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TEST REPORT
IEC 62561-5
Lightning protection system components (LPSC)
Part 1: Requirements for earth electrode inspection housings and earth electrode seals

Report Number.....: P250306301
 Date of issue.....: 2025-04-10
 Total number of pages.....: 14
 Testing Laboratory: Guangdong LNP Electrical Testing Technology Co.,Ltd.
 Testing location/ address.....: No. 101, Building B, Xinyongsheng Technology Park, Wenquan South Road No. 70, Xinwei Village, Shilong Town, Dongguan City, Guangdong Province, China.
 Tested by (name + signature).....: Francis Lau / Test Engineer
 Approved by (name + signature)...: Andy Chen / Project Director



Applicant's name.....: Indelec SA
 Address.....: 61, chemin des postes 59500 Douai - France

Test specification:
 Standard.....: IEC 62561-5:2023
 Test procedure.....: Type test
 Non-standard test method.....: N/A

Test item description.....: Inspection pit
 Trade Mark.....: Indelec
 Manufacturer.....: Indelec SA.
 Model/Type reference.....: ARJDG 201
 Classification: Class H, 30 kN

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

Copy of marking plate

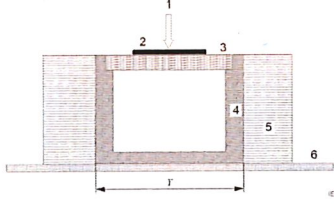
Description	Inspection pit
Model	ARJDG 201
Trade Mark	Indelec
Classification	Class H, 30 kN

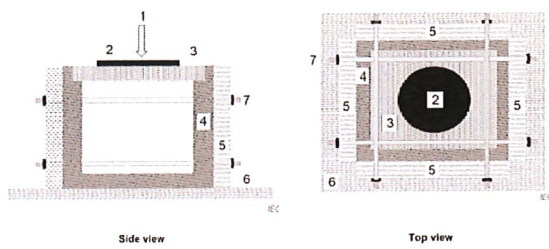
Test item particulars: Inspection pit		
Earth electrode inspection housings: <input checked="" type="checkbox"/> class H, heavy duty usage for slow moving vehicular traffic, multi-axle, etc; <input type="checkbox"/> class M, medium duty usage for slow moving automobiles, etc; <input type="checkbox"/> class L, light duty usage for walkways, etc.		
Material: Plastic		
Possible test case verdicts:		
- test case does not apply to the test object..... : N/A		
- test object does meet the requirement..... : P (Pass)		
- test object does not meet the requirement..... : F (Fail)		
Testing:		
Date of receipt of test item : 2025-03-27		
Date (s) of performance of tests : 2025-03-27 to 2025-04-03		
General remarks:		
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>		
General product information:		
1. The Inspection pit was made of plastic.		
2. The tests were conducted on 3 samples as listed in table below:		
Clause	Test items	Sample No.:
6.4.2	Load test	ARJDG 201-#1, ARJDG 201-#2, ARJDG 201-#3
3. Name and address of factory:		
Indelec SA.		
61, chemin des postes 59500 Douai - France		

Clause	Requirement - Test	Result - Remark	Verdict
5	Requirements		--
5.1	General		--
	All earth electrode inspection housings and earth electrode seals shall be designed and constructed so that, in normal use according to the manufacturer's or supplier's instructions, their performance shall be reliable, stable and safe to persons and surrounding equipment.		P
	The choice of a material depends on its ability to match the particular application requirements.		P
5.2	Documentation and installation instructions		--
	The manufacturer or supplier of the earth electrode inspection housing and earth electrode seals shall provide adequate information in their literature to ensure that the installer can select and install the materials in a suitable and safe manner.		P
	The literature shall contain at least the following information:		P
	a) classification as per Clause 4;	Class H	P
	b) load withstand force for earth electrode inspection housings in kN;	30 kN	P
	c) installation instructions.		P
	Compliance is checked by review in accordance with 6.2.		P
5.3	Marking		--
5.3.1	Content of marking		--
	All products complying with this document shall be marked at least with:		--
	a) the manufacturer's or responsible vendor's name or trade mark;	Trade mark: Indelec	P
	b) part number or identifying symbol;	ARJDG 201	P
	d) classification as per Clause 4;	Class H	P
	d) load withstand force for earth electrode inspection housings in kN.	30 kN	P
	Where this proves to be impractical, the marking in accordance with b), c) and d) may be given on the smallest packing unit.		P
	Compliance is checked in accordance with 6.3.		P
5.3.2	Durability and legibility		--
	Compliance is checked in accordance with 6.3		P
5.4	Earth electrode inspection housing		--

Clause	Requirement - Test	Result - Remark	Verdict
	The design of the earth electrode inspection housing shall be such that it carries out its function of enclosing the down conductor and earth rod termination in an acceptable and safe manner, and has sufficient internal dimensions to permit the assembly or disassembly of the earth rod clamp. The housing body shall be deep enough to permit the lid to sit flush on the body without interfering with the rod or conductor or clamp assembly.		P
	The material of the earth electrode inspection housing shall be compatible with its surrounding environment, i.e. in terms of load rating, and shall comply with the tests given in 6.4.		P
5.5	Earth electrode seal		--
	The design of the earth electrode seal shall be such that, in an acceptable and safe manner, it carries out its function of preventing ground water bypassing the earth electrode and entering the foundation or the basement or a wall of a building.	Earth electrode inspection housing	N/A
	The material of the earth electrode seal shall be compatible with its surrounding environment and comply with the tests given in 6.5.		N/A
6	Tests		--
6.1	General		--
	The tests in accordance with this document are type tests. These tests are of such a nature that, after they have been performed, they need not be repeated unless changes are made to the materials, design or type of manufacturing process, which can change the performance characteristics of the product.	Type tests	P
	Tests are carried out with the specimens prepared as in normal use according to the manufacturer's or supplier's instructions, unless otherwise specified.		P
	All tests are carried out on new specimens.		P
	Three new specimens are subjected to the tests and the requirements are satisfied if all the tests are met. If only one of the specimens does not satisfy a test due to an assembly or a manufacturing fault, that test and any preceding one which can have influenced the results of the test shall be repeated. The tests which follow shall be carried out in the required sequence on another full set of specimens, all of which shall comply with the requirements, unless otherwise specified.		P

Clause	Requirement - Test	Result - Remark	Verdict
	The applicant, when submitting the first set of samples, can also submit an additional set of samples that can be necessary should one sample fail. The testing laboratory shall then, without further request, test the additional set of samples, and shall only reject if a further failure occurs. If the additional set of samples is not submitted at the same time, a failure of one sample shall entail rejection.		P
	For products already tested according to IEC 62561-5:2011 and IEC 62561-5:2017, the applicability of previous tests according to Annex A, Table A.1 can be applied.		N/A
	For new products, complete type tests and samples according to Clause 6 are required.		P
6.2	Documentation and installation instructions		--
6.2.1	General conditions		--
	The content of the installation instructions is checked as per its completeness by review.		P
6.2.2	Acceptance criteria		--
	Documentation or installation instructions are deemed to be acceptable if they contain at least the information given in 5.2.		P
6.3	Marking test		--
6.3.1	General test conditions		--
	The marking is checked:		--
	a) as per its completeness in accordance with 5.3.1 by review;		P
	b) as per its durability and legibility by rubbing it by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with white spirit or mineral spirit.		P
	NOTE Marking made by moulding, pressing or engraving is not subjected to the test of 6.3.1 b).		N/A
6.3.2	Acceptance criteria		--
	The specimen is deemed to have passed the test if:		--
	a) the marking contains all information of 5.3.1 ;		P
	b) after the test of 6.3.1 b) the marking remains legible.		P
6.4	Earth electrode inspection housing		--
6.4.1	General test conditions		--
	All tests shall be performed on three new lid specimens using one housing.	3 samples	P
6.4.2	Load test		--

Clause	Requirement - Test	Result - Remark	Verdict
	Concrete lid and concrete housing specimens shall be tested after a 28 day curing period.Lid specimens of all other materials shall be tested after a seven day curing period.		P
	The test is carried out on a complete assembly and prepared according to the manufacturer's instructions.		P
	a) First alternative load test		--
	The housing of the specimen shall be surrounded by a material relevant to a declared load rating in accordance with the manufacturer's instructions.		P
	The thickness of the surrounding material shall be at least 0,5 times the nominal external size of the housing and not greater than the nominal size of the housing or can be reduced as specified by the manufacturer.		P
	The arrangement should be placed on a rigid support.		P
	An example for the test arrangement is shown in Figure 1 .  <p>Key 1 force 2 circular steel plate 3 removable lid 4 housing 5 surrounding material 6 rigid support 7 nominal size</p> <p>The thickness of the surrounding material (5) is usually equal to 0.5×1 up to 1×1 . It can be reduced as specified by the manufacturer.</p> <p>Figure 1 – Test arrangement of the first alternative for load test</p>	See Annex 1, samples under test.	P
	b) Second alternative load test		N/A
	The housing of the specimen shall be confined within steel plates with a minimum thickness of 10 mm, according to the manufacturer's instructions, held together by suitable means for example using threaded rods, fasteners.		N/A
	The arrangement should be placed on a rigid support.		N/A

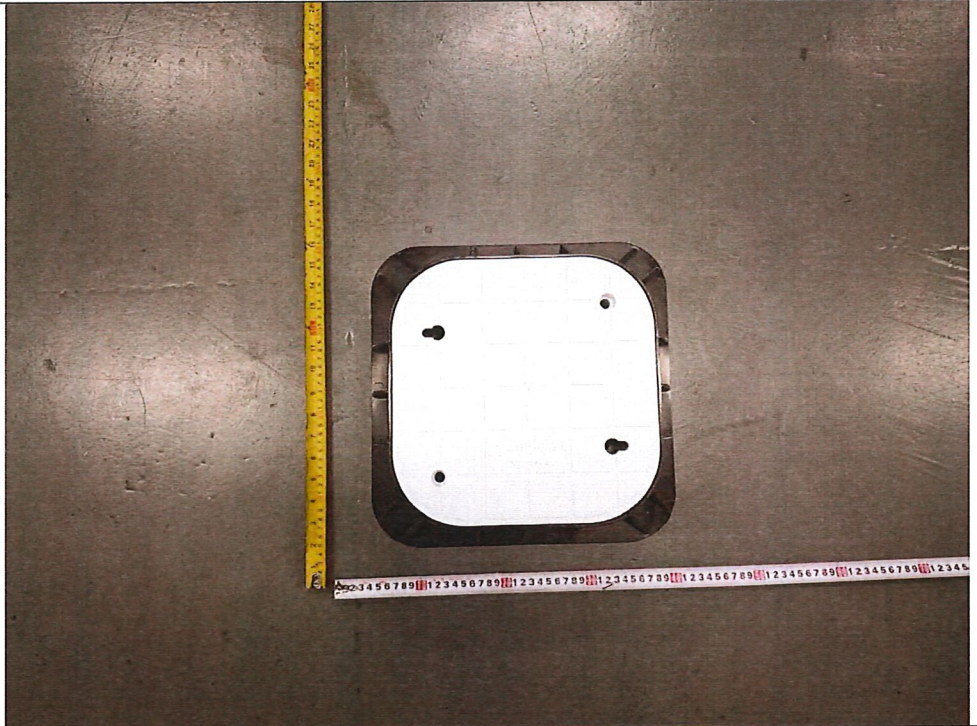
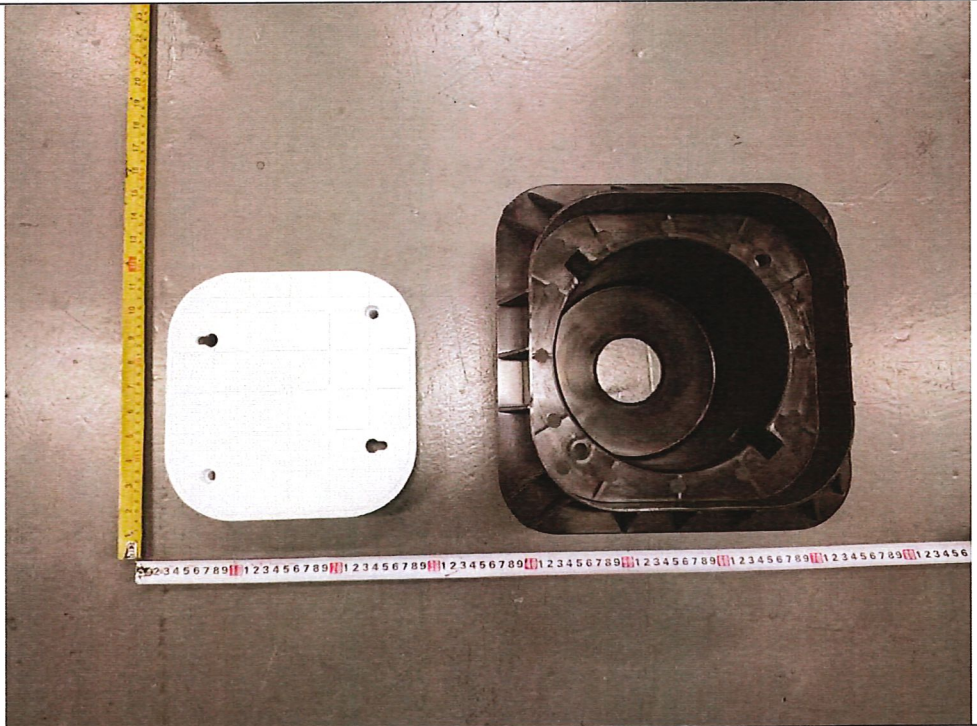
Clause	Requirement - Test	Result - Remark	Verdict						
	<p>An example of the second alternative of the load test is shown in Figure 2.</p>  <p>Key</p> <ul style="list-style-type: none"> 1 force 2 circular steel plate 3 removable lid 4 housing 5 steel plates 6 rigid support 7 threaded rod <p>Figure 2 – Test arrangement of the second alternative for load test</p>		N/A						
	<p>The product applicable for heavy duty usage, class H (slow moving vehicular traffic, multi-axle, etc.) shall be subjected to a force of 30 kN vertically applied through a circular steel plate with a (170 ± 0.5) mm diameter and a thickness of (20 ± 1) mm with a radius of both edges (top and bottom) of approximately 2 mm.</p>	Heavy duty usage, test at 30 kN <table border="1" data-bbox="1013 963 1348 1064"> <thead> <tr> <th>#1</th> <th>#2</th> <th>#3</th> </tr> </thead> <tbody> <tr> <td><1mm</td> <td><1mm</td> <td><1mm</td> </tr> </tbody> </table>	#1	#2	#3	<1mm	<1mm	<1mm	P
#1	#2	#3							
<1mm	<1mm	<1mm							
	<p>The product applicable for medium duty usage, class M (slow moving automobiles, etc.) shall be subjected to a force of 15 kN vertically applied through a circular steel plate with a $130 \text{ mm} \pm 0.5$ mm diameter and a thickness of $20 \text{ mm} \pm 1$ mm with an edge radius of approximately 2 mm.</p>	Heavy duty usage	N/A						
	<p>The product applicable for light duty usage, class L (walkways, etc.) shall be subjected to a force of 4 kN vertically applied through a circular steel plate with a $62 \text{ mm} \pm 0.5$ mm diameter and a thickness of $20 \text{ mm} \pm 1$ mm with an edge radius of approximately 2 mm.</p>	Heavy duty usage	N/A						
	<p>The centre of the circular plate should be positioned over the centre of the lid.</p>		P						
	<p>The force shall be gradually applied over $60 \text{ s} \pm 10$ s and maintained for $120 \text{ s} \pm 5$ s.</p>		P						
	<p>The tested load of the product should be declared by the manufacturer.</p>	30 kN	P						
6.4.3	Acceptance criteria		--						
	<p>After the test, the specimens shall show no signs of disintegration, nor crack be visible to normal or corrected vision without additional magnification. One minute after the load has been removed, there shall be no permanent deformation exceeding 3 mm.</p>	No disintegration	P						

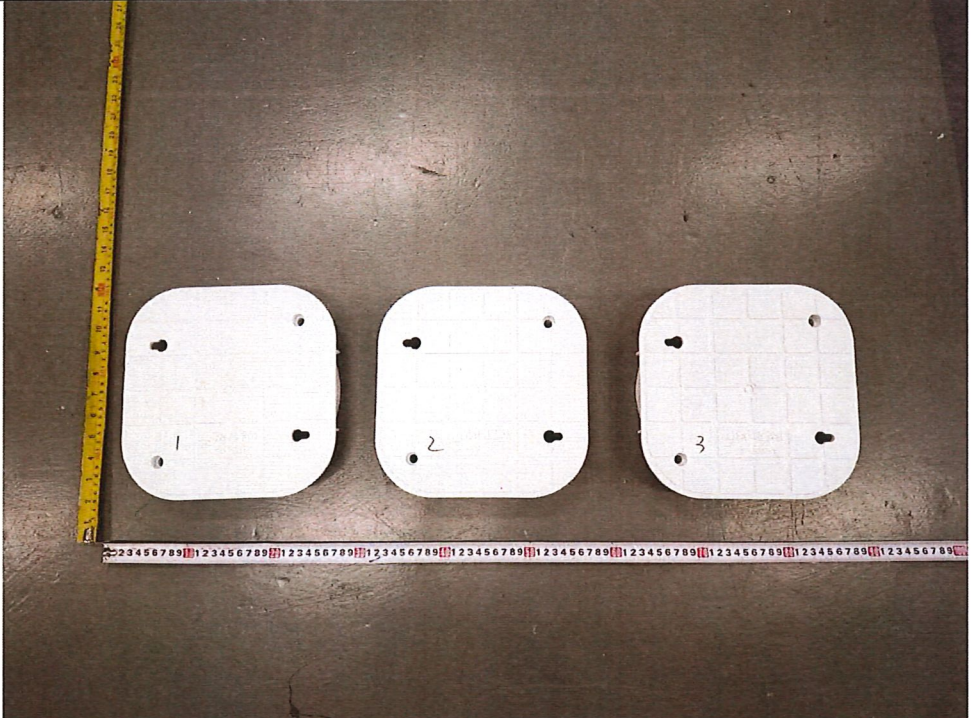

Clause	Requirement - Test	Result - Remark	Verdict
	The specimen is deemed to have passed the tests if it meets the above requirements.		P
6.5	Earth electrode seal test	No such parts	N/A
7	Electromagnetic compatibility (EMC)	No such parts	N/A
8	Structure and content of the test report		--
8.1	General		--
	The purpose of Clause 8 is to provide general requirements for laboratory test reports. It is intended to promote clear, complete reporting procedures for laboratories submitting test reports.		P
	The results of each test carried out by the testing laboratory shall be reported accurately, clearly, unambiguously and objectively, in accordance with any instructions in the test methods. The results shall be reported in a test report and shall include all the information necessary for the interpretation of the test results and all information required by the method used.		P
	The report shall be arranged and presented in such a way that it is easily assimilated by the reader, especially with regards to presentation of the test data. The format shall be specifically designed for each type of test carried out, but the headings shall be standardized as indicated below.		P
	The structure of each report shall include at least the information specified in 8.2 to 8.9.		P
8.2	Report identification		--
	The following information shall be included:		P
	a) a title or subject of the report.	TEST REPORT	P
	b) name and e-mail address or telephone number of the testing laboratory.	Name: Guangdong LNP Electrical Testing Technology Co., Ltd. Address: No. 101, Building B, Xinyongsheng Technology Park, Wenquan South Road No. 70, Xinwei Village, Shilong Town, Dongguan City, Guangdong Province, China. Email: leo@lnptest.com Tel: +86-769-81329986	P
	c) name, address and telephone number of the sub-testing laboratory where the test was carried out if different from the company which has been assigned to perform the test.		N/A
	d) unique identification number (or serial number) of the test report.	P250306301	P

Clause	Requirement - Test	Result - Remark	Verdict
	e) name and address of the vendor.	Name: Indelec SA. Address: 61, chemin des postes 59500 Douai - France	P
	f) paginated report and indication of the total number of pages on each page, including appendices or annexes;	Total 14 pages	P
	g) date of issue of the report.	2025-04-10	P
	h) date(s) test(s) was (were) performed.	2025-03-27 to 2025-04-03	P
	i) signature and title, or an equivalent identification of the person(s) authorized to sign by the testing laboratory to attest to the content of the report.	Andy Chen / Project Director	P
	j) signature and title of person(s) conducting the test(s).	Francis Lau / Test Engineer	P
	k) the following declaration in order to avoid misuse: "This type test report shall not be reproduced other than in full, except with the prior written approval of the issuing test laboratory. This type test report only covers the samples submitted for test and does not produce evidence of the quality for series production."		
8.3	Specimen description		--
	a) sample description.	Inspection pit was made of plastic.	P
	b) detailed description and unambiguous identification of the test specimen and/or test assembly, for example part number, type, classification, material, dimensions.	Part number: ARJDG 201 Classification: Class H, 30 kN; Material: Plastic	P
	c) characterization and condition of the test specimen and/or test assembly.	Test samples wear intact	P
	d) sampling procedure, where relevant.		N/A
	e) date of receipt of test samples.	2025-03-27	P
	f) photographs, drawings or any other visual documentation, if available.	Refer page Annex 1	P
8.4	Standards and references		--
	a) The test standard used shall be identified and the date of issue of the standard shall be given	IEC 62561-5:2023	P
	b) Reference to this document may only be made if the full set of tests is performed and reported, except where the deviations are clearly justified in 8.5 b).		P
	c) Other relevant documentation with the documentation date shall be provided.		N/A
8.5	Test procedure		--
	a) description of the test procedure.		--

Clause	Requirement - Test	Result - Remark	Verdict
	b) justification for any deviations from, additions to or exclusions from the referenced standard.	No deviations	N/A
	c) any other information relevant to a specific test such as environmental conditions.		P
	d) configuration of testing assembly and measuring set up.		P
	e) location of the arrangement in the testing area and measuring techniques.		P
8.6	Testing equipment, description		--
	Description of equipment used for every test conducted, for example presses, air compressors.	Refer to List of test equipment used	P
8.7	Measuring instruments description		--
	Characteristics, serial number and calibration date of all instruments used for measuring the values specified in this document, e.g. dynamometers, air boost gauges.	Refer to List of test equipment used	P
8.8	Results and parameters recorded		--
	a) the required passing criteria for each test as defined in the standard.		P
	b) the relevant measured, observed or derived results of the tests.		P
	The above shall be presented by way of tables, graphs, drawings, photographs or other documentation of visual observations as appropriate.		P
8.9	Statement of pass or fail		--
	A statement that the specimen passed or failed the tests shall be reported. If the specimen has failed, a description of failure is necessary.	Pass	P
Annex A (normative)	Applicability of previous tests		N/A

Annex 1: Photos of samples

<p>Details of:</p> <p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input checked="" type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	<p style="text-align: center;">External view</p> 
<p>Details of:</p> <p>View:</p> <p><input type="checkbox"/> General</p> <p><input checked="" type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	<p style="text-align: center;">Internal view</p> 

<p>Details of:</p> <p>View:</p> <p><input checked="" type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	<p style="text-align: center;">After Load test</p> 
<p>Details of:</p> <p>View:</p> <p><input checked="" type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	<p style="text-align: center;">Under Load test</p> 

List of test equipment used

Clause	Measurement / testing	Testing / measuring equipment / material used, (Equipment ID)	Range used	Last Calibration date	Calibration due date
6.2.2	Load test	Electromechanical Universal Testing Machine / LNP-SB-087	800N~200kN	2024-05-23	2025-05-22
--	Ambient	Hygrothermograph / LNP-SB-111	-20° C~60° C; 0%~95%RH	2024-08-08	2025-08-07

END OF REPORT

Technology Co., Inc.