Lightning Protection Systems (LPS) Inspection Checklist

(According to MS IEC 62305)

This checklist provides guidance for lightning protection systems inspection in compliance with IEC 62305, ensuring structures are properly protected against lightning strike.

Notes:

1. This checklist is intended to ensure that Lightning Protection Systems (LPS) are installed, operated, and maintained in accordance with the requirements outlined in MS IEC 62305.
2. The inspection and repairs should be conducted by an Electrical Contractor registered with Suruhanjaya Tenaga (ST).
3. Please refer Appendix for additional information.
4. Disclaimer: The completion of this checklist does not necessarily guarantee that the LPS is in full compliance.

1. General information:	
Details of the building:	
Type of Building: ☐Residential ☐Commercial ☐Industrial ☐Others:_____	
Building Name:	
Full Address:	
Build Year:	
Person in Charge (PIC):	
No. Tel PIC:	
Details of Registered Competent Person (if available)	
Name:	
IC No.:	Certificate No.:
LPS Design Endorsed by:	**LPS Installed by:**
Name of Electrical Professional Engineer:	Electrical Contractor registered with ST:
Registration No:	Registration No.:

2. Technical Documentation: (Tick ✓)			**Remarks**
Please verify the availability of the following document:			
i.	Risk Assessment report	☐Yes ☐No	
	a. Lightning Protection Level (LPL) based on Risk Assessment ☐I ☐II ☐III ☐IV ☐None		
ii.	As-built Drawing	☐ Yes ☐ No	
	a. Endorsed by Professional Engineer	☐ Yes ☐ No ☐ Not Applicable	
	b. Installation of LPS according to As-built drawing	☐ Yes ☐ No ☐ Not Applicable	
iii.	Previous LPS Inspection Checklist or similar	☐ Yes ☐ No	
iv.	Operation & Maintenance Manual	☐ Yes ☐ No	
Upon completion of the document review, it has been verified that the installation meets the requirements of MS IEC 62305, as indicated below. ☐Part 1 ☐Part 2 ☐Part 3 ☐Part 4			

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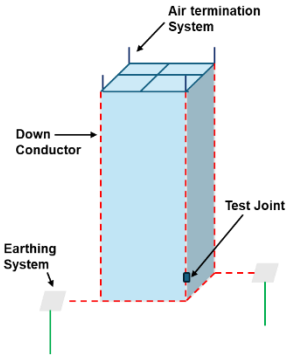
3. Visual Inspection: (Tick ✓)		Remarks
 **Fig. 1: Main Component of LPS**	Air-termination components (mesh/ installed on a structure are located at corners, exposed points and edges (especially on the upper level of any facades) ☐Yes ☐No ☐Partially	
	External /structure damage due to lightning strikes ☐Yes ☐No	
	Complete system of LPS: Air Termination System: ☐Available ☐Not Available ☐Visible ☐Not Visible Down Conductor: ☐Available ☐Not Available (No.: _____) ☐Visible ☐Not Visible Earthing System: ☐Available ☐Not Available ☐Visible ☐Not Visible	
	Test Point ☐Available ☐Not Available ☐Visible ☐Not Visible Earth Chamber ☐Available ☐Not Available ☐Visible ☐Not Visible	
	Surge Protection Devices (SPD) ☐Available ☐Not Available ☐Not Applicable ☐Function ☐Not Function	

4. Testing Procedures: (Tick ✓)	Remarks
Earthing Resistance Test ☐Yes ($R_{overall}$: _____ Ω) ☐No	
Continuity tests of joints including air termination system, down conductors and earthing system. ☐Yes ☐No ☐Not Applicable	

5. Maintenance	Remarks
Electrical continuity test conducted. ☐Yes ☐No (Please specify the date of last test conducted: _____)	
Earthing resistance test conducted. ☐Yes ☐No (Please specify the date of last test conducted: _____)	
Maintenance records ☐Yes ☐No	

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6. Summary and Recommended Action		
Item	**Summary**	**Recommended Action**
1. General information		
2. Technical Documentation		
3. Visual Inspection		
4. Testing Procedures		
5. Maintenance		

Inspected by:

Name:

Company:

Date:

ST. Registration No.:

Verified by (Visiting Engineer/ Building owner/ Professional Engineer):

Name:

Company:

Date:

ST. Registration No. (if any):

Witnessed by: (Regulatory Officer if any)

Name:

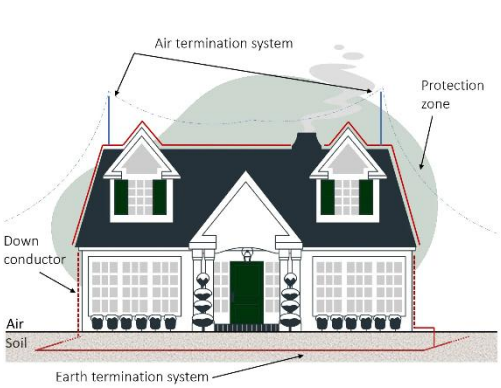
Regional Office:

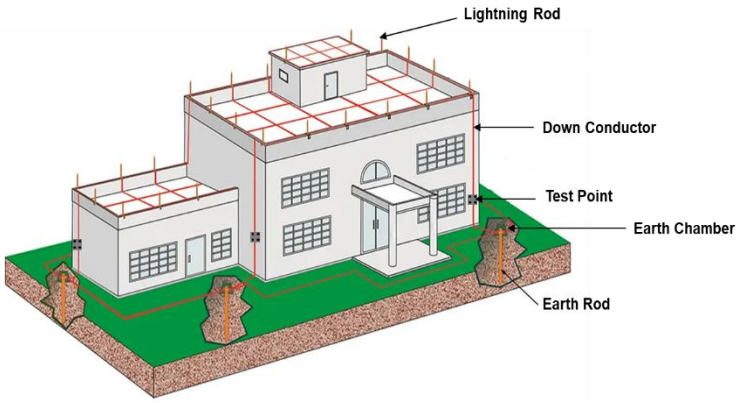
Date:

APPENDIX

LPS Configuration and Components

Example of LPS on Building





LIGHTNING ROD	DOWN CONDUCTOR	TEST POINT
		
EARTH ROD	**EARTH CHAMBER**	**SPD CONDITION (Please check indicator colour)**
		

***The illustration is provided for reference purposes only.**

Air-termination systems can be composed of any combination of the following elements:
a) rods (including free-standing masts);
b) catenary wires;
c) meshed conductors.

Lightning Protection System (LPS) Design based on Lightning Protection Level (LPL)

Lightning Protection Level Table				
LPL	Class Of LPS	Protection Method		Typical Distance, m (between down-conductors & between ring conductors)
		Rolling Sphere Radius, m	Mesh Size, m	
I	I	20	5 X 5	10
II	II	30	10 X 10	10
III	III	45	15 X 15	15
IV	IV	60	20 X 20	20

APPENDIX

1) Lightning Protection Levels (LPL) are an important aspect of designing a Lightning Protection System (LPS). They define the required protection level based on the risk assessment of a structure and the potential consequences of a lightning strike.

2) The LPLs are categorized into four main levels: LPL I, II, III, and IV. These levels correspond to different levels of protection and are associated with different lightning parameters, such as peak current, charge, and specific energy. The higher the LPL (LPL I), the lower the allowed risk and the more stringent the requirements for the LPS.

LPS Inspection and Maintenance based on LPL

Lightning Protection Level (LPL)	Visual Inspection (Year)	Complete Inspection (Year)	* Critical Systems Complete Inspection (Year)
I and II	1	2	1
III and IV	2	4	1

* Critical Systems: e.g.: parts of the LPS exposed to severe mechanical stresses such as flexible bonding straps in high wind areas, SPDs on pipelines, outdoor bonding of cables etc.