



Testing Laboratory 1045.1 accredited by the Czech Accreditation Institute pursuant to  
ČSN EN ISO/IEC 17025:2018

**Strojírenský zkušební ústav, s.p. Zkušební laboratoř**  
**(Engineering Test Institute, Public Enterprise, Testing Laboratory)**  
**Hudcova 424/56b, Medlánky, 621 00 Brno**

Page 1 of 11



## **TEST REPORT**

### **32-10798/1/IP**

**Product:** Intercom

**Type designation:** 2N® IP One

**Order No.:** 9158101

**Customer:** 2N TELEKOMUNIKACE a.s.  
Modřanská 621/72  
143 00 Praha 4  
Czech Republic  
Company ID: 26183960

**Manufacturer:** 2N TELEKOMUNIKACE a.s.  
Modřanská 621/72  
143 00 Praha 4  
Czech Republic

**Employee responsible:** Michal Bauer

**Report issue date:** 2022-06-21

**Distribution list:** 1 copy to the Customer  
1 copy to the Engineering Test Institute

This document may be copied in its entirety without written consent of the Engineering Test Institute. Partial copies are subject to approval. The results of the tests and verifications shall relate only to the products tested as received or presented. The testing laboratory is not responsible for the data provided by the customer specified in the report.

SP-2021-000012\_1\_4\_Protokol\_ZL\_2022\_AKR\_EN

## I. Description of product tested

Intercom, type designation 2N® IP One, order no. 91581101 was submitted for the test of the enclosure.

The product is intended for installation into a wall and for this installation a flush box is used (order number 9158001).

Mass: 355g the unit  
465g unit with flush box  
Dimensions of the unit in (mm): 78 (W) x 172 (H) x 45 (D)  
Dimensions of the flush box in (mm): 123 (W) x 195 (H) x 83.5 (D)

The purpose of the test is to verify the degree of protection provided by enclosures for IP 6X of the sample.

## II. Sample tested

SZU reg. no.	Product name	Date of submission
0231.22.36728.001	Intercom, type designation 2N® IP One, Order No. 9158101	2022-05-17



Fig. 1 Sample in the laboratory premises with preparation for the vacuum connection

The visual inspection, tests and verification were carried out by Michal Bauer at the test station 019 of SZU.

The tests were performed using measuring and testing equipment with valid calibration.

### III. Measuring and test equipment:

No.	Description	Inventory number
1.	Spring loaded dynamometer 0-2,5 N	02-1836/1
2.	Test wire, diameter 1 mm, length 100 mm	11-4309
3.	Dust chamber	02-2408
4.	Tape measure ASSIST	ME 489
5.	Electronic stopwatch CASSIO	ME 562
6.	Thermometer – hygrometer Comet, type C4130	11-7286

#### IV. Methods, results of tests and verifications

No.	Test objective	Requirement	Method of test	Documentation	Test evaluation/ verification *	
1.	Degrees of protection provided by enclosures IP 6X	ČSN EN 60529:1993, Art. 12, 13			Page 4 to 10	+
*) Evaluation / statement of conformity:						
+ ..... Requirement fulfilled			0..... Not applicable			
- ..... Requirement not fulfilled			x..... Not evaluated			

**Note:**

The stated extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient  $k=2$ , corresponding to the coverage certainty of 95% as regards standard classification.

If a statement of conformity is provided, the decision rule pursuant to ILAC-G8:09/2019, Art. 4.2.1 - binary statement for the simple acceptance rule shall apply.

<b>Test objective:</b>	Degrees of protection provided by enclosures IP 6X
<b>Exact name of the test procedure:</b>	E 016* - Test of protection degree (except heavy waves)
<b>Test method:</b>	ČSN EN 60529:1993
<b>Sample tested:</b>	0231.22.36728.001
<b>Measuring equipment used:</b>	see Chapter III
<b>Date of test:</b>	2022-05-23

<b>Ambient conditions:</b>	23 to 29 °C	32 to 36%	1001 to 1012 mbar
	Temperature	Relative humidity	Barometric pressure

The first figure indicates that the enclosure:

- provides protection against contact with dangerous live parts
- provides protection against penetration of foreign solid objects

#### Protection against contact with dangerous parts

Test method: ČSN EN 60529:1993, Art. 12

Test equipment: See chapter III., items 1, 2, 6

Used force: 1 N  $\pm$  10%.

Test description: Test probe is pushed into all openings of the enclosure by above stated force.  
When low voltage equipment is tested a suitable light bulb shall be connected between the probe and dangerous live part inside the enclosure, connected serially with a low voltage power source (not less than 40 V and not more than 50 V). Dangerous live parts that are covered only by varnish or paint or are protected by oxidation coating or by similar means, are covered by metal foil which is connected to the parts, that are usually live when the equipment is operated.

Approval conditions: Protection is satisfactory, if the probe cannot touch any dangerous live parts

**Test Results:** **Probe cannot touch any dangerous parts of the sample.**

### Protection against penetration of foreign solid objects

Test method:	ČSN EN 60529:1993, Art. 13
Test equipment:	See chapter III, items 3, 4, 5, 6
Position of the sample's enclosure during test:	See fig. 2 The tested sample temperature within permitted tolerance
Dimensions and volume of the sample's enclosure	$a = 172 \text{ mm}$ , $b = 78 \text{ mm}$ , $c = 45 \text{ mm}$ , $V = 0.6 \text{ l}$ a...height, b...width, c...depth, V...volume
Required suction rate:	max. 60times of enclosure volume per hour, i.e. $60 \times 0.6 \text{ l} = 36 \text{ l} \cdot \text{hod}^{-1}$
Real suction rate:	$3.6 \text{ l} \cdot \text{hod}^{-1}$
Required air flow volume:	80 times of enclosure volume, i.e. $80 \times 0.6 \text{ l} = 48 \text{ l}$
Test duration:	8 hours
Test description:	The sample was placed into the dust chamber. For the entire test period, talcum powder was swirled in the chamber under periodic vibrations. The enclosure was exposed to a vacuum of max. 2 kPa (20 mbar) according to the above stated test requirements. Connection of suction with the tested enclosure was done through opening prepared by the manufacturer.
Approval conditions:	The enclosure is considered to be conforming if, after the test, no talcum powder deposits are detected inside the enclosure.
Test results:	<b>After opening the enclosure of the tested sample no talcum powder deposits were detected inside the enclosure (see fig. 3 to fig. 9).</b>

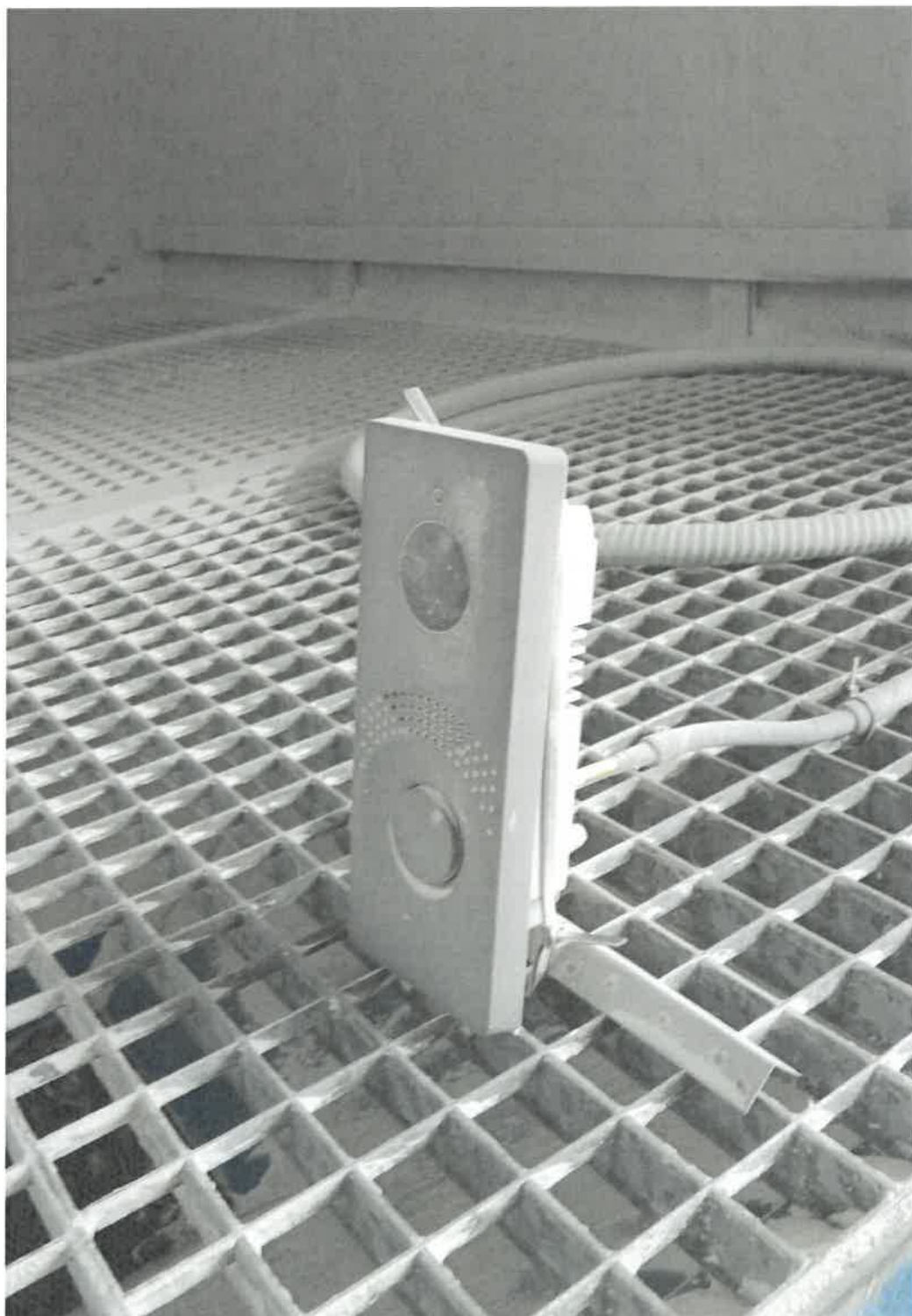


Fig. 2 Sample in the dust chamber after the test





Fig. 3 Sample after removing part of the back cover

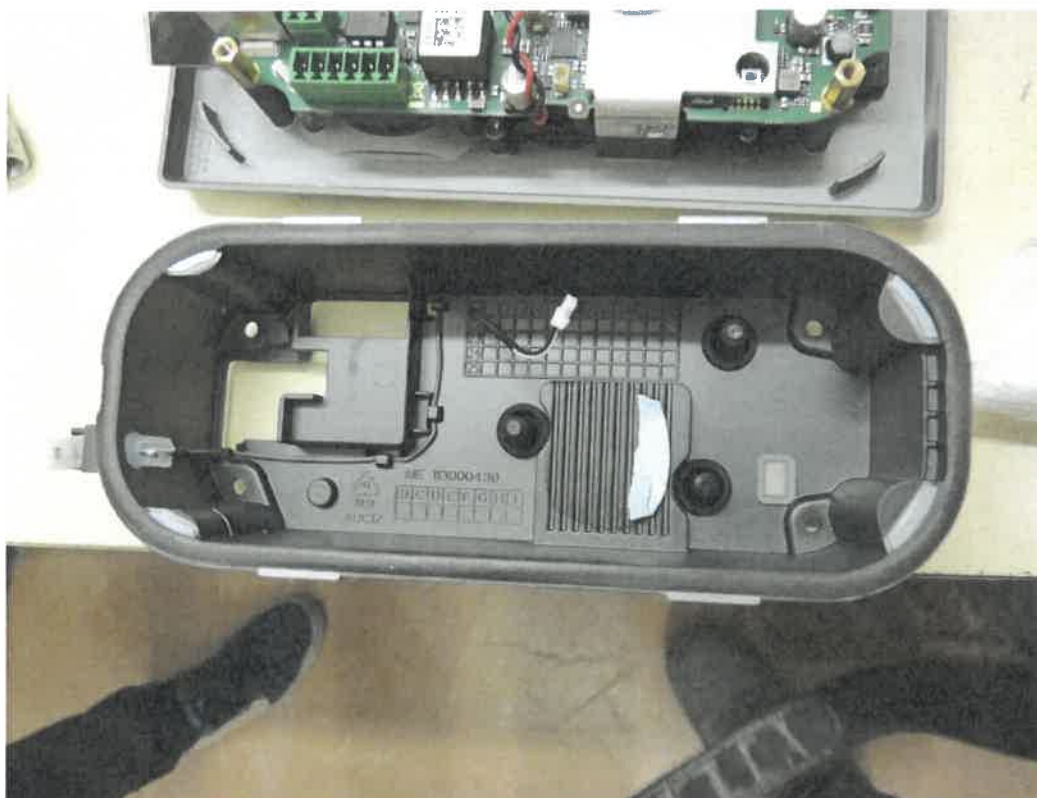


Fig. 4 Back cover of the sample



Fig. 5 Sample after removing the back cover



Fig. 6 Electronic board after the test



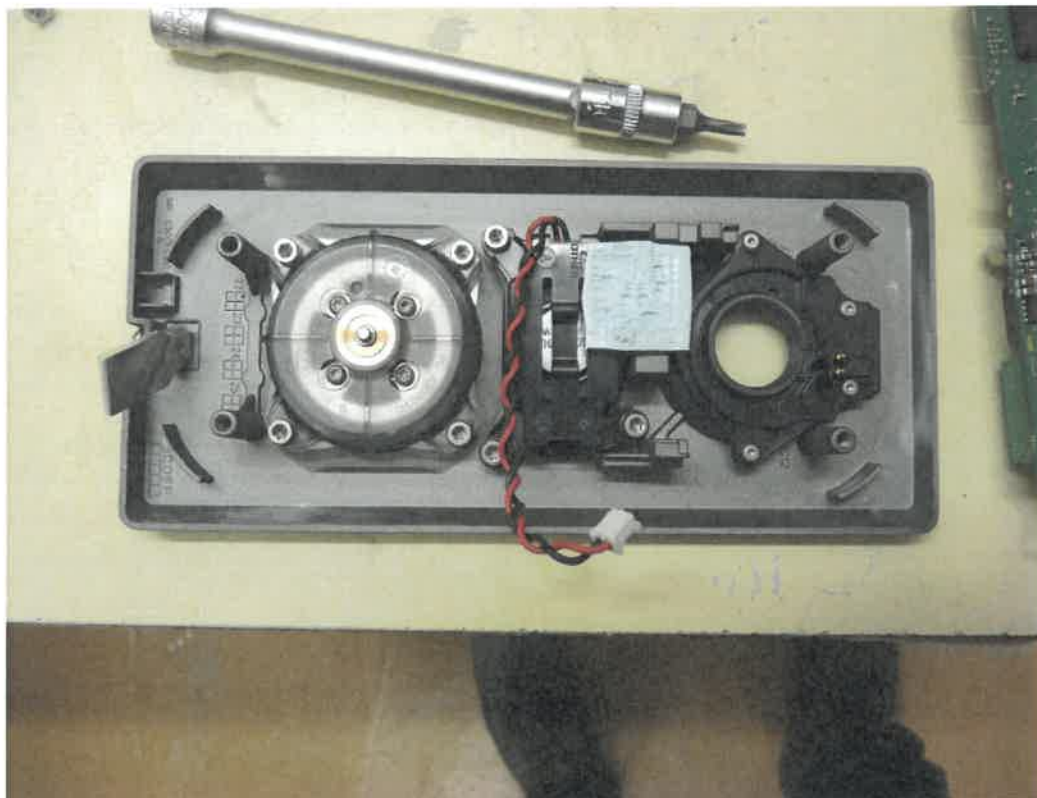


Fig. 7 Inner side of the front cover of the sample

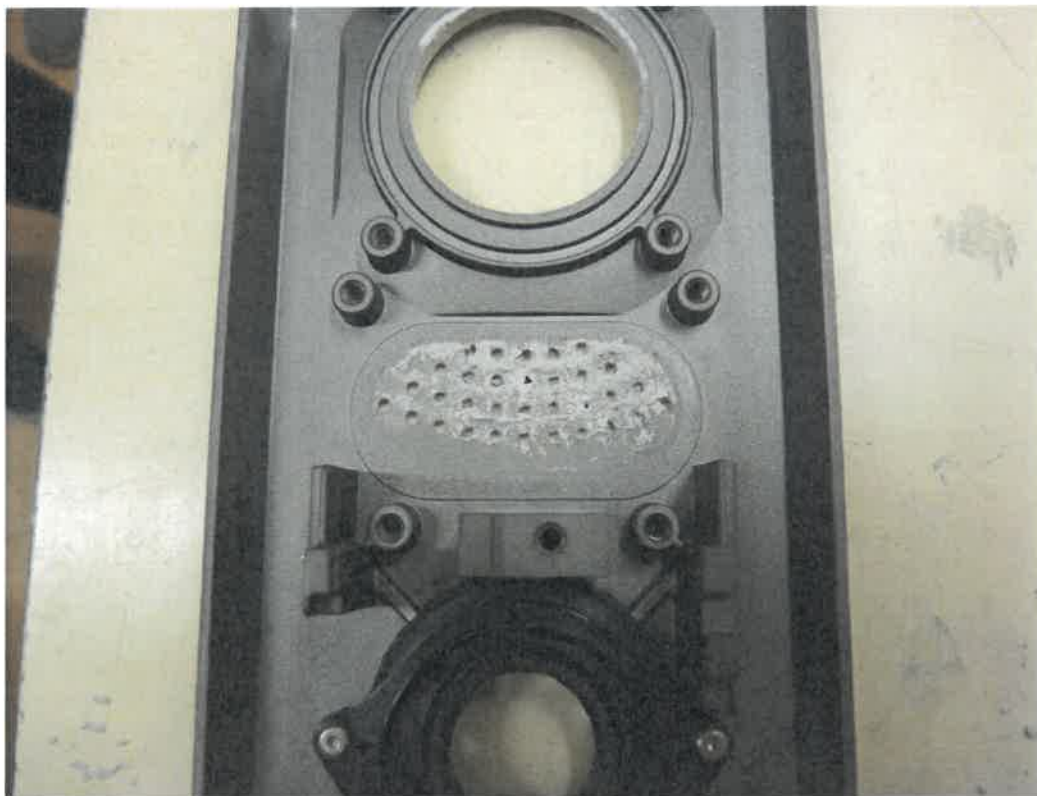


Fig. 8 Detail of the front cover after the test  
Dust is only in parts not protected by the cover – behind the speaker grating and around the button

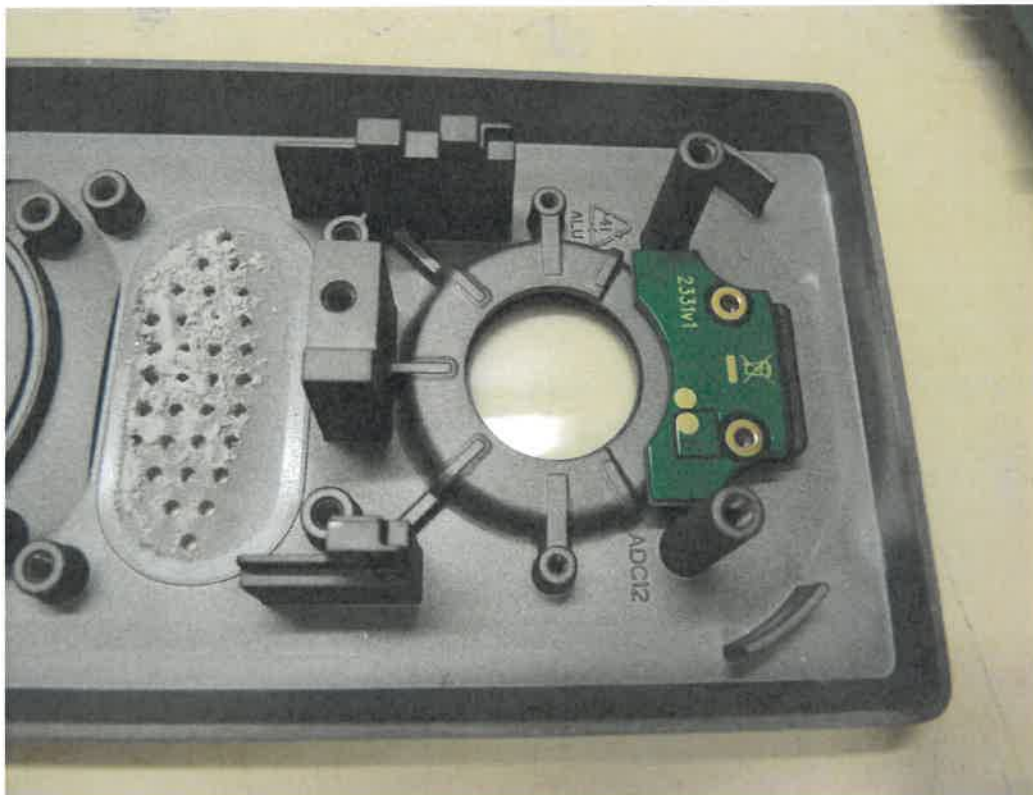


Fig. 9 Detail of the front cover after the test – the cover of camera

The tests results apply only to the submitted test sample.

Tested by: Michal Bauer

Date: 2022-06-21

Signed: \_\_\_\_\_

Reviewed and  
approved by: Ing. Antonín Heitl

Date: 2022-06-21


Signed: \_\_\_\_\_

**V. A list of referenced documents**

- Order OPV-0003025 of 2022-05-03 (Order reg. no. B-76333, received on 2022-05-04)
- Contract B-76333/32
- ČSN EN 60529:1993 - Degrees of protection provided by enclosures (IP Code)
- A list of technical documentation:
  - Drawing VILLA PANEL, part number ME 11300033x B, revision B.2 of 2022-05-30
  - Drawing VILLA BACK, part number ME 113000430 B, revision B.2 of 2022-06-13

Test Report compiled by: Michal Bauer



Test Report approved by:   
Ing. Antonín Heitl  
Head of Electrical Equipment Test Station

– End of Test Report –