KNOWLEDGE SHARING

SURGE PROTECTION DEVICE BY :

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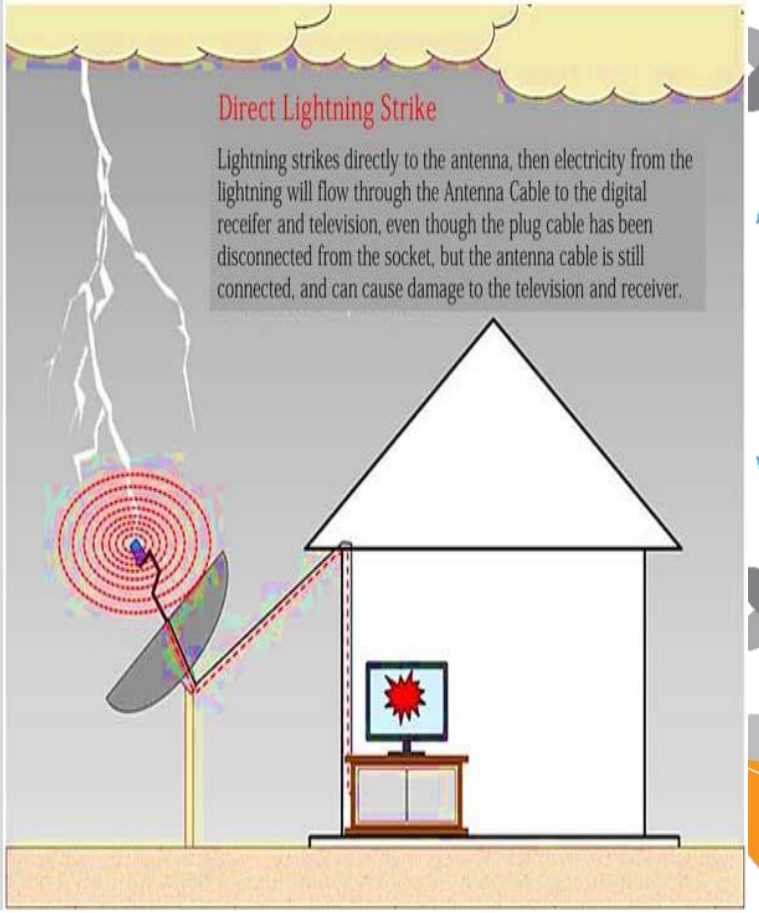
WHAT IS SPD (SURGE PROTECTION DEVICE)?

- SPD is device protecting various types of equipment from surge
- SPD is the device attenuating the overvoltage and noise and is called SPD or TVSS (Transient Voltage Surge Suppressor). Specialists in the industry call it SPD.
- The terms such as SPD and TVSS are used in terchangeably
- SPD is the equipment designed in to attenuate the dangerous overvoltage at the very short moment appearing in the power line (Power SPD) At telephone line (Telecom SPD), data network (Data & Network Protection SPD), the power line

WHEN?

DIRECT LIGHTING STRIKE

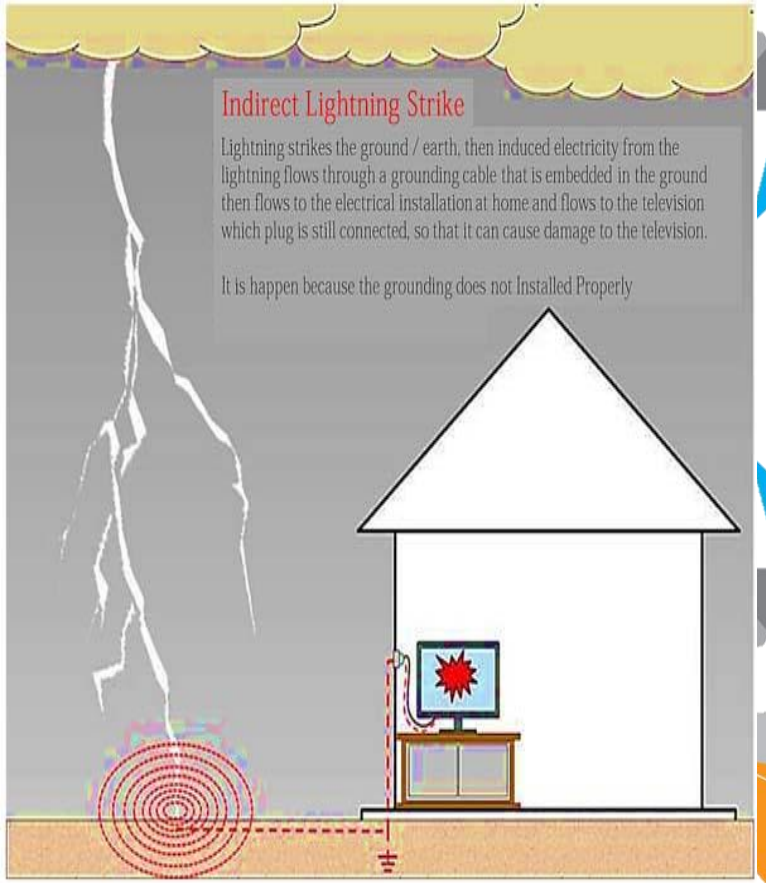
- A direct lightning strike can cause a significant amount of damage to the electrical and nonelectrical items in the system. It can also cause structural damage to the structure.
- Lightening current directly strike on a structure. Direct Lightning current of (10/350) wave form enters into a system where the structure receives a direct lightning strike.
- Lightning current flow when lightning strikes to a nearby service line. Direct lightning current of (10/350) waveform strikes and overhead service line.



WHEN?

INDIRECT LIGHTING STRIKE

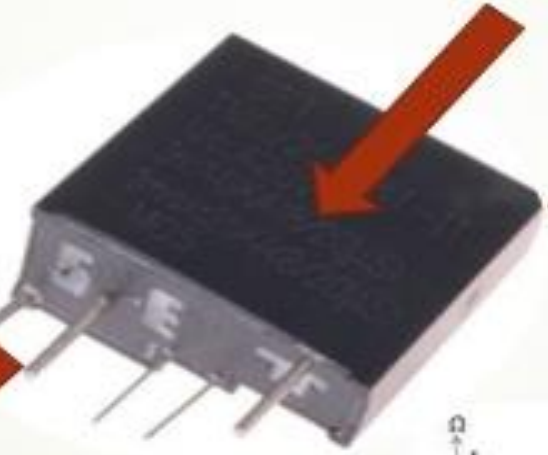
- An indirect lightning strike is the more common type where a nearby lightning enters the system through wires or pipes the extend outside. Damage from this type of event is generally less severe as compared to a direct lightning strike.
- Lightning current flow when lightning strikes near the structure represented by 8/20 current wave.



VIEW OF SPD

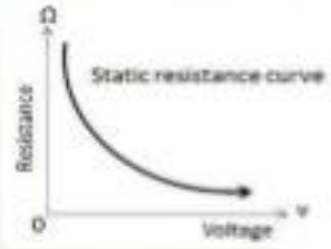
Thermally Protected MOV

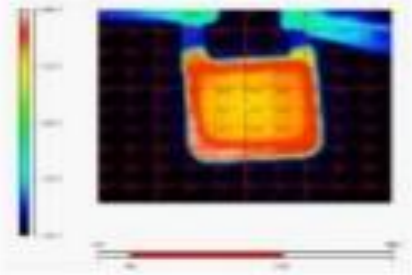
Thermal Disconnector
Fast response to abnormal heat of MOV body before thermal runaway



Remote Signalling Contact
Fault/ Degradation Indicator

Well-selected MOV
uniform thermal distribution under TOV





SURGE PROTECTION DEVICE TECHNOLOGY

- GDT : Gas Discharge Tube
- TSG : Transient Spark Gaps (100kA
- MOV : Metal Oxide Variastor

TESTING STANDARDS

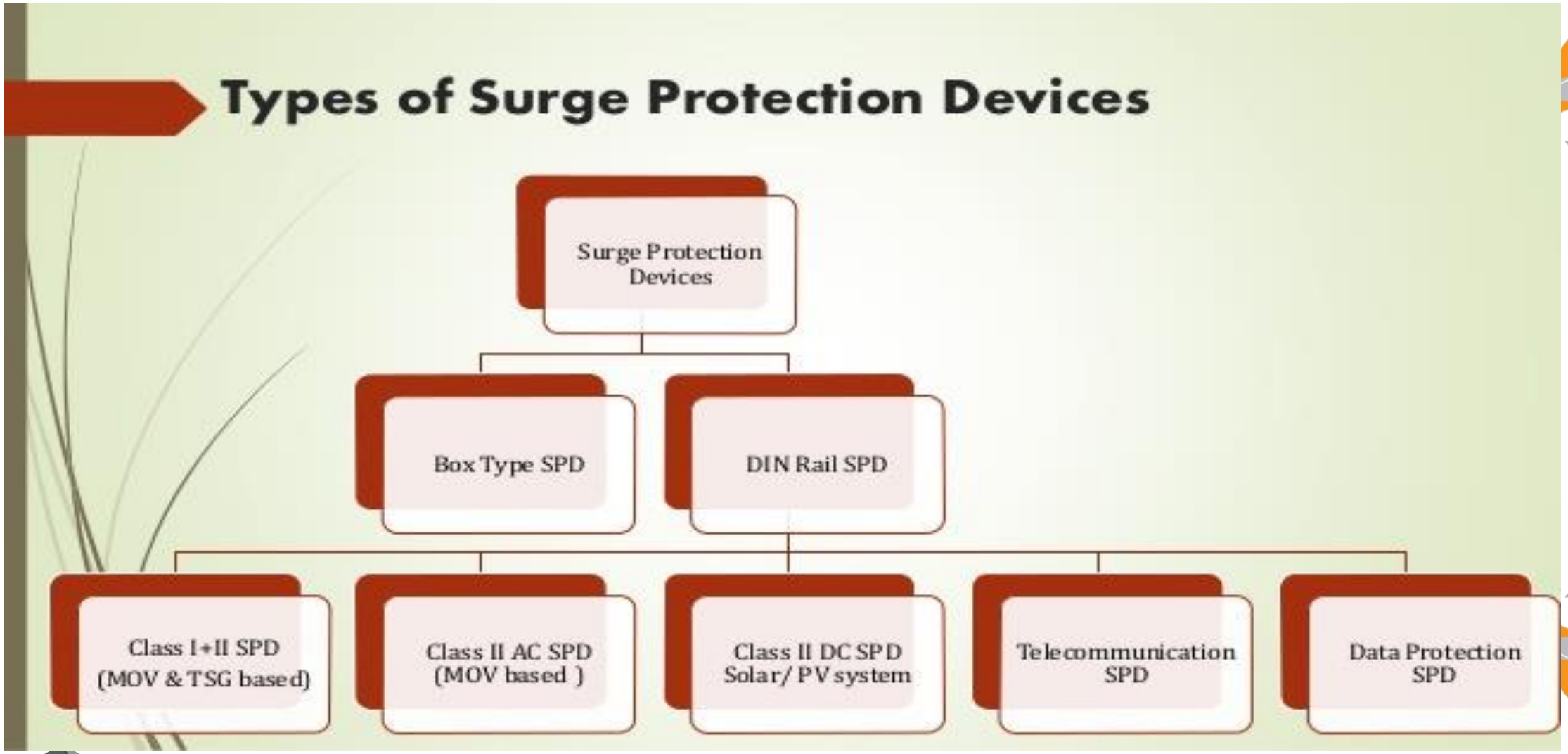
Worldwide SPD Testing Standards

- IEC 61643-11 : Low voltage surge devices – Part 11: Surge protective connected to low voltage power system – Requirements and test methods
- UL 1449: Surge Protective Device
- IEEE C62.62: Test Specifications for Surge – protective Devices (SPDs) for use on the Load Side of the Service Equipment in Low – Voltage (1000V and less) AC Power Circuits.

Highlights of IEC 61643 Testing

- Electrical Test
- Residual voltage with 8/20usec current impulse
- Front 0f wave sparkover voltage (1.2/50 usec)
- Limiting voltage with the combination wave (Open Circuit Voltage Measured Uoc)
- Mechnical Test
- Terminal & Connection
- Pulling Test
- Environmental & Material Test
- Heat resistance test

TYPES OF SPD DEVICES



TYPICAL USAGE

Typical Usage

	Type of SPD	Remark
Main Distribution Board	Class I+II	Main distribution board will have class I+II SPDs with Class II SPD
	Class II	
Sub Distribution Board	Class II	Mainly Class II SPD to protect from over voltage
Distribution Board	Class II	Install one more SPD distance is greater than 30meter
Low Voltage Equipment	Class III	

APPLICATION of SPD

Application

Electricity Panels

Railways

Industrial Control System

Building System

THANK YOU