EGU HV Laboratory a.s.
E G U - H V Laboratory a. s.
EGU HV LABORATORY, Podnikatelská 267, 190 11 Praha 9 - Běchovice

EGU HV LABORATORY

Accredited testing laboratory No.: 1029
Accredited by Czech Accreditation Institute
according to ČSN EN ISO/IEC 17025:2018

L 1029

TEST REPORT No.: 11788/O/21

CUSTOMER:	Jiangsu Shemar Electric Co., Ltd. 66 Haiwei Road 226 017 Nantong, Jiangsu China
TEST OBJECT:	161 kV Composite insulator
TYPE SPECIFICATION:	SML 222 kN
TEST STANDARDS:	ANSI C29.12-2020, ANSI C29.11-2020, NEMA 107:2016, IEEE Std 4:2013

Michal Novotný **Test engineer**	Marek Brosch **Head of EGU HV LABORATORY**	Jan Lachman, Ph.D. **Director of EGU - HV Laboratory a. s.**

TEST REPORT	No.: 11788/O/21
TEST OBJECT:	161 kV Composite insulator
TYPE SPECIFICATION:	SML 222 kN
DRAWING No.:	21SM510757 Rev. A
MANUFACTURER:	Jiangsu Shemar Electric Co., Ltd.
DATE OF DELIVERY:	2021-12-09
DATE OF TESTS:	From 2022-02-28 till 2022-03-07
ORDER No.:	Contract 23/21
TESTS WITNESSED BY:	N/A

TABLE OF CONTENTS

1 TEST SUMMARY

Test title	Test standards	Test result
Radio-Influence Voltage (RIV)	ANSI C29.12, clause 9.4	Passed
Critical Impulse Flashover Tests – Positive and Negative	ANSI C29.12, clause 9.3	Passed
Low-Frequency Wet Flashover test	ANSI C29.12, clause 9.2	Passed
Low-Frequency Dry Flashover test	ANSI C29.12, clause 9.1	Passed

2 TESTS PERFORMED

2.1 Radio-Influence Voltage (RIV)

2.1.1 Test procedure

Date of test: 2022-02-28

The test was carried out according to ANSI C29.12, clause 9.4, ANSI C29.11, clause 8.2.8 and customer requirements. The test was performed on one composite insulator assembly, including grading ring, serial No. 2111161507.

Radio influence voltage RIV was measured according to NEMA 107. RIV (expressed in decibels relative to 1 µV across 150 Ω) was measured at the frequency of 1,0 MHz in compliance with the circuit diagram in Figure 3-3a of NEMA 107, Section 3.

The circuit RIV factor was 0,42.

Measured RIV values are shown in Table 1.

The test arrangement was set up according to ANSI C29.11, clause 8.2.8.1 and customer requirements (see Figure 2). The bundle of double conductors with spacing 457 mm was simulated using an aluminium tube of 14 m length and 30 mm diameter. Both ends of the tubes were terminated with corona shielding spheres (screening electrode) with a diameter of 300 mm. Bundle of conductors was at a height of 4,4 m above the ground.

Testing and measuring equipment:

coupling capacitance, 1 000 pF, 800 kV, serial No. 11100108.10.1
measuring impedance Power Diagnostix, NEMA 150 Ω, type CIT4M/V8µ0/RIV, serial No. 12533
test transformer TuR Dresden 5,7/1 200 kV, 1 500 kVA
inductive regulator ČKD Praha 6/ 0 - 3 kV, 50 kVA
capacitive divider TuR Dresden 1 200 kV, 150 pF, type WMC 160/1200, serial No. 884470
universal voltmeter Haefely Trench, type DMI 551, serial No. 150505
RIV meter - measuring receiver Power Diagnostix, type RIV meter, serial No. 035
calibrator Power Diagnostix, type CAL3B, serial No. 3014
measuring system for atmospheric condition COMET, serial No. 10910247
digital stop-watch Kalenji, PM-259
measuring telescopic stick 5m, type BMI, serial No. 102

2.1.2 Test results

Table 1 Test results of the RIV test

Rated voltage (kV)	**161**		
Atm. conditions b (in Hg) t (°F) RH (%)	 29,68 60,1 32,9		
Test voltage (kV)	**RIV ↓ (µV)**	**RIV ↑ (µV)**	**RIV ↓ (µV)**
206	22 387	22 387	22 387
195	19 953	22 387	19 953
184	398	447	355
173	22	22	22
162	22	22	22
151	22	22	22
140	22	22	22
129	22	22	22
118	22	22	22
107	**22**	**22**	**22**
96	22	22	22
85	22	22	22
|	|	|	|
0	22	22	22

Evaluation:

Measured RIV at 107 kV (115 % of nominal line–to–ground voltage, 1,15 × 161/√3 =107 kV) is lower than the specified value of 100 µV.

Statement of conformity:

161 kV Composite insulator, SML 222 kN, drawing No. 21SM510757 Rev. A, passed the test according to requirements given in ANSI C29.12, clause 9.4.

2.2 Critical Impulse Flashover Tests-Positive and Negative

2.2.1 Test procedure

Date of test: 2022-03-04

The test was carried out according to ANSI C29.12, clause 9.3 and ANSI C29.11, clause 8.2.6.

The test was performed on one composite insulator assembly, including grading ring, serial No. 2111161507.

The critical impulse voltage of positive and negative polarity was determined by the up and down method with 30 impulses according to ANSI C29.11, clause 8.2.6.4 and IEEE Std 4, clause 8.

All measured voltages were corrected to the standard reference atmospheric conditions according to ANSI C29.11, clause 8.2.6.6

The representative wave shape of the lightning impulse 1,2/50 µs is given Graph 1.

The test arrangement was set up in compliance with ANSI C29.11, clause 8.2.6.2 and 8.1 (see Figure 4).

Testing and measuring devices:

impulse generator HighVolt IGL 180/1800G, serial No. IGG2295141
capacitive/resistive divider HighVolt, type MCR 0,4/2000-1000/1000 H391-41, serial No. MCR2295141/103732
measuring system High Volt, type HiRES S4D, serial No. HIGG2295141
tape measure 7,5 m, Assist, PM-242
measuring system for atmospheric condition COMET, serial No. 14900363

2.2.2 Test results

Table 2 Test results of the critical impulse flashover test – positive and negative

Impulse polarity	+	–
Atm. conditions:		
barometric pressure (in Hg)	29,21	29,21
temperature of air (°F)	61,7	61,7
relative humidity (%)	31,2	31,2
Correction factors:		
air density correction factor K_d	1,005	1,005
humidity correction factor K_h	1,109	1,093
Critical impulse flashover voltage (kV)	**869**	**912**
Measured arcing distance: 1 360 mm		
Drawing specified critical impulse flashover voltage: 930 kV		

Evaluation:

Critical impulse flashover value of positive and negative polarity was equal to or exceed 92% of the rated critical impulse flashover voltage specified by drawing 930 kV, i.e. 856 kV.

Statement of conformity:

161 kV Composite insulator, SML 222 kN, drawing No. 21SM510757 Rev. A, passed the test according to requirements given in ANSI C29.12, clause 9.3.

2.3 Low-Frequency Wet Flashover Test

2.3.1 Test procedure

Date of test: 2022-03-07

The test was carried out according to ANSI C29.12, clause 9.2 and ANSI C29.11, clause 8.2.2.

The test was performed on one composite insulator assembly, including grading ring, serial No. 2111161507.

Characteristics of the artificial rain and precipitation method was in accordance with the ANSI C29.11, clause 8.2.2.2.

The low-frequency wet flashover test was performed according to ANSI C29.11, clause 8.2.2.4 and 8.2.2.5. The flashover voltage was obtained by increasing the voltage continuously from zero up to flashover. The average of five flashovers was calculated.

All measured voltages were corrected to the standard reference atmospheric conditions according to ANSI C29.11, clause 8.2.2.6.

The test arrangement was set up in compliance with ANSI C29.11, clause 8.2.2.1 and 8.1 (see Figure 5).

Testing and measuring equipment:

synchronous generator BEZ Bratislava 6 kV, 1 300 kVA
test transformer TuR Dresden 5,7/1200 kV, 1500 kVA, serial No. 884469
capacitive divider TuR Dresden 1200 kV, 150 pF, type WMC 160/1200, serial No. 884470
universal voltmeter Haefely Trench, type DMI 551, serial No. 150505
measuring system for atmospheric conditions Comet, serial No. 10910247
tape measure 5 m, CXS, PM-241
digital stop-watch Kalenji PM-259
conductivity meter WTW Cond 3310, serial No. 10410891
plastic measuring cylinder 50ml, identification No. 1/153/14 & 2/153/14

2.3.2 Test results

Table 3 Test results of the low-frequency wet flashover test

Atm. conditions:	
barometric pressure (in Hg)	29,29
temperature of air (°F)	60,8
relative humidity (%)	41,9
Rain parameters:	
r. i. (mm/min)	4,7
conductivity (µS/cm)	192
Correction factors:	
humidity correction factor K_h	1,000
air density correction factor K_d	1,010
Flashover voltage	**440 kV**
Measured arcing distance: 1 360 mm	
Drawing specified low-frequency wet flashover voltage: 485 kV	

Evaluation:

Low-frequency wet flashover value was equal to or exceed 90% of the rated wet flashover value specified by drawing 485 kV, i.e. 437kV.

Statement of conformity:

161 kV Composite insulator, SML 222 kN, drawing No. 21SM510757 Rev. A, passed the test according to requirements given in ANSI C29.12, clause 9.2.

2.4 Low-Frequency Dry Flashover Test

2.4.1 Test procedure

Date of test: 2022-03-07

The test was carried out according to ANSI C29.12, clause 9.1 and ANSI C29.11, clause 8.2.1.

The test was performed on one composite insulator assembly, including grading ring, serial No. 2111161507.

The low-frequency dry flashover test was performed according to ANSI C29.11, clause 8.2.1.3 and 8.2.1.4. The flashover voltage was obtained by increasing the voltage continuously from zero up to flashover. The average of five flashovers was calculated.

All measured voltages were corrected to the standard reference atmospheric conditions according to ANSI C29.11, clause 8.2.1.5.

The test arrangement was set up in compliance with ANSI C29.11, clause 8.2.1.2 and 8.1 (see Figure 6).

Testing and measuring equipment:

synchronous generator BEZ Bratislava 6 kV, 1 300 kVA
test transformer TuR Dresden 5,7/1200 kV, 1500 kVA, serial No. 884469
capacitive divider TuR Dresden 1200 kV, 150 pF, type WMC 160/1200, serial No. 884470
universal voltmeter Haefely Trench, type DMI 551, serial No. 150505
measuring system for atmospheric conditions Comet, serial No. 10910247
tape measure 5 m, CXS, PM-241
digital stop-watch Kalenji PM-259

2.4.2 Test results

Table 4 Test results of the low-frequency dry flashover test

Atm. conditions:	
barometric pressure (in Hg)	29,29
temperature of air (°F)	59,9
relative humidity (%)	37,1
Correction factors:	
humidity correction factor K_h	1,130
air density correction factor K_d	1,011
Flashover voltage	**528 kV**
Measured arcing distance: 1 360 mm	
Drawing specified low-frequency dry flashover voltage: 550 kV	

Evaluation:

Low-frequency dry flashover value was equal to or exceed 95% of the rated dry flashover value specified by drawing 550 kV, i.e. 523 kV.

Statement of conformity:

161 kV Composite insulator, SML 222 kN, drawing No. 21SM510757 Rev. A, passed the test according to requirements given in ANSI C29.12, clause 9.1.

3 LIST OF SYMBOLS

RIV	radio influence voltage (µV)
b	barometric pressure (in Hg)
t	temperature of air (°F)
RH	relative humidity (%)
K_h	humidity correction factor
K_d	air density correction factor
U_{pk}	maximum voltage of recorded curve (kV)
β'	relative overshoot (%)
T_1	front time of recorded curve (µs)
T_2	time to half-value of recorded curve (µs)
r.i.	average value of measured rainfall intensity – vertical component (mm/min)
conductivity	water conductivity (µS/cm)

4 UNCERTAINTY OF MEASUREMENTS

QUANTITY	UNCERTAINTY (k=2)	
Lightning impulse voltage	U_{pk} T_1 T_2	1,7 % 8,0 % 3,1 %
Radio interference voltage	1,0 dB	
Power-frequency voltage	1,7 %	
Barometric pressure	0,5 %	
Temperature of air	4,0 %	
Relative humidity	6,3 %	
Time	0,7 %	
Telescopic stick	0,8 %	
Length (tape measure)	1,6 %	
Rainfall intensity	10 %	
Conductivity	5,0 %	

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a Normal (Gaussian) distribution corresponds to a coverage probability of approximately 95 %. Details related to the statement of conformity when applied are given in a price quotation submitted to a customer before the testing and on the website of the laboratory.

5 PRODUCT DRAWING

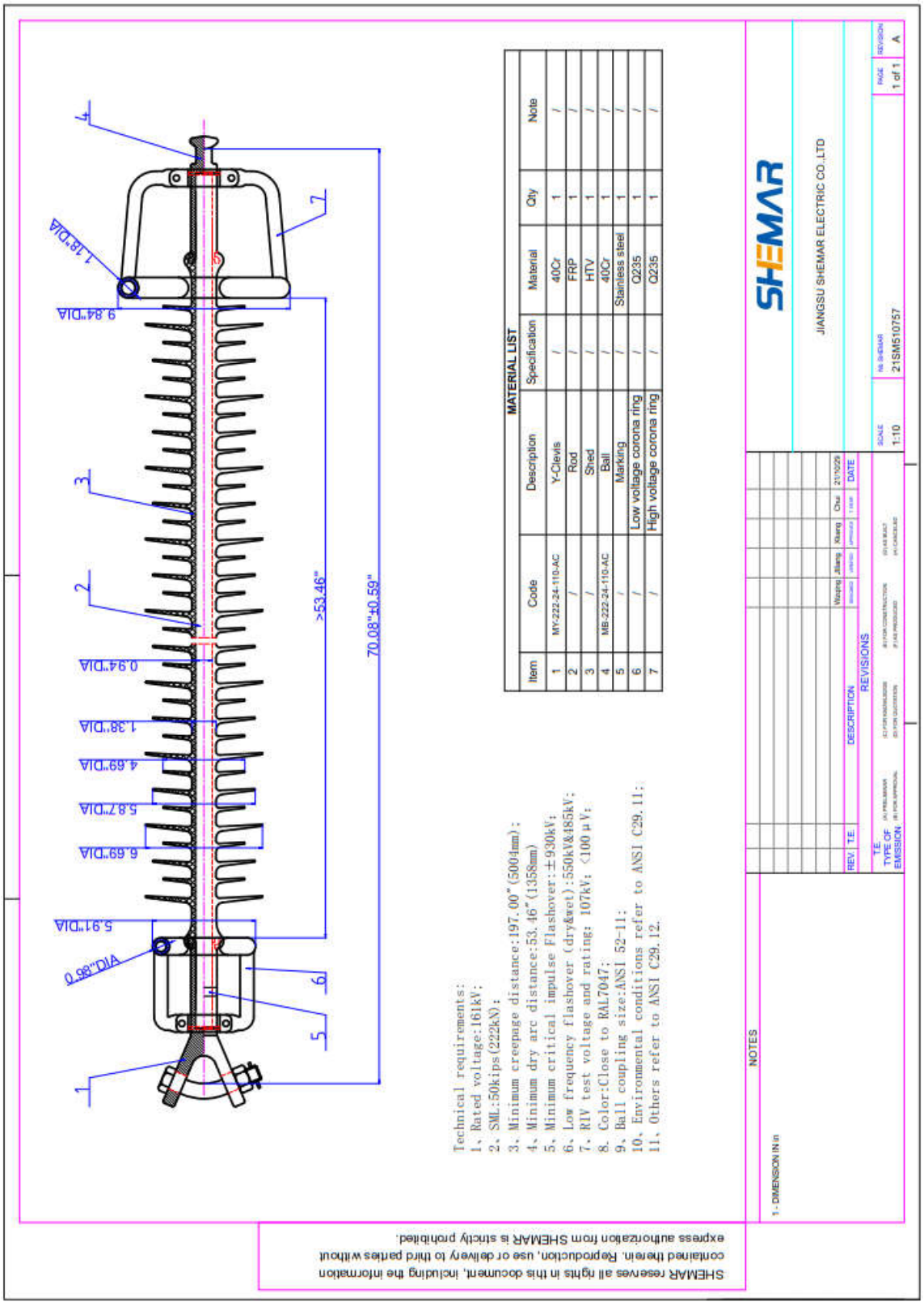


Figure 1
161 kV Composite insulator, SML 222 kN, drawing No. 21SM510757 Rev. A

6 TEST SETUP PHOTOS

Figure 2
Test arrangement for RIV and corona tests

Figure 3
Test arrangement for RIV and corona tests

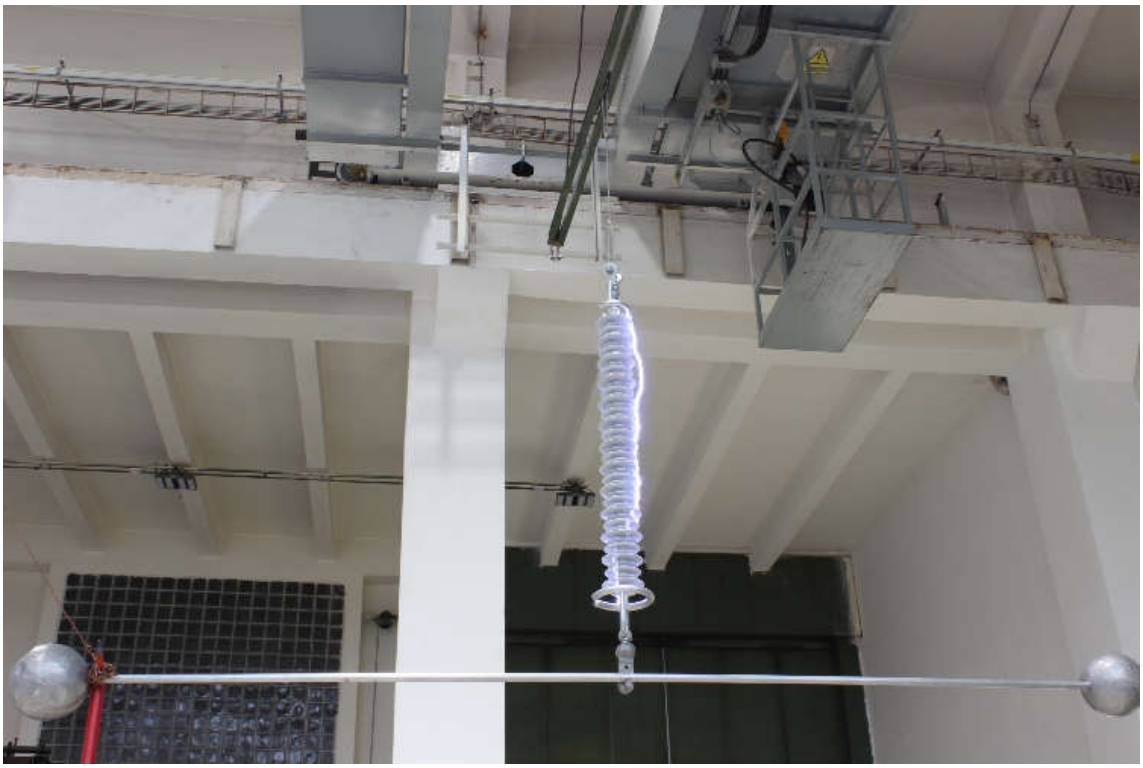
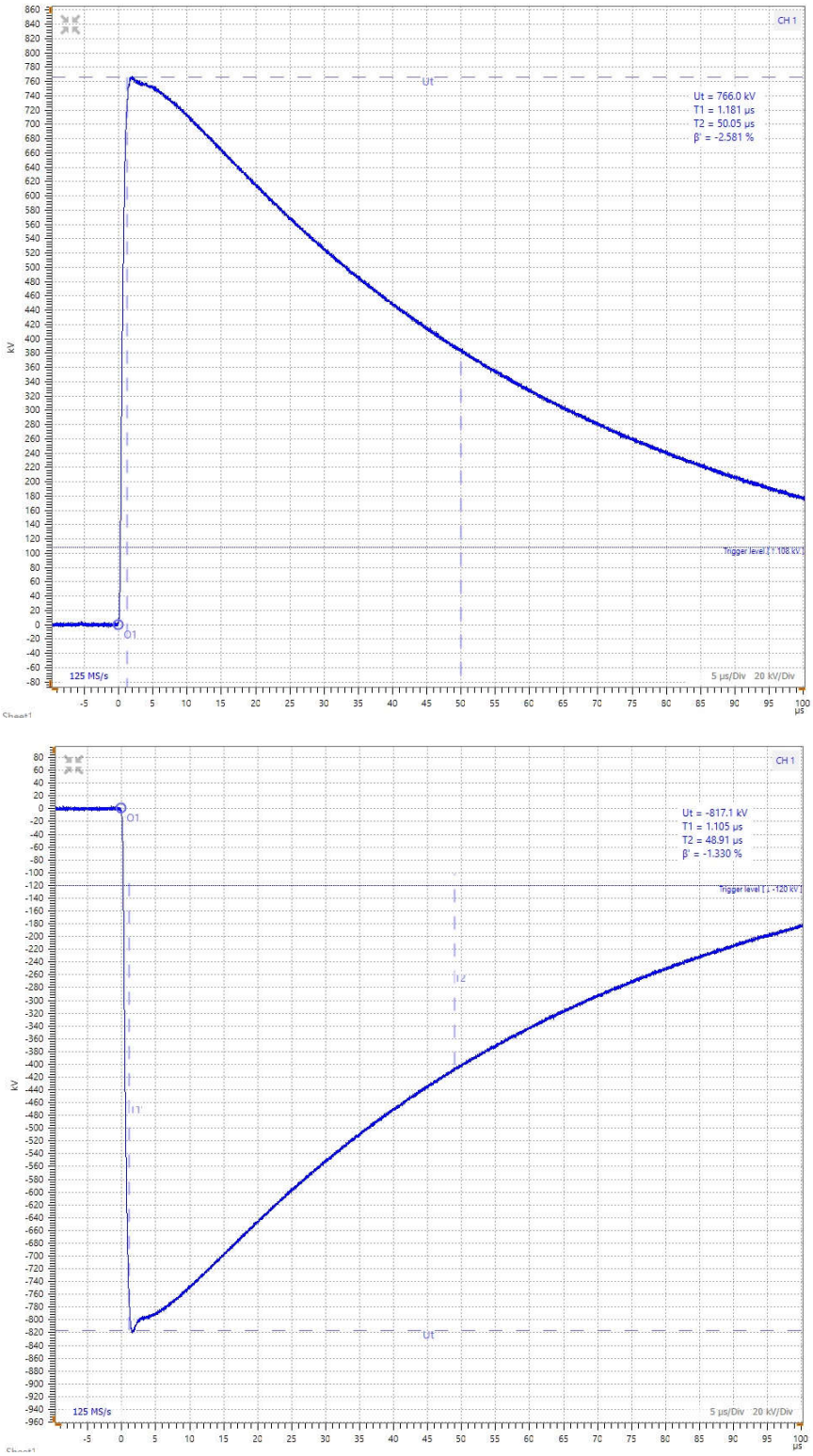


Figure 4
Test arrangement and flashover under the critical impulse flashover test

Figure 5
Test arrangement and flashover under the low-frequency wet flashover test

Figure 6
Test arrangement and flashover under the low-frequency dry flashover test

7 GRAPHS



Graph 1
Representative wave shape of the lightning impulse 1,2/50 µs

- end of test report -

Testpolymer EU s.r.o.

Testing laboratory No. 1595
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according to ČSN EN ISO/IEC 17025: 2018

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Test report No. 59/2022/EN

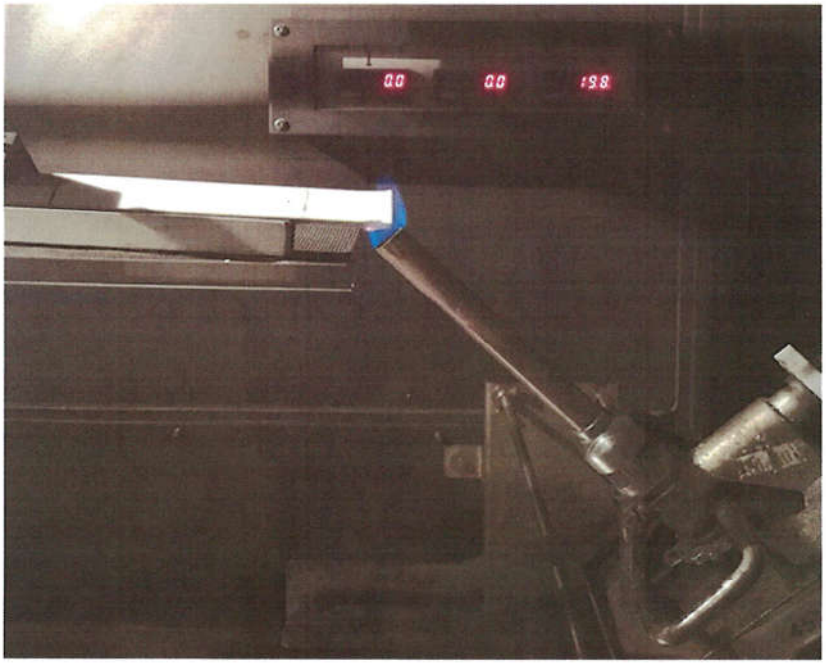
Customer:	**EGU - HV Laboratory a.s., Podnikatelská 267, 190 11 Praha 9, Běchovice**
	Company ID: 25634330, Tax ID: CZ25634330
Customer´s order:	**6/11788/2022**
Application form:	**2200223**
Tested material:	**HTV silicone material**
Detailed description:	**Manufacturer: Jiangsu Shemar Electric Co., Ltd.**
Form of material:	test specimens - sampled and delivered by customer
Preparation of samples:	test specimens supplied by customer
Date of receipt of the sample:	10.1.2022

Tests	Test specifications
Fire hazard testing - horizontal and vertical flame tests	UL 94: 2013 revision 05/2021 ČSN EN 60695-11-10 ed.2: 2014

These tests were performed in accordance with the standard ČSN EN 62217 ed.2: 2013, article 9.3.4.

Test No. 15	**Fire hazard testing - Horizontal and vertical flame tests - method A - horizontal burning test**

Photo of the position of the test specimen during the test:



Test report No. 59/2022/EN

Test standard:	ČSN EN 60695-11-10 ed. 2: 2014	
Test equipment:	Chamber Atlas HVUL2	
Ignition source:	Burner with an inner diameter 9.5 mm	
	The gas used: Methane 2.5	
Test conditions:	Blue flame height 20 mm, the exposure time 30s	
	No forced ventilation was used during the test	
	Temperature: 22,0 - 23,0°C	Humidity: 48,0 - 49,0%
Description of the sample (sample type, the color, the location in the product, the number of samples tested):	Test specimens of grey color 125x13x3mm, 3 pieces	
Conditioning of samples:	48 hours at 23±2°C and 50±5% relative humidity	
Conditioning of cotton indicator:	24 hours in desiccator 23±2°C	
Deviations from the standard:	no	
Test progress:	After removing the ignition flame, the test specimens do not burn. The flame did not exceed the 25 mm mark. A support fixture was used during the test due to the bending of the test specimens.	
Test specimen No.1	burning stopped before 25 mm	
Test specimen No.2	burning stopped before 25 mm	
Test specimen No.3	burning stopped before 25 mm	

No. of test specimen	Damaged length L (mm)	Burning time t (s)	Linear burn rate (mm/min)	**Linear burn rate average value (mm/min)**	Sample standard deviation (mm/min)
1	0	0	0	**0**	0
2	0	0	0		
3	0	0	0		

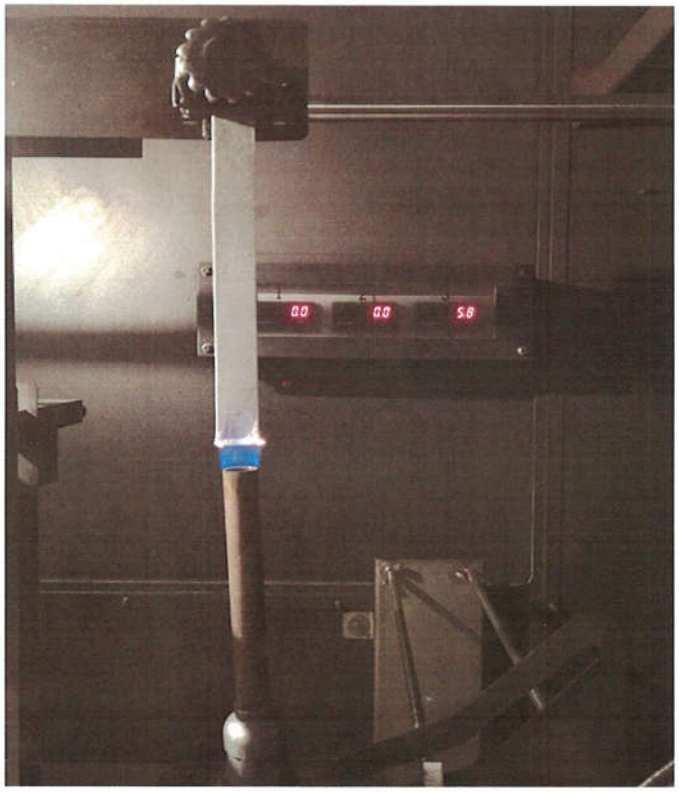
Statement of conformity to specifications - classification	Measured results (burning rate, damaged length) on tested three samples meet all requirements for classification **HB** according to article 8.4 ČSN EN 60695-11-10 ed.2 This statement of conformity to specifications is given in the sense of the shared risk decision rule; without including measurement uncertainty.

Tested and evaluated by:	Ing. Lukáš Navrátil	Date:	13.1.2022

Test report No. 59/2022/EN

Test No. 15	**Fire hazard testing - horizontal and vertical flame tests - method B - vertical burning test**

Photo of the position of the test specimen during the test:



Test standard:	ČSN EN 60695-11-10 ed. 2: 2014	
Test equipment:	Chamber Atlas HVUL2	
Ignition source:	Burner with an inner diameter 9.5 mm	
	The gas used: Methane 2.5	
Test conditions:	Blue flame height 20 mm, the exposure time 2 x 10s	
	No forced ventilation was used during the test	
	Temperature: 22,0 - 23,0°C	Humidity: 48,0 - 49,0%
Description of the sample (sample type, the color, the location in the product, the number of samples tested):	Test specimens of grey color 125x13x3mm, 10 pieces	
Conditioning of samples:	5 pieces - 48 hours in the climate chamber at 23±2°C and 50±5% relative humidity; 5 pieces -168 ±2 hours in the hot air oven at 70±2°C and cooled in desiccator min. 4 hours at room temperature	
Conditioning of cotton indicator:	24 hours in desiccator 23±2°C	
Deviations from the standard:	Not detected	
Test progress:	The test specimens do not burn after the first or after the second application of the flame. The material does not drip or ignite absorbent cotton.	

Test report No. 59/2022/EN

No. of test specimen:	Afterflame time after the first flame application t_1 (s)	Afterflame time after the second flame application t_2 (s)	Afterflame plus afterglow time after the second flame application t_2+t_3 (s)	Afterflame up to the holding clamp: YES - NO	Flaming particles or drops: YES - NO	Cotton indicator ignited by flaming particles or drops: YES - NO
Specimens conditioned in climate chamber						
1	0	0	0	NO	NO	NO
2	0	0	0	NO	NO	NO
3	0	0	0	NO	NO	NO
4	0	0	0	NO	NO	NO
5	0	0	0	NO	NO	NO
Specimens conditioned in hot air oven						
1	0	0	0	NO	NO	NO
2	0	0	0	NO	NO	NO
3	0	0	0	NO	NO	NO
4	0	0	0	NO	NO	NO
5	0	0	0	NO	NO	NO

Statement of conformity to specifications - classification	The measured results (burning and afterglow times and the condition of the cotton indicators) on the ten samples tested meet all the requirements for classification **V-0** according to article 9.4 ČSN EN 60695-11-10 ed. 2. This statement of conformity to specifications is given in the sense of the shared risk decision rule; without including measurement uncertainty.

Tested and evaluated by:	Ing. Lukáš Navrátil	Date:	13.1.2022, 18.1.2022

Declaration:

Test results relates only to the test subject and refer to the sample as received
Laboratory is not responsible for sampling and specimen preparations done by customer.
Without the written consent of the Head of Laboratory, the protocol cannot be reproduced other than the entire.
All results are metrologically traceable.

Test report was created by:

Jana Trbušková
Chief laboratory technician

AKREDITOVANÁ ZKUŠEBNÍ LABORATOŘ Testpolymer EU s.r.o. č. 1595

Test report was approved by:

Eva Kovářová
Laboratory manager

In Bohuslavice: 19.1.2022

End of test report

SYNPO, akciová společnost
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532 07 Pardubice - Zelené Předměstí
The Czech Republic

Department of Evaluation and Testing
Testing Laboratory No. 1105.2 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

TEST REPORT
T 375/005

Name and contact information of the customer	**EGU – HV Laboratory a.s.** Podnikatelská 267, 190 11 Praha 9 – Běchovice The Czech Republic
Test item(s)	**Manufacturer: Jiangsu Shemar Electric Co., Ltd.** **Address : No. 66, Haiwei Road, Sutong Science and Technology Industrial Park, Nantong City, Jiangsu 226017, China** **Type : HTV**
Test procedure/method	Test No. 35: **Exposure to laboratory light – Xenon - arc lamps -** *ČSN EN ISO 4892-2* Test No. 1 : **Determination of the degree of degradation of coatings** APP 1 (*ČSN EN ISO 4628 -1, 4, 5)* Test No. 33 : **Surface roughness measurement (Ra, Rz, Ry, Rq)** (*ČSN EN ISO 4287, ČSN EN ISO 4288)*
Date of receipt of item(s)	January 7, 2022
Internal laboratory number	22 0065
Date of the test	January 7, 2022– February 22, 2022
Tested by	Gabriela Štěpánková
The report made by	Gabriela Štěpánková, Ondřej Janča

This report contains 6 pages and 1 annex.

Digitálně podepsal Ing. Vladimír Špaček, CSc.

In Pardubice on March 29, 2022

Dr. Vladimír Špaček
Head of testing laboratory

TEST REPORT T 375/005
Page/Total pages: 2/6
Annexes: 1

DESCRRIPTION OF THE TEST ITEM

Test item:	**Manufacturer: Jiangsu Shemar Electric Co., Ltd.** **Address : No. 66, Haiwei Road, Sutong Science and Technology Industrial Park, Nantong City, Jiangsu 226017, China** **Type : HTV**
Data delivered by the customer[1] :	-
Internal lab number:	**22 0065**

[1]The laboratory is not responsible for the data delivered by customer.

FURTHER SPECIFICATION OF THE TEST PERFORMANCE

The samples of testing were received from the contractor and submitted to the test without any treatment of surface protection or heat storage.

Test No. 35: Exposure to laboratory light – Xenon - arc lamps

Testing device: Q-SUN Xe-3HS (Q-Lab, GB), Xenon lamps with irradiation energy 0,51 W/m^2/nm at 340 nm (60 W/m^2/nm for TUV). Filtres used – Q-Daylight. Used IBP placed horizontally at the site of sample exposure was fasten by anticorrosion screw. Irradiation intensity was calibrated by radiometer with zone detector of 340 nm (or TUV).
Description of exposure cycle:
Exposure cycle A1: 102 min of irradiance phase with BP temperature (65 ± 3) °C, chamber temperature (38 ± 3) °C with RH (50 ± 10) %. Spray phase (front spraying) of 18 min. (according to the requirements of article 9. 3. 2 of IEC 62217 (2012) - cycle 1 with 8 hours dark period). Both phases with irradiation energy 0,51 W/m^2/nm at 340 nm (60 W/m^2/nm for TUV). Pause: 4.2. – 8.2.2022. The test samples were putted in testing area and the position of samples during the test was not changed.

Test No. 33: Surface roughness measurement

Test was performed according to ČSN EN ISO 4288 - Geometrical product specifications (GPS) - Surface texture: Profile method – Rules and procedures for the assessment of surface texture. Parameters of surface texture were measured according to *ČSN EN ISO* 4287- Geometrical product specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters.

Testing device: SURFTEST SJ-201 (Mitutoyo, Ltd., Japan).
Ra - arithmetical mean deviation of the assessed profile (roughness)
Rz - maximum height of profile (roughness).

Measurements were performed six times on each sample.

Measurement conditions: basic roughness length 0,8mm

TEST REPORT T 375/005
Page/Total pages: 3/6
Annexes: 1

DESCRRIPTION OF THE TEST ITEM

Test item:	**Manufacturer: Jiangsu Shemar Electric Co., Ltd.** **Address : No. 66, Haiwei Road, Sutong Science and Technology Industrial Park, Nantong City, Jiangsu 226017, China** **Type : HTV**
Data delivered by the customer[1] :	-
Internal lab number:	**22 0065**

[1]The laboratory is not responsible for the data delivered by customer.

APP 1 - Determination of the degree of degradation of coatings

The evaluation of surface failure (defects) was performed according standard ČSN EN ISO 4628 Paints and varnishes – Evaluation of degradation of coatings – Designation of quantity and size of defects, and of intensity of uniform changes in appearance; Part 1: General introduction and designation system; Part 4: Assessment of degree of cracking; Part 5: Assessment of degree of flaking

Lighting used in the evaluation of defect on the surface finish: the fluorescent tube, standard observation: the observation angle 0° / light incidence of angle 45°.

SYNPO, akciová společnost, S. K. Neumanna 1316, 532 07 Pardubice – Zelené Předměstí, Czech Republic
Department of Evaluation and Testing, Testing Laboratory No. 1105.2 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

TEST REPORT T 375/005

Annexes: 1

VISUAL EVALUATION OF SURFACE DEFFECTS ACCORDING TO ČSN EN ISO 4628 DURING THE EXPOSURE AFTER XENON TEST ACCORDING TO ČSN EN ISO 4892-2

(January 7, 2022 – February 22, 2022)

Sample name	Internal Lab Number	Surface failure	Cracking	Flaking
		ČSN EN ISO 4628-1	*ČSN EN ISO 4628-4*	*ČSN EN ISO 4628-5*
		degree + verbal	*degree*	*degree*
250 hours				
HTV	22 0065/1	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/2	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/3	**0, no visual changes**	**0 (S0)**	**0 (S0)**
500 hours				
HTV	22 0065/1	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/2	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/3	**0, no visual changes**	**0 (S0)**	**0 (S0)**
750 hours				
HTV	22 0065/1	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/2	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/3	**0, no visual changes**	**0 (S0)**	**0 (S0)**
1000 hours				
HTV	22 0065/1	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/2	**0, no visual changes**	**0 (S0)**	**0 (S0)**
	22 0065/3	**0, no visual changes**	**0 (S0)**	**0 (S0)**

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TEST REPORT T 375/005

Annexes: 1

MEASUREMENT OF SURFACE ROUGHNESS ACCORDING TO ČSN EN ISO 4287, 4288

(January 7, 2022 – February 22, 2022)

Sample name	Internal Lab Number	Arithmetical mean deviation of the assessed roughness Ra			Maximum height of profile (roughness) Rz		
		Measuring range [µm]			Measuring range [µm]		
		Mean	Max.	Min.	Mean	Max.	Min.
Before exposure							
HTV	22 0065/1	**0,70**	0,76	0,65	**5,00**	5,42	4,56
	22 0065/2	**0,72**	0,77	0,68	**5,35**	6,18	4,89
	22 0065/3	**0,71**	0,75	0,66	**5,20**	5,71	4,55
250 hours							
HTV	22 0065/1	**0,70**	0,77	0,65	**5,03**	5,47	4,57
	22 0065/2	**0,74**	0,77	0,70	**5,61**	6,23	5,04
	22 0065/3	**0,73**	0,79	0,70	**5,36**	5,78	5,04
500 hours							
HTV	22 0065/1	**0,73**	0,77	0,70	**5,26**	5,50	4,93
	22 0065/2	**0,76**	0,79	0,74	**5,35**	5,82	4,98
	22 0065/3	**0,77**	0,80	0,75	**5,34**	5,96	4,98
750 hours							
HTV	22 0065/1	**0,76**	0,80	0,74	**5,54**	6,15	5,23
	22 0065/2	**0,77**	0,79	0,75	**5,35**	5,63	5,11
	22 0065/3	**0,77**	0,80	0,74	**5,62**	5,96	5,32
1000 hours							
HTV	22 0065/1	**0,76**	0,78	0,74	**5,75**	6,20	5,11
	22 0065/2	**0,77**	0,80	0,74	**5,85**	6,23	5,36
	22 0065/3	**0,79**	0,82	0,75	**6,01**	6,56	5,59

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DESCRRIPTION OF THE TEST ITEM

Test item:	**Manufacturer: Jiangsu Shemar Electric Co., Ltd.** **Address : No. 66, Haiwei Road, Sutong Science and Technology Industrial Park, Nantong City, Jiangsu 226017, China** **Type : HTV**
Data delivered by the customer[1] :	-
Internal lab number:	**22 0065**

[1]The laboratory is not responsible for the data delivered by customer.

Statement of conformity

The laboratory uses a binary decision rule according to ILAC-G08: 09/2019, article 4.2.1

Test items	**Prescribed test**	**Parameter** no cracks or raised parts result according to IEC 62217 (2012), clause 9.3.2	**Fulfillment of parameters**
HTV	ČSN EN ISO 4892 - 2	no cracks or raised parts	**Yes**

- End-

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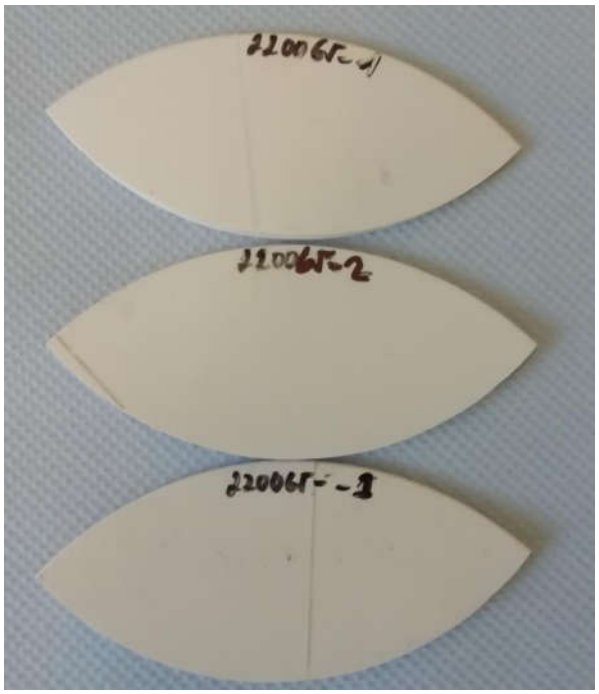
DESCRRIPTION OF THE TEST ITEM

Test item:	**Manufacturer: Jiangsu Shemar Electric Co., Ltd.** **Address : No. 66, Haiwei Road, Sutong Science and Technology Industrial Park, Nantong City, Jiangsu 226017, China** **Type : HTV**
Data delivered by the customer[1] :	-
Internal lab number:	**22 0065**

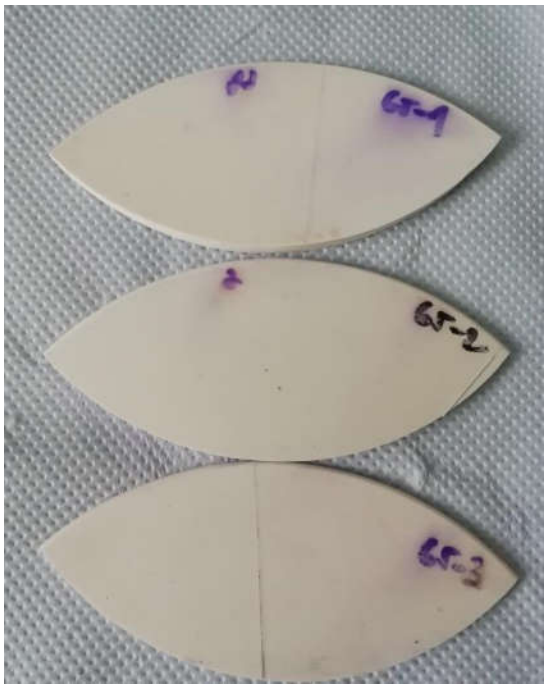
[1]The laboratory is not responsible for the data delivered by customer.

THE PHOTOS OF TEST SAMPLES AFTER 1000 HOURS OF EXPOSURE UNDER XENON LAMPS ACCORDING TO ČSN EN ISO 4892-2

1



2



Pic 1 : Exposure after 1000hrs (top face)
Pic 2 : Exposure after 1000hrs (lower face)