

TEST REPORT



한국전기연구원
KOREA ELECTROTECHNOLOGY
RESEARCH INSTITUTE



TEST REPORT

2006TC00357 1/5

CLASSIFICATION Performance Test Report(III)
APPARATUS Early streamer emission lightning rod
DESIGNATION KEC-1 / KEC-2 / KEC-3

RATINGS -

APPLIED STANDARD Manufacturer's specification

RECEIPT No. RRD05C00115 (November 03, 2005)

APPLICANT KOREA ELECTRIC CO., LTD.
52 JANGSA-DONG, CHONGRO-KU, SEOUL, KOREA

MANUFACTURER KOREA ELECTRIC CO., LTD.
52 JANGSA-DONG, CHONGRO-KU, SEOUL, KOREA

DATE OF TESTS March 24, 2005 ~ March 25, 2005

DATE OF ISSUE July 20, 2006

The tests have been carried out in accordance with the instructions of the client.

The test results are shown in the records of test with the performance of the apparatus tested and the observations made during the tests. The oscillograms are attached hereto.

The test results apply only to the apparatus tested.

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No. OF PAGES records (5), photographs (0), circuit diagrams (1), oscillograms (0),
INCORPORATED drawings & descriptions (0), attachments (0)

Test results in this report are within the scopes accredited by Korea Laboratory Accreditation Scheme, which signed the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement



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KOREA ELECTRIC CO., LTD.

Drawings :**Photographs :**

Ratings of the test object assigned by manufacturer :**Early streamer emission lightning rod**

Applied standard

Manufacturer's specification

Manufacturer

KOREA ELECTRIC CO., LTD.

Type

KEC-1 / KEC-2 / KEC-3



List of the tests

Description of tests	Standard and clause	Test circuit	Sheet No.
1. Verification test for the triggering advance early streamer emission air terminals	Manufacturer's specification	Fig. HV01	5/5

"Above test items are the accredited test items by Korea Laboratory Accreditation Scheme which signed the ILAC-MRA."

Measurement uncertainty

The measurement uncertainties listed below are the expanded uncertainties at the confidence level of 95 % (coverage factor $k=2$) guaranteed by KERI

High power test

Current

 ± 5 %

Voltage

 ± 5 %**Impulse current test**

Current

 ± 3 %

Time

 ± 10 %**High voltage test**

Voltage

 ± 3 %

Time

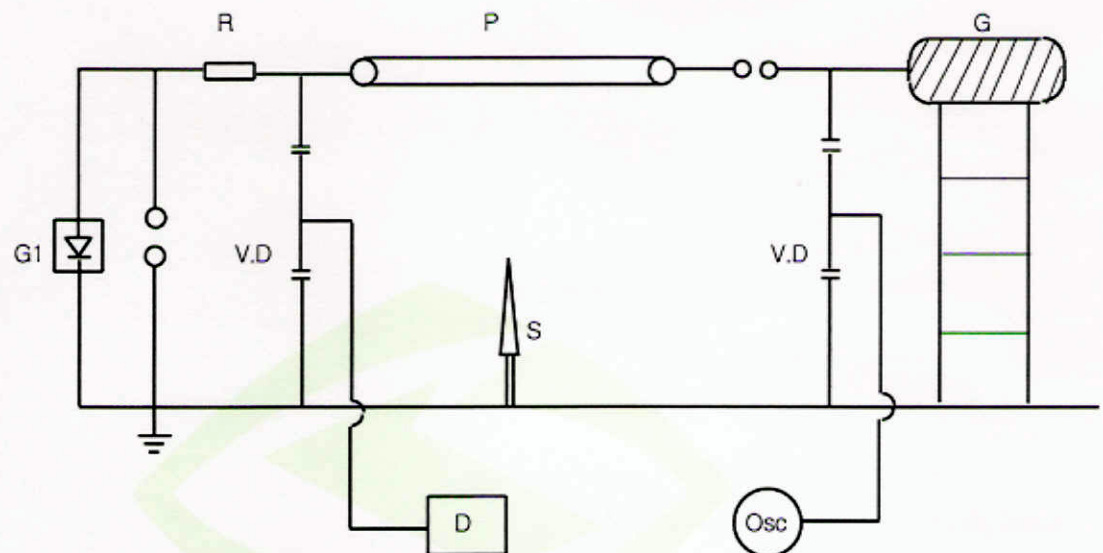
 ± 10 %

1. Verification test for the triggering advance early streamer emission air terminals

Test condition			
Applied voltage	<ul style="list-style-type: none"> Switching impulse voltage : - 500 kV Direct voltage : - 30 kV 		
Waveform	249 / 2580 μ s		
Test condition	Ambient temperature (°C)	Relative humidity (%)	Atmospheric pressure (hPa)
	7.8	47.5	998

Test results	
Specimen	Average upward leader triggering time
Simple rod	167.1 μ s
KEC K-1	156.3 μ s
KEC K-2	149.8 μ s
KEC K-3	141.4 μ s

Fig. HV01 - Test circuit



- G : Switching impulse generator
- G1 : Multi test system
- V.D : Voltage divider
- P : Upper plane electrode
- S : Specimen
- D : Impulse voltage measuring system (Dr. Strauss)
- Osc : Oscilloscope
- R : Resistor