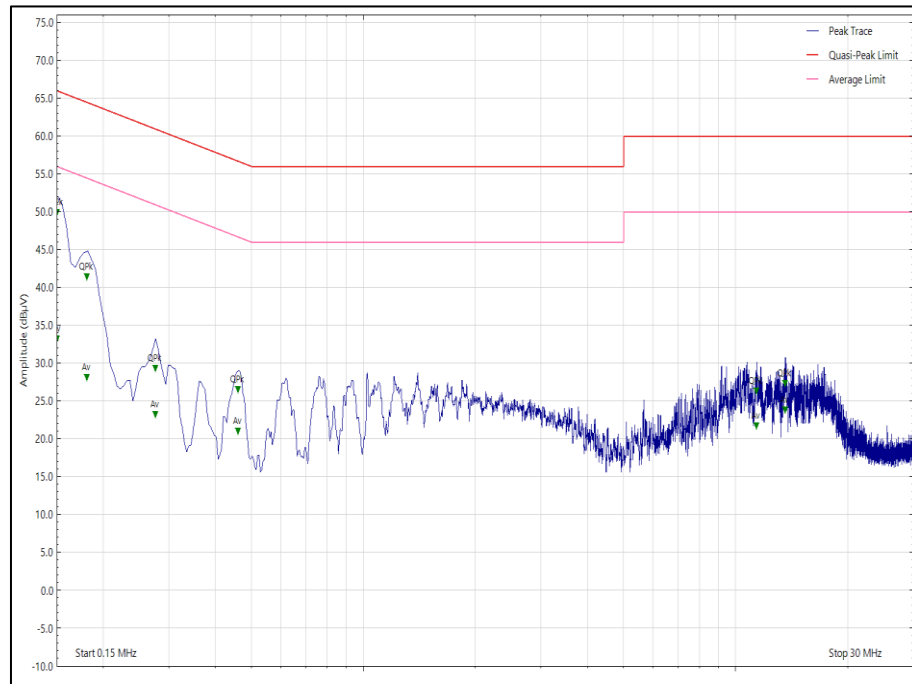


Figure 7 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.150	49.15	66.00	-16.85	Q-Peak
0.150	32.55	56.00	-23.45	CISPR Avg
0.181	40.71	64.40	-23.69	Q-Peak
0.181	27.38	54.40	-27.02	CISPR Avg
0.276	28.58	60.90	-32.32	Q-Peak
0.276	22.51	50.90	-28.39	CISPR Avg
0.460	25.83	56.70	-30.87	Q-Peak
0.460	20.34	46.70	-26.36	CISPR Avg
11.391	25.64	60.00	-34.36	Q-Peak
11.391	20.99	50.00	-29.01	CISPR Avg
13.589	26.65	60.00	-33.35	Q-Peak
13.589	23.15	50.00	-26.85	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.

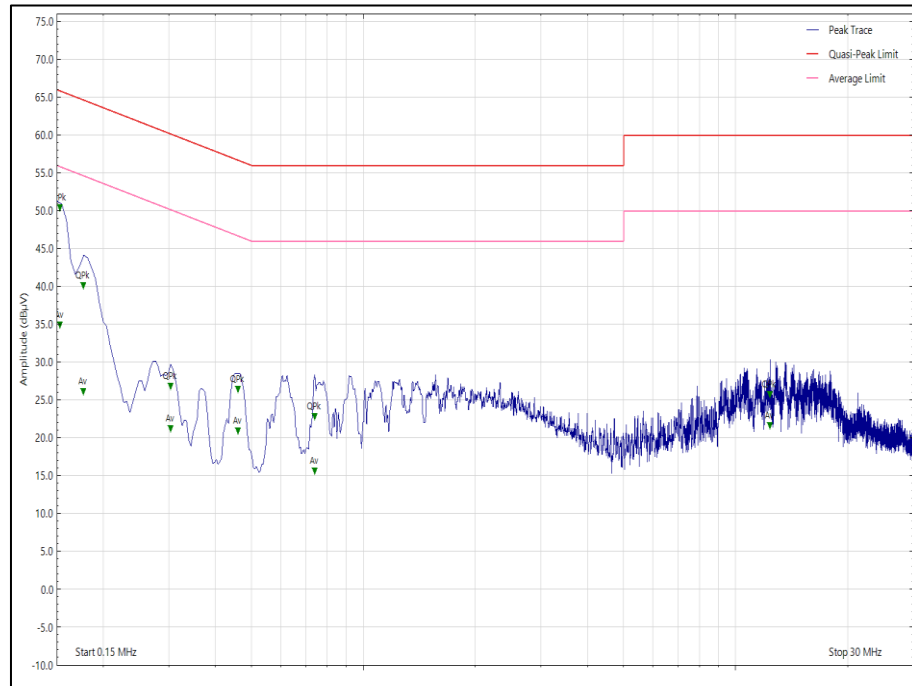


Figure 8 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.153	49.69	65.80	-16.11	Q-Peak
0.153	34.23	55.80	-21.57	CISPR Avg
0.177	39.41	64.60	-25.19	Q-Peak
0.177	25.39	54.60	-29.21	CISPR Avg
0.303	26.06	60.10	-34.04	Q-Peak
0.303	20.50	50.10	-29.60	CISPR Avg
0.460	25.68	56.70	-31.02	Q-Peak
0.460	20.19	46.70	-26.51	CISPR Avg
0.739	22.07	56.00	-33.93	Q-Peak
0.739	14.91	46.00	-31.09	CISPR Avg
12.386	25.04	60.00	-34.96	Q-Peak
12.386	20.92	50.00	-29.08	CISPR Avg

Table 20

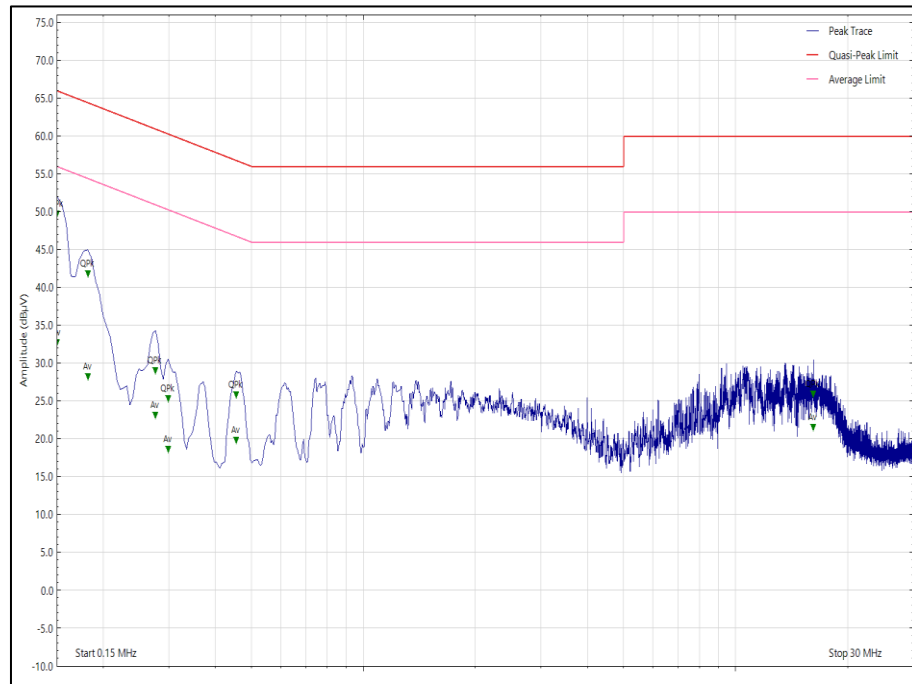


Figure 9 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.150	49.03	66.00	-16.97	Q-Peak
0.150	32.02	56.00	-23.98	CISPR Avg
0.182	41.12	64.40	-23.28	Q-Peak
0.182	27.49	54.40	-26.91	CISPR Avg
0.276	28.35	60.90	-32.55	Q-Peak
0.276	22.43	50.90	-28.47	CISPR Avg
0.299	24.61	60.30	-35.69	Q-Peak
0.299	17.94	50.30	-32.36	CISPR Avg
0.456	25.11	56.80	-31.69	Q-Peak
0.456	19.09	46.80	-27.71	CISPR Avg
16.196	25.23	60.00	-34.77	Q-Peak
16.196	20.83	50.00	-29.17	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.

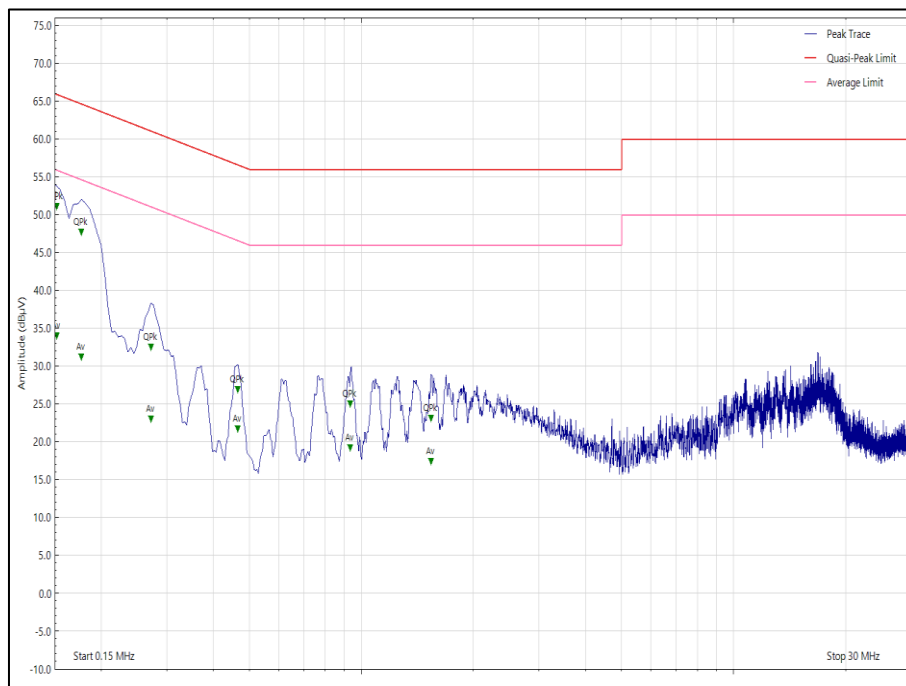


Figure 10 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	50.36	65.90	-15.54	Q-Peak
0.152	33.32	55.90	-22.58	CISPR Avg
0.177	47.01	64.60	-17.59	Q-Peak
0.177	30.49	54.60	-24.11	CISPR Avg
0.272	31.78	61.10	-29.32	Q-Peak
0.272	22.36	51.10	-28.74	CISPR Avg
0.466	26.21	56.60	-30.39	Q-Peak
0.466	21.03	46.60	-25.57	CISPR Avg
0.934	24.28	56.00	-31.72	Q-Peak
0.934	18.52	46.00	-27.48	CISPR Avg
1.541	22.44	56.00	-33.56	Q-Peak
1.541	16.75	46.00	-29.25	CISPR Avg

Table 22

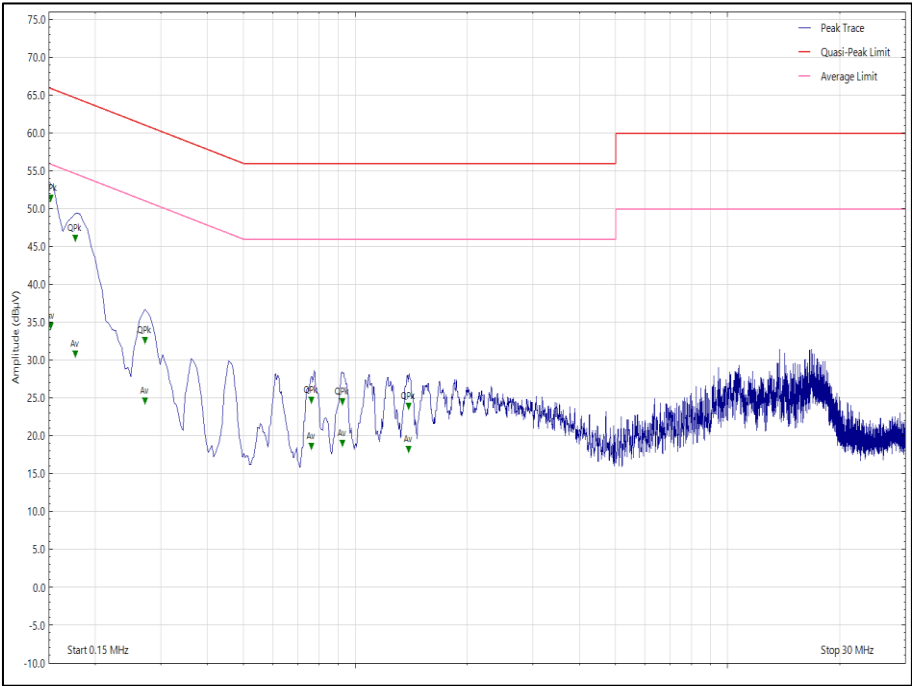


Figure 11 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	50.72	65.90	-15.18	Q-Peak
0.152	33.84	55.90	-22.06	CISPR Avg
0.177	45.35	64.60	-19.25	Q-Peak
0.177	30.07	54.60	-24.53	CISPR Avg
0.272	31.89	61.10	-29.21	Q-Peak
0.272	23.92	51.10	-27.18	CISPR Avg
0.763	23.98	56.00	-32.02	Q-Peak
0.763	17.94	46.00	-28.06	CISPR Avg
0.922	23.78	56.00	-32.22	Q-Peak
0.922	18.30	46.00	-27.70	CISPR Avg
1.390	23.20	56.00	-32.80	Q-Peak
1.390	17.49	46.00	-28.51	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.