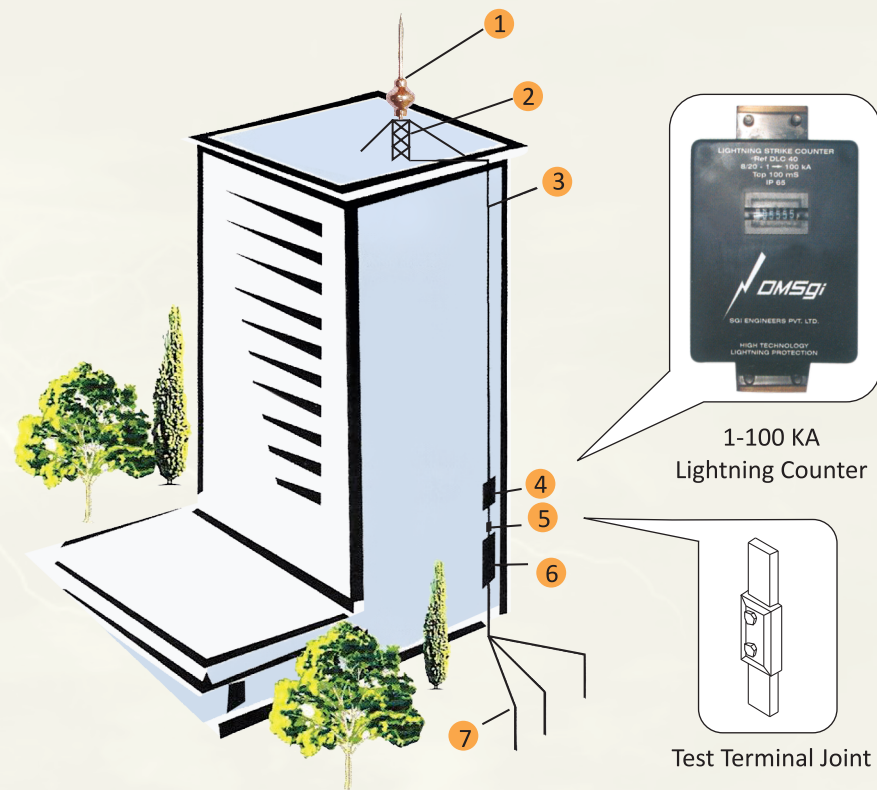
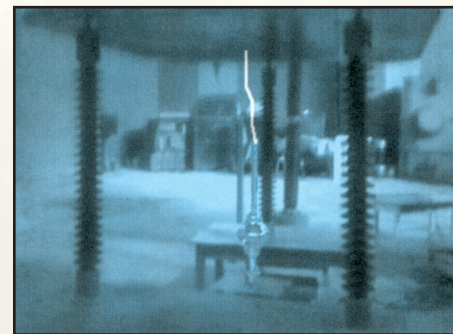


Typical Installation Scheme

1. Air Terminal - **Protector**
2. Support Mast
3. Down conductor
4. Lightning Strike Counter
5. Test Joint
6. PVC Protective Sheath
7. Earth Terminal

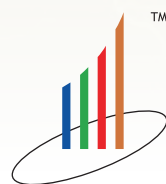


Salient Features

- The **Protector** is an ESE type of 'active' lightning conductor that provides zonal protection in accordance with standard NF C 17 102.
- The **Protector** is a sturdy robust device made of 304 L stainless steel.
- It is protected against corrosion and needs no maintenance.
- Needs no external power source.
- Compact and easy to install.
- Warrantee for 2 years.
- Tested and certified by ODTU University Laboratories in Turkey (Europe) & CPRI India.

Applications

- Large multistoried / high rise residential complexes and housing colonies. A single **Protector** can cover several blocks.
- Large multistoried / high-rise office complexes, multiplexes, shopping malls, etc.
- Modern buildings housing IT offices, BOP's and concentration of sensitive electronic and / or telecom equipment.
- Factories having plc based controls for critical plant and machinery
- Hospitals, cinema halls, museums, old monuments, schools, etc.



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 Website : www.sgihouse.in

Our Associates:



Dmsgi
 ESE LIGHTNING CONDUCTOR

PROTECTOR



Lightning Arrested !...

Lightning Protection

INTELLIGENTLY

Feel yourself Safe With 40 Years of Experience.

Your Safety is our Concern.

The Definition Of The Lightning

The vocabulary definition of the lightning is as follows: The electrical discharge that occurs between earth and air, is felt by thunder and a strong light. The electric load cells are formed in the clouds. As soon as load cells passes over the low air resistance, the electrical discharge occurs and the loop is completed. Hence lightning is safely earthed.

The Lightning Protection Methods

As per the statistic, every minute, more than 1,900 lightning flashes fall over the earth's surface. Besides the prevention methods against lightning, there are also methods to safeguard public and industrial places. The external protection system are used for this purpose and there are 3 major types, as mentioned below:

1. Lightning Conductor Systems (ESE conductors, Radioactive conductors, etc)
2. Faraday Cage Systems
3. Franklin Rod Systems

Radius of Protection

Protection radii (m)

Type DMSGI	h=tip height (m)									
	2	3	4	5	6	10	15	20	45	60
Level I										
DMSGI - 25	17	25	34	42	43	44	45	45	45	45
DMSGI - 45	26	38	50	63	63	64	65	65	65	65
DMSGI - 60	32	48	64	79	79	79	80	80	80	80
Level II										
DMSGI - 25	23	34	46	57	58	61	63	65	70	70
DMSGI - 45	34	48	64	81	81	83	85	86	90	90
DMSGI - 60	40	59	78	97	97	99	101	102	105	105
Level III										
DMSGI - 25	26	39	52	65	66	69	72	75	84	85
DMSGI - 45	36	50	72	89	90	92	95	97	104	105
DMSGI - 60	44	65	87	107	107	109	111	113	119	120

The Working Principle of Dmsgi, Early Streamer Emission Lightning Conductor - Protector

The **Protector** is an active lightning conductor designed to conform to the French standard NF C 17 102 (July 1995) for ESE lightning conductors. Its working principle evolves from local electrostatic field that develops naturally around the system as a thunderstorm begins to gather. In the event of a descending lightning, an inbuilt triggering device generates high-tension pulses at the conductor tip, causing a 'corona effect'.

As the downward leader approaches the ground, powerful upward streamers get triggered off, aided by a strong venturi effect that is built in the system. The early synchronization between the downward and upward leaders thus achieved by the **Protector**, easily meets the triggering advance timing (ΔT) as laid down in the French standard NF C17 102.

Radius of Protection

The **Protector** provides a wide range of zonal protection and meets the norms for various levels of protection as defined in the standard NF C 17 102 (Chapter 2.2.3.2 and Appendix B Table 10).

PERFORMANCE TESTS

The Protector Has been tested and certified by the ODTU University Laboratories in Turkey (Europe).

TEST REPORT 07-11-2006

Firm / Institution Applied : SGI Engineers Pvt. Ltd. 862, 9th Main, 7th Cross, Sirasagar, Bangalore 560 050, India

Tests Required : ESEL C (Early Streamer Emission Lightning Conductor) Evaluation of the Streamer Initiation Advance

Date of the Test : 07.11.2006

Tests Conducted in : Middle East Technical University, High Voltage Laboratory, Ankara

Ambient Conditions : 19°C, 689 mmHg, % 61 Relative Humidity (No Significant variation has been observed in these values during the tests.)

Altitude : 900m

Impulse Generator : HAEFELY 2.4 MV, 120 KL

Equipment Tested : Model Dmsgi ESE Lightning Conductor, (Series No. 60001)

2. TEST STANDARD
NEC17-102 (Appendix C)

3. DESCRIPTION OF THE TESTS
A 4500 x 4500 mm plane high voltage electrode with rounded edges (Rp 200mm) was positioned 100 mm above the test sample. 100 negative polarity impulse of 200/2000µs (Rise time 170µs) with 300 kV±5 kv magnitude are applied and the time lags to flashover are recorded. A time interval of 1 minute was allowed between consecutive impulses. The measurements are repeated using a SRLC (Simple rod lightning conductor) of the same tip geometry and height. The results are given in Table 2 and 3.

	Min.	Max.	Average
SR	57	228	97
ESE Sample (Series no 60001)	43	105	65

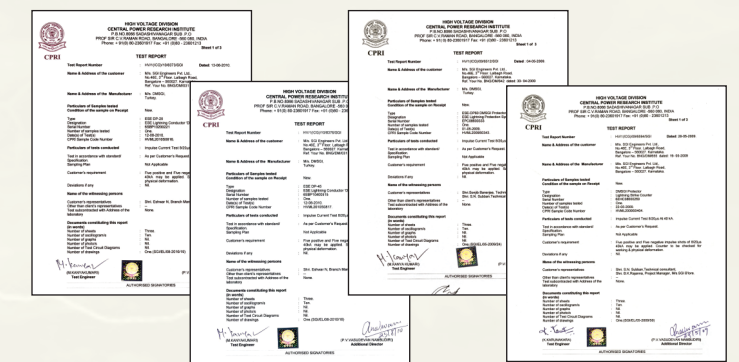
Oscillograms recorded during the tests are given in Figure. 2.b & c.

4. RESULT
As proposed in NF C17-102 (Appendix C), the time lags measured using SRLC and ESEL C are applied as shown in Figure 3 on the reference electric field test electric field curves and the form the electric field values corresponding to these time lags, a time lag gain of approximately T = 80 µs was determined.

Prof. Dr. Mirzahan HIZAL
Dept. of Electrical and Electronics I
Middle East Tech. University
ANKARA

CPRI TEST REPORT

DMSGI - 25, 45, 60 & LIGHTNING COUNTER



The Calculation of The Protection Radius (NF C 17-102 S 2.2.3.2)

$$R_p = \sqrt{h(2D-h) + \Delta L (2D+\Delta L)} \text{ for } > 5m.$$

- Rp : ESE protected radius
- h : Height of Protector tip above the area to be protected.
- D : Triggering distance defined
By NF C 17-102, D(m)=10.1^{2/3} that is:
20 m at Level 1 (high protection)
45 m at Level 2 (improved protection)
60 m at Level 3 (standard protection)

ΔL : upward leader length gain
 $\Delta L_{(m)} = V_{(m/\mu s)} \times \Delta T_{(m/\mu s)}$

ΔT : Triggering advance

Protection levels are specified in annex B of standard NF C 17-102.

