KALRE®

ACTIVE LIGHTNING RODS

MECHANICAL TESTING
HUMUD SULFUR TESTING
ESE TESTING

OUR MISSION & OUR VISION

We as KALRE PARATONER have started our initial R&D on lightening protection systems in 2014 and after achieving the desired quality as per the international standards, officially established in city of Izmir, Turkey in 2015. Completely committed to excellence production mentality and enhanced test results have been awarded by the Ministry of Industry of Turkey, Research and Development Department with Government Promotions. All our products have also been tested and approved by Internationally Accredited ICMET Labrotories according the latest version of NFC17-102 Annex-C 2011 standards.

In addition to ICMET, all our products have also been tested and approved by Mechanical Test, Humus Test as well as ESE Tests wherein our brand has been shifted to another category in this field. Therefore all KALRE products are being manufactured with the CE Conformity Certificate. Developing market conditions and our customer demands forced us to start producing grounding and fluctuation equipments in 2019. Considering the principle of Brand Permanence depends on the Product Quality, KALRE is devoted himself to control all processes starting from R&D, design, sample production, fileld tests and bulk production in to fulfill the customer satisfaction.

Our mission is to follow up the latest Technologies continuously in order to become a longterm solution partner to our customers and to supply best products.

KALRE®
ACTIVE LIGHTNING RODS

CERTIFICATE

T.C.
TÜRK PATENT ve MARKA KURUMU

MARKA TESCİL BELGESİ

Marka No : 2019 42572 - Ticaret

KALRE

Marka Sahibi : ARZU YILMAZ (T.C. Kimlik No: 12812619194)
TÜRKİYE CUMHURİYETİ
2011 Sok. No:9/R 1.Sanayi Sitesi Konak İzmir

Emtiası : 09
İlişiktedir.

İşbu Marka 27/04/2019 tarihinden itibaren ON YIL sürreyle 26/12/2019 tarihinde tescil edilmiştir.

Prof. Dr. Habip ASAN
Türk Patent ve Marka Kurumu Başkanı

TÜRK PATENT

www.kalreparatoner.com

KALRE®
ACTIVE LIGHTNING RODS

OUR DOCUMENTS

- ICMET NFC 17-102: 2011 ANNEX C HUMID SULFUR TEST
- ICMET NFC 17-102: 2011 ANNEX C GENERAL MECHANCIAL TEST
- ICMET NFC 17-102: 2011 ANNEX C ESE TEST

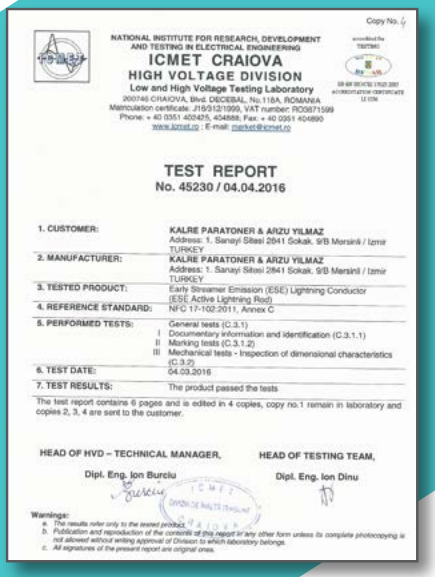
NATIONAL INSTITUTE FOR RESEARCH, DEVELOPMENT AND TESTING IN ELECTRICAL ENGINEERING
ICMET CRAIOVA
HIGH VOLTAGE DIVISION
Low and High Voltage Testing Laboratory

TEST REPORT
No. 45278 / 30.03.2016

1. CUSTOMER: KALRE PARATONER & ARZU ILMAZ
Address: SANAYI SIT ESI 2841 SOKAK 9/B MERSINLI / IZMIR, TURKEY
2. MANUFACTURER: KALRE PARATONER & ARZU ILMAZ
Address: SANAYI SIT ESI 2841 SOKAK 9/B MERSINLI / IZMIR, TURKEY
3. TESTED PRODUCT: KALRE E.S.E. Active Lightning ROD
Serial no. 2016 – 02 – 10000
4. REFERENCE STANDARD: NFC 17 – 102: 2011, Annex C
5. PERFORMED TESTS: Early streamer emission test
6. TEST DATE: 28.03.2016
7. TEST RESULTS: The product passed the test.
There are presented the determined results.

The test report contains 13 pages and is edited in 4 copies, copy no.1 remain in laboratory and copies 2, 3 and 4 are sent to the customer.

HEAD OF HVD – TECHNICAL MANAGER, Dipl. Eng. BURCIU Ion
HEAD OF TESTING TEAM, Dipl. Eng. BADEA Ion



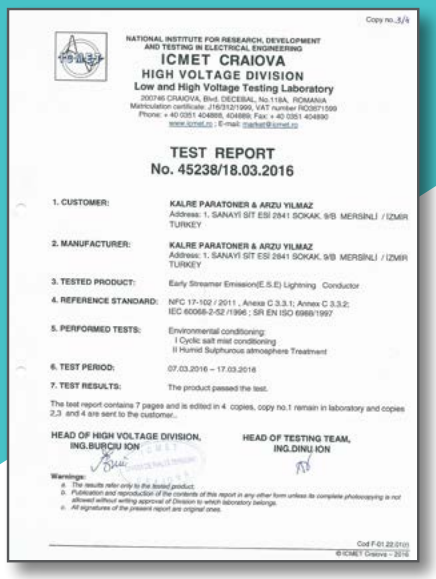
NATIONAL INSTITUTE FOR RESEARCH, DEVELOPMENT AND TESTING IN ELECTRICAL ENGINEERING
ICMET CRAIOVA
HIGH VOLTAGE DIVISION
Low and High Voltage Testing Laboratory

TEST REPORT
No. 45230 / 04.04.2016

1. CUSTOMER:	KALRE PARATONER & ARZU YILMAZ Address: 1. Sanayi Sitesi 2841 Sokak, 9/B Mersinli / Izmir TURKEY
2. MANUFACTURER:	KALRE PARATONER & ARZU YILMAZ Address: 1. Sanayi Sitesi 2841 Sokak, 9/B Mersinli / Izmir TURKEY
3. TESTED PRODUCT:	Early Streamer Emission (ESE) Lightning Conductor (ESE Active Lightning Rod)
4. REFERENCE STANDARD:	NFC 17-102:2011, Annex C
5. PERFORMED TESTS:	General tests (C.3.1) I Documentary information and identification (C.3.1.1) II Marking tests (C.3.1.2) III Mechanical tests - Inspection of dimensional characteristics (C.3.2)
6. TEST DATE:	04.03.2016
7. TEST RESULTS:	The product passed the tests

The test report contains 6 pages and is edited in 4 copies, copy no.1 remain in laboratory and copies 2, 3, 4 are sent to the customer.

HEAD OF HVD – TECHNICAL MANAGER, Dipl. Eng. Ion Burciu
HEAD OF TESTING TEAM, Dipl. Eng. Ion Dinu



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ICMET CRAIOVA
HIGH VOLTAGE DIVISION
Low and High Voltage Testing Laboratory

TEST REPORT
No. 45238/18.03.2016

1. CUSTOMER:	KALRE PARATONER & ARZU YILMAZ Address: 1. SANAYI SIT ESI 2841 SOKAK. 9/B MERSINLI / IZMIR TURKEY
2. MANUFACTURER:	KALRE PARATONER & ARZU YILMAZ Address: 1. SANAYI SIT ESI 2841 SOKAK. 9/B MERSINLI / IZMIR TURKEY
3. TESTED PRODUCT:	Early Streamer Emission(E.S.E) Lightning Conductor
4. REFERENCE STANDARD:	NFC 17-102 / 2011 , Anexa C 3.3.1; Annex C 3.3.2; IEC 60068-2-52 /1996 ; SR EN ISO 6988/1997
5. PERFORMED TESTS:	Environmental conditioning: I Cyclic salt mist conditioning II Humid Sulphurous atmosphere Treatment
6. TEST PERIOD:	07.03.2016 – 17.03.2016
7. TEST RESULTS:	The product passed the test.

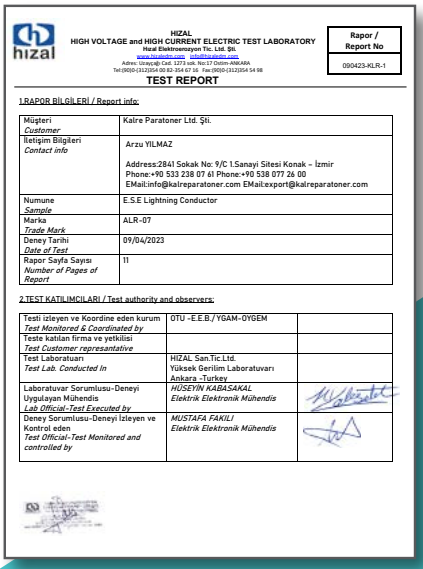
The test report contains 7 pages and is edited in 4 copies, copy no.1 remain in laboratory and copies 2,3 and 4 are sent to the customer..

HEAD OF HIGH VOLTAGE DIVISION, ING.BURCIU ION
HEAD OF TESTING TEAM, ING.DINU ION

KALRE®
ACTIVE LIGHTNING RODS

OUR DOCUMENTS

- METU Lightning Catching Head Impulse Voltage Streamer Time Lag. Gain Measurements
- METU Current Impulse Stand test 200kA current level



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www.hizalelm.com info@hizalelm.com
Adres: Uzaycağı Cad. 1273 sok. No:17 Ostim-ANKARA
Tel:(0(90)-(312)354 00 82-354 67 16 Fax:(0(90)-(312)354 54 98

Rapor / Report No: 090423-KLR-1

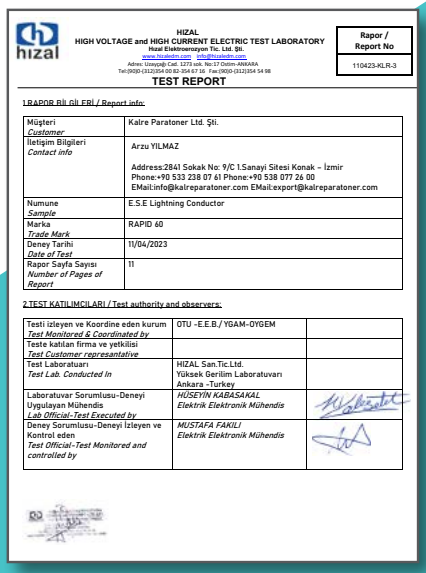
TEST REPORT

1.RAPOR BİLGİLERİ / Report info:

Müşteri *Customer*	Kalre Paratoner Ltd. Şti.
İletişim Bilgileri *Contact info*	Arzu YILMAZ Address:2841 Sokak No: 9/C 1.Sanayi Sitesi Konak – İzmir Phone:+90 533 238 07 61 Phone:+90 538 077 26 00 EMail:info@kalreparatoner.com EMail:export@kalreparatoner.com
Numune *Sample*	E.S.E Lightning Conductor
Marka *Trade Mark*	ALR-07
Deney Tarihi *Date of Test*	09/04/2023
Rapor Sayfa Sayısı *Number of Pages of Report*	11

2.TEST KATILIMCILARI / Test authority and observers:

Testi izleyen ve Koordine eden kurum *Test Monitored & Coordinated by*	OTU -E.E.B./YGAM-OYGEM	
Teste katılan firma ve yetkilisi *Test Customer representative*		
Test Laboratuarı *Test Lab. Conducted In*	HIZAL San.Tic.Ltd. Yüksek Gerilim Laboratuvarı Ankara -Turkey	
Laboratuvar Sorumlusu-Deneyi Uygulayan Mühendis *Lab Official-Test Executed by*	*HÜSEYİN KABASAKAL* *Elektrik Elektronik Mühendis*	
Deney Sorumlusu-Deneyi İzleyen ve Kontrol eden *Test Official-Test Monitored and controlled by*	*MUSTAFA FAKILI* *Elektrik Elektronik Mühendis*	



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www.hizalelm.com info@hizalelm.com
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Tel:(0(90)-(312)354 00 82-354 67 16 Fax:(0(90)-(312)354 54 98

Rapor / Report No: 110423-KLR-3

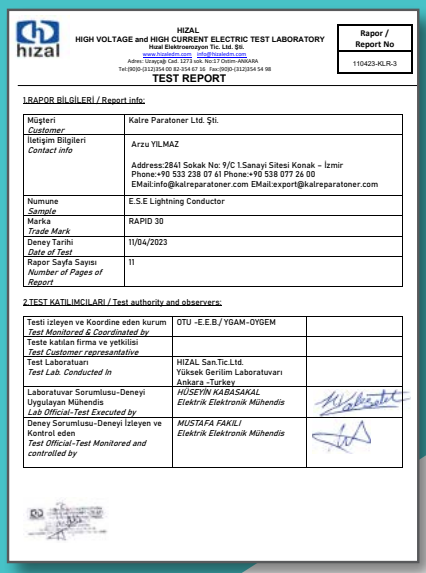
TEST REPORT

1.RAPOR BİLGİLERİ / Report info:

Müşteri *Customer*	Kalre Paratoner Ltd. Şti.
İletişim Bilgileri *Contact info*	Arzu YILMAZ Address:2841 Sokak No: 9/C 1.Sanayi Sitesi Konak – İzmir Phone:+90 533 238 07 61 Phone:+90 538 077 26 00 EMail:info@kalreparatoner.com EMail:export@kalreparatoner.com
Numune *Sample*	E.S.E Lightning Conductor
Marka *Trade Mark*	RAPID 60
Deney Tarihi *Date of Test*	11/04/2023
Rapor Sayfa Sayısı *Number of Pages of Report*	11

2.TEST KATILIMCILARI / Test authority and observers:

Testi izleyen ve Koordine eden kurum *Test Monitored & Coordinated by*	OTU -E.E.B./YGAM-OYGEM	
Teste katılan firma ve yetkilisi *Test Customer representative*		
Test Laboratuarı *Test Lab. Conducted In*	HIZAL San.Tic.Ltd. Yüksek Gerilim Laboratuvarı Ankara -Turkey	
Laboratuvar Sorumlusu-Deneyi Uygulayan Mühendis *Lab Official-Test Executed by*	*HÜSEYİN KABASAKAL* *Elektrik Elektronik Mühendis*	
Deney Sorumlusu-Deneyi İzleyen ve Kontrol eden *Test Official-Test Monitored and controlled by*	*MUSTAFA FAKILI* *Elektrik Elektronik Mühendis*	



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Tel:(0(90)-(312)354 00 82-354 67 16 Fax:(0(90)-(312)354 54 98

Rapor / Report No: 110423-KLR-3

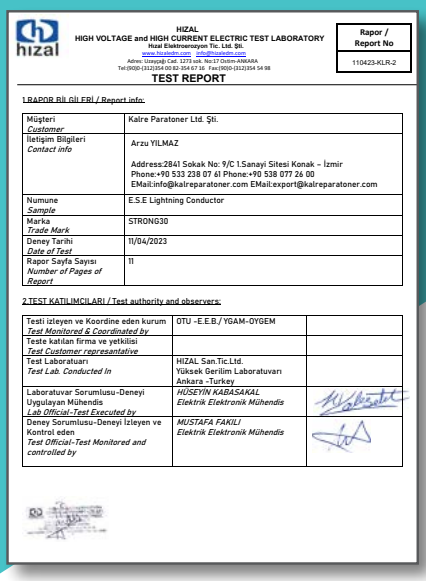
TEST REPORT

1.RAPOR BİLGİLERİ / Report info:

Müşteri *Customer*	Kalre Paratoner Ltd. Şti.
İletişim Bilgileri *Contact info*	Arzu YILMAZ Address:2841 Sokak No: 9/C 1.Sanayi Sitesi Konak – İzmir Phone:+90 533 238 07 61 Phone:+90 538 077 26 00 EMail:info@kalreparatoner.com EMail:export@kalreparatoner.com
Numune *Sample*	E.S.E Lightning Conductor
Marka *Trade Mark*	RAPID 30
Deney Tarihi *Date of Test*	11/04/2023
Rapor Sayfa Sayısı *Number of Pages of Report*	11

2.TEST KATILIMCILARI / Test authority and observers:

Testi izleyen ve Koordine eden kurum *Test Monitored & Coordinated by*	OTU -E.E.B./YGAM-OYGEM	
Teste katılan firma ve yetkilisi *Test Customer representative*		
Test Laboratuarı *Test Lab. Conducted In*	HIZAL San.Tic.Ltd. Yüksek Gerilim Laboratuvarı Ankara -Turkey	
Laboratuvar Sorumlusu-Deneyi Uygulayan Mühendis *Lab Official-Test Executed by*	*HÜSEYİN KABASAKAL* *Elektrik Elektronik Mühendis*	
Deney Sorumlusu-Deneyi İzleyen ve Kontrol eden *Test Official-Test Monitored and controlled by*	*MUSTAFA FAKILI* *Elektrik Elektronik Mühendis*	



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Rapor / Report No: 110423-KLR-2

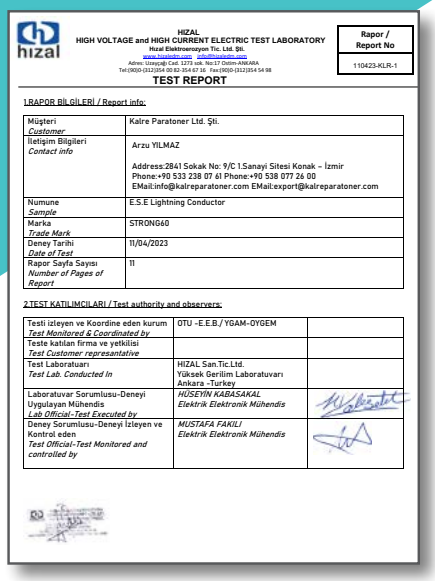
TEST REPORT

1.RAPOR BİLGİLERİ / Report info:

Müşteri *Customer*	Kalre Paratoner Ltd. Şti.
İletişim Bilgileri *Contact info*	Arzu YILMAZ Address:2841 Sokak No: 9/C 1.Sanayi Sitesi Konak – İzmir Phone:+90 533 238 07 61 Phone:+90 538 077 26 00 EMail:info@kalreparatoner.com EMail:export@kalreparatoner.com
Numune *Sample*	E.S.E Lightning Conductor
Marka *Trade Mark*	STRONG30
Deney Tarihi *Date of Test*	11/04/2023
Rapor Sayfa Sayısı *Number of Pages of Report*	11

2.TEST KATILIMCILARI / Test authority and observers:

Testi izleyen ve Koordine eden kurum *Test Monitored & Coordinated by*	OTU -E.E.B./YGAM-OYGEM	
Teste katılan firma ve yetkilisi *Test Customer representative*		
Test Laboratuarı *Test Lab. Conducted In*	HIZAL San.Tic.Ltd. Yüksek Gerilim Laboratuvarı Ankara -Turkey	
Laboratuvar Sorumlusu-Deneyi Uygulayan Mühendis *Lab Official-Test Executed by*	*HÜSEYİN KABASAKAL* *Elektrik Elektronik Mühendis*	
Deney Sorumlusu-Deneyi İzleyen ve Kontrol eden *Test Official-Test Monitored and controlled by*	*MUSTAFA FAKILI* *Elektrik Elektronik Mühendis*	



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Tel:(0(90)-(312)354 00 82-354 67 16 Fax:(0(90)-(312)354 54 98

Rapor / Report No: 110423-KLR-1

TEST REPORT

1.RAPOR BİLGİLERİ / Report info:

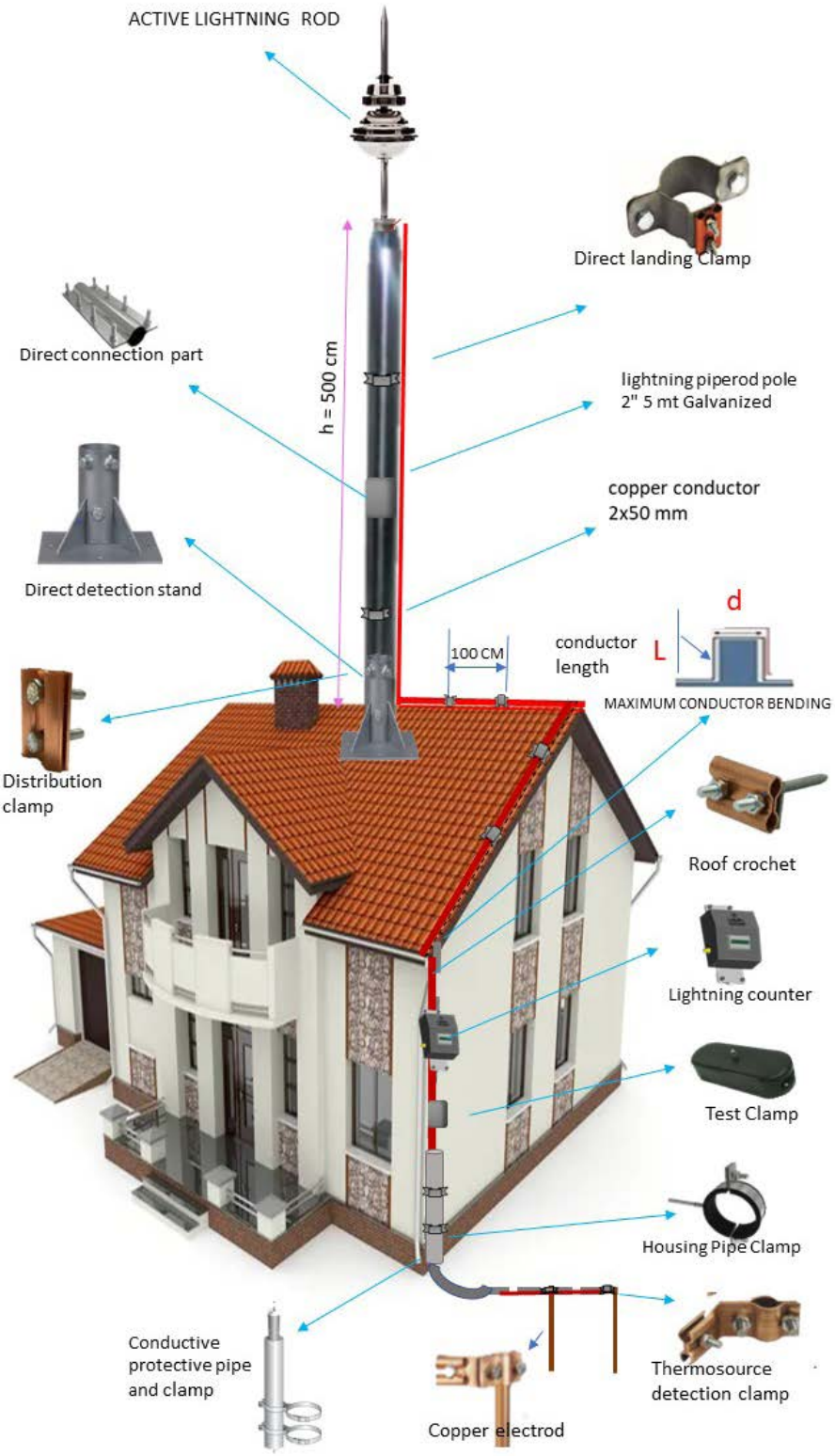
Müşteri *Customer*	Kalre Paratoner Ltd. Şti.
İletişim Bilgileri *Contact info*	Arzu YILMAZ Address:2841 Sokak No: 9/C 1.Sanayi Sitesi Konak – İzmir Phone:+90 533 238 07 61 Phone:+90 538 077 26 00 EMail:info@kalreparatoner.com EMail:export@kalreparatoner.com
Numune *Sample*	E.S.E Lightning Conductor
Marka *Trade Mark*	STRONG60
Deney Tarihi *Date of Test*	11/04/2023
Rapor Sayfa Sayısı *Number of Pages of Report*	11

2.TEST KATILIMCILARI / Test authority and observers:

Testi izleyen ve Koordine eden kurum *Test Monitored & Coordinated by*	OTU -E.E.B./YGAM-OYGEM	
Teste katılan firma ve yetkilisi *Test Customer representative*		
Test Laboratuarı *Test Lab. Conducted In*	HIZAL San.Tic.Ltd. Yüksek Gerilim Laboratuvarı Ankara -Turkey	
Laboratuvar Sorumlusu-Deneyi Uygulayan Mühendis *Lab Official-Test Executed by*	*HÜSEYİN KABASAKAL* *Elektrik Elektronik Mühendis*	
Deney Sorumlusu-Deneyi İzleyen ve Kontrol eden *Test Official-Test Monitored and controlled by*	*MUSTAFA FAKILI* *Elektrik Elektronik Mühendis*	

KALRE®
ACTIVE LIGHTNING RODS

BUILDING INSTALATION DROWING



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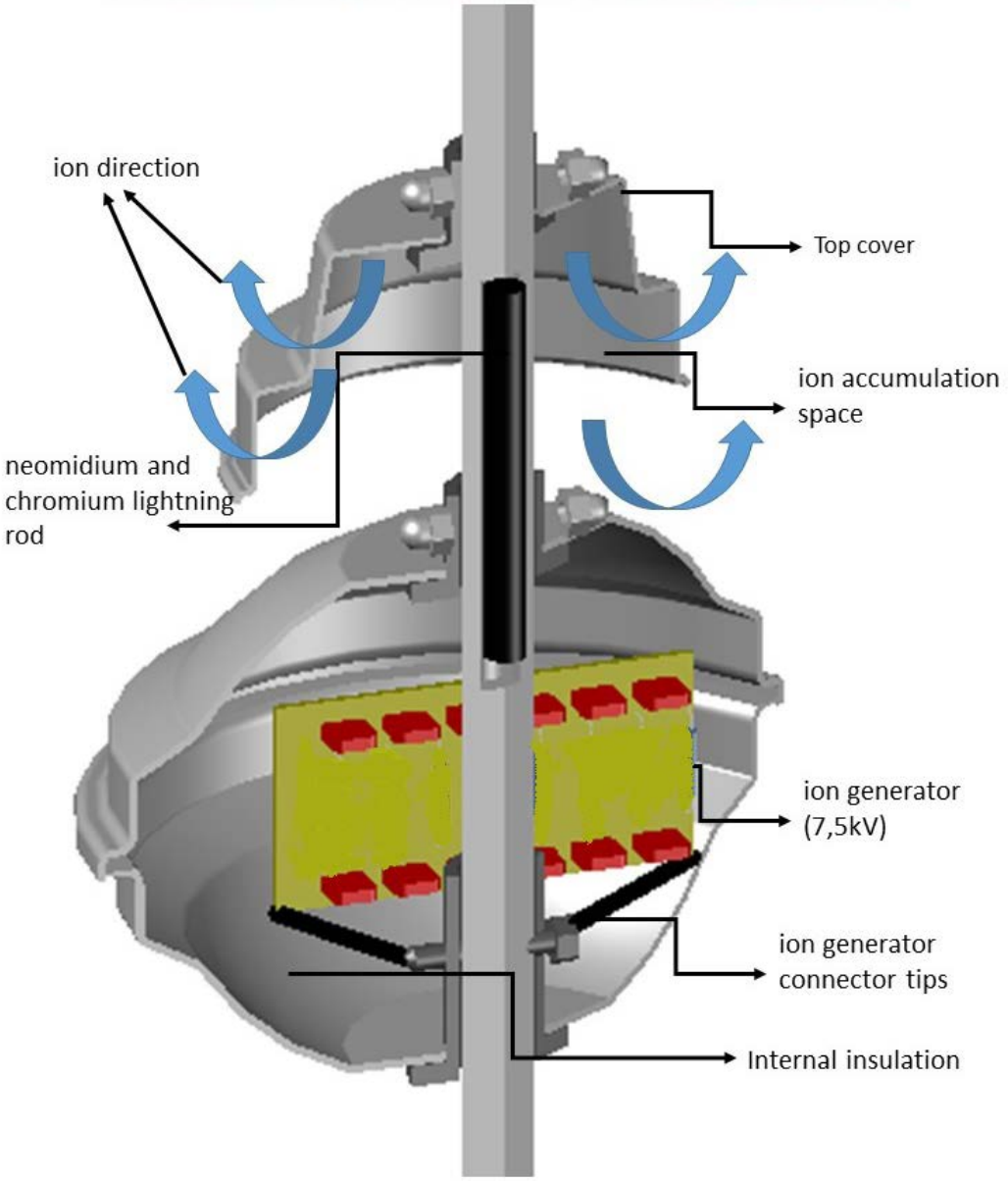
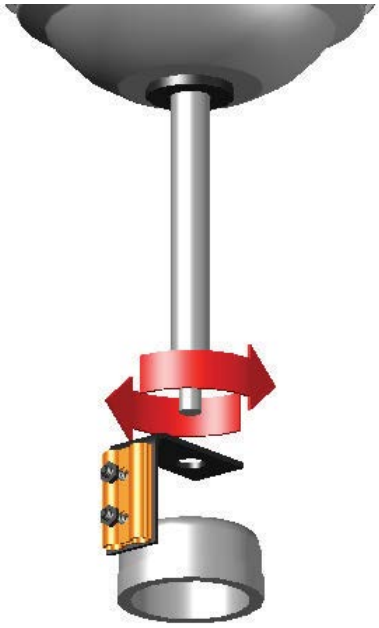
KALRE®
ACTIVE LIGHTNING RODS

KALRE ACTIVE LIHTNING RODS



Working principle: E.S.E (Early Streamer Emission) Our product works with the electrical field intensity of the atmosphere. It transmits the electric currents formed under charged, electric atmosphere conditions to the interior and ensures that the ion generator located inside is charged with these electrical currents. The ion generator ionizes its surroundings with fast charge and discharges in these conditions, making the atmosphere more conductive. In this way, it receives the possible lightning discharge and transmits it to the ground safely.

KALRE®
ACTIVE LIGHTNING RODS



KALRE®
ACTIVE LIGHTNING RODS

ALR - 01

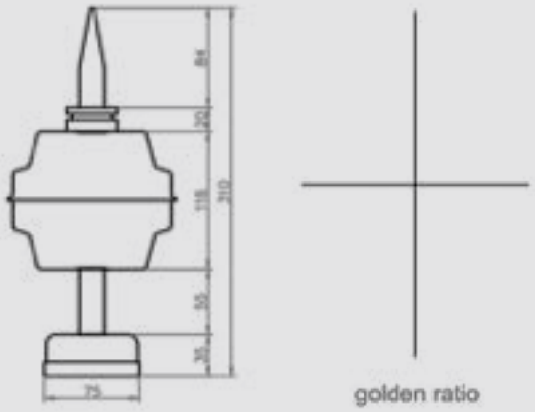
Outer Material	Stainless Chrome -304 L
Product height	400 mm
Product weight	2.150 gr.
Ion cell heihgt	116 mm
Ion cell diatemer	Ø 145 mm
Diameter of catching tip	Ø 22 mm
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**30 µs**
RP (Radius protection)	**71 meter**

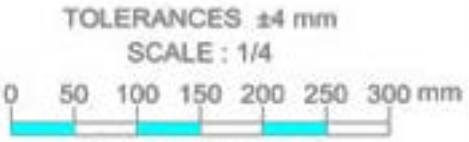
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	48
2. Protection level	30 m	Level - 2	54
3. Protection level	45 m	Level - 3	63
4. Protection level	60 m	Level - 4	71

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
48	54	63	71

TECHNICAL DRAWING





Material is chrome 304

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KALRE®
ACTIVE LIGHTNING RODS

ALR - 02

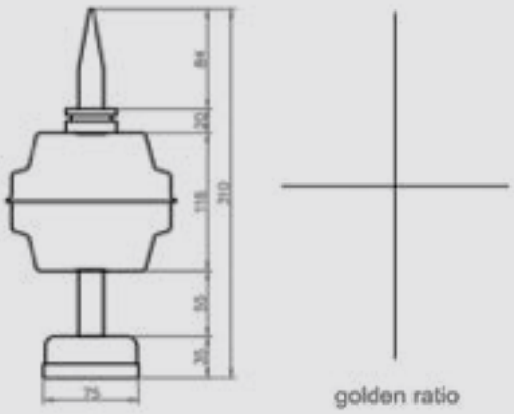
Outer Material	Stainless Chrome -304 L
Product height	400 mm
Product weight	2.150 gr.
Ion cell heihgt	116 mm
Ion cell diatemer	Ø 145 mm
Diameter of catching tip	Ø 20 mm
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**40 µs**
RP (Radius protection)	**84 meter**

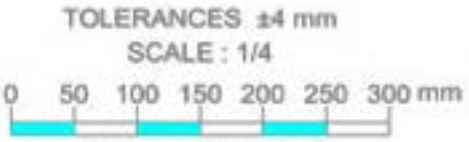
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	58
2. Protection level	30 m	Level - 2	65
3. Protection level	45 m	Level - 3	75
4. Protection level	60 m	Level - 4	84

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
58	65	75	84

TECHNICAL DRAWING





Material is chrome 304

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KALRE®
ACTIVE LIGHTNING RODS

ALR - 03

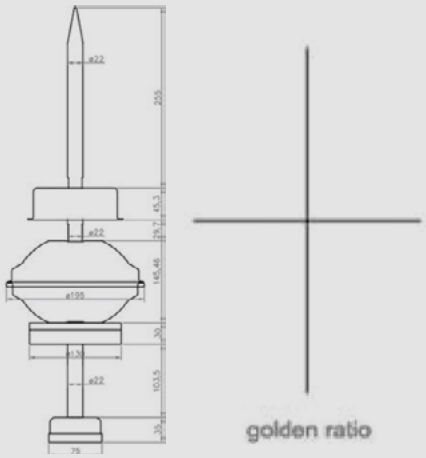
Outer Material	Stainless Chrome -304 L
Product height	600 mm
Product weight	4.200 gr.
Ion cell heihgt	145,46 mm
Ion cell diatemer	Ø 195 mm
Diameter of catching tip	Ø 20 mm
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**50 µs**
RP (Radius protection)	**95 meter**

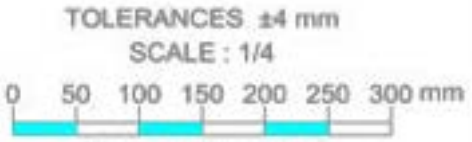
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	68
2. Protection level	30 m	Level - 2	75
3. Protection level	45 m	Level - 3	86
4. Protection level	60 m	Level - 4	95

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
68	75	86	95

TECHNICAL DRAWING





Material is chrome 304

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KALRE®
ACTIVE LIGHTNING RODS

ALR - 04

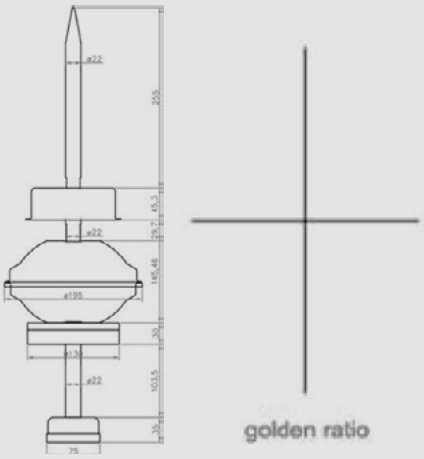
Outer Material	Stainless Chrome -304 L
Product height	600 mm
Product weight	4.200 gr.
Ion cell heihgt	145,46 mm
Ion cell diatemer	Ø 195 mm
Diameter of catching tip	Ø 20 mm
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**60 µs**
RP (Radius protection)	**107 meter**

NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	79
2. Protection level	30 m	Level - 2	86
3. Protection level	45 m	Level - 3	97
4. Protection level	60 m	Level - 4	107

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
79	86	97	107

TECHNICAL DRAWING



TOLERANCES ±4 mm
SCALE : 1/4
0 50 100 150 200 250 300 mm

Material is chrome 304

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ACTIVE LIGHTNING RODS

ALR - 05

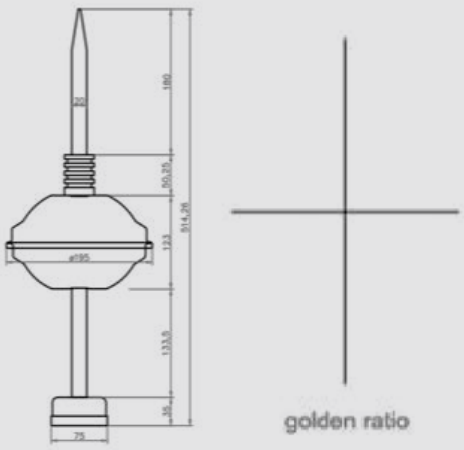
Outer Material	Stainless Chrome -304 L
Product height	610 mm
Product weight	4.200 gr.
Ion cell heihgt	123 mm
Ion cell diatemer	Ø 195 mm
Diameter of catching tip	Ø 20 mm
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**105 µs**
RP (Radius protection)	**156 meter**

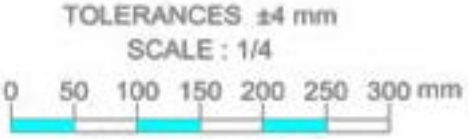
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	124
2. Protection level	30 m	Level - 2	132
3. Protection level	45 m	Level - 3	145
4. Protection level	60 m	Level - 4	156

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
124	132	145	156

TECHNICAL DRAWING





Material is chrome 304

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ACTIVE LIGHTNING RODS

ALR - 06

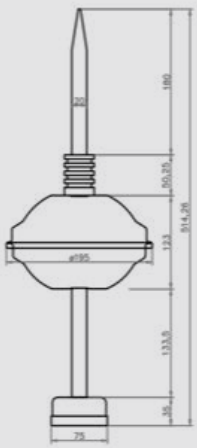
Outer Material	Stainless Chrome -304 L
Product height	610 mm
Product weight	4.200 gr.
Ion cell heihgt	123 mm
Ion cell diatemer	Ø 195 mm
Diameter of catching tip	Ø 20 mm Stainless chrome 304
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**145 µs**
RP (Radius protection)	**197 meter**

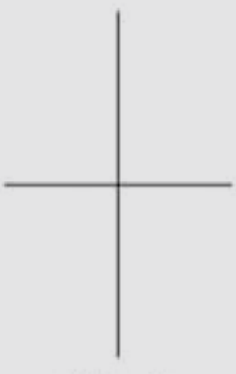
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	164
2. Protection level	30 m	Level - 2	173
3. Protection level	45 m	Level - 3	186
4. Protection level	60 m	Level - 4	197

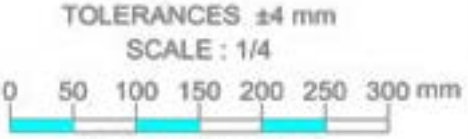
NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
164	173	186	197

TECHNICAL DRAWING







Material is chrome 304

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ACTIVE LIGHTNING RODS

ALR - 07

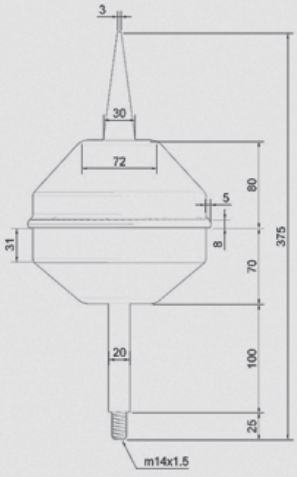
Outer Material	Stainless Chrome -340 L
Product height	400 mm
Product weight	2.200 gr.
Ion cell heihgt	150 mm
Ion cell diatemer	Ø 180 mm
Diameter of catching tip	Ø 30 mm Stainless chrome 304-L
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**71 µs**
RP (Radius protection)	**120 meter**

NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	90
2. Protection level	30 m	Level - 2	98
3. Protection level	45 m	Level - 3	109
4. Protection level	60 m	Level - 4	120

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
90	98	109	120

TECHNICAL DRAWING



TOLERANCES ±4 mm
SCALE : 1/4
0 50 100 150 200 250 300 mm

Material is chrome 304

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RAPID 30

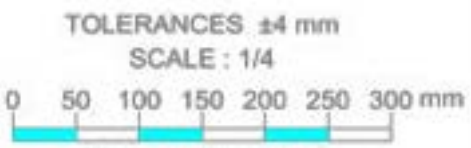
Outer Material	Stainless Chrome -340 L
Product height	400 mm
Product weight	2.185 gr.
Ion cell heihgt	120 mm
Ion cell diatemer	Ø 76 mm
Diameter of catching tip	Ø 30 mm Stainless chrome 304-L
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**35 µs**
RP (Radius protection)	**77 meter**

NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	53
2. Protection level	30 m	Level - 2	60
3. Protection level	45 m	Level - 3	69
4. Protection level	60 m	Level - 4	77

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
53	60	69	77

TECHNICAL DRAWING



Material is chrome 304

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ACTIVE LIGHTNING RODS

RAPID 60

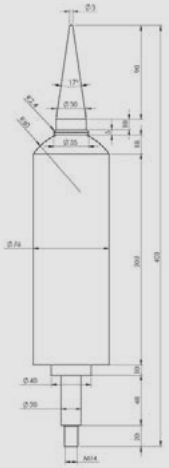
Outer Material	Stainless Chrome -340 L
Product height	400 mm
Product weight	2.200 gr.
Ion cell heihgt	120 mm
Ion cell diatemer	Ø 76 mm
Diameter of catching tip	Ø 30 mm Stainless chrome 304-L
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**60 µs**
RP (Radius protection)	**107 meter**

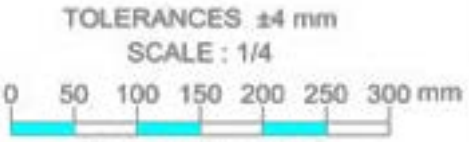
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	79
2. Protection level	30 m	Level - 2	86
3. Protection level	45 m	Level - 3	97
4. Protection level	60 m	Level - 4	107

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
79	86	97	107

TECHNICAL DRAWING





Material is chrome 304

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ACTIVE LIGHTNING RODS

STRONG 30

Outer Material	Stainless Chrome -340 L
Product height	400 mm
Product weight	2.185 gr.
Ion cell heihgt	120 mm
Ion cell diatemer	Ø 76 mm
Diameter of catching tip	Ø 30 mm Stainless chrome 304-L
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**35 µs**
RP (Radius protection)	**77 meter**

NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	53
2. Protection level	30 m	Level - 2	60
3. Protection level	45 m	Level - 3	69
4. Protection level	60 m	Level - 4	77

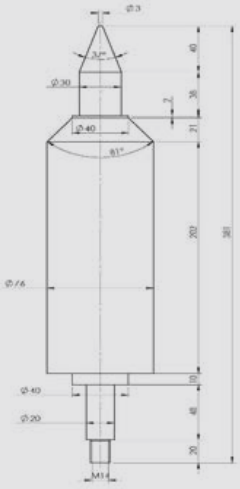
NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
53	60	69	77

TOLERANCES ±4 mm
SCALE : 1/4
0 50 100 150 200 250 300 mm

Material is chrome 304

TECHNICAL DRAWING



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ACTIVE LIGHTNING RODS

STRONG 60

Outer Material	Stainless Chrome -340 L
Product height	400 mm
Product weight	2.200 gr.
Ion cell heihgt	120 mm
Ion cell diatemer	Ø 76 mm
Diameter of catching tip	Ø 30 mm Stainless chrome 304-L
Trigger	Neomidium
Working principle	PDC / PDA (E.S.E)
Standart	N FC 17-102 ANNEX C (2011) Latest version
ΔT	**60 µs**
RP (Radius protection)	**107 meter**

TOLERANCES ±4 mm
SCALE : 1/4
0 50 100 150 200 250 300 mm

Material is chrome 304

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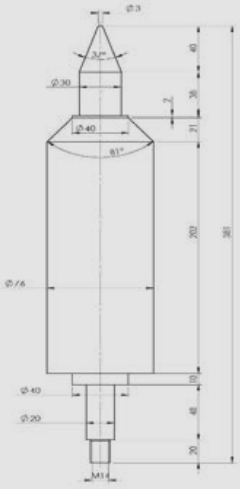
NFC-17-102 Annex C STANDART			
1. Protection level	20 m	Level - 1	79
2. Protection level	30 m	Level - 2	86
3. Protection level	45 m	Level - 3	97
4. Protection level	60 m	Level - 4	107

NFC 17-102 ANNEX C
Protection Area (Radius) (m)

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
79	86	97	107

TECHNICAL DRAWING



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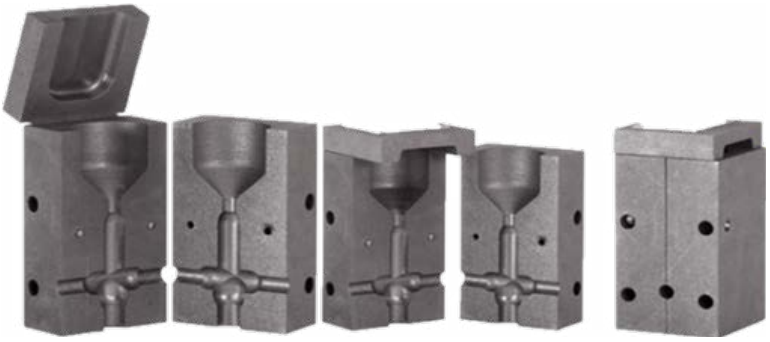
Exothermic Welding Materials

EXOTHERMIC WELDING MOLD

Mold type change according to item, dimension and weld type of grounding materials.



Product Code	Material	Box Quantity	Size	Weight (kg)
AE 46703	Grafit - Graphite	1	150 x 75 x 75	1,63
AE 46704	Grafit - Graphite	1	175 x 100 x 100	2,25

EXOTHERMIC WELDING MOLD HANDLE CLAMP

Handle clamp change according to mold type. Thermocouple pliers are used to close the thermocouple Crucible so that the thermocouple dust placed in the thermocouple Crucible does not escape from the bottom in thermocouple applications. If this tightening process cannot be done correctly, the thermocouple process will fail. Thermocouple pliers, which must work in coordination with the thermocouple Crucible, are the most effective product of thermocouple applications.

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ACTIVE LIGHTNING RODS

Exothermic Welding Materials

EXOTHERMIC WELDING METAL ULTRAWELD

Exothermic Welding Ultraweld Process: The Ultraweld process is an effective and safe method of welding copper to copper or copper to steel for the purpose of producing permanent electrical connections. Ultraweld exothermically welded connections are produced from the energy and molten copper metal liberated from an exothermic reaction between powdered copper oxide and aluminum. The reaction takes place at a theoretical temperature of 4600°F and as a result, molten copper alloy is created and used to melt the conductors and cast the finished connection. The exothermic reaction takes place in a semi-permanent graphite mold that will last 50 or more welds if properly cared for. The process is simple and easy to implement providing an on-site means to make welded electrical connec- tions without requiring external power, equipment or the special training usually required for brazing and welding. The process will provide a finished connection that will never corrode, loosen or increase in resistance. The finished connection also provides an ampacity that exceeds that of the conductors being joined.

Product Code	Material	Powder Weight (gr)	Box Quantity	Box Weight
AE 46355	Bakır Alaşımı - Copper Alloy	65	20	1,72
AE 46356	Bakır Alaşımı - Copper Alloy	90	20	2,22
AE 46357	Bakır Alaşımı - Copper Alloy	115	20	2,76
AE 46358	Bakır Alaşımı - Copper Alloy	150	10	1,79
AE 46359	Bakır Alaşımı - Copper Alloy	200	10	2,28
AE 46360	Bakır Alaşımı - Copper Alloy	250	10	2,79

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ACTIVE LIGHTNING RODS

Exothermic Welding Materials

PLASTIC GROUNDING MANHOLE

Product Details

*Manufactured from high performance, UV stable and chemically resistant polymer

*Available with either a polymer or concrete lid to suit the application

*5 hole earth bar

*M8 x 60 stainless steel Allen capheadscrew

Inspection Pit

The lightweight inspection pit with polymer lid is load rated to 5.000 kg and for general to heavy duty use. It has a lockable lid and improved working area compared to the concrete inspection pit. The lightweight inspection pit with concrete lid is load rated to 1,200 kg and is designed for use in areas.

Standarts IEC / BS EN 62561-5 (PT 205, PT 110) BS 7430 (PT004)

D1A (L x W x H) {mm)	Earth Bar	Material	Part No
300 x 300 x 230	No Earth Bar	Polyamide	PIP-1
300 x 300 x 230	Copper Earth Bar	Polyamide	PIP-2
300 x 300 x 230	Tin Plated Copper Earth Bar	Polyamide	PIP-3

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EXOTHERMIC WELDING MOLD BRUSH & ERASER

Exothermic Welding Materials

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KLR 01

LIGHTNING COUNTER

Striker X Lightning Event Counter

Display Model Electromechanical display (non re-settable)

Current Tested (10/350 µs) 100 kA

Start Sensitivity (8/20 µs) 1500 A

Current Sample Mode Inductive Probe (Built-in)

Indicator 6 digits

Operating temperature (oC) -20 ~ +85

Enclosure material Plastic

Degree of protection IP 67 (IEC 529)

Dimension of counter (cm) 16 (L) x 9 (W) x 6 (H)

FEATURES

- IP 67 rated enclosure suitable for external application.
- Ease of installation, Striker X can be retro-fitted to any lightning protection system.
- Non-intrusive and fast acting proximity circuit detects lightning transient currents.
- Non resettable electro-mechanical counter.
- Can be mounted at any location along the down conductor.

Size	: 170 x 82 x 60 mm
Material	: Stainless chrome (304) / PVC
Discharge measurement Power	: 150 kA
Installation location	: Lightning Protection Systems.
Testability	: Mechanical
Standard	: NF C 17-102 (2011) latest version

KALRE®
ACTIVE LIGHTNING RODS

KLR 03

ACTIVE LIGHTNING ROD TESTER

In the active lightning, the jump range is the test to control DT The purpose of this test is whether this jump interval is short-circuited when the lightning rod is exposed to lightning current. (To work when the electric charge in the clouds is 10-20 KV/M)if it has been short-circuited it will not perform its function as an active lightning rod.

Use: the tester's cable connects to the socket on the active lightning rods, the button is pressed. if the red led is lit, the Ion Generator is malfunctioning. It can't act as an active lightning rod. The Green generator is solid if the green led is lit.

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KLR 04

LIGHTNING COUNTER TESTER

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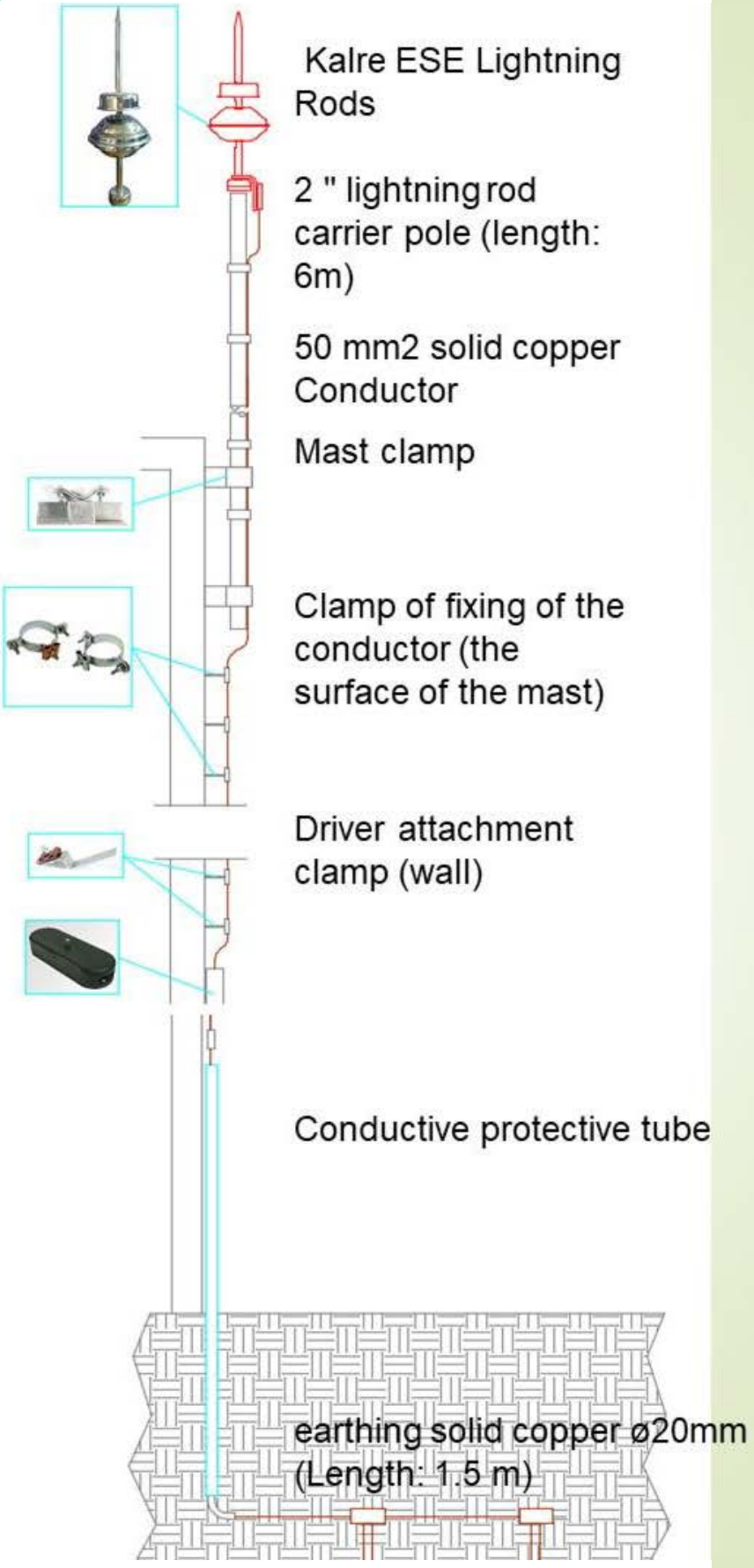

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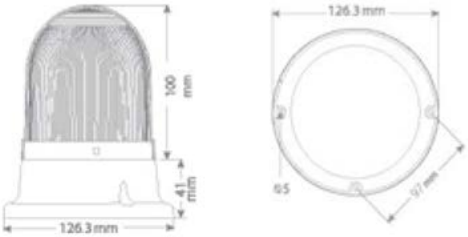
ACTIVE LIGHTNING RODS

100 Obstruction Light



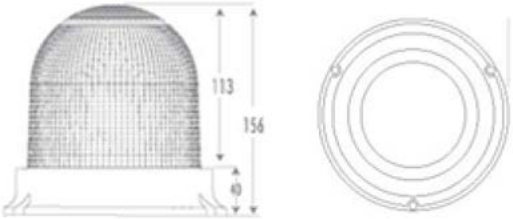
Lens Diameter	100 mm
Light Colors	5 Color
Light Modes	Steady, flashing, strobing
Housing	ABS
Mounting Types	Surface & Wall

Voltage Options

Option 1	12 V / DC
Option 2	24 V / DC
Option 3	48 V / DC

Part No	Light Mode
SNT-U125-D2-...	3 Modes

125 Obstruction Light



Lens Diameter	125 mm
Light Colors	5 Color
Light Modes	Steady, flashing, strobing
Housing	ABS
Mounting Types	Surface & Wall

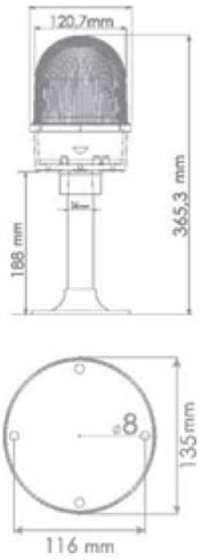
Voltage Options

Option 1	12 V / DC
Option 2	24 V / DC
Option 3	48 V / DC

Part No	Light Mode
SNT-U125-...	3 Modes

KALRE®
ACTIVE LIGHTNING RODS

Base Mount Obstruction



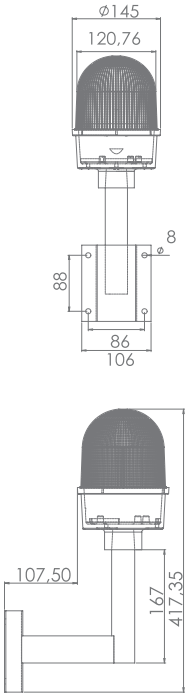
Lens Diameter	125 mm
Light Colors	5 Color
Light Modes	Steady, flashing, strobing
Housing	Metal
Mounting Types	Surface

Voltage Options

Option 1	12 V / DC
Option 2	24 V / DC
Option 3	48 V / DC

Part No	Light Mode
SNT-U125-DT1-...	3 Modes

Single Arm Obstruction Light



Lens Diameter	125 mm
Light Colors	5 Color
Light Modes	Steady, flashing, strobing
Housing	Metal
Mounting Types	Wall

Voltage Options

Option 1	12 V / DC
Option 2	24 V / DC
Option 3	48 V / DC
Option 4	85-260 V AC / DC

Part No	Light Mode
SNT-U125-D1-...	3 Modes

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ACTIVE LIGHTNING RODS

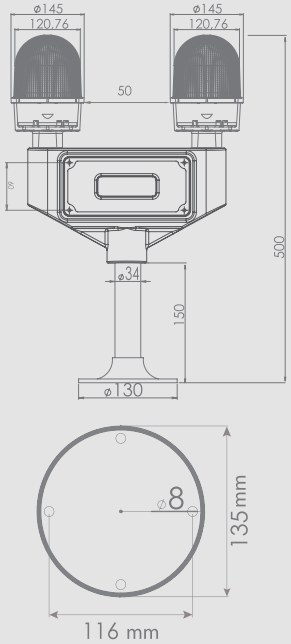
Dual Arm Obstruction Light

Lens Diameter	125 mm
Light Colors	5 Color
Light Modes	Steady, flashing, strobing
Housing	Metal
Mounting Types	Surface

Voltage Options	
Option 1	12 V / DC
Option 2	24 V / DC
Option 3	48 V / DC
Option 4	85-260 V AC / DC

Part No	Light Mode
SNT-U125-D2-...	3 Modes

A Single Lamp Operates in the Dual Obstruction Lights. At a %30 Light Loss or Damage, the Other Lamp Automatically Switches On



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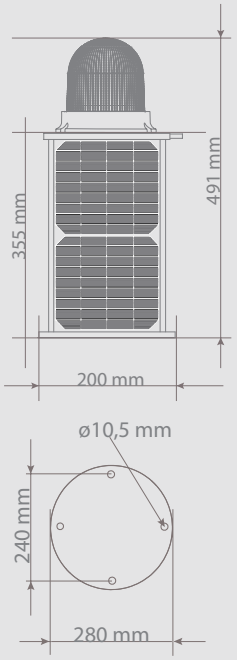
ACTIVE LIGHTNING RODS

Base Mount Solar Obstruction Light

Lens Diameter	125 mm
Light Colors	5 Color
Light Modes	Flashing
Housing	ABS / Metal
Mounting Types	Surface
Power Supply	Solar Energy
20W Solar Panel Obstruction Light	

Part No	Light Mode
SNT-U125-SLT25	Flashing



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ACTIVE LIGHTNING RODS

INSTALLATİON EQUİPMENTS

Lightning Arresters and Equipments

Plastic Test Connector

Order Code	Type
EDKV	Test Clamp

Conductor Clamp

Order Code	Type
EDKV	Screw Wall Clamp (Single - Pairwise)

Order Code	Type
EDKL	Straight Wall Clamp (Single - Pairwise)

Order Code	Type
ECKV	Screw Roof Clamp

Order Code	Type
EPLON	Plon Clamp (For I-iron and Angle Iron)

Order Code	Type
EMK	Roof Ridge Clamp (Single - Pairwise)

Order Code	Type
EKK	Roof Tile Clamp (Single - Pairwise)

Order Code	Type
EBIK	Conductor Pipe Clamp

Order Code	Type
EDT	Pole Plate (Medium – Wall – Corner)

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ACTIVE LIGHTNING RODS

INSTALLATİON EQUİPMENTS

Lightning Arresters and Equipments

Earting Clamps

Order Code	Type
ETK	Earthing Clamp (2mm)
ETK 3	Earthing Clamp (3mm)

Order Code	Type
ETK.T	Earthing Clamp Single (1mm)
ETK.T 15	Earthing Clamp Single (1,5mm)
ETK.T 2	Earthing Clamp Single (2mm)

Pole Lock Clamps

Order Code	Type
EDTKB	Pipe Lock Clamp 2-3" (Concrete)

Order Code	Type
EBTKT	Pipe Lock Clamp 2-3" (Brick)

Order Code	Type
EBYUTK	Lock Clamp (Fixing Pipe and Lightning Arresters) 2-3"

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EARTHING MATERIALS

Earthing Materials

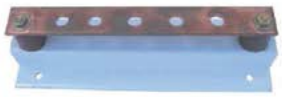
Order Code	Type
ESK-SS	Strip Clamp strip/strip 60x60x2mm

Order Code	Type
ESK-SD	Strip Clamp strip/iron 60x60x2mm

Order Code	Type
ESKB-SS	Strip Clamp (Cross) strip/strip 80x80x3mm
ESKB-SD	Strip Clamp (Cross) strip/iron 80x80x3mm

Order Code	Type
ETKR	Earthing Clamps (carrying the strip on the wall)

Outdoor Earting Bus Bar



Order Code	Type
EDTBT	Outdoor Earthing Bus Bar (Equipotential)

Order Code	Type
EDTB	Outdoor Earthing Bus Bar

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ALPEK HARDWARES

Alpek Hardware Materials

Order Code	Type
EOZD	Stirrup Iron
EOZM	Stirrup Shaft

Order Code	Type
EJ	J-Hook (for Alpek Hardwares)

Order Code	Type
EMIPL	Roller Insulator Plate (for Tensioning)

Order Code	Type
EMIZ	Roller Insulator

Order Code	Type
EJ KAN	J-Hook (for Mounting Disconnectors)

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FIXTRUE CONSOLES

Future Consoles

Order Code	Type
SLS101	Fixture Consoles (Wall)

Order Code	Type
SLS102	Fixture Consoles (Column)

Order Code	Type
SLS103	Fixture Consoles (Gooseneck 42x600x1,5mm)
SLS104	Fixture Consoles (Gooseneck 42x600x1,2mm)

Order Code	Type
SLS105	Gooseneck Clamp Kit

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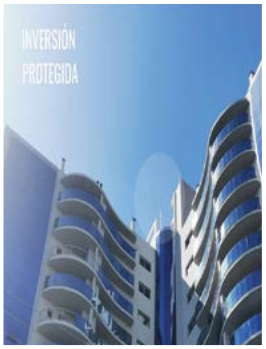
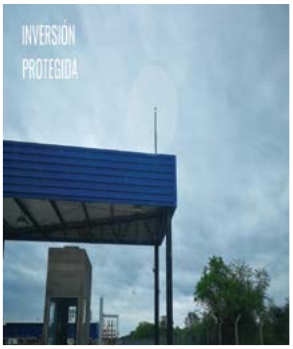
FIXTRUE CONSOLES





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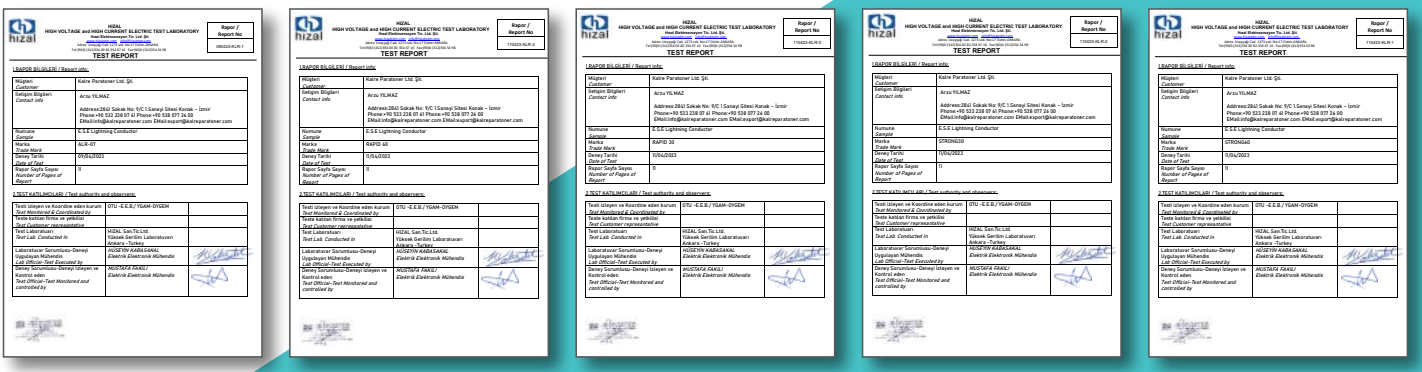
OUR DOCUMENTS

- METU Lightning Catching Head Impulse Voltage Streamer Time Lag. Gain Measurements
- METU Current Impulse Stand test 200kA current level



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OUR DOCUMENTS

- ICMET NFC 17-102: 2011 ANNEX C HUMID SULFUR TEST
- ICMET NFC 17-102: 2011 ANNEX C GENERAL MECHANCIAL TEST
- ICMET NFC 17-102: 2011 ANNEX C ESE TEST

ICMET CRAIOVA
HIGH VOLTAGE DIVISION
Low and High Voltage Testing Laboratory

TEST REPORT
No. 45278 / 30.03.2016

ICMET CRAIOVA
HIGH VOLTAGE DIVISION
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TEST REPORT
No. 45230 / 04.04.2016

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HIGH VOLTAGE DIVISION
Low and High Voltage Testing Laboratory

TEST REPORT
No. 45238/18.03.2016

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