SOUTH QUALITY

PROFICIENCY TESTING PROVIDER

REPORT No 11353

Date of issue: *September 16, 2025*

Status: FINAL REPORT

****

IEC 60068-2-14

ENVIRONMENTAL TESTING
TEST N: CHANGE OF TEMPERATURE

Program: SQO-EV2 Round 8

****

Prepared by:	Reviewed by:	Approved by:
cn=BERENICE C. FERREL, o=PT SOUTH QUALITY SAS, ou=SOUTH QUALITY, email=tech@ptsouthquality.com, c=AR 2025.09.16 15:58:06 -03'00'	cn=ESTHER CASAS, o=PT SOUTH QUALITY SAS, ou=SOUTH QUALITY, email=ecasas@ptsouthquality.com, c=AR 2025.09.18 14:24:14 -03'00'	cn=Emiliano Medina, o=SOUTH QUALITY, ou=PT SOUTH QUALITY SAS, email=quality@ptsouthquality.com, c=ES 2025.09.19 17:18:10 -03'00'
Berenice Ferrel Assistant Technician	**Lic. Esther Casas** Physics expert	**Eng. Emiliano Medina** Quality Assurance Lead

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1. FOREWORD

This report summarizes the results of the **SQO-EV2 (Round 8)** proficiency testing program on the determination of the suitability of equipment to withstand rapid changes of ambient temperature. This program is carried out under a simultaneous participation format, according to the A.3.1 classification of the ISO 17043 standard ("Model 2 - Figure A.1").

South Quality conducted the testing program in July/August 2025. The aim of the program was to assess the ability of laboratories to competently perform the nominated tests.

2. ORGANIZATION

Program Coordinator:	Lic. Esther Casas
Assistant Technician:	Berenice Ferrel
Statistic:	Lic. Manuel Tozaki
Supervision:	Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to visually and functionally inspect the equipment under test, using the following standard:

Standard
IEC 60068-2-14: 2023

To verify this, electronic equipment has been selected.

Participants in this program have not been informed in advance about the expected behavior of the samples they receive.

4. PARTICIPANTS

In the present round, 25 companies have participated with the following details:

CODE	Country	ISO 17025 accredited	Results delivered
01	France	Yes	Yes
02	Colombia	Yes	No
03	Germany	Yes	Yes
04	Spain	No	Yes
05	Italy	Yes	Yes
06	Belgium	Yes	Yes
07	Germany	Yes	Yes
08	China	Yes	Yes
09	Malaysia	Yes	Yes
10	England	Yes	Yes
11	Italy	Yes	No
12	Australia	Yes	Yes
13	Portugal	Yes	Yes
14	Canada	Yes	Yes
15	Finland	Yes	Yes
16	Spain	Yes	Yes
17	Chile	No	No
18	Türkiye	Yes	Yes
19	Brazil	Yes	Yes
20	France	Yes	Yes
21	South Africa	Yes	Yes
22	Mexico	No	Yes
23	Argentina	Yes	Yes
24	Finland	Yes	Yes
25	Hong Kong	Yes	No

5. HOMOGENEITY

A homogeneity study was conducted to verify the compliance of the samples with the requirements of the IEC 60068-2-14 standard, utilizing an ISO 17025 accredited laboratory.

Six batches, each consisting of 35 units of different electronic equipment, were prepared and tested to analyze the homogeneity of the results.

Control procedures were conducted in accordance with ISO Guide 35:2017, clause 7.4.1.2, where stratified random sampling was applied. Samples were selected using random number generation software.

The results of this tests appear below:

Size of each batch: **35 units**
Tested samples from each batch: **8 units**
Test conditions: **TA: -20 °C / TB: 85 °C / t1: 1 h**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE SAMPLES ANALYZED		
	BATCH: LEV2932	BATCH: LEV2933	BATCH: LEV2934
Visual inspection	YES	YES	YES
Functional performance	YES	NO	YES

Size of each batch: **35 units**
Tested samples from each batch: **8 units**
Test conditions: **TA: -20 °C / TB: 60 °C / t1: 2 h**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE SAMPLES ANALYZED		
	BATCH: LEV3006	BATCH: LEV3007	BATCH: LEV3008
Visual inspection	YES	YES	YES
Functional performance	YES	YES	NO

Samples for this program are taken from the selected batches identified as **LEV2932**, and **LEV3007**.

The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability.

6. SAMPLE INFORMATION

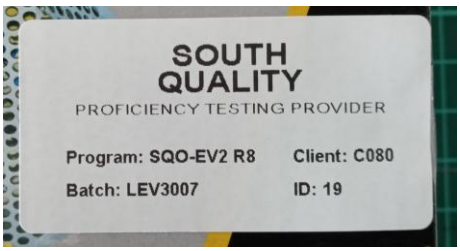
The following samples were sent for testing (Participant **Code 19**):

Batch:	LEV2932
Sample ID:	19
Characteristics:	Switching power supply with cooler In: 110/220V; 50/60Hz; Class 1 - Out: 12Vcc; 20A; 240W Trademark: SIMALED Model: 12V-20A (Fan) - 240W

Batch:	LEV3007
Sample ID:	19
Characteristics:	Switching power supply In: 110/220V; 50/60Hz; Class 1 - Out: 12Vcc; 20A; 240W Trademark: SIMALED Model: 12V-5A (S) - 60W

7. IMAGES

SAMPLES



8. ASSIGNED RESULTS

The assigned results are obtained from the results reported by all participants (**Consensus values**).

9. STATISTICS

The results must be treated as qualitative.

For qualitative results, the comparison will be made directly against the assigned results, so any difference will be evaluated as **Unsatisfactory**.

The assessment involves assigning a compliance verdict (PASS or FAIL) to each verification parameter (Visual and functional performance) carried out by each participant.

10. PARTICIPANTS RESULTS

LABORATORY CODE	LEV2932		LEV3007	
	Test conditions: TA: -20 °C / TB: 85 °C / t1: 1 h		Test conditions: TA: -20 °C / TB: 60 °C / t1: 2 h	
	Visual inspection	Functional performance	Visual inspection	Functional performance
01	PASS	PASS	PASS	PASS
03	PASS	PASS	PASS	PASS
04	PASS	FAIL	PASS	PASS
05	PASS	PASS	PASS	PASS
06	PASS	PASS	PASS	PASS
07	PASS	PASS	PASS	PASS
08	PASS	PASS	FAIL	FAIL
09	PASS	PASS	PASS	PASS
10	PASS	PASS	PASS	PASS
12	PASS	PASS	PASS	PASS
13	PASS	PASS	PASS	PASS
14	PASS	PASS	PASS	PASS
15	PASS	PASS	PASS	PASS
16	PASS	PASS	PASS	PASS
18	PASS	PASS	PASS	PASS
19	PASS	PASS	PASS	PASS
20	PASS	PASS	PASS	PASS
21	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	FAIL
23	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS

ASSIGNED RESULTS			
LEV2932		LEV3007	
Visual inspection	Functional performance	Visual inspection	Functional performance
PASS	PASS	PASS	PASS

11. EVALUATION OF PERFORMANCE

Laboratory **Code 01**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 02**: The laboratory did not send the results before the deadline.

Laboratory **Code 03**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 04**: The laboratory obtained an **UNSATISFACTORY** result in the verification of functional performance for batch **LEV2932**. However, it achieved **SATISFACTORY** results in the verification of the remaining parameters.

Laboratory **Code 05**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 06**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 07**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 08**: The laboratory obtained **UNSATISFACTORY** results in the verification of visual inspection and functional performance for batch **LEV3007**. However, it achieved **SATISFACTORY** results in the verification of the remaining parameters.

Laboratory **Code 09**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 10**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 11**: The laboratory did not send the results before the deadline.

Laboratory **Code 12**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 13**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 14**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 15**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 16**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 17**: The laboratory did not send the results before the deadline.

Laboratory **Code 18**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 19**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 20**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 21**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 22**: The laboratory obtained an **UNSATISFACTORY** result in the verification of functional performance for batch **LEV3007**. However, it achieved **SATISFACTORY** results in the verification of the remaining parameters.

Laboratory **Code 23**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 24**: The laboratory obtained **SATISFACTORY** results in the verification of all parameters.

Laboratory **Code 25**: The laboratory did not send the results before the deadline.

12. CONCLUSIONS

The overall performance on this **SQO-EV2 Round 8** program from the participating laboratories, based on expected results, are the following:

- Participants Codes **01, 03, 05, 06, 07, 09, 10, 12, 13, 14, 15, 16, 18, 19, 20, 21, 23** and **24** have achieved a **SUFFICIENT** performance according to the expected results and do not need to take any action;

- Participants Codes **04, 08** and **22** have achieved an **INSUFFICIENT** performance according to the expected results and must take action in the tests where their results differ from the expected ones (See annex B).

The criteria used for the evaluation of the overall performance is the following:

- **SUFFICIENT** performance: No unsatisfactory results obtained.

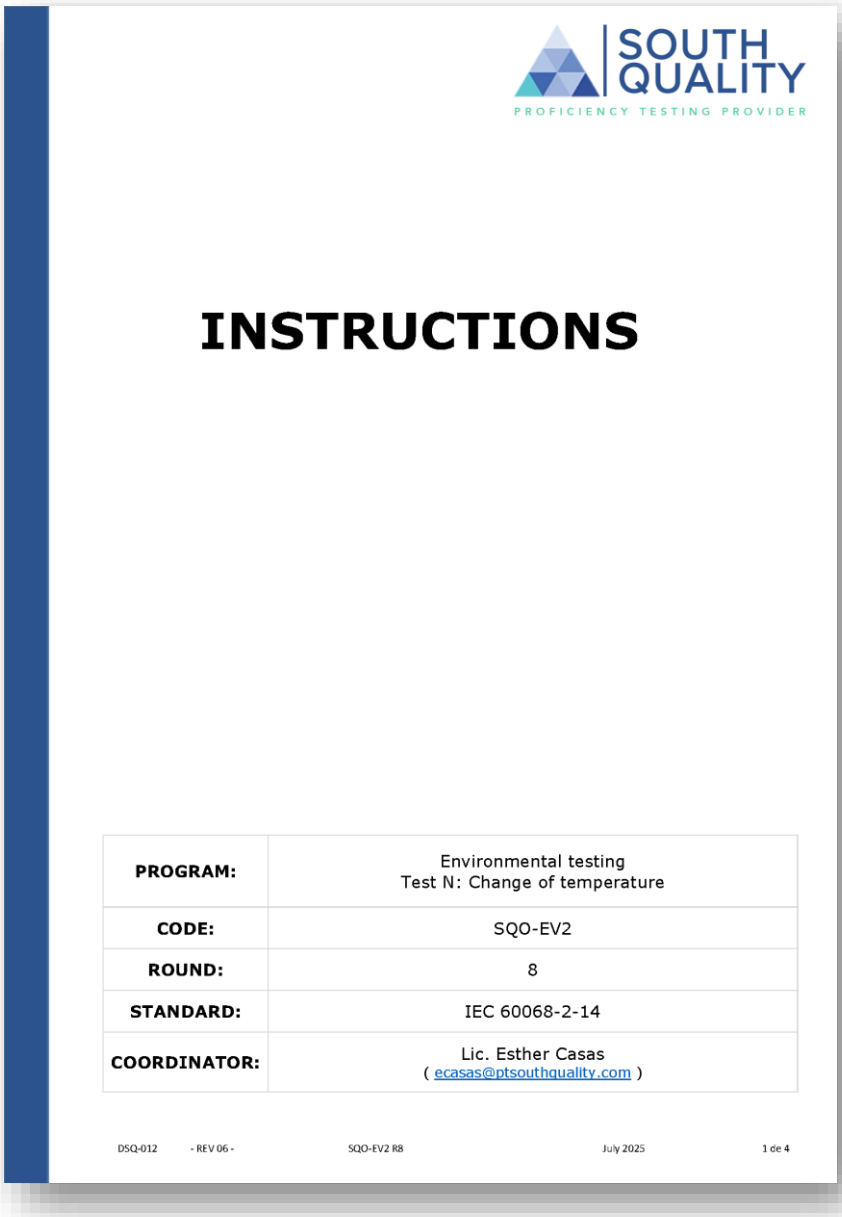
- **INSUFFICIENT** performance: An unsatisfactory result was obtained.

APPENDIX A

A1 - PARTICIPANT DATA

Company:	**ITEN - Instituto Tecnológico de Ensaios Ltda**
Laboratory:	**ITEN**
Country:	Brazil
Client ID:	C080
Contact person:	Jayne Soares da Silva Almeida - Sistema de Gestão da Qualidade qualidade1@itensp.com.br

A2 - INSTRUCTIONS



SOUTH QUALITY
PROFICIENCY TESTING PROVIDER

INSTRUCTIONS

PROGRAM:	Environmental testing Test N: Change of temperature
CODE:	SQO-EV2
ROUND:	8
STANDARD:	IEC 60068-2-14
COORDINATOR:	Lic. Esther Casas (ecasas@ptsouthquality.com)

DSQ-012 - REV 06 - SQO-EV2 R8 July 2025 1 de 4

1 - **General**

This document serves as a guide for managing the results of the **SQO-EV2** program, round 8.

2 - **Standard**

IEC 60068-2-14: 2023

3 - **Participant**

ITEN - Instituto Tecnológico de Ensaios Ltda	**CODE 19**

4 - **Tests involved**

TEST
Determination the suitability of equipment to withstand rapid changes of ambient temperature

5 - **Samples**

CODE	SAMPLE	QUANTITY
LEV2932-19	Switching power supply with cooler In: 110/220V; 50/60Hz; Class 1 - Out: 12Vcc; 20A; 240W Trademark: SIMALED Model: 12V-20A (Fan) - 240W	1
LEV3007-19	Switching power supply In: 110/220V; 50/60Hz; Class 1 - Out: 12Vcc; 20A; 240W Trademark: SIMALED Model: 12V-5A (S) - 60W	1

6 - **Notes**

a) The deadline for the delivery of results is **August 18, 2025**.
b) Participants must submit the results in the usual report used by their laboratory.
c) The samples must be kept until the end of the program, which concludes with the submission of the final report.
d) The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to IEC 60068-2-30.
e) To review the results, the submission of images of the tests is appreciated. These images can be attached at the end of this document or sent via email.

7 - **Test conditions**

CODE	TEST TYPE	TEST SEVERITIES
LEV2932-19	Na	T_A: -20 °C T_B: 85 °C t_1: 1 h
LEV3007-19	Na	T_A: -20 °C T_B: 60 °C t_1: 2 h

8 - **Parameters to determine**

CODE	PARAMETERS (BEFORE & AFTER)
LEV2932-19	VISUAL INSPECTION VOLTAGE
LEV3007-19	VISUAL INSPECTION VOLTAGE

PHOTOGRAPHS

A3 - PARTICIPANT RESULTS (REP #RCLE-011/2025)

ENSAIOS NBR ISO/IEC 17025 CRL 0323

ITEN - INSTITUTO TECNOLÓGICO DE ENSAIOS LTDA.

"Laboratório de Ensaio acreditado pela Cgcre de acordo com a ABNT NBR ISO/IEC 17025, sob o número CRL 0323".

Laboratório pertencente à RBLE.

Relatório de Ensaios de Produtos (REP):	**n.º RCLe-011/2025**	**Emissão:** 18.08.2025

Solicitante: SOUTH QUALITY
Endereço: Pareja 3981, C1419GVG Cdad. Autónoma de Buenos Aires, Argentina
CEP: --- **Fone:** +54 9 11 2614-6800
e-mail: edimarco@ptsouthquality.com

Fabricante: ---

Descrição da amostra:	Fonte de alimentação chaveada 110/220V; 50/60Hz, Clase I - Modelo: 12V-5A(S); 60W - Marca: SIMALED - Lote: LEV3007-19 Fonte de alimentação chaveada com cooler - 110/220V; 50/60Hz, Clase I - Modelo: 12V-20A; 240W - Marca: SIMALED - Lote: LEV2932-19
Código/ referência:	Program:SQO-EV2 R 8 - Cliente: C080 - Código: 19
Proposta comercial:	RCLe-011/2025 **Ordem de serviço:** RCLe-011/2025
Quantidade recebida:	2 unidades **Lacre:** Não
Início/ término dos ensaios:	15.08.2025 / 18.08.2025 **Data de recebimento:** 17.07.2025

Norma(s) utilizada(s):
- IEC 60068-2-14: 2023 - Environmental testing - Part 2-14: Tests - Test N: Change of temperature.

Ensaios solicitados: Item da IEC 60068-2-14 / Descrição do(s) ensaio(s):		**Incerteza de medição dos ensaios:**
7	Ensaio Na: Mudança rápida de temperatura	U = 0,031 V

Instrumentos utilizados:	**Código:**	
Sensor	SEN	063, 064, 163, 164
Termômetro	TER	005
Termo higrômetro	TEH	018

As condições específicas de ensaios, incluindo condições ambientais, quando não contempladas no relatório, encontram-se disponíveis nos dados brutos específicos por um ano.

- Endereço e Local da realização das atividades do laboratório:
Estrada dos cravos, 41 – Jd. Santa Maria - Osasco - SP. - CEP: 06150-480.
- Fones: (11) 3606-7373 / 3431-4145 **- E-mail:** lays@itensp.com.br / jane@itensp.com.br - **Site:** www.itensp.com.br

REP n.º: RCLe-011/2025	ITEN – INSTITUTO TECNOLÓGICO DE ENSAIOS LTDA. "Laboratório de Ensaio acreditado pela Cgcre de acordo com a ABNT NBR ISO/IEC 17025, sob o número CRL 0323".

Itens / Descrição do(s) ensaio(s):

7 – Ensaio Na: Mudança rápida de temperatura

Amostra LEV2932-19 - Fonte de alimentação chaveada 110/220 V; 50/60 Hz; Classe I; Modelo: 12 V–5 A (60 W); Marca: SIMALED.		
Medições iniciais (6.2)		
A amostra foi examinada visualmente e submetida às verificações elétricas e mecânicas exigidas.		
Resultado encontrado:	**Verificação visual:**	**Verificação de tensão de saída:**
	Sem anomalia	12,55 V DC
Temperaturas e severidade (7.2.3)		
Temperatura baixa (TA) e alta (TB), tempo de exposição, número de ciclos, tempo de transferência. **Temperatura baixa (TA):** -20 °C; **Temperatura alta (TB):** 85 °C; **Tempo de exposição (t1):** 1 hora; **Número de ciclos:** 1; **Tempo de estabilização durante a transição:** 3 minutos; **Tempo de recuperação após ensaio:** 1 hora.		
Ciclo de ensaio (7.3)		
Alternância entre TA e TB, respeitando tempos de exposição e transferência. **Ciclo aplicado:** -20 °C por 1 hora, estabilização 3 minutos, retorno à temperatura ambiente padrão (TSTD, 20–25 °C).		
Medições finais (6.3)		
A amostra foi novamente examinada visualmente e submetida às verificações elétricas e mecânicas exigidas.		
Resultado encontrado:	**Verificação visual:**	**Verificação de tensão de saída:**
	Sem anomalia	12,54 V DC

REP n.º: RCLe-011/2025	**ITEN – INSTITUTO TECNOLÓGICO DE ENSAIOS LTDA.** **"Laboratório de Ensaio acreditado pela Cgcre de acordo com a ABNT NBR ISO/IEC 17025, sob o número CRL 0323".**

7 – Continuação:

Amostra LEV3007-19 - Fonte de alimentação chaveada com cooler 110/220 V; 50/60 Hz; Classe I; Modelo: 12 V–20 A (240 W); Marca: SIMALED.

Medições iniciais (6.2)

A amostra foi examinada visualmente e submetida às verificações elétricas e mecânicas exigidas.

Resultado encontrado:	**Verificação visual:**	**Verificação de tensão de saída:**
	Sem anomalia	12,15 V DC

Temperaturas e severidade (7.2.3)

Temperatura baixa (TA) e alta (TB), tempo de exposição, número de ciclos, tempo de transferência.

Temperatura baixa (TA): -20 °C;

Temperatura alta (TB): 60 °C;

Tempo de exposição (t1): 2 horas;

Número de ciclos: 1;

Tempo de estabilização durante a transição: 3 minutos;

Tempo de recuperação após ensaio: 1 hora.

Ciclo de ensaio (7.3)

Alternância entre TA e TB, respeitando tempos de exposição e transferência.

Ciclo aplicado: -20 °C por 2 horas, estabilização 3 minutos, retorno à temperatura ambiente padrão (TSTD, 20–25 °C).

Medições finais (6.3)

A amostra foi novamente examinada visualmente e submetida às verificações elétricas e mecânicas exigidas.

Resultado encontrado:	**Verificação visual:**	**Verificação de tensão de saída:**
	Sem anomalia	12,18 V DC

"As opiniões e interpretações, expressas abaixo, não fazem parte do escopo da acreditação deste laboratório".

Observações finais:

Caso este relatório apresente resultados de ensaios, **na cor azul**, correspondem a resultados que não atenderam aos requisitos e/ou limites especificados pelas normas e/ou solicitações contratadas.

ITEN - INSTITUTO TECNOLÓGICO DE ENSAIOS LTDA
LABORATÓRIO DE ENSAIOS
RICHARD ALBERT SILVA

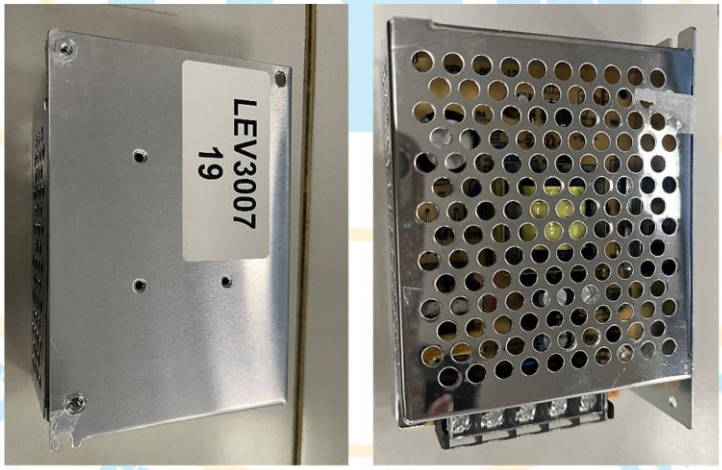
ITEN - INSTITUTO TECNOLÓGICO DE ENSAIOS LTDA
DIRETOR TÉCNICO
CREA 0601383350
JOSÉ APARECIDO SEIXAS

Anexo I: Amostras antes da realização dos ensaios

Amostra: LEV2932-19

Antes

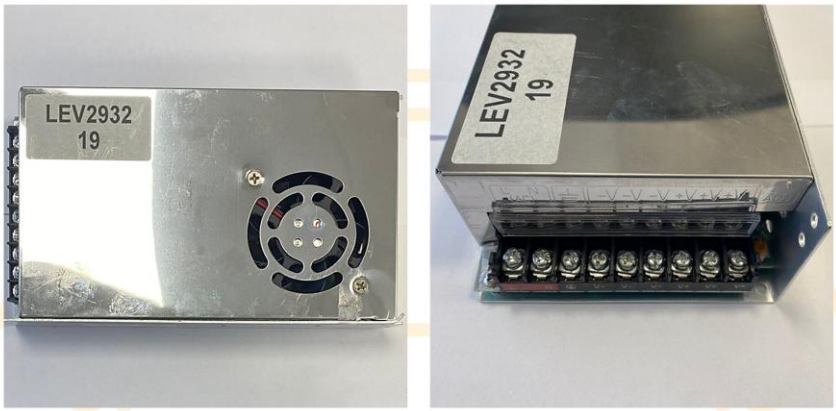
Amostra: LEV3007-19



Antes

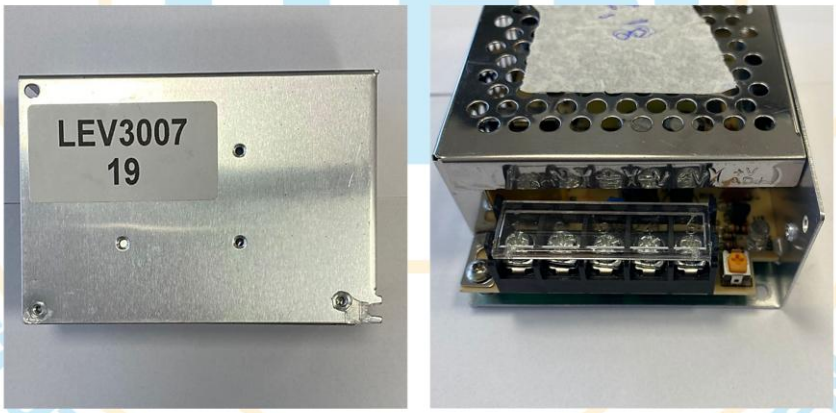
Anexo II: Amostras após a realização dos ensaios

Amostra: LEV2932-19



Após

Amostra: LEV3007-19



Após

APPENDIX B

VOID

----- END OF REPORT -----