



TÜRKAK
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ANKARA SERAMİK PORSELEN
SAN. VE TİC. A.Ş.
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

6627T

31.10.2024

DENEY RAPORU
TEST REPORT

Müşterinin adı/adresi Customer name/address	ANKARA SERAMİK A.Ş.
Numune adı Name of test item (sample name)	IPU 10/1600-12,5 M Y1
Sipariş numarası PO (Purchase Order) No.	-
Sipariş tarihi PO (Purchase Order) date	-
Sipariş sayısı PO (Purchase Order) quantity	-
Uygulanan standart Applied standard	IEC60137
Deney sınıfı Test type	Type Test
Deneyin yapıldığı tarih Date of Test	31.10.2024
Açıklamalar Remarks	-
Raporun sayfa sayısı Number of pages of The Report	7

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Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Mühür Seal	Tarih Date	Deney Sorumlusu Person In Charge of Test	Laboratuvar Müdürü Head of Testing Laboratory
	31.10.2024	Selami İPEK 	Murat GURSOY

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

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1. Test Conditions

Temperature: 15,9°C

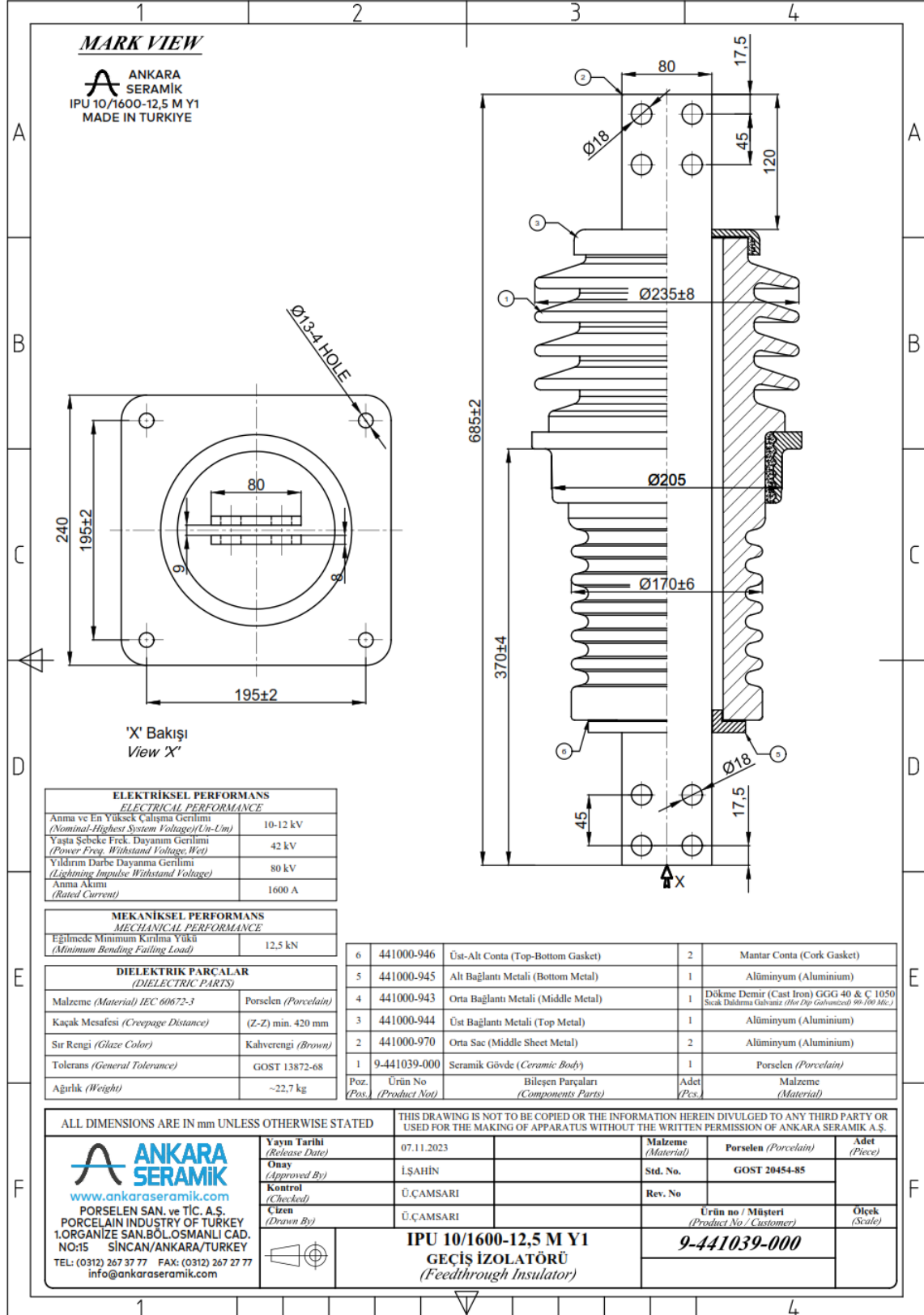
Pressure: 928,9hPa

Humidity: 32 %

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-0099 04.24
2	Mechanical Failing Load Test Unit	Ankara Seramik 14346/3494 Kod No: TL 05	UMS 2424845 05.24
3	Power-Frequency Withstand Voltage Test Unit	İPower Group Limited / Suzhou Guangchen Instruments Co.,Ltd / 21081602 / 001	UME G1YG-0100 04.24
5	Termo-Hgrometre	TFA Digital-Kod No:TL26 457279	UMS 2424832 05.24 UMS 2424833 05.24 UMS 2424834 05.24
9	Calliper	YAMER C1908300640	UMS 2423703 05.24

3. Technical drawing of the tested insulator



4. Test Performed

4.1 Dry or wet power-frequency voltage withstand test (IEC 60137 Clause 8.1)

4.1.1 Applicability

The dry test is applicable to all bushings according to 3.15, 3.18 and 3.20, which are not subjected to a routine test (see 9.3). The wet test is applicable to all outdoor bushings according to 3.16, 3.17 and 3.19, and for which U_m is less than or equal to 245 kV.

4.1.2 Test method and requirements

The magnitude of the test voltage is given Table 4. The test duration shall be 60 s, independent of frequency.

4.1.3 Acceptance

The bushing shall be considered to have passed the test if no flashover or puncture occurs. If there is a puncture, the bushing shall be considered to have failed the test. For capacitance graded bushings it is assumed that a puncture has occurred if the capacitance measured after the test raises above the capacitance previously measured by about the amount attributable to the capacitance of one layer. If a flashover occurs, the test shall be repeated once only. If during the repetition of the test no flashover or puncture occurs, the bushing shall be considered to have passed the test.

4.2 Dry lightning impulse voltage withstand test

4.2.1 Applicability

The test is applicable to all types of bushings.

4.2.2 Test method and requirements

The magnitude of the test voltage is given in Table 3. The bushing shall be subjected to

- 15 full lightning impulses of positive polarity, followed by
- 15 full lightning impulses of negative polarity

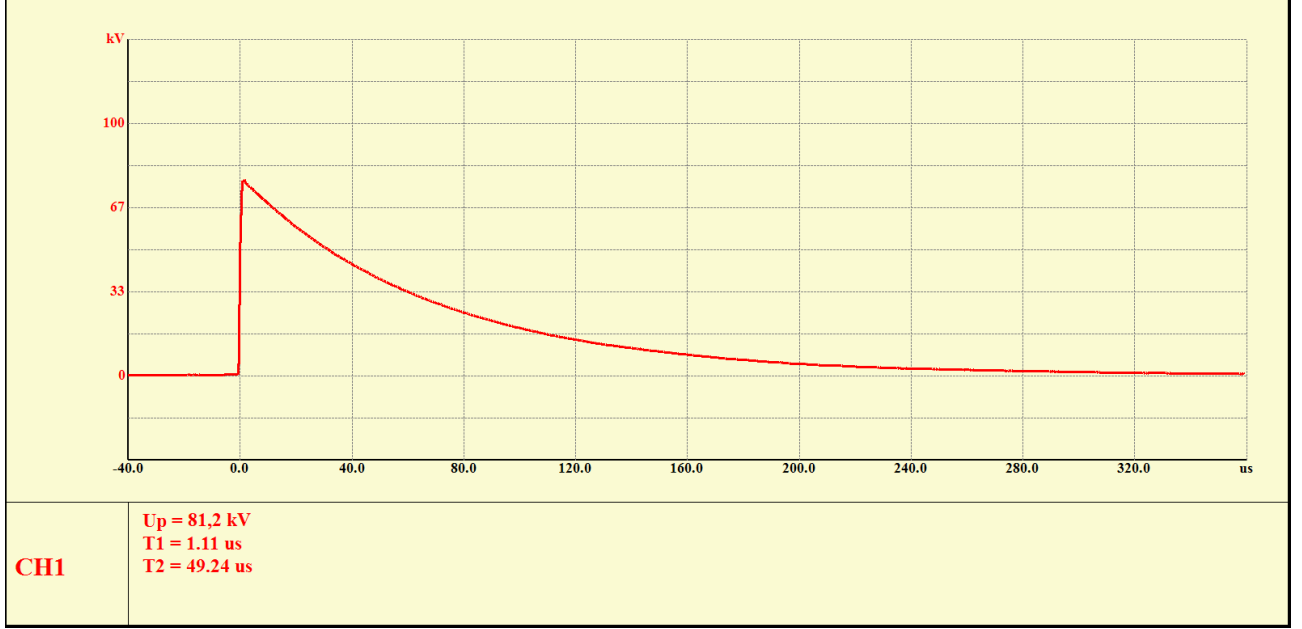
of the standard lightning impulse 1,2/50 μ s.

4.2.3 Acceptance

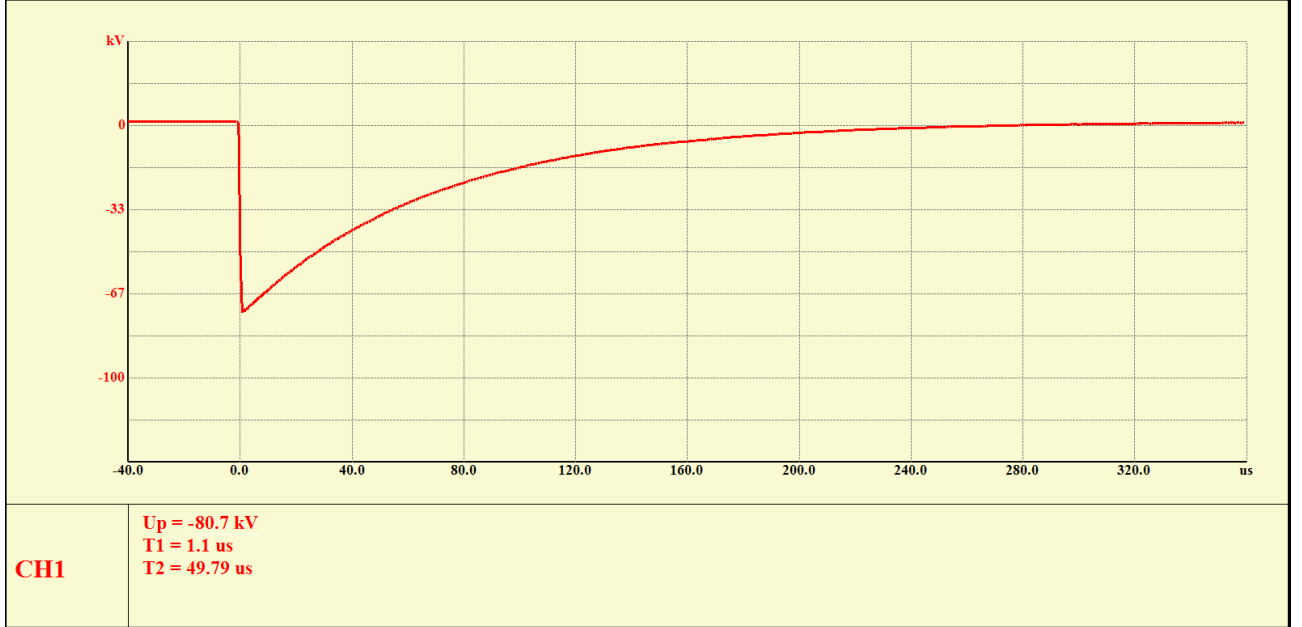
The bushings shall be considered to have passed the test, if

- no puncture occurs at either polarity, and
- the number of flashovers in air does not exceed two for each series of 15 impulses; except for transformer bushings for which
- no oil-end flashover,
- not more than two flashovers in air at positive polarity, and
- no flashover in air at negative polarity

Positive Dry Lightning Impulse Oscilloscope Graphic



Negative Dry Lightning Impulse Oscilloscope Graphic



4.3 Cantilever load withstand test (IEC 60137 Clause 8.7)

4.3.1 Applicability

The test is applicable to the air side of bushings.

4.3.2 Test method and requirements

The test values shall be in accordance with Table 1. For bushings according to 3.21, cantilever withstand load test values shall be restricted to:

300 N for $I_r \leq 800$ A
1 000 N for $I_r > 800$ A

The bushing shall be completely assembled and, if applicable, filled with the insulating medium specified. Unless otherwise stated, the bushing shall be installed vertically and its flange rigidly fixed to a suitable device.

A pressure equal to 1 bar $\pm$ 0,1 bar above the maximum operating pressure shall be applied inside the bushing, and also inside the central tube in the case of a bushing with a hollow stem with a gasket joint at the terminal to be tested.

For bushings with internal bellows, the pressure shall be stated by the supplier.

The load shall be applied perpendicular to the axis of the bushing at the mid-point of the terminal for 60 s. The load shall be in the direction which will cause the highest stress at the critical parts of the bushing in normal operation.

For bushings with more than one air side terminal, it is generally sufficient to apply the load to one terminal only.

For wall bushings the test load shall be applied to each end of the bushing separately

4.3.3 Acceptance

The bushing shall be considered to have passed the test if there is no evidence of damage (deformation, rupture or leakage) and if it has withstood a repetition of all routine tests without significant change from previous results.

4.4 Verification of dimensions (IEC 60137 Clause 8.13)

4.4.1 Applicability

This verification is applicable to all types of bushings.

4.4.2 Acceptance

The dimensions of the bushing under test shall be in accordance with the relevant drawings, particularly with regard to any dimensions to which special tolerances apply and to details affecting interchangeability.

5. Experiment Results

Applied Test	Specified Value	Measured Value	Test Result
Dry Power Frequency Voltage Withstand Test	42 kV	44,97 kV	Withstood
Dry Lightning impulse voltage withstand test (BIL)	80 kV	80,7 kV	Withstood
Cantilever load withstand test	12,5 kN	12,5 kN	Withstood
Verification of dimensions	IEC60137 8.13	IEC60137 8.13	Positive