

ONE DAY SEMINAR ON LIGHTNING SURGE PROTECTION SYSTEM

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On 5th August 2003, Pekat Teknologi Sdn. Bhd. and their Australia counterpart Novaris Technologies Pty Ltd jointly conducted a seminar on lightning and surge protection against lightning at Bangunan Ingenieur, Petaling Jaya. This seminar was successfully organized by Institution of Engineers, Malaysia with the overwhelming response of about 100 participants. Most of them were excited to witness the high voltage surge simulator that is capable of charging up to 3,000 Amp and 6,000 Volt waveforms as recommended by code of practice against lightning i.e. AS1768, BS6651 and IEEE C62.41.

The honorable speaker, Mr. Phillip Tompson who is a fellow of the Institution of Engineers, Australia, a member of the IEE (UK) and IEEE (USA) and a representative of Australia Standards Committee EL24, the Australian Standards committee on Lightning Protection, was the main presenter in the seminar. During the morning session, Mr. Phillip explained the Novaris Systematic Approach in providing a comprehensive solution against lightning.

"In order to prevent the consequences of lightning effects, one had to firstly understand the theory of lightning and how surge was generated"



Mr. Phillip Tompson in action at IEM, PJ

This was his first remark as Mr. Phillip continued to explain the formation of lightning and the background of the surges. He then introduced the 5 simple formulas of the Systematic Approach: -

- Define boundaries
- Protect the structure
- Install bonded earthing system
- Protect power lines
- Protect signal lines

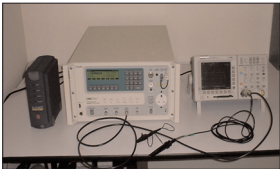
He also emphasised the importance of each individual step and how both lightning and surge protection systems shall be considered together as a single system. One weakness will make the whole protection system ineffective.

Toward the closure of the seminar, the atmosphere was stirred up when Mr. Phillip demonstrated a "real world transient" by superimposing 3,000 Amp and 6,000 Volt on to the normal 240 Volt A.C. supply. This superimposed supply was then injected into the surge diverter. The key factors of the demonstration are to highlight the few important design criteria and how to determine an effective surge protector for the right application.

Participants also had the chance to witness the performance of the surge diverter with different lengths of connecting leads. Mr. Phillip reiterated that it is very crucial when installing a surge diverter the

connecting leads be kept as short as possible. He pointed out how significant the voltage drop on just 500mm leads are by demonstrating it to the audience.

In some instances, where the length of the connecting leads is inevitably long, he advised those present to use a surge filter. Surge filters are hybrid protectors incorporating shunt metal oxide varistors (MOVs), series impedance, inductors, and a final stage of shunt MOVs. Surge filters are series connected so the problem of lead length, a critical factor in the installation of shunt connected surge diverters is eliminated. ■



This High Voltage Surge simulator is capable of generating up to 3,000 Amp.