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1 INTRODUCTION

В настоящем разделе представлены решения по защите RIGA CENTRAL STATION от влияний молнии.

1.1 STANDARDS

The solutions in this section comply with local standards. In case of a lack of information, the standards IEC, EN, DIN, BS, recommendations of manufacturers of lightning protection systems and special industry standards were applied.

Lightning protection solutions are designed in accordance with the requirements of the following local, international standards and recommendations.

Local standards

- Construction Law (01.10.2014);
- Energy Law (06.10.1998);
- CoM Regulations No. 500 - General Building Regulations (01.10.2014);
- CoM Regulations No. 573 - Building Regulations for Electricity Production, Transmission and Distribution Structures (01.10.2014);
- LBN 202-18 "Preparation of Construction Design Documentation" (31.08.2018);
- LBN 261-15 "Internal Electrical Installations for Buildings" (17.06.2015);
- LBN 201-15 "Fire Safety of Structures";
- LEK 042 "Overvoltage Protection in Low-Voltage Network";
- LEK 048 "Grounding of Electrical Installations and Electrical Safety Measures";
- LEK 078 "Grounding System Installation in Administrative, Industrial Buildings, where Telecommunications and Low-Voltage Equipment is Provided";
- LVS HD 60364 Low-voltage electrical installations;
- LVS EN 60529 Degrees of protection provided by enclosures (IP code);
- LVS EN 61140 Protection against electric shock. Common aspects for installation and equipment;
- LVS HD 308 Identification of cores in cables and flexible cords;
- LVS HD 361 System for cable designation;
- LVS HD 603 Distribution cables of rated voltage 0, 6/1 kV;
- LVS HD 605 Electric cables - Additional test methods;
- LVS EN 61643 Low-voltage surge protective devices;

- LVS EN 50522 Earthing of power installations exceeding 1 kV a.c.;
- LVS HD 60364-5-54:2011 Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors;
- LVS EN 61140:2016 Protection against electric shock - Common aspects for installation and equipment (IEC 61140:2016);
- LVS EN 62305 Lightning Protection;
- LVS EN 62561 Lightning Protection System Components.

International standards

- EN 62305 (series of standards) Protection against lightning;
- EN 50122 (series of standards) Railway applications. Fixed installations. Electrical safety, earthing and the return circuit;
- EN 60364 (series of standards) Low-voltage electrical installations;
- ITU-T K.67 Expected surges on telecommunications and signaling networks due to lightning;
- ITU T K.46 Protection of telecommunication lines using metallic symmetric conductors against lightning-induced surges;
- ITU T K.47 Protection of telecommunication lines against direct lightning flashes;
- ITU-T K.27 Bonding configurations and earthing inside a telecommunication building;
- EN 50162 Protection against corrosion by stray current from direct current systems;
- EN 50121 Railway applications. Electromagnetic compatibility;
- EN 50119 Railway applications. Fixed installations. Electric traction overhead contact lines;
- EN 50522 Earthing of power installations exceeding 1 kV a.c.;
- EN 61140. Protection against electric shock. Common aspects for installation and equipment.

Other recommendations

- BS 7430 Code of practice for protective earthing of electrical installations;
- DEHN + SÖHNE – Lightning Protection Guide;
- DIN 18014 Foundation earth electrode - Planning, execution and documentation.

Equipment and materials used for this project must comply with:

- IEC 62561 (series of standards) Lightning protection system components;
- IEC 61000-4-5 Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test;
- IEC 61000-4-9 Electromagnetic compatibility (EMC) - Part 4-9: Testing and measurement techniques - Impulse magnetic field immunity test;

- EN 61643 Low-voltage surge protective devices - Part 1: Surge protective devices connected to low-voltage power distribution systems - Requirements and tests;
- IEC 60664-1 Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests;
- IEC 61000-5-2 Electromagnetic compatibility (EMC) – Part 5: Installation and mitigation guidelines – Section 2: Earthing and cabling;
- ITU-T K.20 Resistibility of telecommunication equipment installed in a telecommunication centre to overvoltages and overcurrents;
- ITU-T K.21 Resistibility of telecommunication equipment installed in customer premises to overvoltages and overcurrents.

1.2 LIST OF ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
LPL	Lightning protection level
LPS	Lightning protection system
LPZ	Lightning protection zones
SPL	Surge protection level
SPD	Surge protection device
BN	Bonding network
CBN	Common bonding network