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Yüksek Gerilim Laboratuvarı

1. Organize Sanayi Bölgesi Osmanlı Caddesi, No: 15
06935 Sincan / ANKARA/TÜRKİYE



Test
TS EN ISO/IEC 17025
AB-0442-T

AB-0442-T

6937T

13.10.2025

DENEY RAPORU
TEST REPORT

Müşterinin adı/adresi Customer name/address	ANKARA SERAMİK A.S.		
Numune adı Name of test item (sample name)	IOS 110-400 II-M UHL1		
Sipariş numarası PO (Purchase Order) No.	-		
Sipariş tarihi PO (Purchase Order) date	-		
Sipariş sayısı PO (Purchase Order) quantity	-		
Uygulanan standart Applied standard	IEC60168		
Deney sınıfı Test type	Type Test		
Deneyin yapıldığı tarih Date of Test	13.10.2025		
Açıklamalar Remarks	-		
Raporun sayfa sayısı Number of pages of The Report	9		
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Mühür Seal	Tarih Date	Deney Sorumlusu Person In Charge of Test	Laboratuvar Müdürü Head of Testing Laboratory
	13.10.2025	Uğur Can ÇETİNER	Oytun Mehmet KIŞ

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir.

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1.Test Conditions

Temperature: 19,6 °C

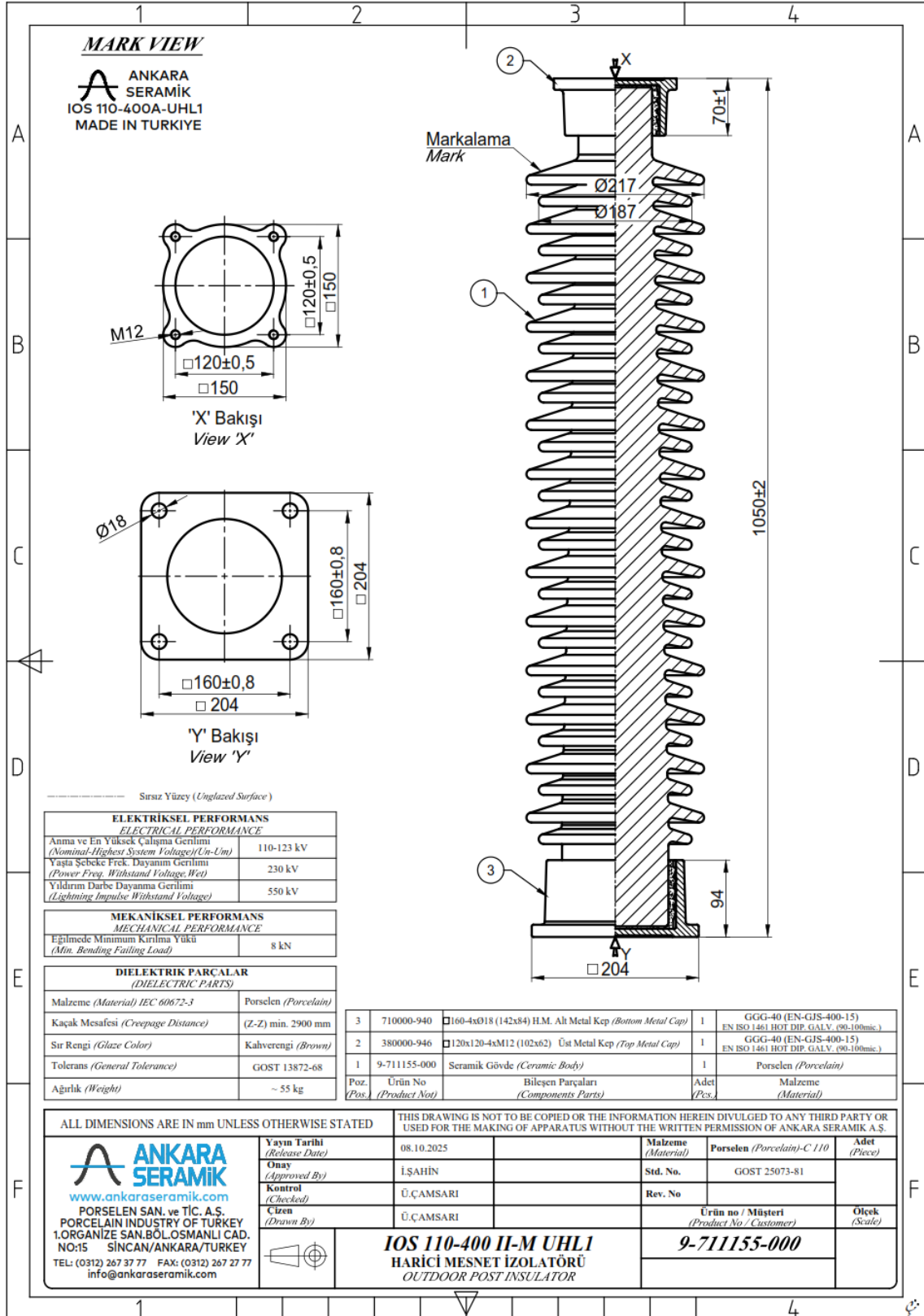
Pressure: 919.3 hPa

Humidity: % 38

2.Equipment Used

No	Equipment Name	Model-Serial Number	Calibration Certifika Number/Date	
1	Lightning Impulse Withstand Voltage Test Unit	İPower Group Limited / Rohde Schwarz / 21780903/1335.8794K02-102087-İB	UME G1YG-0038	02.25
2	Power-Frequency Withstand Voltage Test Unit	İPower Group Limited / Suzhou Guangchen Instruments Co.,Ltd / 21081602 / 001	UME G1YG-0039	02.25
3	Mechanical Failing Load Test Unit	ESİT 31585 / 6272	UMS 2522819	04.25
4	Termo-Hgrometre	TFA Digital-Kod No:TL26	UMS 2524894	05.25
			UMS 2524895	05.25
			UMS 2522816	05.25

3. Technical drawing of the tested insulator



4.Test Performed

4.5 Dry lightning-impulse withstand voltage test

The post insulator shall be tested under the conditions prescribed in clauses 4.1, 4.2 and 4.4. The impulse generator shall be adjusted to produce a 1,2/50 impulse (see IEC 60060-1).

Impulses of both positive and negative polarity shall be used. However, when it is evident which polarity will give the lower flashover voltage, it shall be sufficient to test with that polarity.

Two test procedures are in common use for the lightning impulse withstand test:

- the withstand voltage procedure with 15 impulses;
- the 50 % flashover voltage procedure.

NOTE The 50 % flashover voltage procedure gives more information.

The test procedure selected shall be agreed between the purchaser and the manufacturer.

4.5.1 Withstand voltage test using the withstand voltage procedure

The withstand voltage test shall be performed at the specified voltage corrected for the atmospheric conditions at the time of test (see 4.2.2). Fifteen impulses shall be applied to the post insulator.

4.5.1.1 Acceptance criteria

The post insulator passes the test if the number of flashovers does not exceed two.

The post insulator shall not be damaged by these tests, but slight marks on the surface of the insulating parts, or chipping of the cement or other material used for assembly, shall be permitted.

5.2 Wet Power-Frequency Withstand Voltage Test

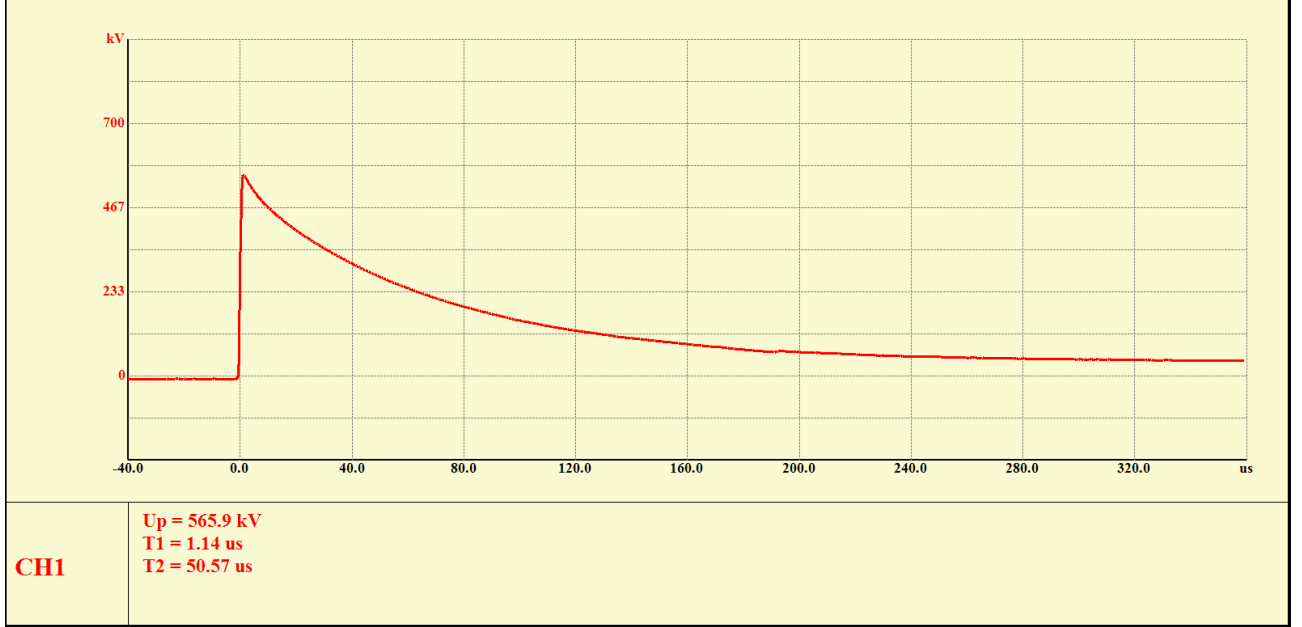
5.2.1 Test procedure

The test circuit shall be in accordance with IEC 60060-1. The post insulator shall be tested under the conditions prescribed in clauses 4.1, 4.2, 4.3 and 4.4. The test voltage to be applied to the post insulator shall be the specified wet power-frequency withstand voltage corrected for the atmospheric conditions at the time of test (see 4.2.2). The test voltage shall be maintained at this value for 1 min.

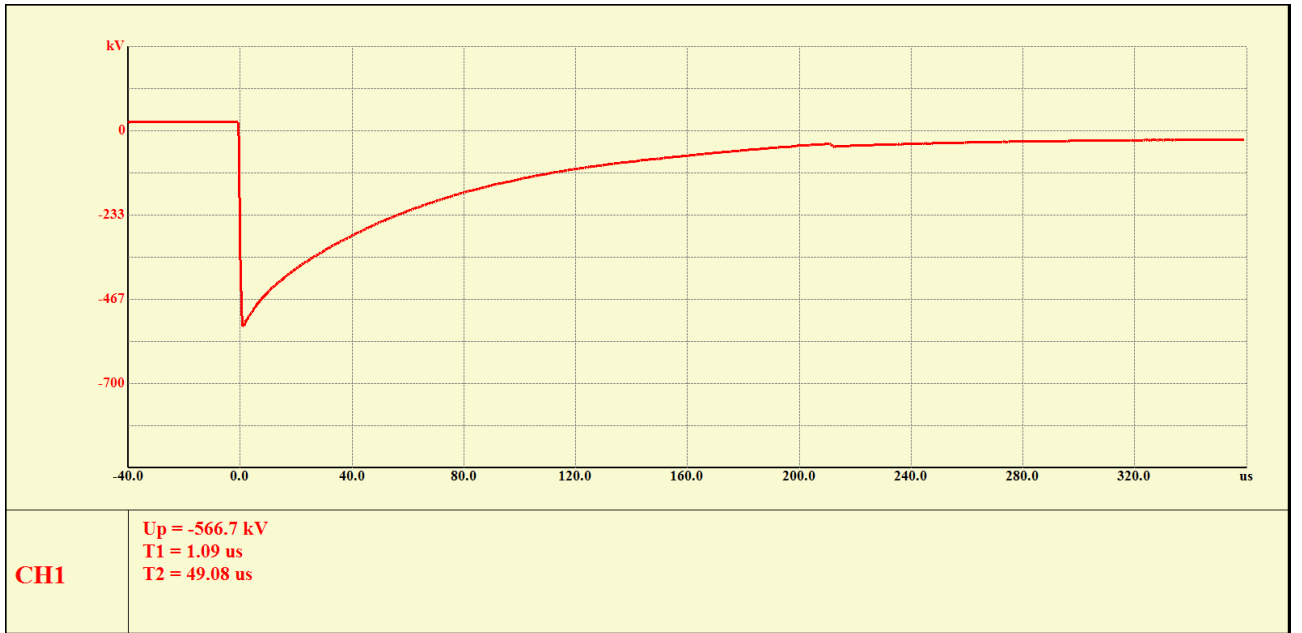
5.2.2 Acceptance criteria

The post insulator passes the test if no flashover or puncture occurs during the test

Positive Dry Lightning Impulse Oscilloscope Graphic



Negative Dry Lightning Impulse Oscilloscope Graphic



5.2 Mechanical Failing Load Test

5.2.1 General requirements

Mechanical failing load tests are intended to determine the strength of a post insulator when subject to mechanical loads in bending, torsion, tension, or compression.

The test for the mechanical strength of a post insulator shall consist of one or more of the following four tests:

- bending test;
- tensile test;
- torsion test;
- compressive test.

Unless otherwise agreed between the purchaser and the manufacturer, the mechanical failing load test shall be the bending test.

NOTE The choice of the test for mechanical strength should take into account the service application of the insulator. A post insulator, which has been tested to its specified mechanical failing load, shall not subsequently be used in service.

5.2 Test Procedure

The post insulator or post insulator unit shall be subjected to a bending load to verify the mechanical failing load P_0 , P_x or P_{50} , as specified in IEC 60273, or when required, the bending moment M at the top metal fitting.

When the position of each unit in the post is uniquely identified, the test may be carried out on the complete post insulator, or on individual units.

If the same type of unit can be employed in different positions in the complete post, then a test shall be carried out on each individual unit.

The load shall be applied so that the direction of loading passes through the axis of the post insulator, and is perpendicular to it.

5.1 Verification of the dimensions

The dimensions of the post insulators shall be checked in accordance with the relevant drawings. Particular attention shall be given to dimensions affecting interchangeability, to which special tolerances apply (e.g. height as specified in IEC 60273, and the dimensions of plain or tapped holes).

5.1.1 General requirements

Unless otherwise agreed between the purchaser and the manufacturer, dimensions for which no special tolerance is specified shall be subject to the following tolerances:

$\pm(0,04 d + 1,5)$ mm when $d \leq 300$

$\pm(0,025d + 6)$ mm when $d > 300$

where d is the checked dimension in millimetres.

5.1.2 Creepage distance tolerances

The measurement of creepage distance shall be related to the design dimension as specified on the post insulator drawing, even though this dimension may be greater than originally specified by the purchaser.

The creepage distance shall be subject to the following tolerances:

– when the creepage distance is specified as a nominal value, including a minimum nominal value as given in IEC 60273:

$\pm(0,04d + 1,5)$ mm;

– when the creepage distance is specified as a minimum value, there shall be no negative tolerance, and the positive tolerance shall be $2 \times (0,04d + 1,5)$ mm.

5.1.5 Acceptance criteria

The post insulator passes the test if the measured dimensions meet the specified requirements, including permitted tolerances.

If, when measuring the creepage distance in the sample tests, the actual value exceeds the specified value by more than the permitted positive tolerances, the lot may be accepted by agreement between the purchaser and the manufacturer.

VERIFICATION OF DIMENSIONS	Height	Top smallest shed	Top largest shed	Metal Fitting Pitch Diameter (Top)	Metal Fitting Pitch Diameter (Bottom)	Minimum Creepage Distance
-CRITERIA(mm)	1050$\pm$ 2	217	150	150	204	2900
- MEASUREMENT VALUES (mm)	1050	217	150	150	204	2990

Table-1

IOS 110-400 II-M UHL1 Dimension Verification Measurement Results

5.7 – Galvanization Test (EIC 60168 Clause 5.7)

5.7.1 Testing Procedure

The ferrous parts shall be subjected to the appearance test, followed by the determination of the coating mass using the magnetic test method. In case of difference of opinion about the result by the magnetic method a decisive test shall be done:

-Either by the gravimetric method for castings and forgings and for washers by agreement; in this case the requirements of ISO 1460 used;

-Or by the microscopical method for bolts, nuts and washers; in this case the requirements of ISO 1463 are used.

Table-2

	Upper Cap (Average)	Lower Cap (Average)
IOS 110- 400 II-M UHL1	118,8 µm	126,4 µm

IOS 110-400 II-M UHL1 Galvanizing Test Measurement Results

6. Experiment Results

*Experimentations are not within the scope of accreditation.

Applied Test	Specified Value	Measured Value	Test Result
Dry Lightning-Impulse Withstand Voltage Test	550 kV	565,9 kV	Withstood
Power Frequency Withstand Voltage Test	230 kV	233,7 kV	Withstood
Mechanical Failing Load Test	8 kN	8 kN	Withstood
Verification of Dimensions*	IEC 60168 Clause 5.1	Dimensions are within the specified tolerances.	Withstood
Galvanizing Test*	85 µm	122,6 µm	Positive