

Technical Specifications

Colocation in server racks with a single power supply

1. Terms and Abbreviations

- 1.1 U – Unit, a standard unit of measurement for equipment installed in a 19" server rack. Dimensions are 45x475x600 mm (HxWxD).
- 1.2 CB – circuit breaker.
- 1.3 (HxWxD) – (height, width, depth).
- 1.4 CA - "Cold Aisle" – a contained area where cooled air is released. (See img. 1, Appendix 1.)
- 1.5 HA - "Hot Aisle" – the area surrounding Cold Aisles in a server room.
- 1.6 UPS – uninterruptible power supply with dual transformers.
- 1.7 (Telecommunications cabinet) Face – the vertical side of a cabinet facing the Cold Aisle.
- 1.8 PQP – power quality parameters.
- 1.9 Server Room – a designated area for the colocation of server and telecommunications equipment.
- 1.10 TS – technical specifications.
- 1.11 DC – data center.
- 1.12 PDB – power distribution board.
- 1.13 Work zone – a space located close enough to equipment to perform maintenance on it.
- 1.14 Electrical Device - a device or equipment that is designed for converting electricity into other forms of useable energy.
- 1.15 ATS – automatic transfer switch.

2. General Terms and Conditions

2.1 DC is rated category 1 in terms of power supply reliability. The DC uses a TN-C-S grounding system with potential equalization. Energy levels and PQP comply with GOST 13109-97.

International classifications:

- Technodom and Magen DC meet Tier 2 standards;
- DC RVTS meets Tier 3 standards;

2.2 Electrical Devices installed in server racks are powered by two single-phase 230 V 50 Hz UPS.

2.3 Precision air conditioners, humidifiers, and parameter monitoring systems keep HA at optimal conditions year round:

- air temperature under 25 C,
- humidity levels between 30...70 %.

2.4 Telecommunication cabinets are provided for the colocation of equipment. All cabinets are SHKT–S– XX.X.XX models and are available in four different sizes:

- 42U, (HxWxD) – 2010x600x1060 mm, (35U of available space);
- 42U, (HxWxD) – 2010x800x1060 mm, (35U of available space);
- 47U, (HxWxD) – 2250x600x1260 mm, (40U of available space);
- 47U, (HxWxD) – 2250x800x1260 mm, (40U of available space).

3. Security Requirements

- 3.1 Equipment may not be installed if it contains parts or expels substances that are harmful, radioactive, chemically active, flammable, combustible, or odorous.
- 3.2 Equipment may not be installed if it has a high level of conducted electromagnetic interference and power factor below 0.9.
- 3.3 The power supply in the DC may be turned off once a year for no more than 6 (six) hours to perform preventative maintenance.
- 3.4 Administrative and Technical personnel, employed at the DC, shall grant initial clearance and perform on-site orientation.
- 3.5 B The following is forbidden in Server Rooms:
 - 3.5.1 Storing tools, parts, fasteners, and other such objects in telecommunications cabinets.
 - 3.5.2 Presence and/or movement outside designated work zones.
 - 3.5.3 Physical contact with equipment outside work zones.
 - 3.5.4 Any action to keep doors to HA open.
 - 3.5.5 Removal of more than two raised-floor panels at a given time.
 - 3.5.6 Open flames.
 - 3.5.7 Any action that releases dust or moisture.
 - 3.5.8 Presence of food or drink, smoking, and littering.
 - 3.5.9 Taking photos or video.

4. Technical Requirements

- 4.1 Upon Customer's acceptance of the TS, changes may be made to the equipment's location and power supply.
- 4.2 PDBs are installed in all server cabinets (occupying 2U in the cabinet face). PDBs have four 16A CB. Each CB connects to a 9-outlet 19" power strip. Power strips are evenly distributed along the back of the cabinet and occupy 1Ux4=4U. The maximum power consumption for one cabinet is: $P = 4 \times 2 = 8$ kVA. 1U in the lower section of the cabinet is designated for running cables.
- 4.3 Our area of responsibility is demarcated by the electrical outlets.
- 4.4 To ensure power cords are properly cooled, they must run along the side of the cabinet and be fastened to the rack with zip-ties.
- 4.5 Use of extension cords and splitters is prohibited.
- 4.6 When a single electrical device uses two or more power supplies, they must be connected to different power strips.
- 4.7 Equipment must be positioned in such a way as to direct its airflow from CA to HA.
- 4.8 Technical Support personnel must cover all open spaces in the cabinet face with blanking panels. Executor shall supply all blanking panels.
- 4.9 Equipment should be positioned in cabinets so as not to prevent access to any other mounted equipment and in consideration of the equipment's structural features.
- 4.10 Equipment and switch connections must be arranged in the optimal fashion.
- 4.11 Optical cross connects should be installed in the upper portions of server cabinets to facilitate connections between cabinets.
- 4.12 Equipment may not be installed without mounting rails or fasteners and may not be installed directly on top of other equipment. If equipment is provided without means to be mounted in a server cabinet, it should be mounted on special shelves. Shelves must be provided by Customer and may not be rented from Executor.
- 4.13 Equipment is mounted strictly according to the unit markings inside the server cabinet. Equipment may not be offset by 1-2 holes on the mounting flange per the cabinet markings. If only one of three holes in a unit is occupied, the whole unit is considered occupied.
- 4.14 Mounting, use, and maintenance of equipment must be performed in accordance with the requirements set forth in the Electrical Installation Code, RTOEIC, Occupational Health and Safety Rules R M-016-2001, Fire Safety Rules, and other regulatory documentation.
- 4.15 The total weight of equipment installed in a server cabinet must not exceed 1000 kilograms.
- 4.16 Heavy equipment, which includes heavy network switches and data storage arrays, must be located in the lower sections of server cabinets.

4.17 Vertical guides must be fastened in server cabinet columns located no more than 10 cm from the cabinet face and back.

4.18 Network cables must be bound and either kept in organizers (vertical or horizontal) or fastened using discrete supports, such as rings, clamps, and hooks. Cable harnesses must run along the cabinet's side walls.

4.19 Cross connects inside the cabinet must be labeled and clearly display the ports they connect to or an internal wiring diagram must be kept inside the cabinet.