UNITED REPUBLIC OF TANZANIA
TANZANIA COMMUNICATIONS REGULATORY AUTHORITY
ISO 9001: 2015 CERTIFIED

MINIMUM TECHNICAL SPECIFICATIONS

FOR

PUBLIC DATA CENTERS

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PART 1: Introduction

Data Center is a facility designed for the centralized hosting, interconnection, and operation of information technology and network telecommunication equipment. It provides data storage, processing, and transport services, supported by the necessary infrastructure for power distribution, environmental control, and appropriate levels of resilience and security to ensure the required availability.

Data Centers serve as critical infrastructure for a wide range of service providers, including but not limited to network operators, cloud service providers, content delivery platforms, and enterprise organizations. These facilities are essential for delivering digital services to end users and supporting internal business operations.

The Authority wishes to notify all Data Centers service providers and relevant stakeholders of the minimum technical specifications for public Data Centers. These specifications are intended to provide guidance for the establishment and operation of Data Centers, ensuring the deployment of high-quality and standards-compliant data center that are secure, efficient, and resilient.

PART 2: Scope and Purpose

2.1 Scope

This document provides minimum technical specifications for all public Data Centers offering services in the United Republic of Tanzania.

2.2 Purpose

These specifications provide the recommended minimum best practices and implementation requirements for public Data Centers operating in Tanzania. They are aligned with accepted national and international standards and are intended for service providers that will be deploying and operating public Data Centers within the United Republic of Tanzania.

PART 3: Definitions

For the purposes of this document unless stated otherwise: -

“Authority” means the Tanzania Communications Regulatory Authority established under the Tanzania Communications Regulatory Authority Act;

“Availability” means the ability of an item to be in a state to perform a required function under given conditions at a given instant of time or over a given time interval, assuming that the required external resources are provided

“Data center” means facility dedicated to the centralized accommodation, interconnection and operation of information technology and network telecommunications equipment providing data storage, processing and transport services together with all the facilities and infrastructures for power distribution and environmental control together with the necessary levels of resilience and security required to provide the desired service availability

“Facility” means space and pathways that accommodate a specific infrastructure

“Infrastructure” means technical systems providing functional capability of the data center

“Information security “means protecting information whether digital or physical from unauthorized access, use, disclosure, disruption, modification, or destruction**.**

“Physical security” means measures (combining physical and technological controls), procedures and responsibilities to maintain the desired level of availability for the facilities and infrastructures of the data centers in relation to access control and environmental events

“Maintainability” means how easy it is to maintain, update, repair, or improve a system, or piece of equipment over time

“N” means the minimum number of resources (components) needed to operate a system;

“N+1” means the configuration that adds one extra component to the primary system, ensuring service continuity during a failure or maintenance for effective redundancy;

“2N” means the configuration that duplicates the entire system, providing a higher level of redundancy and reliability;

“2N+1” means the configuration that has twice the amount of equipment needed for operation, plus an additional backup allowing for multiple simultaneous failures without service interruption;

“Public Data Center” means data center that provides services for co-location or co-hosting of the customer’s network (s), servers and storage equipment.

“Redundancy” means having backup systems or components to increase reliability and reduce the risk of failure.

PART 4: Technical Requirements

Data centers shall be designed to meet the requirements as specified in Table 1. These requirement shall be guided by the accepted national and international standards.

Table 1: Technical requirements for Data centers

S/N	Key Parameter	Minimum Technical Requirements
1.	Availability	High, not less than 99.98% (not more than 1.6 hrs downtime/yr)
2.	Redundancy	Concurrently maintainable (N+1) or fully fault-tolerant (2N or 2N+1) to support continuous operation and ensure fault tolerance, enabling uninterrupted service even during power disruptions.
3.	Maintainability	The design should allow for any maintenance planned activity to take place without affecting the services provided by the data center.
4.	Space planning	Data center space design should ensure an environmentally controlled space for the purpose of housing equipment and cabling related to the data center and other telecommunications systems. The area within the premise containing Data Center building should contain/share. • building entrance facilities; • personnel entrance(s); • docking/loading bay(s); • transformer space(s); • electrical distribution space(s); • telecommunications spaces(s). The area within the data center building should contain at least space for. • Personnel entrance(s); • Main distributor space(s); • Computer room space(s) and associated testing space(s); • Electrical space(s); • Mechanical space(s);

S/N	Key Parameter	Minimum Technical Requirements
		• Control room space(s); • Office space(s); • Storage and holding space(s).
5.	Cooling and Airflow Management	• Datacenter room should maintain a consistent airflow direction • There should be raised floor design or suspended ceiling height for more flexible cooling. • The air-conditioning system shall be designed to provide the design temperature and humidity conditions recommended by the manufacturers of the servers to be installed within the data center. • The cabinets and racks shall be arranged in an alternating pattern to create hot and cold aisle.
6.	Site selection	The site for Data Center should not have any interfering elements such as: • Vibration • Contaminants • Security risks • Flooding • Electromagnetic interference • Hazardous materials • Natural hazards vulnerability as stated in the data center design and Implementation best practices.
7.	Electrical Equipment /Power System	The electrical and power system should be designed as per national and international standards to ensure that the reliability and availability criteria of the data centers are met.

S/N	Key Parameter	Minimum Technical Requirements
8.	Fire Protection system	The data center shall include the following elements of fire protection i. Fire detection: Smoke, heat, and early warning detectors connected to an alarm and monitoring panel. ii. Fire alarm systems to warn occupants about the presence of smoke, heat, or fire using audible or visual alarms iii. Fire suppressions: such as fire extinguishers.
9.	Physical security	Data center shall employ physical security controls, including access controls, surveillance cameras,and perimeter fencing, to prevent unauthorized access to the data centre.
10.	Information Security	Data centers information security shall be implemented as per acceptable national and international standards
11.	Remote Monitoring and management capabilities	The data Center shall be designed and equipped with monitoring systems that provide continuous oversight of all critical operations, including hardware, software, environmental conditions, power usage, and security systems. These monitoring capabilities must align with applicable international standards to ensure real-time visibility, fault detection, and operational efficiency
12.	Energy efficiency requirements.	Data center shall implement and maintain energy-efficient infrastructure and operations in accordance with internationally recognized standards. The Data center shall adopt energy-saving measures across all critical systems including cooling, power distribution, lighting, and IT equipment.

PART 5: Compliance and Certification Requirements

All public Data Centers shall comply with the minimum technical requirements outlined in this document. For the purpose of certification, recognized data center certification authorities may evaluate and certify Data Centers based on these minimum specifications in conjunction with their own established parameters and assessment criteria, provided they are aligned with the the requirements presented in this specification. To assess compliance with these specifications, the Authority shall apply these specifications and the requirements used by recognized certification authorities to certify the respective data center.

PART 6: Document Administration

6.1 Amendment

TCRA may from time to time, review, and update or modify this document to ensure its continued service and to meet the international and/or national performance requirements as necessary.

6.2 Compliance

This document is enforced by appropriate provisions of the TCRA Act, 2003, The Electronic and Postal Communications Act. (Principal Legislation) Revised Edition 2022 and all regulation and rules that refers to this document, effectively from the date it has been published.

6.3 Publication

This document shall be published on the TCRA website https://www.tcra.go.tz for public information, compliance and reference purposes.