



Technical Report to the FCC and ISED Regarding Gentex Corporation

Model: DEFRX6
FCC ID: NZLDEFRX6
ISED: 4112A-DEFRX6

4/30/2026

A report concerning approval for Gentex Corporation Product DEFRX6
Please issue grant immediately upon review.

Report Submitted by:

Brian Miller

Digitally signed by Brian
Miller
Date: 2026.04.30 09:54:21
-04'00'

Brian Miller
Laboratory Group Leader – Regulatory II
Gentex Corporation

Report Reviewed by:

**Michael
Foster**

Digitally signed by Michael
Foster
Date: 2026.04.30 10:02:05
-04'00'

Michael Foster
Laboratory Regulatory Engineer I
Gentex Corporation

Report Prepared and Measurement made by:

Patricia Szeszulski

Digitally signed by Patricia
Szeszulski
Date: 2026.04.30 10:18:19 -04'00'

Patricia Szeszulski
Laboratory Validation Engineer I
Gentex Corporation

Report Approved by:

Jason Vargo
Laboratory Manager I

Digitally signed by Jason Vargo
Laboratory Manager I
Date: 2026.04.30 13:00:35 -04'00'

Jason Vargo
Laboratory Manager I
Gentex Corporation

Test Report Revision

REV Number	Date	Author	Description
1.0	2/4/2026	Patricia Szeszulski	Initial Release
2.0	4/14/2026	Patricia Szeszulski	Added setup diagram and description. Updated test plots and equipment list.
3.0	4/24/2026	Patricia Szeszulski	Added transmit mode
4.0	4/30/2026	Patricia Szeszulski	Updated setup and data plots

Results relate only to the items tested as received.

Compliance has been evaluated based on the Lab Manual section 7.6.2. The decision rule used regarding measurement uncertainty was to determine results solely on whether the measured values met the defined acceptance criteria without factoring in measurement uncertainty values.

1. General Information

1.1. Product Description

The Gentex Corporation Homelink Default Receiver is a low-power transceiver device. The Default Receiver is a tool developed by Gentex Corporation to verify the default sub-GHz and BLE test signals coming from the Homelink Universal Garage Door opener product in manufacturing.

In its operating mode, the Default Receiver operates (receive only) at 310MHz, 315MHz, and 433MHz. It also operates as a transceiver at 2400-2483.5MHz under the requirements of 47 CFR Part 15.247 and RSS-247.

The antenna system is not integral part of the unit. Antenna description is provided in a separate document.

1.2. Related Grants

This device will have functionality that is covered under 47 CFR Part 15.247 and Part 15B and ISED Canada RSS-247. The device will have FCC ID # of NZLDEFRX6 and ISED ID # of 4112A-DEFRX6.

1.3. Test Methodology

Testing was performed according to ANSI C63.4:2014. The power source for this product is a USB cable or powered through a serial connector.

For testing purposes, a 2-conductor cable harness was used to power the unit as well as a USB cable to interface with the unit.

1.4. Test Facility

The 3-meter semi-anechoic chamber where these measurements were taken is located on the grounds of Gentex Corporation's Corporate Labs, in the city of Zeeland, county of Ottawa, state of Michigan, United States of America.

The 3m chamber has been added to our A2LA scope of accreditation on 4/18/2019 and includes accreditation to ANSI C63.4:2014, ANSI C63.10:2020+Cor.1-2023 and ANSI C63.10a:2024, and C63.26:2015. Our 3m chamber is registered with the ISED under Site# 4112A-2 and FCC under registration number 357351.

Corporate Mailing/Shipping Address

Gentex Corporation
600 N. Centennial Street
Zeeland, MI 49464

Site Address

Gentex Corporation
380 Riley Street
Zeeland, MI 49464

1.5. Accreditation

The Gentex Corporate EMC Lab is accredited to ISO/IEC 17025 by the American Association for Laboratory Accreditation (A2LA). Our laboratory scope and accreditation certificate #[2529.01](#) are available from their web site www.a2la.org. Our scope of accreditation covers ANSI C63.4:2014, ANSI C63.10:2020+Cor.1-2023 and ANSI C63.10a:2024, ANSI C63.26:2015 and Radiated Emissions at 3m, FCC 47 CFR Part 90, ISED RSS-137.

2. Product Labeling

2.1. Identifiers

The FCC Identifier assigned is FCC ID: NZLDEFRX6. The ISED certification number is 4112A-DEFRX6. These identifiers will be labeled on the product housing.

The label will be printed on a label, which will be placed on the exterior of the housing and permanently affixed.

Because of the small size of the device the following statements will appear in the user's manual. Refer to attachment "Users Manual.pdf" for the entire text of the user's manual.

"The receiver portion of the device complies with FCC rule Part 15. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference,
- (2) This device must accept any interference that may be received including interference that may cause undesired operation.

WARNING: The transmitter has been tested and complies with FCC and ISED rules. Changes or modifications not expressly approved by the party responsible for the compliance could void the user's authority to operate the device."

This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment.

The term "ISED:" before the certification/registration number only signifies that ISED technical specifications were met.

ISED: 4112A-DEFRX6 FCC ID: NZLDEFRX6

2.2. Label Drawing and Location on Product

The label drawing is included in the "Label.pdf" attachment.

A diagram showing the location of the label on the assembly is included in the "Label Location.pdf" attachment.

3. Test Configuration

3.1. EUT Operating mode

The product was operated in idle mode and BLE transmit mode.

3.2. Peripheral devices

A laptop was used as a peripheral device during test. The laptop has an AC power cable with only power and neutral.

Additionally a Chimera communication device was connected to the laptop through ethernet in one of the test modes.

3.3. EUT Cable description

The EUT was connected to the LISN through a serial to AC cable. EUT was controlled through a USB to communication software on a laptop.

3.4. Test Setup

The EUT was placed on a non-metallic table approximately 150cm x 100cm, 80cm above the floor and at least 50cm from any vertical ground plane. EUT and peripheral device were placed on the back edge of the test table. The EUT was tested in two different configurations which are described below. All setups were tested with the EUT in idle mode, receive mode, and transmit mode.

Setup 1

EUT was connected and controlled through a USB cable connected to the peripheral device. Serial to AC cable was connected from EUT to the LISN. The peripheral device was powered through battery during test. Additionally, an ethernet cable was connected from the peripheral device to a chimera device.

Setup 2

The EUT was connected, controlled and powered through a USB cable connected to the peripheral device. The peripheral device AC cable was connected to the LISN and ethernet cable was connected to a chimera device.

The EUT was powered from a dual AC LISN for the measurements. Both conducted lines are measured with both Quasi-Peak and CISPR – Average detectors. Measurement settings and limits are defined by FCC 47 CFR Part 15.35 & 15.207 and ISSED RSS-GEN §8.1 and §8.8.

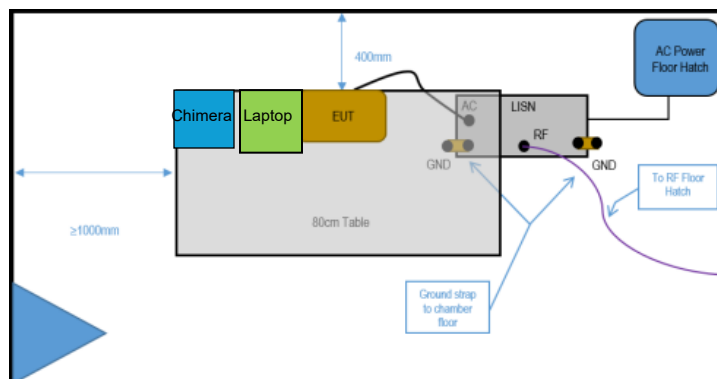


Figure 1: EUT Setup

4. Test Results

4.1. Date(s) Tested: 4/29/2026

4.2. Test Method Deviations: None

4.3. Summary of results

The EUT was compliant with the requirements set forth in FCC 47 CFR Part 15.207

4.4. Temperature and Humidity conditions

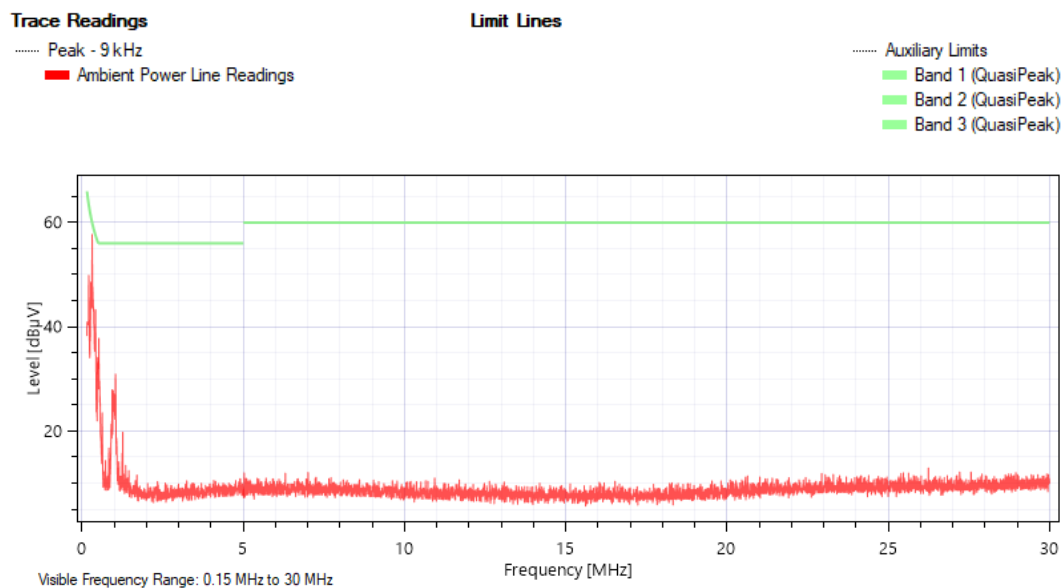
	Measured Value	Unit
Temperature	21.3-22.1	°C
Humidity	50.9-53.2	%R.H.

4.5. Plots

4.5.1. Setup 1 Plots

4.5.1.1. Peak Measurement Plots

- Ambient Power Line



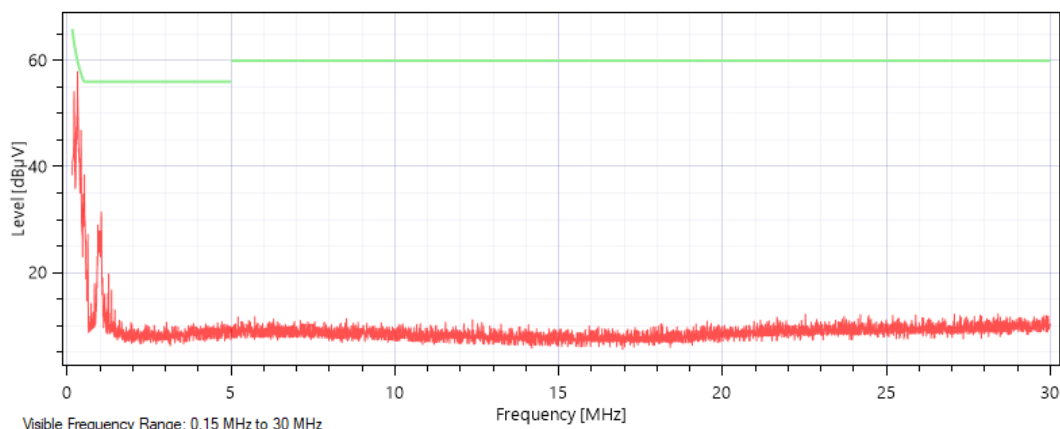
• Ambient Neutral Line

Trace Readings

..... Peak - 9 kHz
■ Ambient Neutral Line Readings

Limit Lines

..... Auxiliary Limits
■ Band 1 (QuasiPeak)
■ Band 2 (QuasiPeak)
■ Band 3 (QuasiPeak)



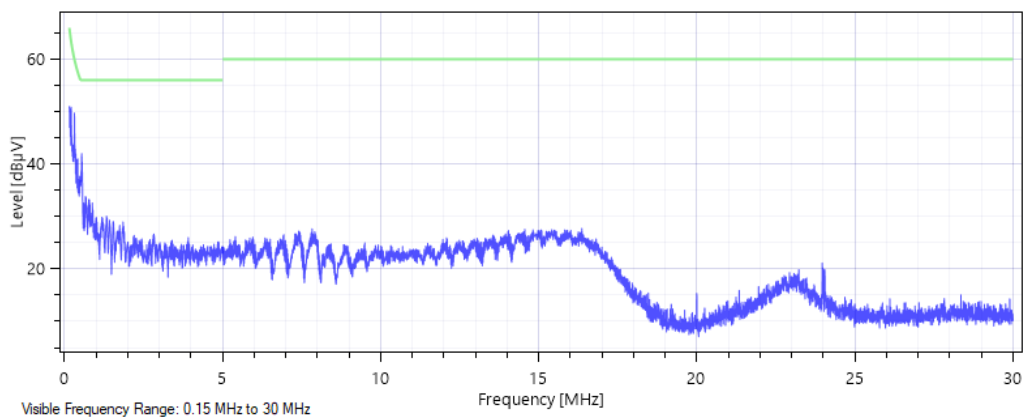
• Idle Mode Power Line

Trace Readings

..... Peak - 9 kHz
■ Idle Mode Power Line - EUT Readings

Limit Lines

..... Auxiliary Limits
■ Band 1 (QuasiPeak)
■ Band 2 (QuasiPeak)
■ Band 3 (QuasiPeak)



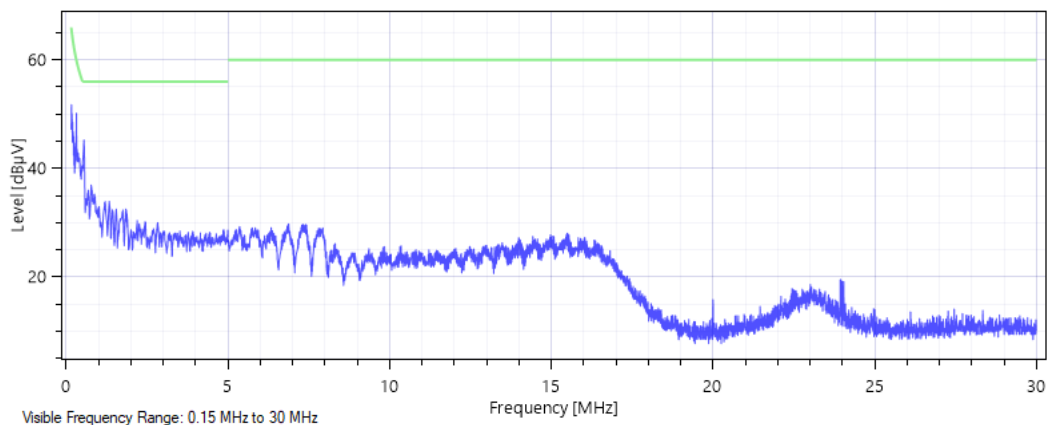
• Idle Mode Neutral Line

Trace Readings

- Peak - 9 kHz
- Idle Mode Neutral Line - EUT Readings

Limit Lines

- Auxiliary Limits
- Band 1 (QuasiPeak)
- Band 2 (QuasiPeak)
- Band 3 (QuasiPeak)



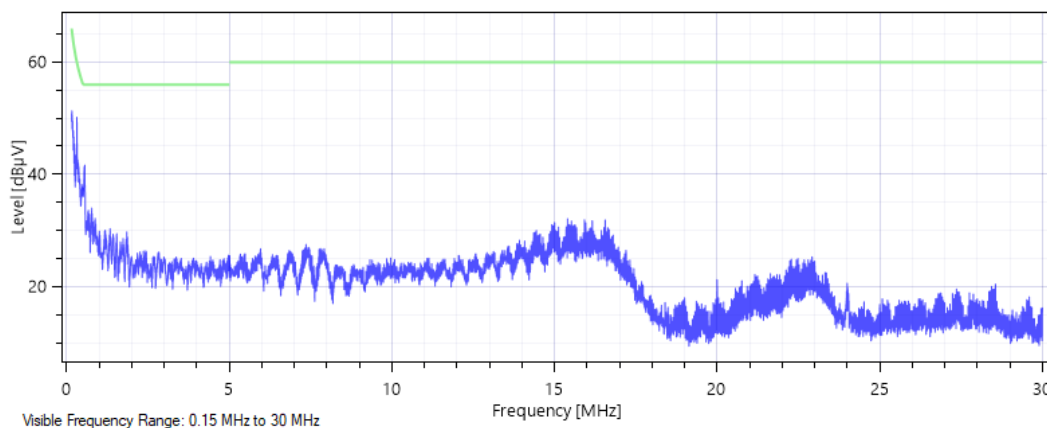
• Receive Mode Power Line

Trace Readings

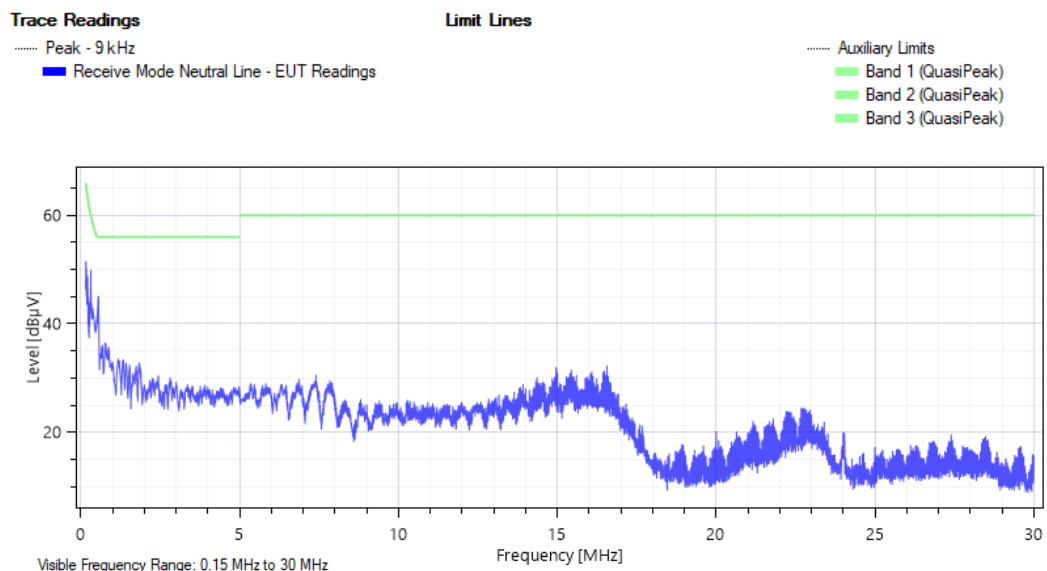
- Peak - 9 kHz
- Receive Mode Power Line - EUT Readings

Limit Lines

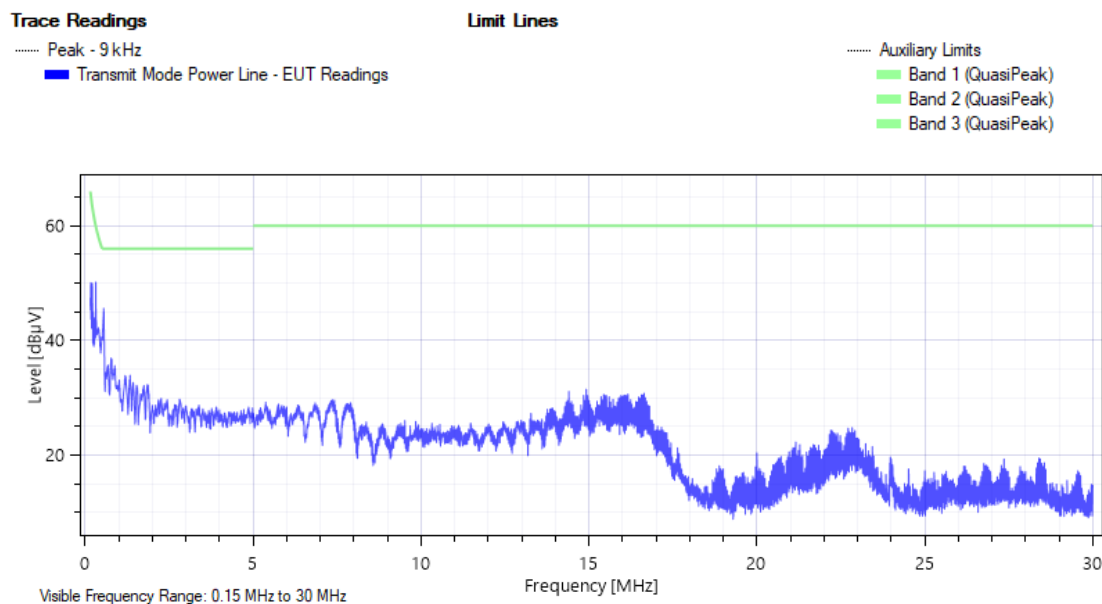
- Auxiliary Limits
- Band 1 (QuasiPeak)
- Band 2 (QuasiPeak)
- Band 3 (QuasiPeak)



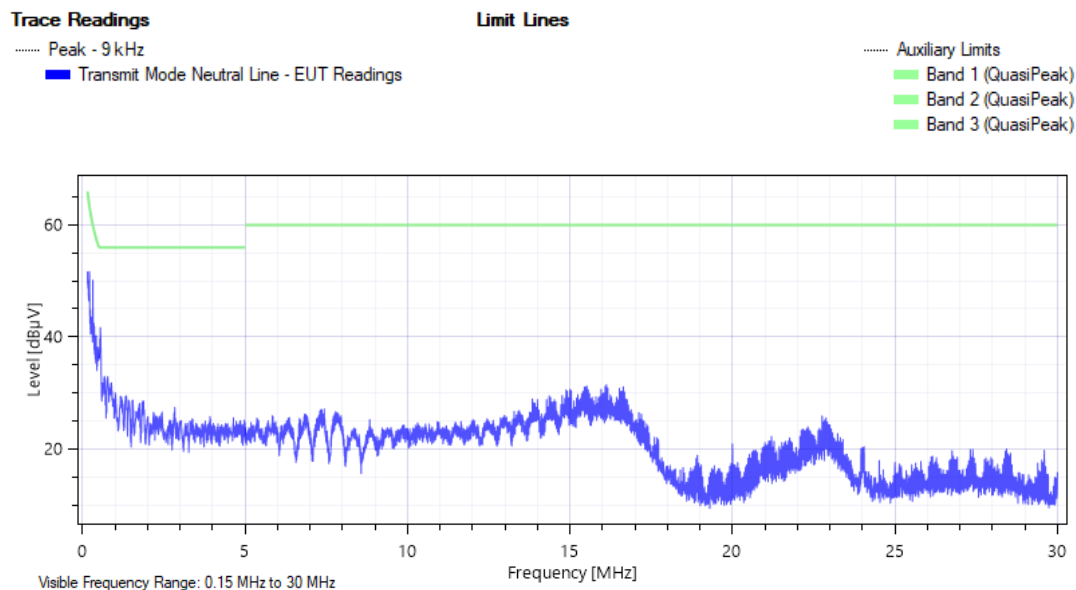
- Receive Mode Neutral Line



- Transmit Mode Power Line

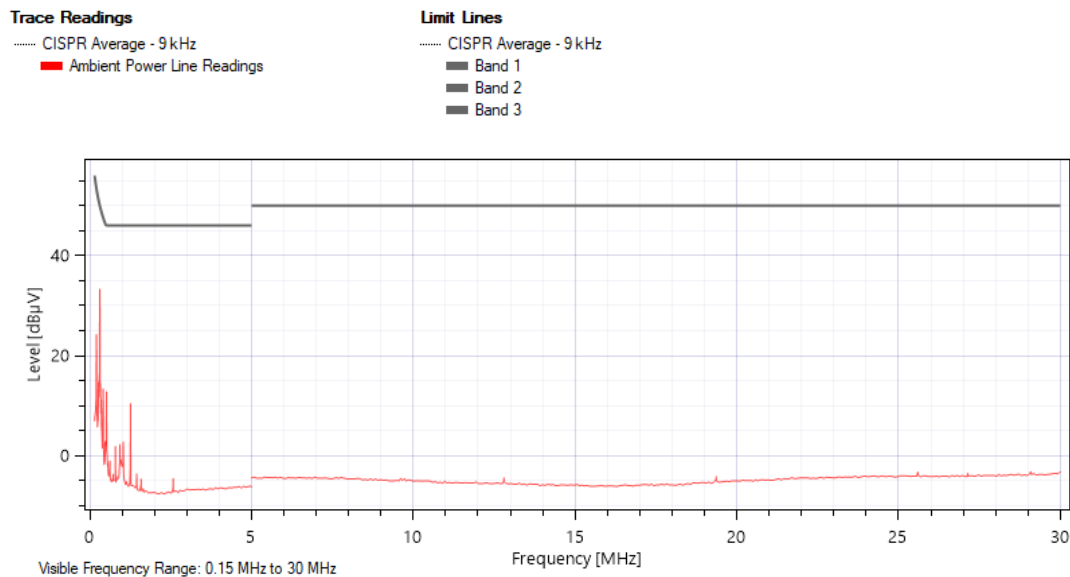


- Transmit Mode Neutral Line



4.5.1.2. Average measurement Plots

- Ambient Power Line



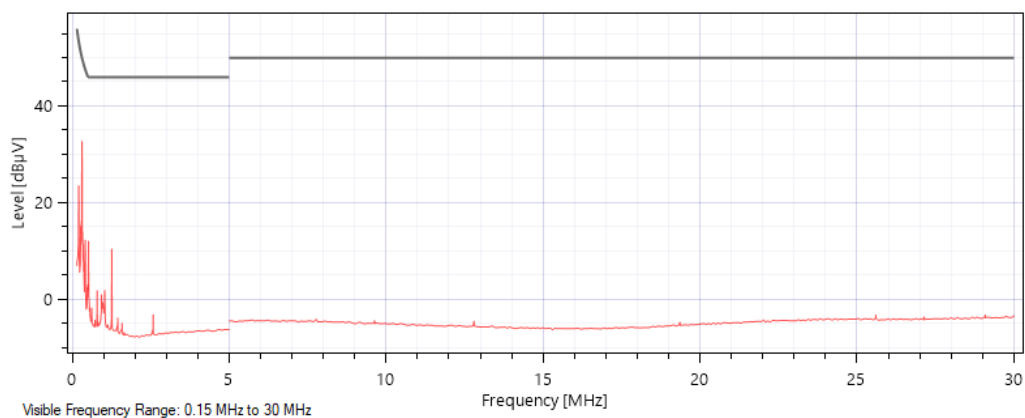
- Ambient Neutral Line

Trace Readings

..... CISPR Average - 9 kHz
■ Ambient Neutral Line Readings

Limit Lines

..... CISPR Average - 9 kHz
■ Band 1
■ Band 2
■ Band 3



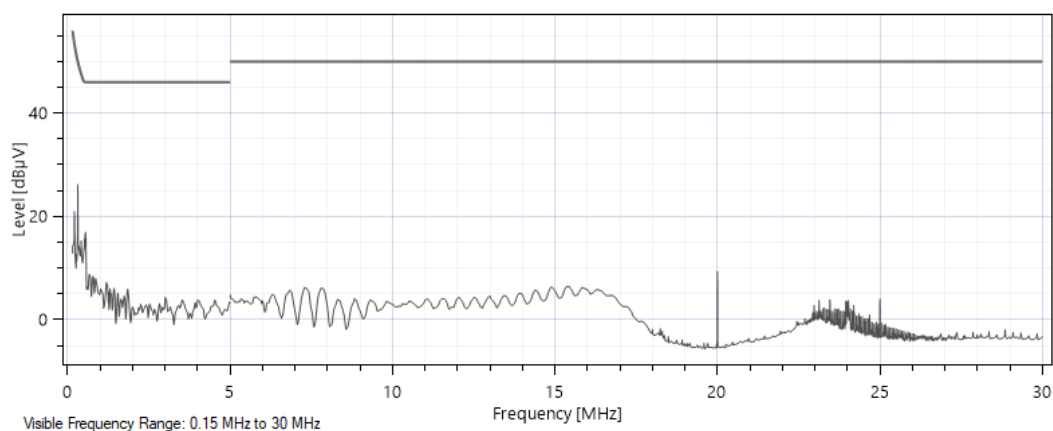
- Idle Mode Power Line

Trace Readings

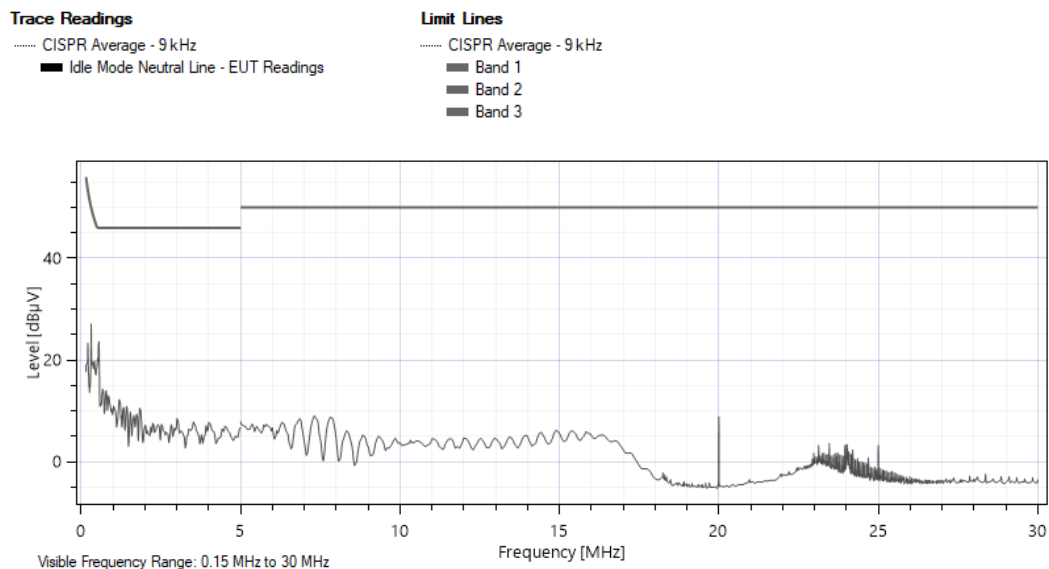
..... CISPR Average - 9 kHz
■ Idle Mode Power Line - EUT Readings

Limit Lines

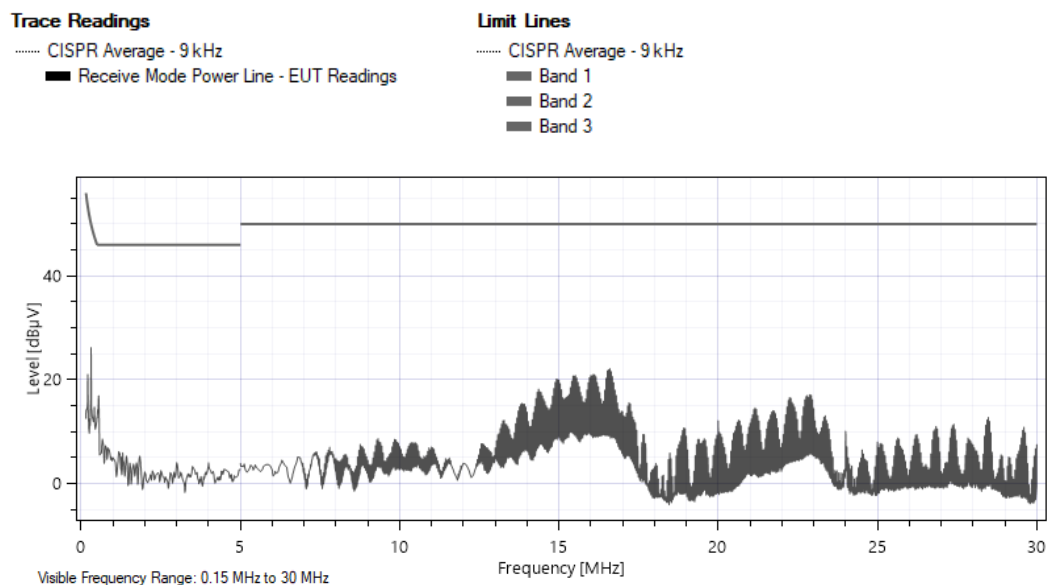
..... CISPR Average - 9 kHz
■ Band 1
■ Band 2
■ Band 3



- Idle Mode Neutral Line



- Receive Mode Power Line



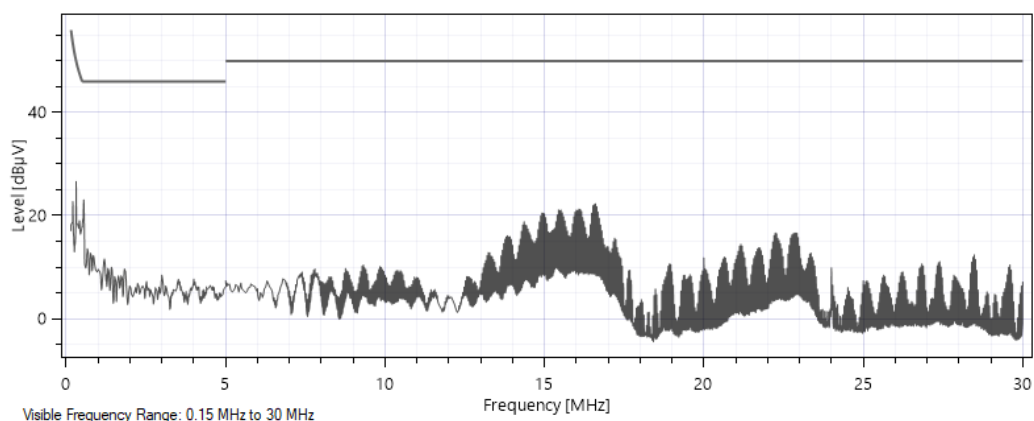
• Receive Mode Neutral Line

Trace Readings

..... CISPR Average - 9 kHz
 ■ Receive Mode Neutral Line - EUT Readings

Limit Lines

..... CISPR Average - 9 kHz
 ■ Band 1
 ■ Band 2
 ■ Band 3



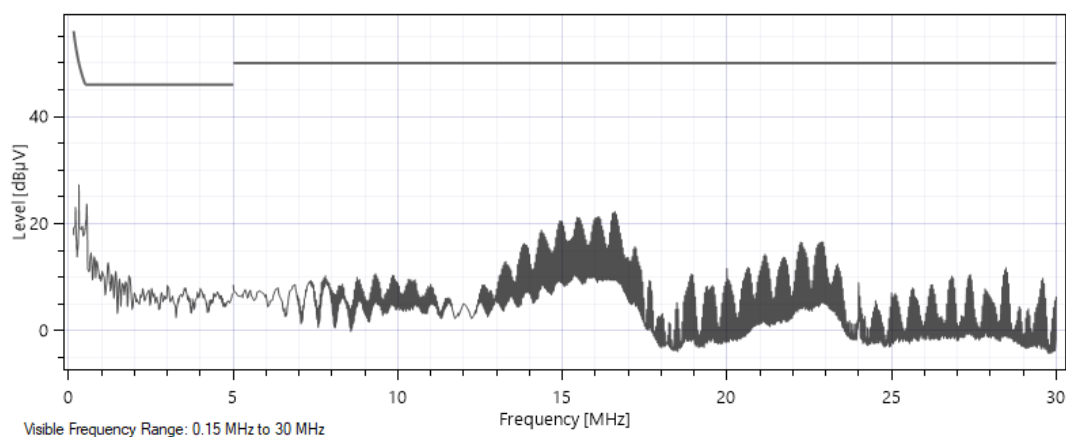
• Transmit Mode Power Line

Trace Readings

..... CISPR Average - 9 kHz
 ■ Transmit Mode Power Line - EUT Readings

Limit Lines

..... CISPR Average - 9 kHz
 ■ Band 1
 ■ Band 2
 ■ Band 3



Test Profile: ANSI C63.4 - 2014, Section 5.2 AC power-line conducted emission test

Measurement Parameters: Refer to "5-2 Segments 4,5,6 Settings" included at the end of the report.

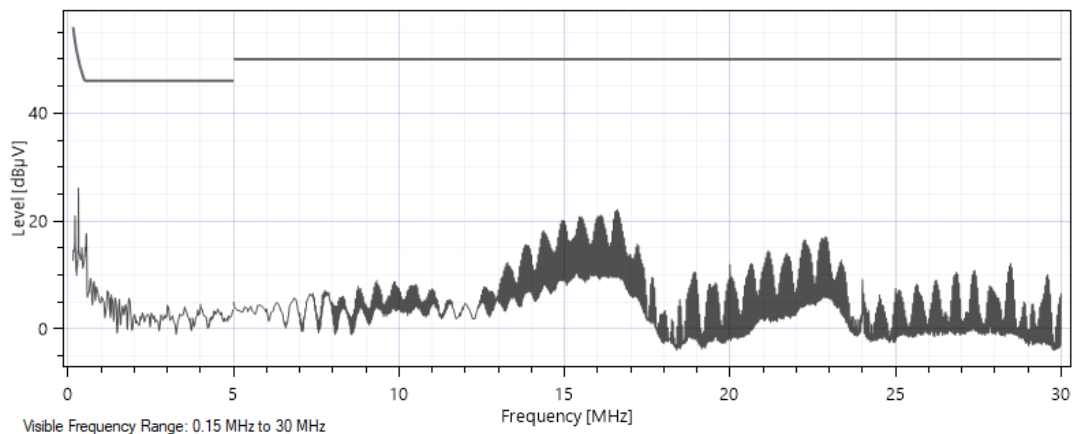
- Transmit Mode Neutral Line

Trace Readings

- CISPR Average - 9 kHz
- Transmit Mode Neutral Line - EUT Readings

Limit Lines

- CISPR Average - 9 kHz
- Band 1
- Band 2
- Band 3



4.5.2. Setup 2 Plots

4.5.2.1. Peak Measurement Plots

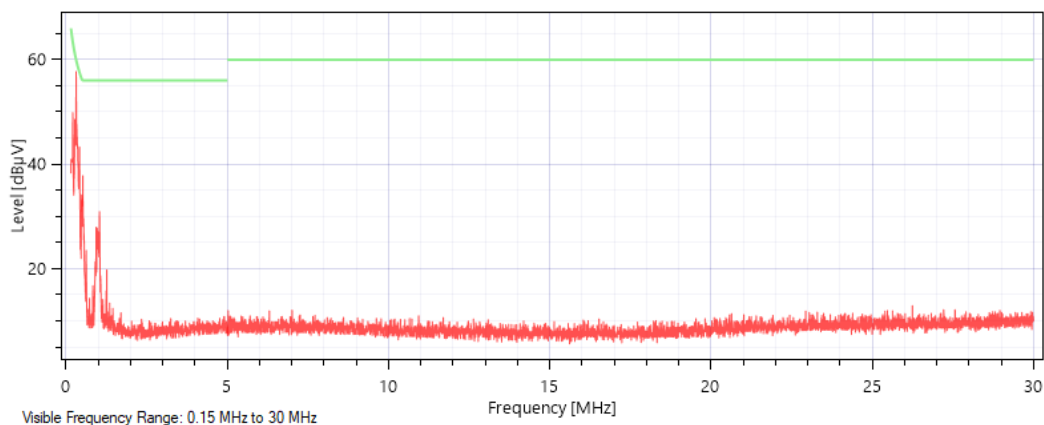
- Ambient Power Line

Trace Readings

- Peak - 9 kHz
- Ambient Power Line Readings

Limit Lines

- Auxiliary Limits
- Band 1 (QuasiPeak)
- Band 2 (QuasiPeak)
- Band 3 (QuasiPeak)



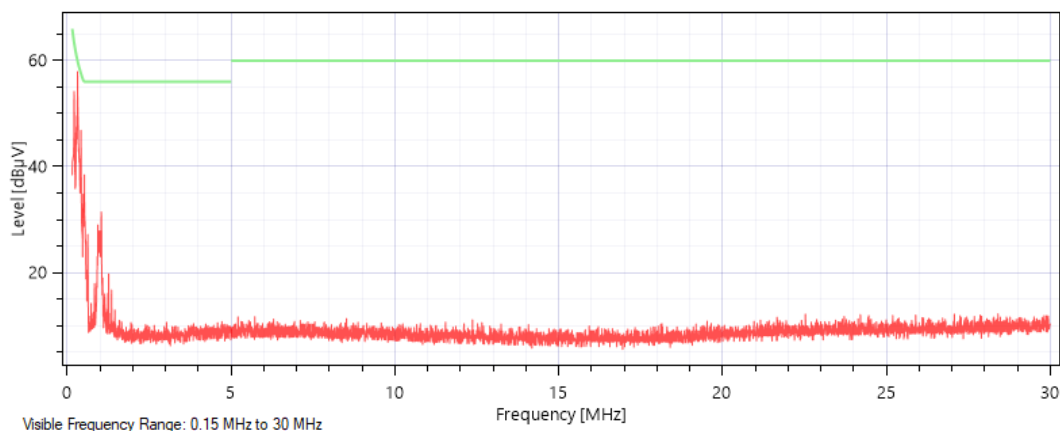
• Ambient Neutral Line

Trace Readings

..... Peak - 9 kHz
█ Ambient Neutral Line Readings

Limit Lines

..... Auxiliary Limits
█ Band 1 (QuasiPeak)
█ Band 2 (QuasiPeak)
█ Band 3 (QuasiPeak)



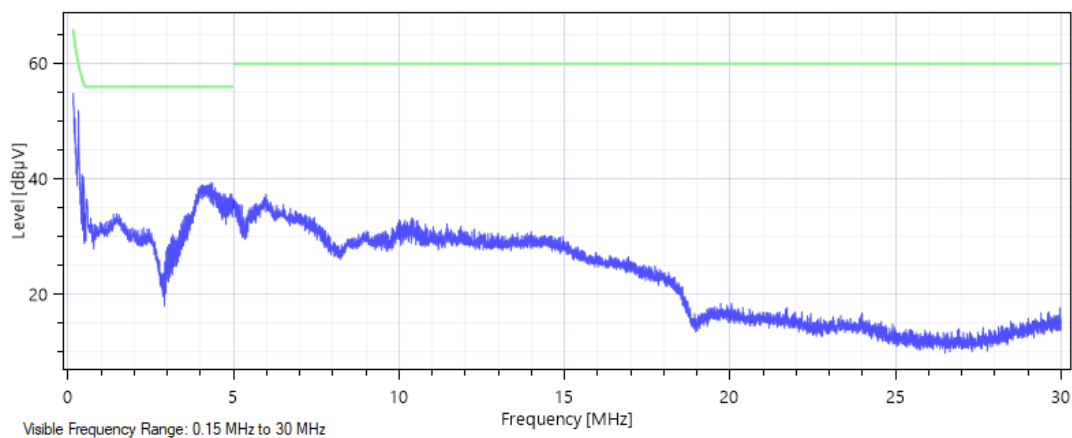
• Idle Mode Power Line

Trace Readings

..... Peak - 9 kHz
█ Idle Mode Power Line - Laptop Readings

Limit Lines

..... Auxiliary Limits
█ Band 1 (QuasiPeak)
█ Band 2 (QuasiPeak)
█ Band 3 (QuasiPeak)



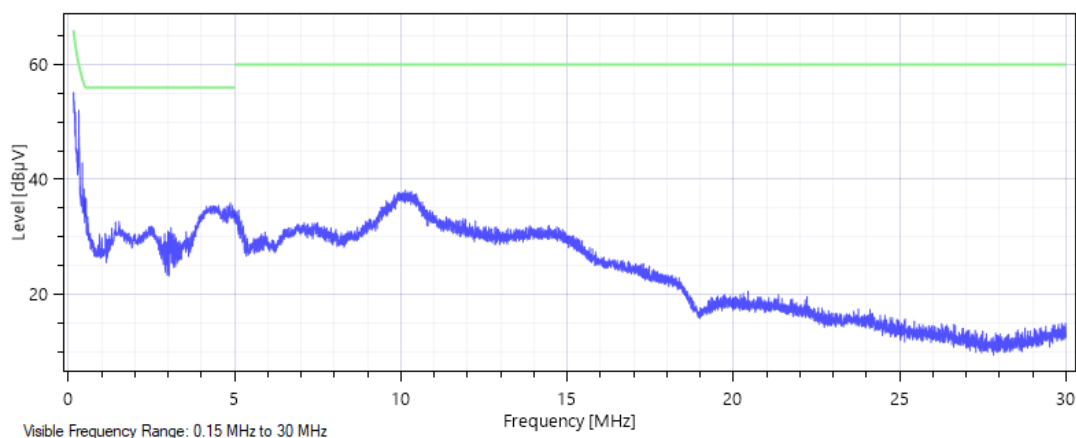
• Idle Mode Neutral Line

Trace Readings

..... Peak - 9 kHz
 ■ Idle Mode Neutral Line - Laptop Readings

Limit Lines

..... Auxiliary Limits
 ■ Band 1 (QuasiPeak)
 ■ Band 2 (QuasiPeak)
 ■ Band 3 (QuasiPeak)



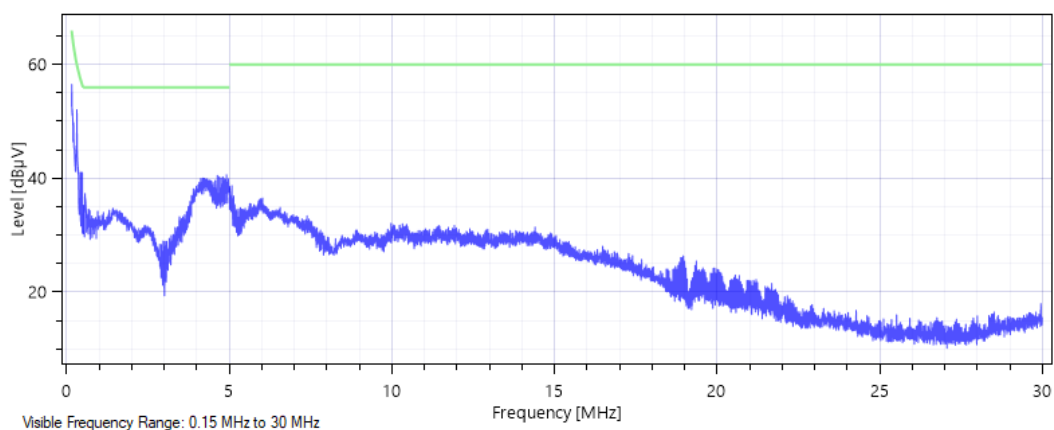
• Receive Mode Power Line

Trace Readings

..... Peak - 9 kHz
 ■ Receive Mode Power Line - Laptop Readings

Limit Lines

..... Auxiliary Limits
 ■ Band 1 (QuasiPeak)
 ■ Band 2 (QuasiPeak)
 ■ Band 3 (QuasiPeak)



• Receive Mode Neutral Line

Trace Readings

..... Peak - 9 kHz

■ Receive Mode Neutral Line - Laptop Readings

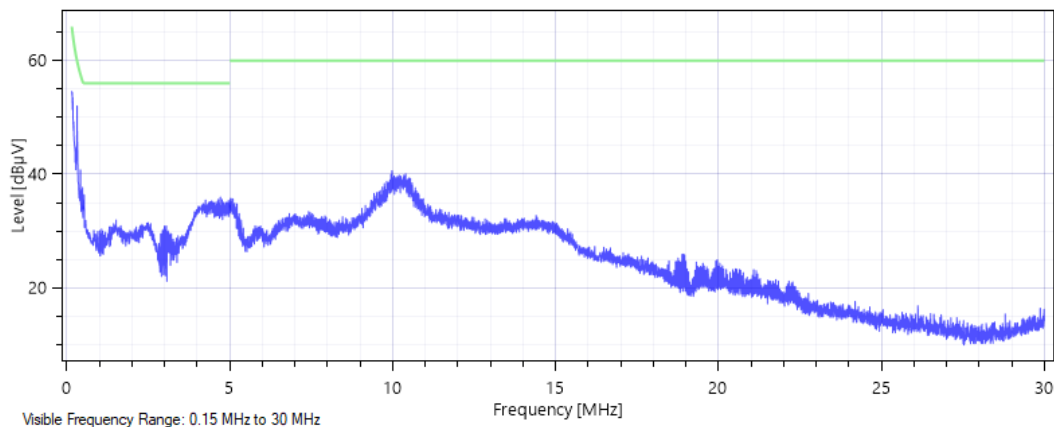
Limit Lines

..... Auxiliary Limits

■ Band 1 (QuasiPeak)

■ Band 2 (QuasiPeak)

■ Band 3 (QuasiPeak)



• Transmit Mode Power Line

Trace Readings

..... Peak - 9 kHz

■ Transmit Mode Power Line - Laptop Readings

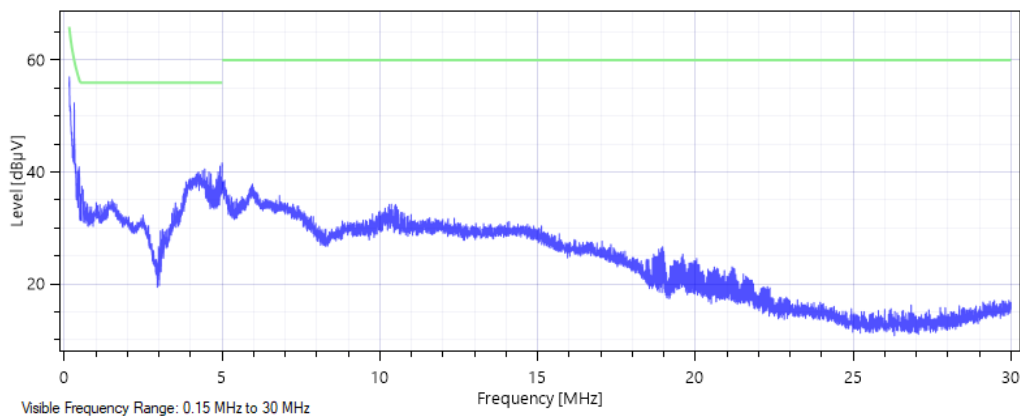
Limit Lines

..... Auxiliary Limits

■ Band 1 (QuasiPeak)

■ Band 2 (QuasiPeak)

■ Band 3 (QuasiPeak)



• Transmit Mode Neutral Line

Trace Readings

..... Peak - 9 kHz

■ Transmit Mode Neutral Line - Laptop Readings

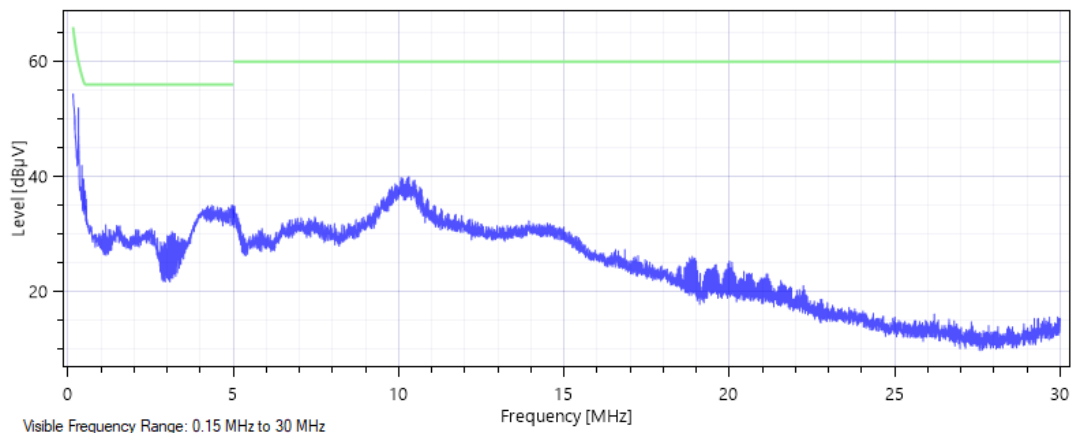
Limit Lines

..... Auxiliary Limits

■ Band 1 (QuasiPeak)

■ Band 2 (QuasiPeak)

■ Band 3 (QuasiPeak)



4.5.2.2. Average measurement Plots

• Ambient Power Line

Trace Readings

..... CISPR Average - 9 kHz

■ Ambient Power Line Readings

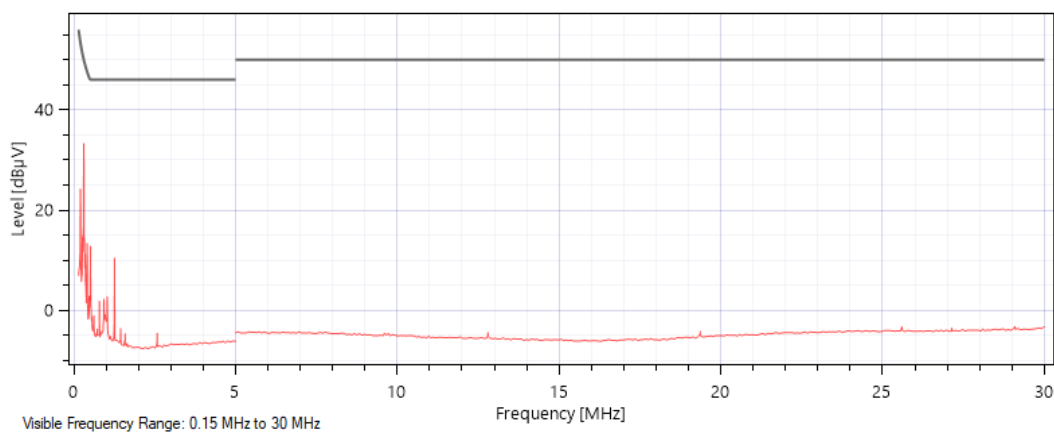
Limit Lines

..... CISPR Average - 9 kHz

■ Band 1

■ Band 2

■ Band 3



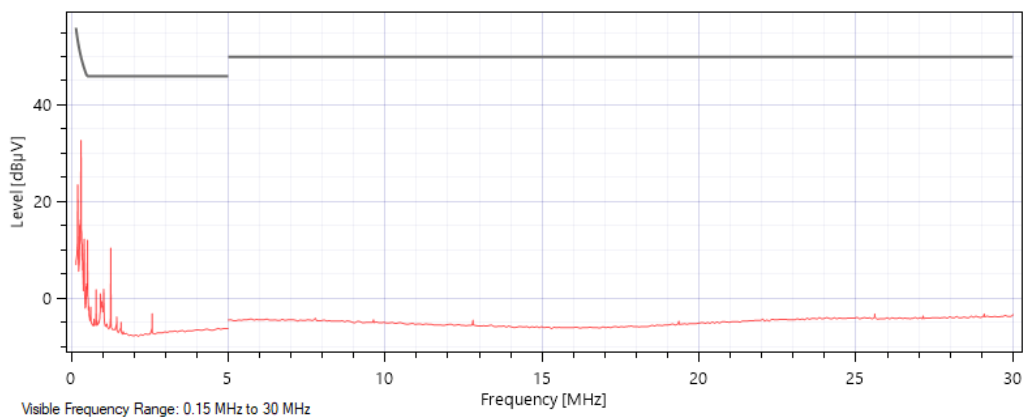
• Ambient Neutral Line

Trace Readings

..... CISPR Average - 9 kHz
■ Ambient Neutral Line Readings

Limit Lines

..... CISPR Average - 9 kHz
■ Band 1
■ Band 2
■ Band 3



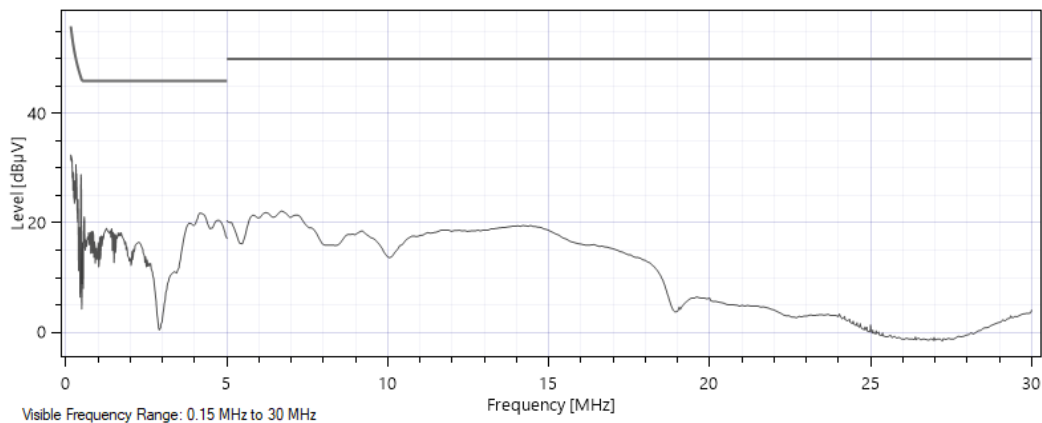
• Idle Mode Power Line

Trace Readings

..... CISPR Average - 9 kHz
■ Idle Mode Power Line - Laptop Readings

Limit Lines

..... CISPR Average - 9 kHz
■ Band 1
■ Band 2
■ Band 3



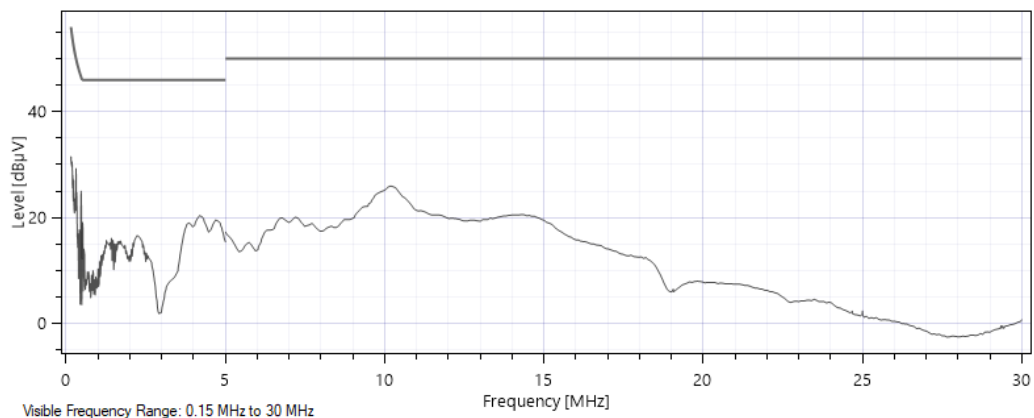
• Idle Mode Neutral Line

Trace Readings

..... CISPR Average - 9 kHz
 ■ Idle Mode Neutral Line - Laptop Readings

Limit Lines

..... CISPR Average - 9 kHz
 ■ Band 1
 ■ Band 2
 ■ Band 3



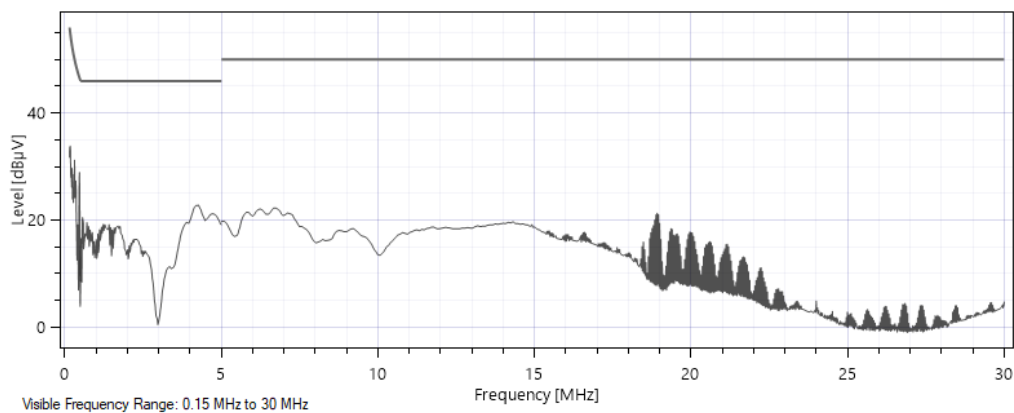
• Receive Mode Power Line

Trace Readings

..... CISPR Average - 9 kHz
 ■ Receive Mode Power Line - Laptop Readings

Limit Lines

..... CISPR Average - 9 kHz
 ■ Band 1
 ■ Band 2
 ■ Band 3



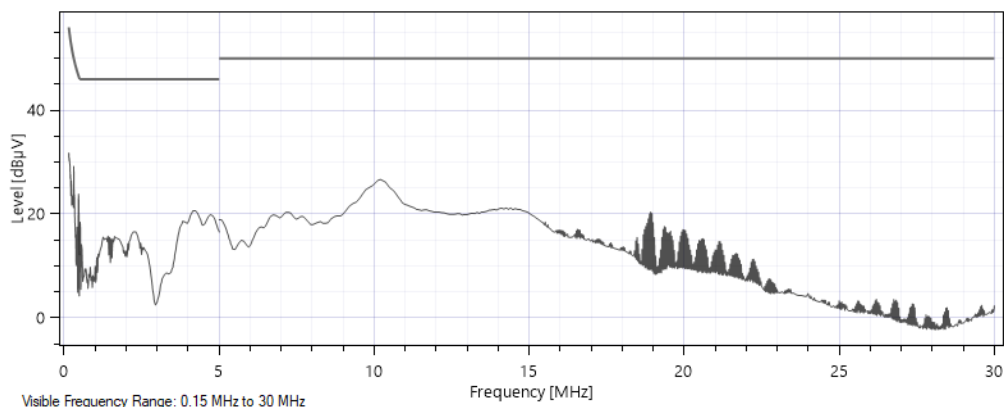
• Receive Mode Neutral Line

Trace Readings

..... CISPR Average - 9 kHz
 ■ Receive Mode Neutral Line - Laptop Readings

Limit Lines

..... CISPR Average - 9 kHz
 ■ Band 1
 ■ Band 2
 ■ Band 3



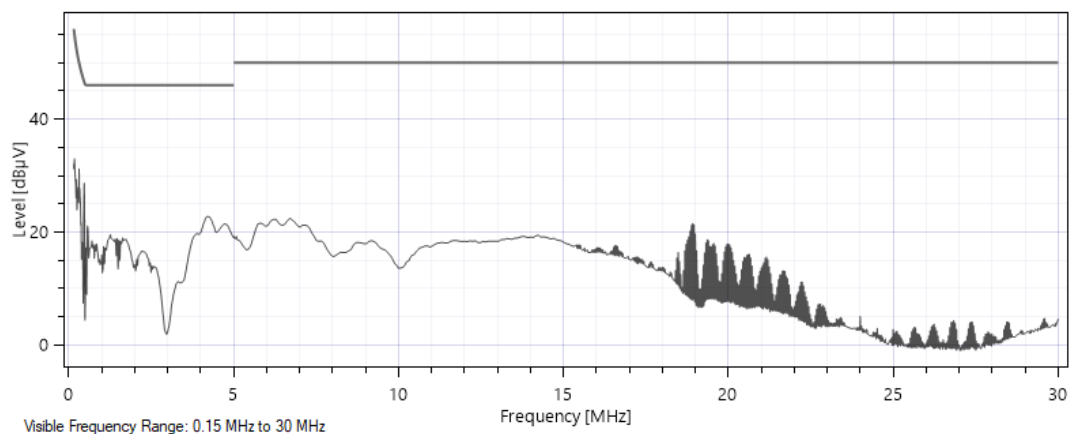
• Transmit Mode Power Line

Trace Readings

..... CISPR Average - 9 kHz
 ■ Transmit Mode Power Line - Laptop Readings

Limit Lines

..... CISPR Average - 9 kHz
 ■ Band 1
 ■ Band 2
 ■ Band 3



• Transmit Mode Neutral Line

Trace Readings

..... CISPR Average - 9 kHz

■ Transmit Mode Neutral Line - Laptop Readings

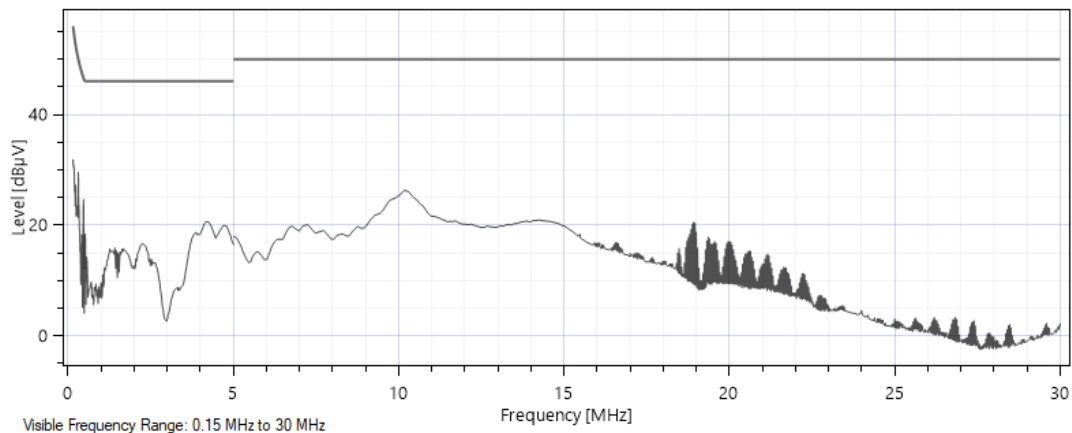
Limit Lines

..... CISPR Average - 9 kHz

■ Band 1

■ Band 2

■ Band 3



5. Test Details

5.1. Test Equipment Setup and Procedure

5.1.1. Sample(s) Used for Measurements

Sample ID(s):	605-7063-162802-1
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5.1.2. Test Equipment Used for Conducted Measurement

Equipment Used						
ID / Serial #	Manufacturer	Description	Type	Cal / PM Due Date	last Cal Date	Interval
6595	Rohde & Schwarz	ESR26	EMI Receiver	02/20/2027	2/20/2026	1 Year
CF GCL	Megaphase / Pasternack	CBL 94, CBL 96, CBL 158, AT26, Port N3	Cable and Feedthroughs	8/31/2026	8/31/2025	1 Year
S/N: PJ2246	Lindgren	3M Chamber	Shielded Enclosure	6/30/2026	3/11/2026	Quarterly
7362	Omega	iBTHX-W Virtual	Chart Recorder	03/31/2027	3/31/2026	1 Year
6539	Stanley	Tape Measure	Measurement Tool	06/19/2026	6/19/2023	3 years
SW48	Gentex	Gentex Emissions Measurement Software	Software	3/31/2027	3/11/2026	1 Year
7678	EMCO	3810-2NM	AC LISN	7/10/2026	7/10/2023	3 Years
7811	Hioki	RM3544 DC Resistance Meter	Meter	02/02/2027	02/02/2026	1 Year

5.2. Measurement Uncertainty

The standard uncertainty of measurement has been determined in accordance with the ISO Guide to the Expression of Uncertainty in Measurements. The estimation of measurement uncertainty reported is the expanded uncertainty for a coverage factor of $k=1.96$ and confidence interval of approximately 95%.

Expanded Uncertainty $U_{lab} (k=1.96)$ is 2.38 dB

5.3. Measurement Settings

EMI Receiver Settings for Conducted Emissions:

Sweep 1: Peak - 9 kHz Segment: 1 Start Frequency: 0.15 MHz End Frequency: 0.5 MHz Band: Band 1 (QP) Detector: Peak Sweep Mode: FFT Attenuator: AUTO Pre-Amp: On Max Hold Trace Mode: Off Bandwidth Filter: EMI (6dB) RBW: 9 kHz Step Size: AUTO (2.25 kHz) Dwell Time: 50ms Notch Filter (2.4 - 2.5 GHz): Disabled Notch Filter (5.725 - 5.875 GHz): Disabled	Sweep 1: Peak - 9 kHz Segment: 2 Start Frequency: 0.5 MHz End Frequency: 5 MHz Band: Band 2 (QP) Detector: Peak Sweep Mode: FFT Attenuator: 5 dB Pre-Amp: Off Max Hold Trace Mode: Off Bandwidth Filter: EMI (6dB) RBW: 9 kHz Step Size: AUTO (2.25 kHz) Dwell Time: 50ms Notch Filter (2.4 - 2.5 GHz): Disabled Notch Filter (5.725 - 5.875 GHz): Disabled	Sweep 1: Peak - 9 kHz Segment: 3 Start Frequency: 5 MHz End Frequency: 30 MHz Band: Band 3 (QP) Detector: Peak Sweep Mode: FFT Attenuator: 5 dB Pre-Amp: Off Max Hold Trace Mode: Off Bandwidth Filter: EMI (6dB) RBW: 9 kHz Step Size: AUTO (2.25 kHz) Dwell Time: 50ms Notch Filter (2.4 - 2.5 GHz): Disabled Notch Filter (5.725 - 5.875 GHz): Disabled
Sweep 2: CISPR Average - 9 kHz Segment: 4 Start Frequency: 0.15 MHz End Frequency: 0.5 MHz Band: Band 1 Detector: CISPR Average Sweep Mode: FFT Attenuator: AUTO Pre-Amp: On Max Hold Trace Mode: Off Bandwidth Filter: EMI (6dB) RBW: 9 kHz Step Size: AUTO (2.25 kHz) Dwell Time: 50ms Notch Filter (2.4 - 2.5 GHz): Disabled Notch Filter (5.725 - 5.875 GHz): Disabled	Sweep 2: CISPR Average - 9 kHz Segment: 5 Start Frequency: 0.5 MHz End Frequency: 5 MHz Band: Band 2 Detector: CISPR Average Sweep Mode: FFT Attenuator: 5 dB Pre-Amp: Off Max Hold Trace Mode: Off Bandwidth Filter: EMI (6dB) RBW: 9 kHz Step Size: AUTO (2.25 kHz) Dwell Time: 50ms Notch Filter (2.4 - 2.5 GHz): Disabled Notch Filter (5.725 - 5.875 GHz): Disabled	Sweep 2: CISPR Average - 9 kHz Segment: 6 Start Frequency: 5 MHz End Frequency: 30 MHz Band: Band 3 Detector: CISPR Average Sweep Mode: FFT Attenuator: 5 dB Pre-Amp: Off Max Hold Trace Mode: Off Bandwidth Filter: EMI (6dB) RBW: 9 kHz Step Size: AUTO (2.25 kHz) Dwell Time: 50ms Notch Filter (2.4 - 2.5 GHz): Disabled Notch Filter (5.725 - 5.875 GHz): Disabled

6. Formulas and Sample Calculations

$E_{ACTUAL} \text{ (dBuV)} = E_{MEAS} \text{ (dBuV)} + \text{Cable Loss (dB)} + \text{LISN Insertion Loss (dB)}$

7. Power Targets

Frequency (MHz)	Memory Map Value (decimal)
2402-2480	80