

# **MY HYPER SCALE DATA CENTER**

**Testing & Commissioning and IST  
CONFIDENTIAL**

**Do not re-distribute outside of your organization.**

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**Issued to**

## Process Requirements

Commissioning is a quality process which provides documented confirmation of proper installation and function of a facility's systems and components as designed and specified. Commissioning ensures the facility meets the Owner's project requirements, the Basis of Design and operational needs of the owner's intended usage. Commissioning process shall include the following:

To ensure building systems perform interactively according to The Client's Data Center Development's project requirements, Project Charter, Basis of Design and the Commissioning Plan of Record. The specific objectives include but not limited to the following:

Verify that no mechanical and electrical coordination and design issues are present, as well as identify any Single Points of Failures (SPOFs), through a careful review of the construction drawings, specifications, and submittals.

Ensure that applicable equipment and systems are installed properly and receive adequate quality checkout through careful site observation and verification of contractor's quality control documentation.

The purpose of commissioning is to provide a high level of assurance that the building systems are installed and operating in the appropriate manner, and is in compliance with the design intent, contract documents and Commissioning Plan of Record.

This process is not to diminish the responsibility of the system designers or installing contractors, nor is it intended to be a redundant testing or inspection function. Commissioning is performed to document and validate the efforts of the designers and contractors, ensuring that the quality of the systems meets the owner's project requirements as documented by the basis of design.

A major component of the commissioning process is the **Integrated Systems Test**. This phase of commissioning is intended to verify that the emergency and redundant systems, which are interrelated in complex manners, will perform appropriately when called upon.

The IST will be conducted after all factory and field component/system quality control, start-up, and test procedures have been completed. The goal of this testing is to verify the operation, proper interdependencies, redundancies, and fail-safe operation of all critical systems.

Verify and document the mechanical and electrical systems function and interact as intended. This will be accomplished through witnessing and documenting an Integrated Systems Test. The test will be developed and administered by the Commissioning Authority (CxA) and performed by the subcontractors and/or vendors.

Deliver a comprehensive systems manual to the owner. This electronic manual will provide the owner with a searchable reference of all as-built drawings, specifications, O&M manuals, final commissioning reports, and other important documentation.

Commissioning Meetings - The CxA shall setup a kickoff meeting and hold regular meeting throughout the project. Meeting will be conducted locally in Japanese and via live meetings; times shall be coordinated with the required parties.

The commissioning team shall use an approved Automated Commissioning Management System during the commissioning process. This shall include but not limited to the execution of commissioning scripts, QA/QC inspections, testing progress, reporting, Issue tracking and Daily reports. All such reports etc. are to be uploaded in a timely manner to the designated servers of the Client. Delays in uploading meeting minutes, test results etc. must be avoided at all times.

In accordance with the Health & Safety regulations in Japan, all parties/persons who are a part of the T&C and IST have a liability for safety on site, especially in any matters where they can influence the outcome. It is required for the CxA to provide xxxxx with a copy of their company's Safety Policy.

The CxA must also provide us with a method statement on how they will undertake the T&C in a safe manner.

## Basic Requirements

The critical engineering infrastructure and power and cooling distribution is to be comprehensively tested and commissioned prior to Client occupation of the Data Centre space.

Only such equipment that is required

The CxA must also quote for subsequent floors 4 and 5. (*See Schedule*).

- Critical engineering infrastructure and systems must be successfully tested
- Complete T & C of all critical Electrical equipment and switch gear.
- Complete T & C of all critical Mechanical equipment and switch gear.
- Complete T & C of Thermal storage, related pumps and Mechanical UPS systems.
- Level 4 FPT Test Scripts will test all sequence of operation, maintenance, and failure modes of the equipment, monitoring and control points and validate the performance and efficiency.
- Engine-Generators will be load tested at 100% load at 0.8PF for 12 hours.
  - o UPS and Mechanical systems will be load tested at 25%, 50%, 100% load for 4 hours. Static Transfer Switches (STS) and ATS will be load tested for a minimum of 4 hours (2 hours on each source) at 100% load.

Key Equipment Installation completion schedules to be discussed and confirmed with the General Contractor on site. CxA to fill in approximate dates.

Equipment	Install begins	Install ends
Super High Voltage Transformers		
PQM UNITS ON THE SECONDARY OF SHV		
C-GIS		
DEDICATED UPS FOR IT load		
PQM UNITS ON THE SECONDARY OF UPS		
PDU AFTER UPS FOR IT LOAD FEEDER BUS		
BUS BARS (Over racks and feeder supply)		
VCB / ACB		
STS / ATS WHERE INSTALLED		
GENERATORS		
FUEL TANKS & PUMPS		
AIR CHILLERS		
CRAH		
DEDICATED UPS FOR MECHANICAL LOAD		
THERMAL ENERGY STORAGE TANKS & PUMPS		
HUMIDITY CONTROL SYSTEMS		
ELEVATORS		
HSSD (VESDA) and OTHER FIRE ALARM SYSTEMS		
CLEAN AGENT FIRE SUPPRESSION SYSTEMS		
SECURITY SYSTEMS / CCTV		
BEMS SYSTEM		
DEDICATED UPS FOR BMS, SECURITY & CCTV		

## **SEVERAL SECTIONS DELETED TO MAINTAIN CONFIDENTIALITY.**

### **Electrical Systems**

**The critical electrical engineering systems covered by Integrated Systems Testing shall include, but not be limited to, the following:**

- High Voltage Transformers and all associated switchgear
- UPS Systems and multiple String Batteries
- STS and ATS if installed
- HVAC UPS System and multiple String Batteries
- Generator Systems including paralleling and associated switchgear
- Fuel Oil and transfer Systems (including fuel level monitoring)
- Verification of Generator Sub **Qualifications to bid**
- The company bidding to conduct the Commissioning must be domiciled in Japan or be able to work in Japan as a legal entity or work with a Japanese domiciled partner and have more than five (5) years experience in T&C /IST.
- Responsibility to comply with all relevant Japanese laws is that of the bidder.
- The company must provide Profiles or CVs of their key engineers who will participate in the T&C and IST.
- The company must provide reference of at least 2 other Data Centers where they have worked in a similar role and where they have done the T&C and IST for a facility in Japan, preferably a hyper scale DC of over 12MW IT power.

### **Submission of your response**

- Any travel or other incidental expenses incurred in the IST / T&C are to be included in a separate estimate, including overseas factory acceptance test costs, which may include Hotel,
- Your response must be sent by email in a zipped folder that is password protected. Please provide your quotation in editable MS Excel format with a supporting PDF sheet.

**Your response must be received by us on or before COB on xxxxxxxxxxxxxxxxxxxx**

