

# Element Materials Technology Denver-Longmont A.K.A. NTS Labs, LLC

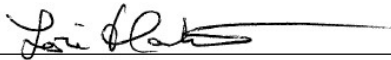
## Test Report for Electromagnetic Interference (EMI) Testing of the Vanguard Vault

**Prepared For**

SLI Compliance | 4720 Independence Street | Wheat Ridge, CO 80033

**Prepared By**

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**Revision History**

Rev.	Description	Issue Date
0	Initial Release	04/21/2025
1	Customer's edits incorporated for PN and Mode of Operation	04/30/2025

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## 1.0 Introduction

This document presents the test procedures used and the results obtained during the performance of an Electromagnetic Interference (EMI) test program at Element Materials Technology Denver-Longmont (hereafter referred to as “Element”). The test program was conducted to assess the ability of the specified Equipment Under Test (EUT) to successfully satisfy the requirements defined in the test specification.

## 2.0 References

The following references listed below form a part of this document to the extent specified herein.

- Test Specification: FCC Part 15, Class B
- SLI Compliance Purchase Order 20250319-02 dated 03/19/2025.
- Element Quotation OP0671388 dated 03/19/2025.
- ISO/IEC 17025:2017(E) *General Requirements for the Competence of Testing and Calibration Laboratories*, dated 11/2017.

## 3.0 Product Selection and Description

SLI Compliance selected and provided the following test sample(s) to be used as the Equipment Under Test.

**Table 3.0-1: Product Identification – Equipment Under Test (EUT)**

Item	Qty.	Name/Description	Part Number	Serial Number
1	1	Vanguard Vault	VV-600 2007030	V2520003701
2	1	Vanguard Vault Ballot Box	2007060	X2520014901
3	1	ATI	2007080-A	NA
4	1	Imprinter	2007050	I2520013501
5	1	Headphones	Headphones	NA

## 3.1 Security Classification

Non-classified

## 4.0 General Test Requirements

### 4.1 Test Equipment

The instrumentation used in the performance of these tests is periodically calibrated and standardized within manufacturer's rated accuracies and are traceable to the National Institute of Standards and Technology. The calibration procedures and practices are in accordance with ISO 17025:2017. Certification of calibration is on file subject to inspection by authorized personnel.

### 4.2 Measurement Uncertainties

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below were calculated using the approach described in CISPR 16-4-2:2003 using a coverage factor of  $k=2$ , which gives a level of confidence of approximately 95%. The levels were found to be below levels of CISPR and therefore no adjustment of the data for measurement uncertainty is required.

**Table 4.2-1: Measurement Uncertainties (Emissions)**

Measurement Type	Measurement Unit	Frequency Range	Expanded Uncertainty
Conducted Emissions	dBuA	150kHz to 30MHz	.+/- 3.75 dB
Radiated Emissions	dBuV/m	30MHz to 1GHz	.+/- 6.32 dB
		1GHz to 6GHz	.+/- 9.59 dB
		6GHz to 18GHz	.+/- 7.58 dB
		18GHz to 40GHz	.+/- 6.08 dB



## 5.0 Test Description and Results

**Table 5.0-1: Summary of Test Information & Results**

Section	Test	Specification	Test Facility	Test Date	Part #	Serial #	Test Result
5.1	Radiated Emissions, 30 MHz - 1 GHz	FCC Part 15. Class B	Longmont	04/14/2025	VV-600 2007030	V2520003701	Passed
					2007060	X2520014901	
					2007080-A	NA	
					2007050	I2520013501	
					Headphones	NA	
5.2	Radiated Emissions, 1 GHz - 15 GHz	FCC Part 15. Class B	Longmont	04/14/2025	VV-600 2007030	V2520003701	Passed
					2007060	X2520014901	
					2007080-A	NA	
					2007050	I2520013501	
					Headphones	NA	
5.3	Conducted Emissions, 150 kHz - 30 MHz	FCC Part 15. Class B	Longmont	04/14/2025 04/15/2025	VV-600 2007030	V2520003701	Passed
					2007060	X2520014901	
					2007080-A	NA	
					2007050	I2520013501	
					Headphones	NA	

The decision rule for Test Results was based on the Test Specification used for testing.

## 5.1 Radiated Emissions, 30 MHz - 1 GHz

### 5.1.1 Test Procedure

The EUT was tested in accordance with FCC Part 15. Class B.

### 5.1.2 Test Result

The EUT passed the defined requirements.

### 5.1.3 Test Datasheets

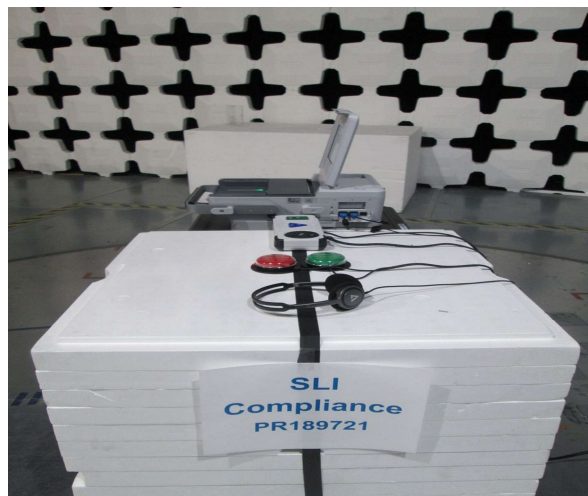
Element Materials Technology				
<b>Radiated Emissions</b>				
Standard FCC Part 15, Class B Referenced: _____			Date: 4/14/2025	
Temperature: 22°C		Humidity: 19%	Pressure: 843 mb	
Input Voltage: 120Vac/60Hz			Pretest & Linearity Check: Pass	
Configuration of Unit: Fully exercising all features			Sweep Time Check: Ok	
Test Engineer / Technician: T. Wittig				
Date	Time	Log Entries	Initials	Result
4/14/2025	0701	Prior to RE testning in 10 meter #2, performed pre-test verification and ambient scans	TW	Complete
	0709	Client arrived and begin setting up the Vanguard Vault	TW	Complete
	0852	Begin Radiated Emissions, 30 MHz 1 GHz, FCC Part 15. Class B	TW	Complete
	1043	Complete RE testing from 30 MHz to 1 GHz	TW	Pass

<b>Element Materials Technology</b>	
<b>Radiated Emissions</b>	
Standard Referenced: <u>FCC Part 15, Class B</u>	Date: <u>4/14/2025</u>
Temperature: <u>22°C</u> Humidity: <u>19%</u>	Pressure: <u>843 mb</u>
Input Voltage: <u>120Vac/60Hz</u>	Pretest & Linearity Check: <u>Pass</u>
Configuration of Unit: <u>Fully exercising all features</u>	Sweep Time Check: <u>Ok</u>
Test Engineer / Technician: <u>T. Wittig</u>	
<p>"Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:</p> <p>PK = Peak Measurement: RBW is 120kHz, VBW is 3 MHz            QP = Quasi-Peak Measurement: RBW is 120kHz, VBW is 3 MHz, and QP Detection is ENABLED            AV = Video Average Measurement: RBW is 1 MHz, VBW is 10 Hz</p> <p>The "field strength" (FS) emissions level is attained by adding the received amplitude measured (RA), Antenna factor (AF), and cable factor (CF) minus the amplifier gain (AG). <math>FS = RA + AF + CF - AG</math>. Final measurements are made with the Azimuth, Polarity, Height, and EUT Cables positioned for maximum radiation. If applicable, cables positions are noted in the test log.            (Sample Calculation: <math>49.6 \text{ dBuV} + 11.4 \text{ dB/m} - 28.8 \text{ dB (CF/AG)} = 32.2 \text{ dBuV/m}</math>. Important Note: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)</p> <p>The "Azm/Pol/Hgt" indicates the turn-table azimuth, the antenna polarity, and the antenna height where the maximum emissions level was measured.</p> <p>The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.</p> <p>The PRESCAN is a peak measurement and is performed with the RBW set to 120 kHz, VBW set to 3 MHz (30 MHz to 1 GHz), and the RBW set to 1 MHz, VBW set to 3MHz (&gt; 1 GHz)</p> <p>The Antenna setup for &gt;1GHz should match the setup that was used to meet SVSWR requirements. Refer to the SVSWR report stored in the calibration records for the chamber being used.</p>	

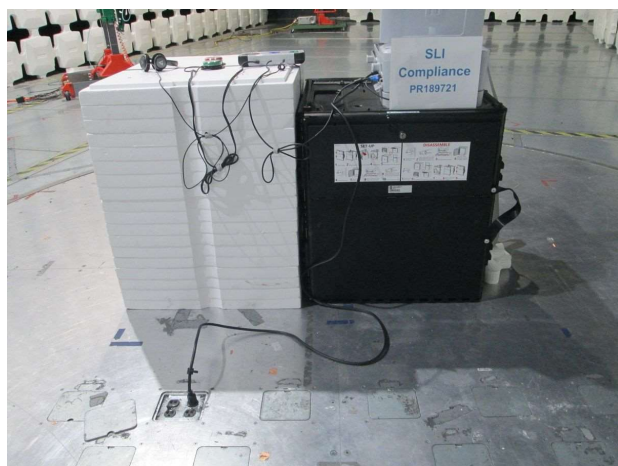
#### 5.1.4 Test Photographs



RE Test Setup Photos - Front



RE Test Setup Photos - Right

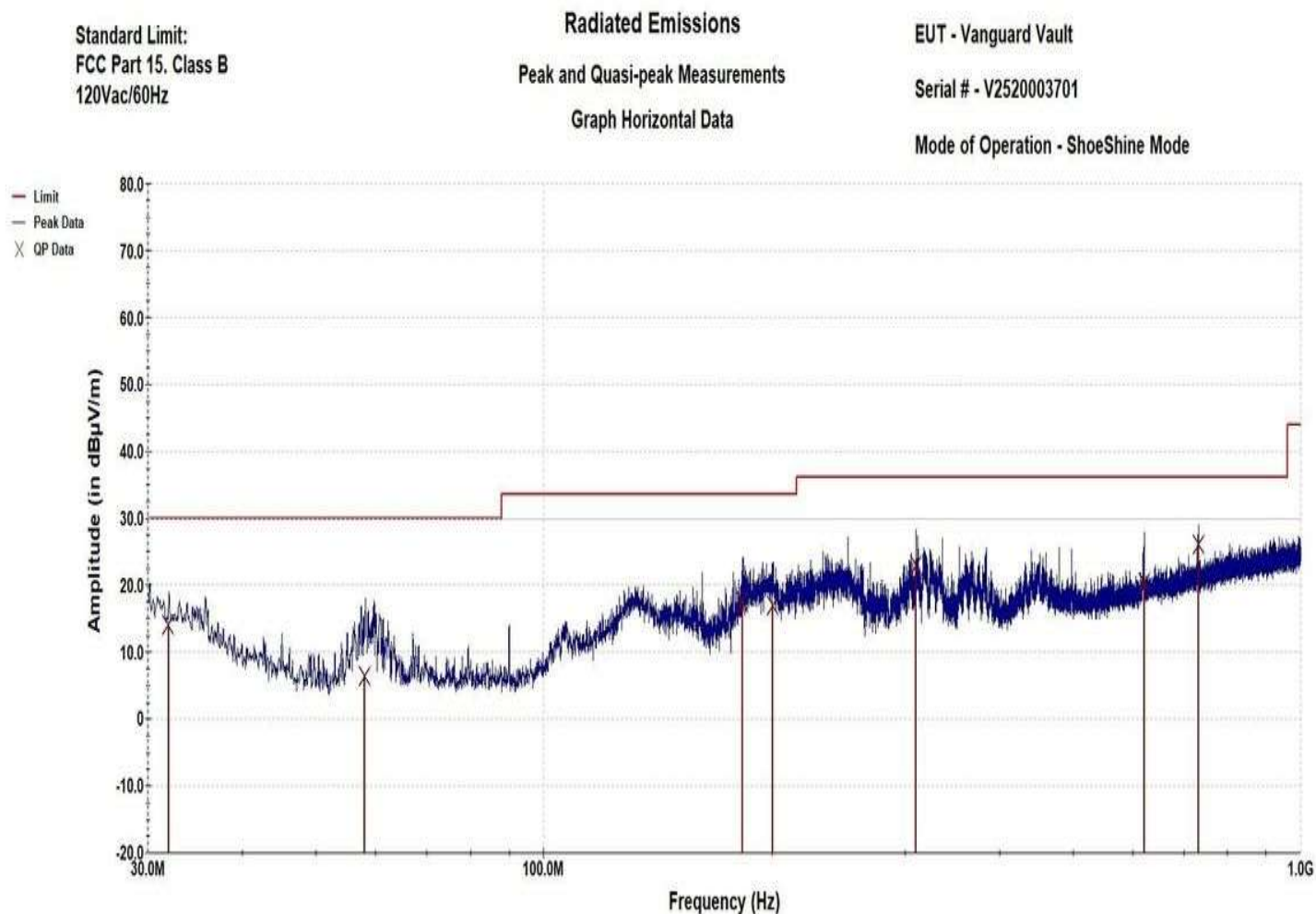


RE Test Setup Photos - Back



RE Test Setup Photos - Left

## 5.1.5 Test Data



Operator: T. Wittig

Customer: SLI Compliance

Last Data Update 09:33:45 AM, Monday, April 14, 2025

PR#: PR189721

Horizontal Data Graph



Radiated Emissions  
Quasi-peak Measurements  
Table: Horizontal Quasi-peaks below 1 GHz

Operator: T. Wittig

EUT: Vanguard Vault  
PR#: PR189721  
Customer: SLI Compliance

Frequency (MHz)	QP (in dBuV)	Delta QP to Limit (in dBuV)	Height (in cm)	Azimuth (in Degrees)
31.930 MHz	14.006	-15.994	196	261
58.060 MHz	6.435	-23.565	401	147
183.250 MHz	17.470	-16.050	387	305
200.750 MHz	17.045	-16.475	325	211
310.570 MHz	22.939	-13.081	262	311
620.810 MHz	20.451	-15.569	227	180
733.170 MHz	26.007	-10.013	196	276
Standard Limit:				
FCC Part 15, Class B				
120Vac/60Hz				

Horizontal Quasi-Peak Data Table

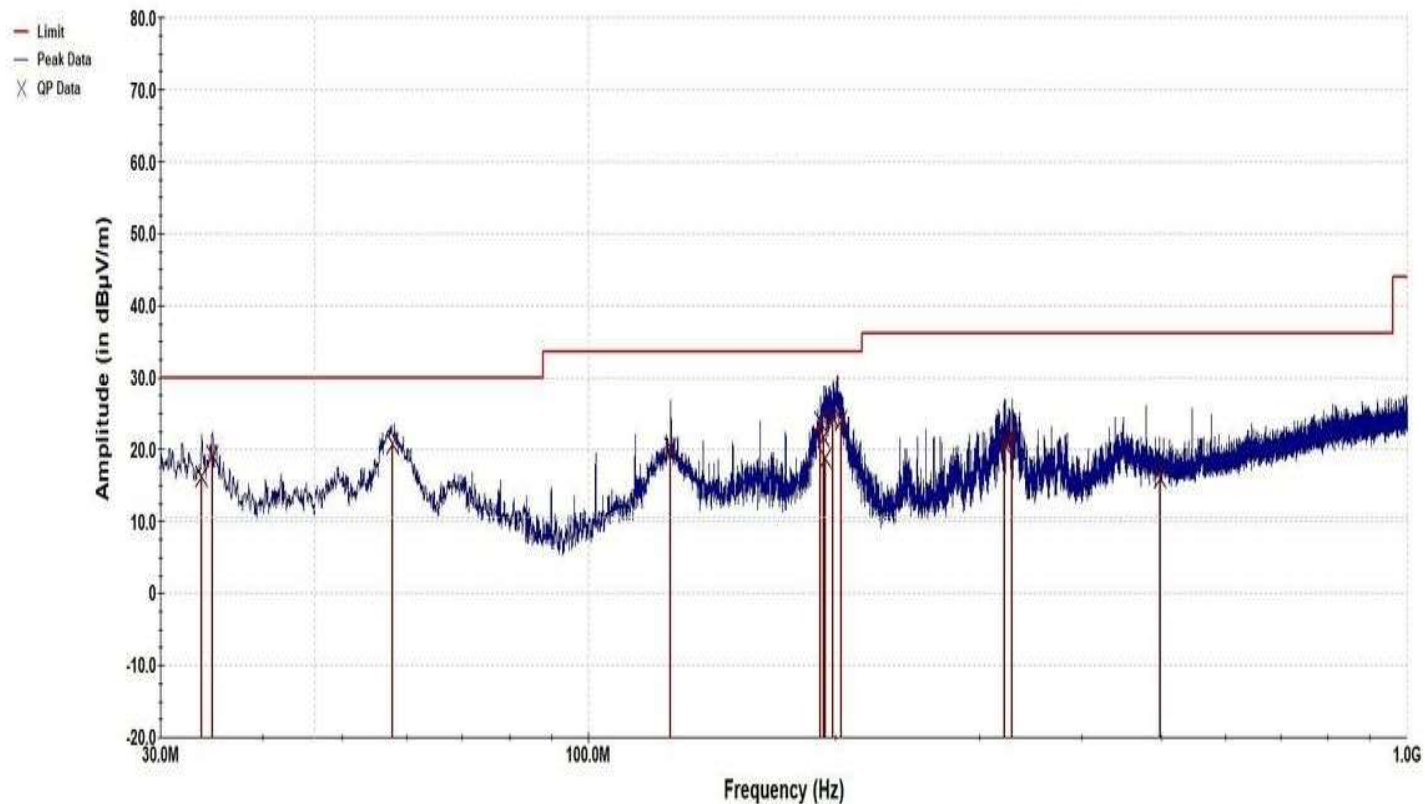
Standard Limit:  
FCC Part 15, Class B  
120Vac/60Hz

# Radiated Emissions Peak and Quasi-peak Measurements Graph Vertical Data

EUT - Vanguard Vault

Serial # - V2520003701

Mode of Operation - ShoeShine Mode



Operator: T. Wittig

Customer: SLI Compliance

Last Data Update 10:29:19 AM, Monday, April 14, 2025

PR#: PR189721

Vertical Data Graph

Radiated Emissions  
Quasi-peak Measurements  
Table: Vertical Quasi-peaks below 1 GHz

Operator: T. Wittig

EUT: Vanguard Vault  
PR#: PR189721  
Customer: SLI Compliance

Frequency (MHz)	QP (in dBuV)	Delta QP to Limit (in dBuV)	Height (in cm)	Azimuth (in Degrees)
33.650 MHz	16.234	-13.766	108	71
34.690 MHz	19.115	-10.885	142	359
57.630 MHz	20.730	-9.270	224	91
126.030 MHz	20.186	-13.334	256	190
191.850 MHz	23.821	-9.699	247	171
193.590 MHz	21.718	-11.802	162	162
194.510 MHz	18.761	-14.759	230	236
198.730 MHz	24.420	-9.100	99	158
203.510 MHz	23.979	-9.541	109	163
322.200 MHz	20.825	-15.195	136	33
329.290 MHz	22.004	-14.016	99	20
499.350 MHz	15.997	-20.023	248	156
Standard Limit:				
FCC Part 15, Class B				
120Vac/60Hz				

Vertical Quasi-Peak Data Table



## 5.1.6 Test Equipment List

**Table 5.1-1: Radiated Emissions, 30 MHz - 1 GHz Test Equipment List**

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC059421	Chamber (EMI, Semi-Anechoic)10 Meter	CIR Enterprises	10M2	02/12/2024	02/12/2026
WC059431	Controller (System)	Sunol Sciences	SC110V	NCR	NCR
WC059439	Meter (Digital Multimeter)	Fluke	85	08/16/2024	08/16/2025
WC059452	Generator (Signal)	Com-Power	CGO - 505	08/27/2014	NCR
WC059739	Antenna (Biconilog)	Sunol Sciences	JB1	05/18/2021	05/11/2025
WC076859	Receiver	Rohde & Schwarz	ESW44	01/24/2025	01/24/2026
WC076870	Cable (Test)	Pasternack Enterprises	RF Coaxial Cable (20 meters)	07/24/2024	07/24/2026
WC076923	Cable (Test)	Teledyne-taber	RF Coaxial Cable (2 meters)	07/09/2024	07/10/2026
WC076928	Cable (Test)	Teledyne-taber	RF Coaxial Cable (1 meter)	07/09/2024	07/09/2026
WC078465	Amplifier (Pre/RF/Low Noise)	Pasternack Enterprises	PE15A1013	10/05/2023	10/05/2025
WC078469	Software	ETS-Lindgren	C47213	NCR	NCR
WC078489	Meter (Hydrometer)	Extech Instruments	Datalogger 42270	08/12/2024	08/31/2025

### Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

## 5.2 Radiated Emissions, 1 GHz - 15 GHz

### 5.2.1 Test Procedure

The EUT was tested in accordance with FCC Part 15. Class B.

### 5.2.2 Test Result

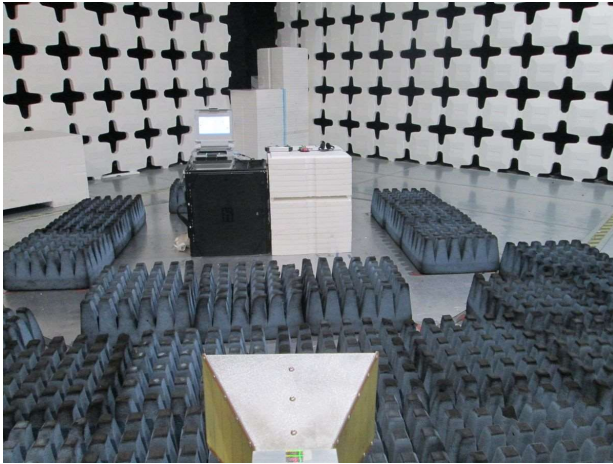
The EUT passed the defined requirements.

### 5.2.3 Test Datasheets

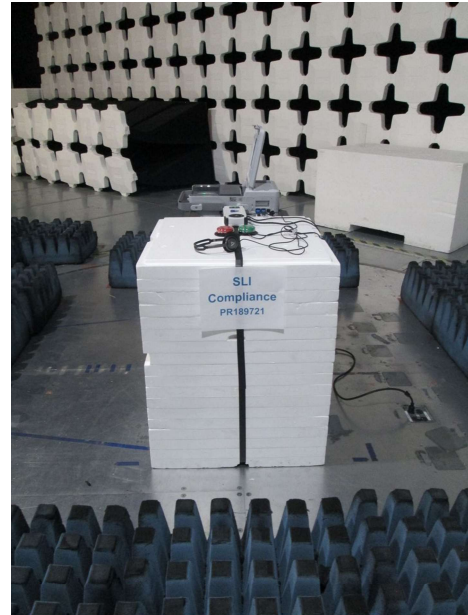
Element Materials Technology				
<b>Radiated Emissions</b>				
Standard Referenced: FCC Part 15, Class B		Date: 4/14/2025		
Temperature: 20°C		Humidity: 18%		Pressure: 843 mb
Input Voltage: 120Vac/60Hz		Pretest & Linearity Check: Pass		
Configuration of Unit: Fully exercising all features		Sweep Time Check: Ok		
Test Engineer / Technician: T. Wittig				
Date	Time	Log Entries	Initials	Result
4/14/2025	1046	Begin setup for RE 1-15 GHz testing	TW	Complete
	1123	Start RE testing, Radiated Emissions, 1 - 15 GHz. FCC Part 15. Class B	TW	---
	1319	Complete RE testing	TW	Pass

Element Materials Technology		
<b>Radiated Emissions</b>		
Standard Referenced:	FCC Part 15, Class B	Date: 4/14/2025
Temperature: 20'C	Humidity: 18%	Pressure: 843 mb
Input Voltage: 120Vac/60Hz	Pretest & Linearity Check: Pass	
Configuration of Unit: Fully exercising all features	Sweep Time Check: Ok	
Test Engineer / Technician: T. Wittig		
<p>"Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:</p> <p>PK = Peak Measurement: RBW is 120kHz, VBW is 3 MHz</p> <p>QP = Quasi-Peak Measurement: RBW is 120kHz, VBW is 3 MHz, and QP Detection is ENABLED</p> <p>AV = Video Average Measurement: RBW is 1 MHz, VBW is 10 Hz</p> <p>The "field strength" (FS) emissions level is attained by adding the received amplitude measured (RA), Antenna factor (AF), and cable factor (CF) minus the amplifier gain (AG). <math>FS = RA + AF + CF - AG</math>. Final measurements are made with the Azimuth, Polarity, Height, and EUT Cables positioned for maximum radiation. If applicable, cables positions are noted in the test log.  (Sample Calculation: <math>49.6 \text{ dBuV} + 11.4 \text{ dB/m} - 28.8 \text{ dB (CF/AG)} = 32.2 \text{ dBuV/m}</math>. Important Note: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)</p> <p>The "Azm/Pol/Hgt" indicates the turn-table azimuth, the antenna polarity, and the antenna height where the maximum emissions level was measured.</p> <p>The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.</p> <p>The PRESCAN is a peak measurement and is performed with the RBW set to 120 kHz, VBW set to 3 MHz (30 MHz to 1 GHz), and the RBW set to 1 MHz, VBW set to 3MHz (&gt; 1 GHz)</p> <p>The Antenna setup for &gt;1GHz should match the setup that was used to meet SVSWR requirements. Refer to the SVSWR report stored in the calibration records for the chamber being used.</p>		

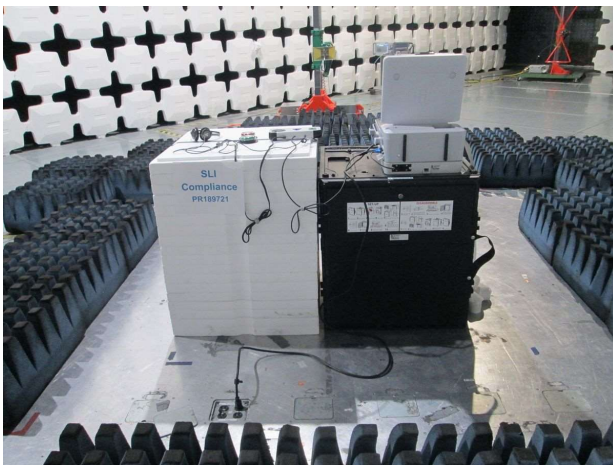
#### 5.2.4 Test Photographs



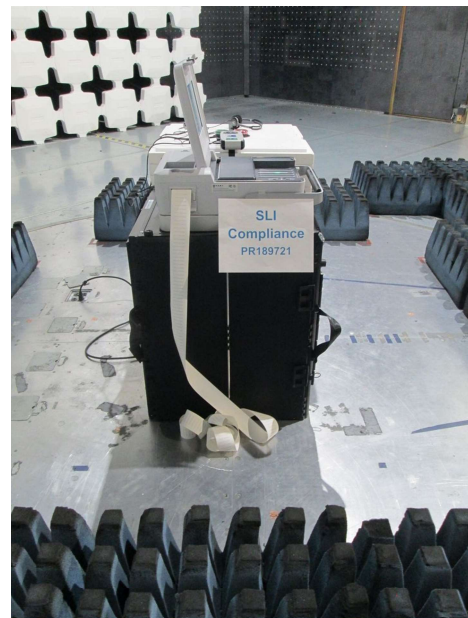
RE Test Setup Photos - Front



RE Test Setup Photos - Right

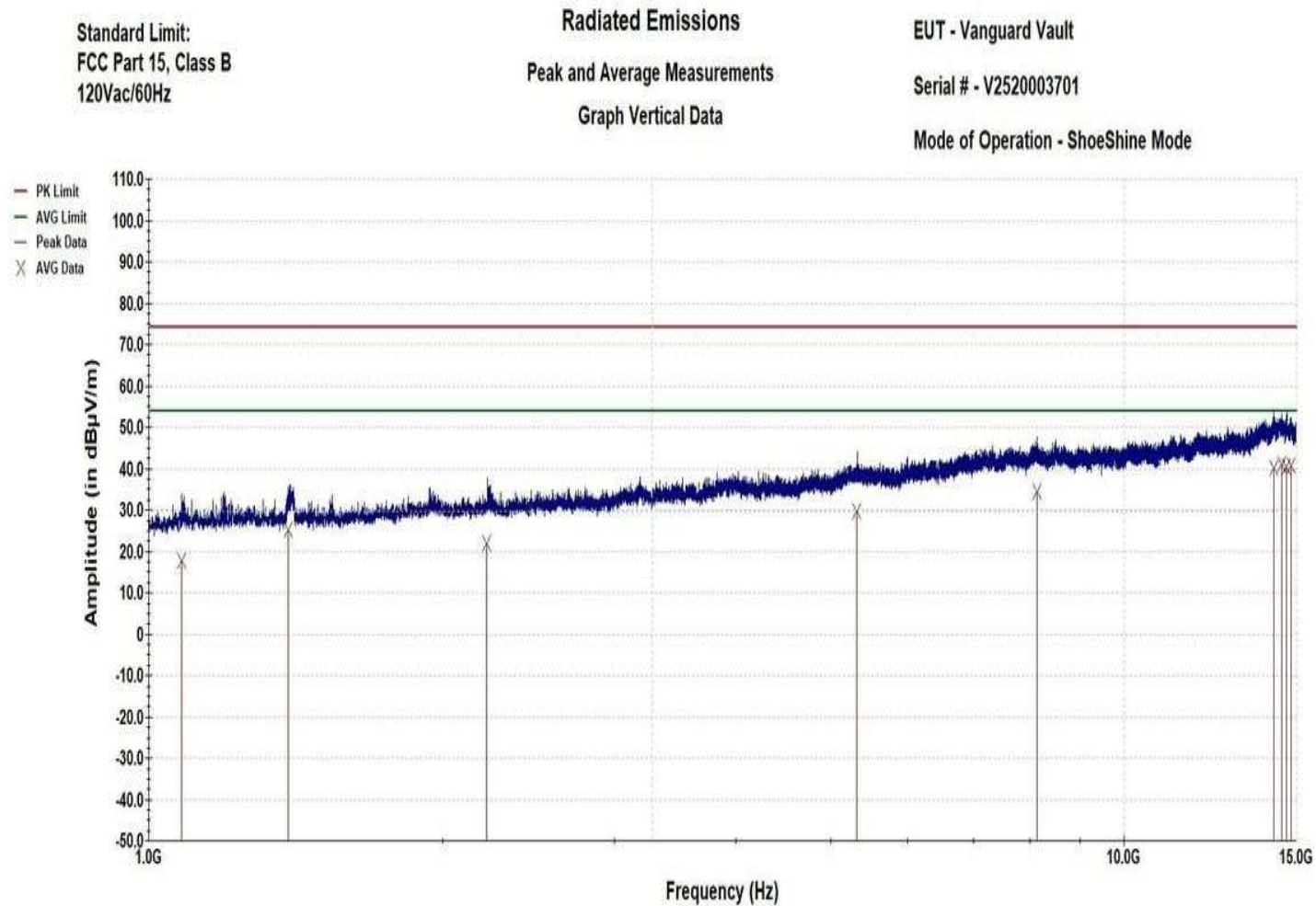


RE Test Setup Photos - Back



RE Test Setup Photos - Left

## 5.2.5 Test Data



Operator: T. Wittig

Customer: SLI Compliance

Last Data Update 01:26:50 PM, Monday, April 14, 2025

PR#: PR183816

01 RE 1GHz to 18 GHz Vertical Graph



Radiated Emissions  
Vertical Average Measurements  
Table: Final Vertical Average above 1GHz

Operator: T. Wittig

EUT: Vanguard Vault  
PR#: PR183816  
Customer: SLI Compliance

Frequency (MHz)	AVG (in dBuV)	Delta to AVG Limit (in dBuV)	Height (in cm)	Azimuth (in Degrees)
1.079 GHz	17.830	-36.170	196	87
1.389 GHz	25.341	-28.659	194	323
2.220 GHz	21.952	-32.048	178	265
5.319 GHz	29.567	-24.433	194	216
8.130 GHz	34.500	-19.500	400	144
14.221 GHz	40.037	-13.963	101	266
14.501 GHz	40.969	-13.031	318	333
14.671 GHz	40.489	-13.511	133	348
14.820 GHz	40.582	-13.418	284	146
Standard Limit:				
FCC Part 15, Class B				
120Vac/60Hz				

02 RE 1GHz to 18 GHz Vertical AVG Table

Radiated Emissions  
Vertical peak Measurements  
Table: Final Vertical Peak above 1GHz

Operator: T. Wittig

EUT: Vanguard Vault

PR#: PR183816

Customer: SLI Compliance

Frequency (MHz)	Peak (in dBuV)	Delta to Pk Limit (in dBuV)	Height (in cm)	Azimuth (in Degrees)
1.079 GHz	35.899	-38.101	196	87
1.389 GHz	40.432	-33.568	194	323
2.220 GHz	41.954	-32.046	178	265
5.319 GHz	46.982	-27.018	194	216
8.130 GHz	47.675	-26.325	400	144
14.221 GHz	53.259	-20.741	101	266
14.501 GHz	54.412	-19.588	318	333
14.671 GHz	53.778	-20.222	133	348
14.820 GHz	53.972	-20.028	284	146
Standard Limit:				
FCC Part 15, Class B				
120Vac/60Hz				

03 RE 1GHz to 18 GHz Vertical Peak Table

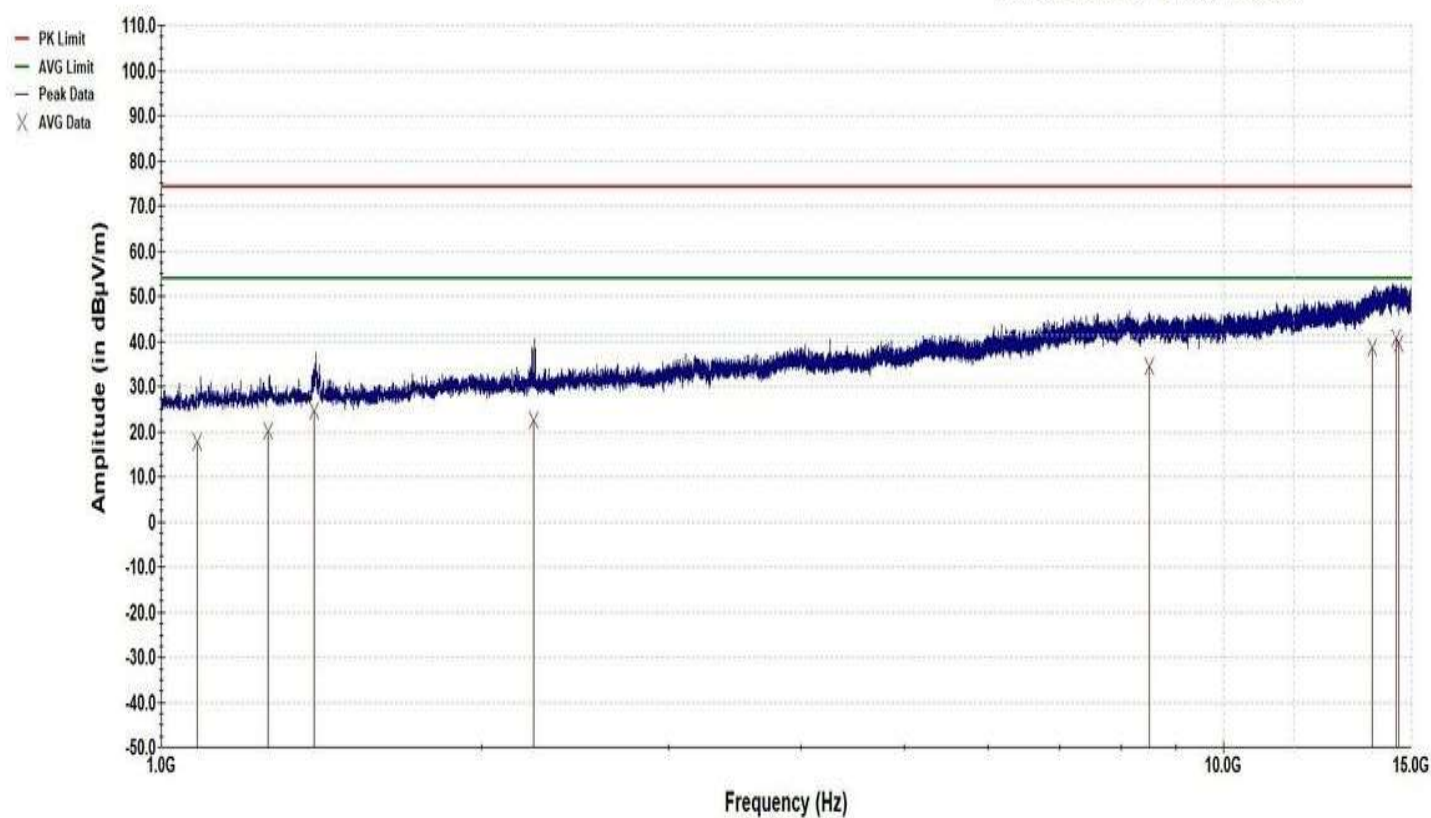
Standard Limit:  
FCC Part 15, Class B  
120Vac/60Hz

# Radiated Emissions Peak and Average Measurements Graph Horizontal Data

EUT - Vanguard Vault

Serial # - V2520003701

Mode of Operation - ShoeShine Mode



Operator: T. Wittig

Customer: SLI Compliance

Last Data Update 12:46:45 PM, Monday, April 14, 2025

PR#: PR183816

04 RE 1GHz to 18 GHz Horizontal Graph



Radiated Emissions  
Horizontal Average Measurements  
Table: Final Horizontal Average above 1GHz

Operator: T. Wittig

EUT: Vanguard Vault  
PR#: PR183816  
Customer: SLI Compliance

Frequency (MHz)	AVG (in dBuV)	Delta to AVG Limit (in dBuV)	Height (in cm)	Azimuth (in Degrees)
1.079 GHz	17.670	-36.330	197	298
1.260 GHz	20.224	-33.776	195	347
1.391 GHz	24.662	-29.338	198	246
2.240 GHz	22.363	-31.637	277	218
8.511 GHz	34.438	-19.562	252	227
13.800 GHz	38.743	-15.257	350	35
14.510 GHz	40.821	-13.179	163	60
14.600 GHz	39.456	-14.544	219	193
Standard Limit:				
FCC Part 15, Class B				
120Vac/60Hz				

05 RE 1GHz to 18 GHz Horizontal AVG Table

EUT: Vanguard Vault  
PR#: PR183816  
Customer: SLI Compliance

Standard Limit:  
FCC Part 15, Class B  
120Vac/60Hz

## 5.2.6 Test Equipment List

**Table 5.2-1: Radiated Emissions, 1 GHz - 15 GHz Test Equipment List**

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC059421	Chamber (EMI, Semi-Anechoic)10 Meter	CIR Enterprises	10M2	02/12/2024	02/12/2026
WC059428	Antenna (Double Ridge Guide)	Sunol Sciences	DRH-118	02/20/2024	02/20/2026
WC059439	Meter (Digital Multimeter)	Fluke	85	08/16/2024	08/16/2025
WC059550	Amplifier (Pre/RF/Low Noise)	Ciao Wireless	1-18 GHZ	06/21/2024	06/21/2025
WC076859	Receiver	Rohde & Schwarz	ESW44	01/24/2025	01/24/2026
WC076870	Cable (Test)	Pasternack Enterprises	RF Coaxial Cable (20 meters)	07/24/2024	07/24/2026
WC076923	Cable (Test)	Teledyne-taber	RF Coaxial Cable (2 meters)	07/09/2024	07/10/2026
WC076928	Cable (Test)	Teledyne-taber	RF Coaxial Cable (1 meter)	07/09/2024	07/09/2026
WC078469	Software	ETS-Lindgren	C47213	NCR	NCR
WC078489	Meter (Hydrometer)	Extech Instruments	Datalogger 42270	08/12/2024	08/31/2025

### Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

### 5.3 Conducted Emissions, 150 kHz - 30 MHz

#### 5.3.1 Test Procedure

The EUT was tested in accordance with FCC Part 15. Class B.

#### 5.3.2 Test Result

The EUT passed the defined requirements.

#### 5.3.3 Test Datasheets

Element Materials Technology				
Conducted Emissions				
Standard Referenced: FCC Part 15, Class B		Date: 4/14/2025		
Temperature: 21°C Humidity: 19%		Pressure: 843 mb		
Input Voltage: 120Vac/60Hz		LISN Bonding: 1.7 milliohms		
Configuration of Unit: Fully exercising all features		Sweep Time Check: Yes		
Test Engineer: T. Wittig				
Date	Time	Log Entries	Initials	Result
4/14/25	1302	Prior to testing, setup and performed CE pre-test verification and ambient scans	TW	Complete
		Setup the Vanguard Vault at 10M #1 groundplane	TW	Complete
	1341	Begin Conducted Emissions, 150 kHz 30 MHz. FCC Part 15. Class B	TW	---
		At 520 kHz, EUT is failing by ~1.6 dBuV	TW	---
	1603	Client swapped units for testing, unit #2	TW	---
		Emissions are low - Ok	TW	---
		Client swapped back to original unit, emissions are low - Ok	TW	---
	1608	Done for the day	TW	---
4/15/25	0701	Warmed up test equipment, client brought up unit.	TW	---
		Start CE testing, unit failed	TW	---
		Went live on receiver and started moving cables and hardware, found loose connections on EUT, causing emissions that fail, tightened hardware and continued with formal testing	TW	---
	0851	Begin Conducted Emissions, 150 kHz 30 MHz. FCC Part 15. Class B formal testing	TW	---
		Completed CE testing	TW	Pass

<b>Element Materials Technology</b>	
<b>Conducted Emissions</b>	
Standard Referenced: <u>FCC Part 15, Class B</u>	Date: <u>4/14/2025</u>
Temperature: <u>21°C</u> Humidity: <u>19%</u>	Pressure: <u>843 mb</u>
Input Voltage: <u>120Vac/60Hz</u>	LISN Bonding: <u>1.7 milliohms</u>
Configuration of Unit: <u>Fully exercising all features</u>	Sweep Time Check: <u>Yes</u>
Test Engineer: <u>T. Wittig</u>	
<p>"Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:</p> <p>PK = Peak Measurement: RBW is 9 kHz, VBW is 3 MHz</p> <p>QP = Quasi-Peak Measurement: RBW is 9 kHz, VBW is 3 MHz, and QP Detection is ENABLED</p> <p>AV = Video Average Measurement: RBW is 9 kHz, VBW is 10 Hz</p> <p>The "CE Level" is attained by adding the conducted amplitude measured (CA), Attenuation Cal factor (ACF), cable factor (CF) plus the LISN Cal Factor (LCF). CE Level = CA + ACF + CF + LCF . If applicable, cables positions are noted in the test log. (Sample Calculation: - 7.5 dBuV + 20.2 dB + 1.5 dB + 23.8 dB= 38 dBuV. <b>Important Note:</b> This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)</p> <p>The "TestPoint" indicates which AC or DC input power line or which I/O cable the measurement was made on.</p> <p>The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.</p>	



### 5.3.4 Test Photographs



CE Test Setup - Front



CE Test Setup - Right



CE Test Setup - Back



CE Test Setup - Left

### 5.3.5 Test Data

Conducted Emissions Average Data Table			
Operator: T. Wittig 09:19:21 AM, Tuesday, April 15, 2025		EUT: Vanguard Vault PR#: PR189721 Client: SLI Compliance	
Frequency (MHz)	Amplitude (in dBμV)	Average Limit (in dBμV)	Delta to Average Limit (in dB)
167.00 KHz	42.99	55.51	-12.52
184.09 KHz	43.56	55.03	-11.47
740.01 KHz	33.97	46.00	-12.03
1.73 MHz	33.61	46.00	-12.39
8.17 MHz	29.33	50.00	-20.67
8.66 MHz	31.20	50.00	-18.80
8.91 MHz	33.48	50.00	-16.52
9.07 MHz	34.28	50.00	-15.72
9.08 MHz	34.51	50.00	-15.49
9.17 MHz	33.58	50.00	-16.42
9.40 MHz	36.14	50.00	-13.86
9.43 MHz	35.12	50.00	-14.88
9.48 MHz	35.21	50.00	-14.79
9.52 MHz	34.68	50.00	-15.32
9.67 MHz	35.55	50.00	-14.45
9.69 MHz	35.13	50.00	-14.87
9.87 MHz	33.50	50.00	-16.50
9.88 MHz	30.82	50.00	-19.18
10.35 MHz	41.11	50.00	-8.89
11.43 MHz	28.40	50.00	-21.60
11.83 MHz	40.58	50.00	-9.42
13.31 MHz	40.75	50.00	-9.25
14.29 MHz	41.68	50.00	-8.32
14.78 MHz	41.96	50.00	-8.04
14.85 MHz	33.16	50.00	-16.84
15.07 MHz	34.10	50.00	-15.90
15.10 MHz	34.11	50.00	-15.89
15.13 MHz	34.04	50.00	-15.96
15.22 MHz	34.01	50.00	-15.99
15.69 MHz	33.19	50.00	-16.81
16.26 MHz	40.68	50.00	-9.32
16.32 MHz	31.75	50.00	-18.25
23.90 MHz	38.89	50.00	-11.11
AC LINE 1			
120Vac/60Hz			
ShoeShine Mode			

Conducted Emissions Average Data Table Line 1

Conducted Emissions  
Average Data Table

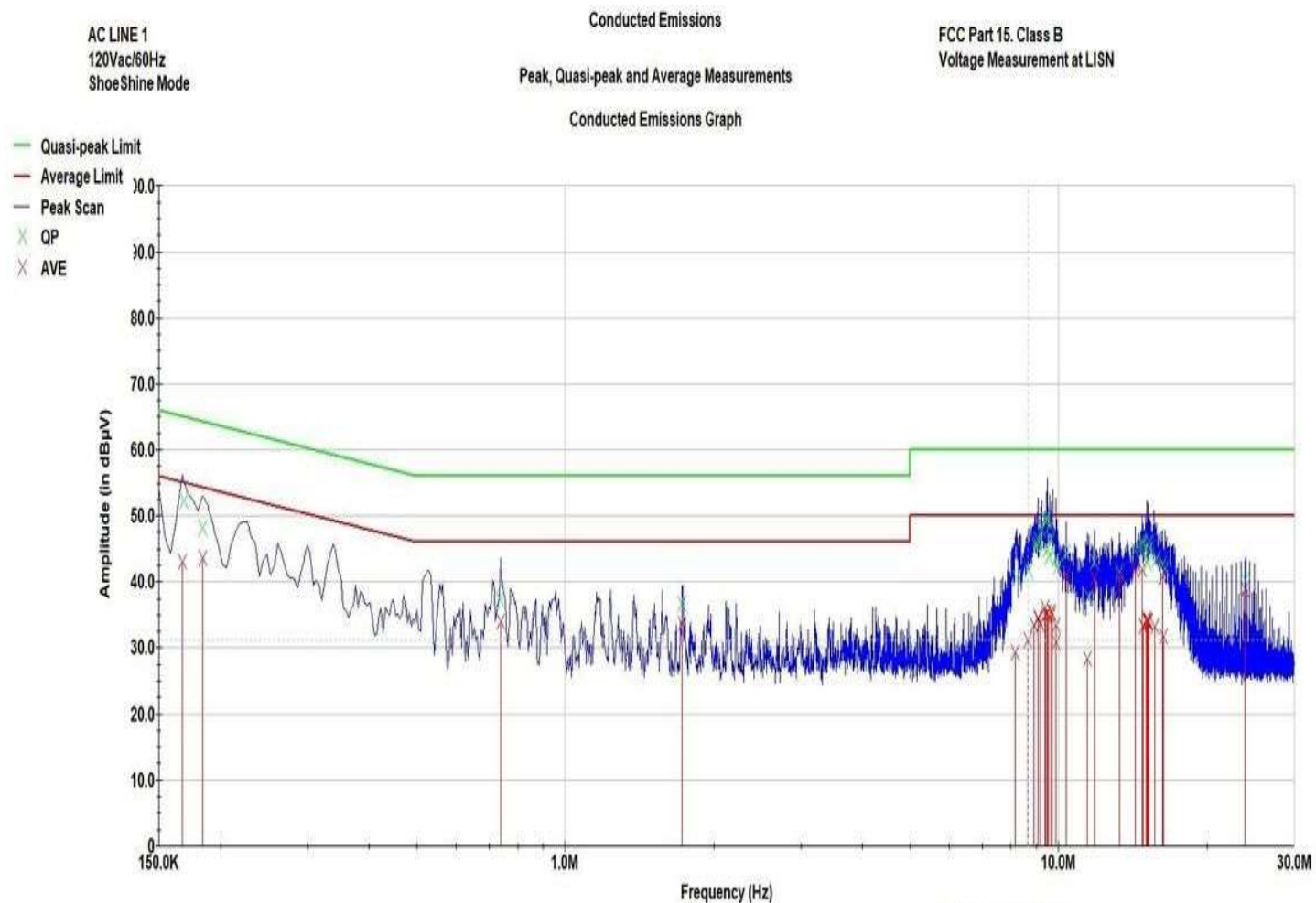
Operator: T. Wittig  
10:01:15 AM, Tuesday, April 15, 2025

EUT: Vanguard Vault  
PR#: PR189721  
Client: SLI Compliance

Frequency (MHz)	Amplitude (in dBμV)	Average Limit (in dBμV)	Delta to Average Limit (in dB)
171.31 KHz	47.16	55.39	-8.23
190.26 KHz	40.27	54.85	-14.58
263.04 KHz	39.26	52.77	-13.51
338.39 KHz	37.08	50.62	-13.54
520.19 KHz	34.67	46.00	-11.33
737.53 KHz	32.53	46.00	-13.47
1.73 MHz	33.60	46.00	-12.40
3.64 MHz	24.03	46.00	-21.97
8.20 MHz	30.15	50.00	-19.85
8.63 MHz	34.42	50.00	-15.58
8.87 MHz	40.76	50.00	-9.24
9.36 MHz	36.76	50.00	-13.24
9.45 MHz	32.59	50.00	-17.41
9.86 MHz	41.89	50.00	-8.11
10.35 MHz	41.80	50.00	-8.20
11.83 MHz	41.18	50.00	-8.82
13.80 MHz	40.04	50.00	-9.96
14.30 MHz	41.34	50.00	-8.66
14.79 MHz	41.38	50.00	-8.62
15.06 MHz	33.34	50.00	-16.66
15.12 MHz	32.76	50.00	-17.24
15.28 MHz	41.84	50.00	-8.16
15.28 MHz	41.17	50.00	-8.83
15.39 MHz	32.29	50.00	-17.71
15.48 MHz	31.87	50.00	-18.13
15.53 MHz	38.34	50.00	-11.66
15.75 MHz	31.30	50.00	-18.70
16.27 MHz	39.53	50.00	-10.47
16.76 MHz	39.69	50.00	-10.31
23.41 MHz	40.29	50.00	-9.71
NEUTRAL			
120Vac/60Hz			
ShoeShine Mode			

Conducted Emissions Average Data Table Neutral





Operator: T. Wittig

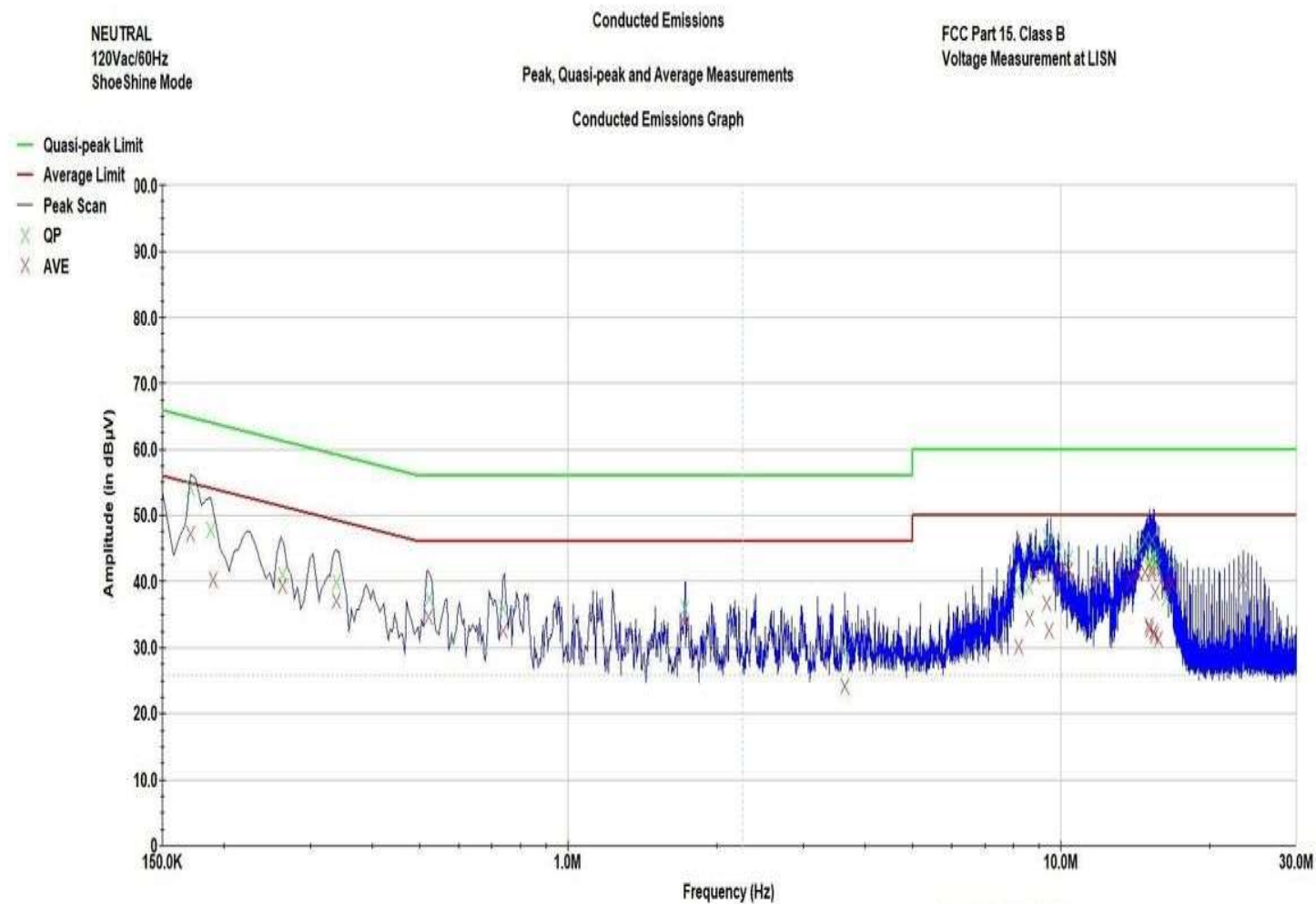
Commercial Conducted Emissions - AC LINE 1 - 2.til

EUT: Vanguard Vault

Client: SLI Compliance

PR#: PR189721

Conducted Emissions Graph Line 1



Operator: T. Wittig

Commercial Conducted Emissions - NEUTRAL.tif

EUT: Vanguard Vault

Client: SLI Compliance

PR#: PR189721

Conducted Emissions Graph Neutral

Conducted Emissions  
Quasi-Peak Data Table

Operator: T. Wittig  
09:06:46 AM, Tuesday, April 15, 2025

EUT: Vanguard Vault  
PR#: PR189721  
Client: SLI Compliance

Frequency (MHz)	Amplitude (in dBµV)	Quasi-peak Limit (in dBµV)	Delta to Quasi-peak Limit (in dB)
168.67 KHz	52.22	65.47	-13.24
184.09 KHz	48.08	65.03	-16.95
737.76 KHz	37.42	56.00	-18.58
1.73 MHz	36.72	56.00	-19.28
8.23 MHz	40.50	60.00	-19.50
8.68 MHz	41.67	60.00	-18.33
9.01 MHz	45.23	60.00	-14.77
9.05 MHz	45.74	60.00	-14.26
9.07 MHz	46.33	60.00	-13.67
9.24 MHz	47.88	60.00	-12.12
9.39 MHz	49.47	60.00	-10.53
9.46 MHz	49.48	60.00	-10.52
9.48 MHz	44.85	60.00	-15.15
9.57 MHz	43.86	60.00	-16.14
9.59 MHz	48.73	60.00	-11.27
9.66 MHz	46.42	60.00	-13.58
9.93 MHz	43.62	60.00	-16.38
9.95 MHz	42.24	60.00	-17.76
10.35 MHz	44.29	60.00	-15.71
11.51 MHz	37.76	60.00	-22.24
11.83 MHz	43.09	60.00	-16.91
13.30 MHz	41.44	60.00	-18.56
14.30 MHz	44.79	60.00	-15.21
14.79 MHz	45.62	60.00	-14.38
14.79 MHz	46.17	60.00	-13.83
14.91 MHz	44.31	60.00	-15.69
15.17 MHz	42.90	60.00	-17.10
15.25 MHz	45.04	60.00	-14.96
15.28 MHz	46.10	60.00	-13.90
15.81 MHz	43.67	60.00	-16.33
16.26 MHz	42.70	60.00	-17.30
16.42 MHz	42.12	60.00	-17.88
23.90 MHz	40.21	60.00	-19.79
AC LINE 1			
120Vac/60Hz			
ShoeShine Mode			

Conducted Emissions Quasi-Peak Data Table Line 1

Conducted Emissions  
Quasi-Peak Data Table

Operator: T. Wittig  
09:50:01 AM, Tuesday, April 15, 2025

EUT: Vanguard Vault  
PR#: PR189721  
Client: SLI Compliance

Frequency (MHz)	Amplitude (in dBµV)	Quasi-peak Limit (in dBµV)	Delta to Quasi-peak Limit (in dB)
171.31 KHz	54.02	65.39	-11.37
188.36 KHz	47.77	64.90	-17.13
263.05 KHz	41.05	62.77	-21.72
338.39 KHz	39.95	60.62	-20.67
522.43 KHz	37.37	56.00	-18.63
737.53 KHz	36.04	56.00	-19.96
1.73 MHz	35.96	56.00	-20.04
3.67 MHz	29.38	56.00	-26.62
8.13 MHz	38.50	60.00	-21.50
8.60 MHz	39.13	60.00	-20.87
8.87 MHz	44.64	60.00	-15.36
9.39 MHz	46.63	60.00	-13.37
9.46 MHz	45.35	60.00	-14.65
9.86 MHz	44.60	60.00	-15.40
10.35 MHz	43.36	60.00	-16.64
11.83 MHz	42.28	60.00	-17.72
13.80 MHz	43.74	60.00	-16.26
14.30 MHz	44.50	60.00	-15.50
14.79 MHz	46.20	60.00	-13.80
15.04 MHz	42.27	60.00	-17.73
15.12 MHz	42.70	60.00	-17.30
15.19 MHz	43.22	60.00	-16.78
15.28 MHz	46.22	60.00	-13.78
15.29 MHz	41.91	60.00	-18.09
15.51 MHz	43.11	60.00	-16.89
15.53 MHz	43.93	60.00	-16.07
15.66 MHz	42.40	60.00	-17.60
16.33 MHz	37.52	60.00	-22.48
16.76 MHz	42.71	60.00	-17.29
23.41 MHz	41.50	60.00	-18.50
NEUTRAL			
120Vac/60Hz			
ShoeShine Mode			

Conducted Emissions Quasi-Peak Data Table Neutral

### 5.3.6 Test Equipment List

**Table 5.3-1: Conducted Emissions, 150 kHz - 30 MHz Test Equipment List**

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC059736	Chamber (EMI, Semi-Anechoic) 10 Meter	CIR Enterprises	10M1	02/12/2024	02/12/2026
WC059439	Meter (Digital Multimeter)	Fluke	85	08/16/2024	08/16/2025
WC059822	Receiver	Keysight Technologies	N9038A	09/17/2024	09/17/2025
WC076847	Network (LISN)	Solar Electronics	8012-50-R-25-BNC	10/10/2024	10/31/2025
WC078470	Software	ETS-Lindgren	C47213	NCR	NCR
WC078471	Cable (Test)	National Technical Systems	BNC Coaxial Cable	09/20/2023	09/20/2025
WC078487	Meter (Hydrometer)	Extech Instruments	Datalogger 42270	08/12/2024	08/31/2025
WC084270	Attenuator (Coaxial)	Pasternack Enterprises	PE7002-6	09/20/2023	09/20/2026

#### Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

**End of Test Report**