Kampala Office:
Media Plaza Building, 1st Floor
Plot 78 Kira Road,
P.O. Box 35501, Kampala-Uganda
+256 (0) 312 253 500

Kalangala Office:
Plot 3 & 5, Mwena Road
Kalangala Town Council
Kalangala – Bugala Island
+256 (0) 312 253 510/11

Email: administration@kis.co.ug Web site: *www.kis.co.ug*

March 9, 2026

Technical Specification for 315KVA, 200 kVA, 100kVA, 50kVA, 33/0.415 kV, Copper Winding Distribution Transformer

1. Introduction

Kalangala Infrastructure Services (KIS) is a Multisector infrastructure service provider, on Bugala Island, Kalangala District, providing infrastructure and utility services to the people of Kalangala.
In the provision of the utility services, KIS Power intends to procure new transformers to support operations within Bugala island in Kalangala District.

2. Requirement

The prospective supplier is expected to supply a 50kVA transformer, 100kVA transformer, 200kVA transformer and a 315KVA transformer to match the existing voltage levels on Bugala island.

3. Scope of work

The successful bidder will be expected to: -

- Supply and deliver a 50kVA or 100kVA or 200kVA or 315KVA or all the categories with their associated manufacturer's specification.
- Provide after-sales support services, warranty, and technical support to KIS technicians and Engineers as applicable.

4. Generator Specifications

a) General Requirements

Item	Specification
Standard	Designed, manufactured, and tested in accordance with the latest editions of **IEC 60076-24**.
Type	Outdoor, Oil-Immersed, Mineral Oil, Hermetically Sealed.
Rating	**315KVA, 200 kVA**, **100 kVA, 50 kVA** 3 Phase, 50 Hz.
Winding Material	**100% Electrolytic Copper** for both HV and LV windings.
Ambient Conditions	Suitable for outdoor installation in tropical climates, up to 1300 meters above sea level.
Environmental Compliance	The transformer and its insulating oil must be **PCB-Free (Polychlorinated Biphenyls)**. Compliance with the **National**

	Environment (Management of Polychlorinated Biphenyls) Regulations is mandatory.
Cooling	ONAN
TAP Changer	OFF Circuit on H.V.
Silica Gel breather	Yes
Oil Guage	Yes

b) Electrical Characteristics

Parameter	**High Voltage (HV) Winding**	**Low Voltage (LV) Winding**
Rated Voltage	33,000 V	415 V
Voltage Tapping	± 5% in 2.5% steps (Off-Circuit)	Nil
No-Load Loss	Conforming to efficiency class C0, IEC 60076-14.	
Impedance Voltage	**4.5%** (at rated tap and 75°C). Tolerance: ± 10%.	
Efficiency	**> 99%** at rated load and 100% voltage.	
Noise Level	**Max. 55 dB(A)** under no-load conditions at a distance of 0.3m.	

c) Construction Details

Component	Specification
Core	Built from high-grade, cold-rolled, grain-oriented (CRGO) M4/M5 silicon steel laminations. Core and clamps shall be securely earthed.
Windings	**HV Winding:** Layer type or disc type, continuously transposed copper conductors with high-temperature paper insulation. **LV Winding:** Foil or helical type, using copper foil/strip.
Insulation	Class A insulation. High-quality kraft paper and diamond-dotted pressboard. Vacuum dried and impregnated with oil.
Tank	Robust, welded steel tank with corrugations for effective cooling. Corrosion-protected with a primer and final coat of weather-resistant paint. Fitted with lifting lugs, drain valve, filter valve, and earthing terminals.
Oil	High-quality, inhibited mineral oil complying with IEC 60296. **The oil supplier must provide a certified laboratory test report confirming the absence of PCBs.**

d) Terminations & Fittings

Item	Specification
HV Bushing	**Type:** Porcelain (wet process) or high-grade polymer. **Rating:** 36 kV, 125 A.

LV Bushing	**Type:** Porcelain or polymer. **Rating:** 0.72 kV, 600 A.
Conservator	Hermetically sealed type (no breathing).
Protection	**Pressure Relief Device.** **Oil Temperature Indicator** with dial and max. thermometer (alarm and trip contacts).
Auxiliaries	Jacking lugs and skid base for easy movement and installation.

e) Testing & Certification

The transformer shall be subjected to and certified for the following tests:

- **Routine Tests (IEC 60076-1):**
  - Measurement of Voltage Ratio and Phase Displacement.
  - Measurement of Winding Resistance.
  - Measurement of No-Load Loss and Current.
  - Measurement of Load Loss and Impedance Voltage.
  - Dielectric Tests (Separate Source AC Voltage Test, Induced AC Voltage Test).
- **Mandatory Special Test:**
  - PCB Test: A sample of the insulating oil from the finished transformer unit shall be tested by a NEMA-certified or internationally accredited laboratory. The test report must conclusively show that PCB concentration is below 50 ppm (or as per the strictest local regulatory limit) and must be submitted prior to delivery. The cost of this test shall be borne by the supplier.
- **Optional Tests:**
  - Short-Circuit Withstand Test.

5. Documentation & Deliverables

The following certificates and reports must be supplied with the transformer:

i. Certificate of Compliance with IEC 60076.

ii. Routine Test Report.

iii. **Original PCB Test Report** from an accredited laboratory.

iv. Oil Test Report (including Dielectric Strength, Water Content, Acidity).

v. Technical Data sheet including drawing and dimensions

6. Guarantee & Warranty

- The manufacturer shall provide a comprehensive warranty for all materials and workmanship for a period of **not less than 24 months** from the date of commissioning.
- The warranty is contingent upon the submission of all required test certificates, especially the **PCB Test Report**.
- The design life of the transformer shall be a minimum of **25 years**.

7. Marking & Nameplate

A durable, stainless-steel nameplate shall be affixed, clearly displaying all standard parameters plus the text: **"PCB-Free Insulating Oil"**.

8. Safety

The **PCB Test is a critical pass/fail requirement**. Failure to provide a compliant PCB test certificate will be grounds for rejection of the delivery. This ensures environmental safety and adherence to national regulations.