



CD 10/2023

**SUPPLY, INSTALL, MAINTAIN, REPAIR
AND/OR REPLACE SPECIALIZED
MOBILE HIGH VOLTAGE TEST
EQUIPMENT**

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1. STATEMENT OF INVITATION

CENTLEC (SOC) Ltd Municipal Entity distributing electricity in Mangaung and other Municipalities invites suitable service providers to supply, install, maintenance and/or repair of existing high voltage and new power cable diagnostics & fault location equipment installed inside the test units. This appointment will be valid for thirty-six (36) months.

2. MINIMUM REQUIREMENTS

- 2.1 Supply unique security personal identification number (PIN) and/or original TAX Clearance Certificate for TAX compliant status.
- 2.2 Supply municipal services (water, sanitation, rates and electricity) clearance certificate or Lease Agreement with a current Bill and rates clearances, or Current Bill of Account not owing more than 90 days. In a case where the services are paid by the Landlord, the signed lease agreement and statement of account must be submitted by the bidder.
 - 2.2.1 In an event, that the Bidder utilizes prepaid services (e.g. Water or electricity) a valid municipal clearance certificate(s) must still be provided.
- 2.3 The bidder must be registered on the National Treasury Centralized Suppliers Database.
- 2.4 The bidder must submit the ESETA Accreditation Certificate.
- 2.5 Please note that the Special Conditions table as per point 3 below, needs to be met. All supporting documents need to be submitted where applicable.

3. SPECIAL CONDITIONS OF THE CONTRACT

Take Note that it is compulsory for Bidders to complete the table in full.

Any omission or “no” will be an automatic disqualification.

Description	Yes	No	Submit Documentation
The successful bidder will train CENTLEC personnel for the period of the tender and must supply a detailed training schedule . This break-down must include the modules of training.			
Provide proof of capability to conduct preventative maintenance annually on each test unit as specified by the			Commitment letter

manufacturer for the duration of the contract.			
In the case of an equipment failure, the unit must be repaired as soon as possible to ensure CENTLEC service delivery will be maintained.			N/A
Warrantees and guarantees to be provided on all equipment supplied.			Warranty Certificates – submit on appointment

4. DEFINITIONS AND ABBREVIATIONS

3.1 Test Unit – Vehicle or a trailer equipped with high voltage specialized testing equipment.

5. SCOPE OF WORK

The service provider must supply, install, maintenance and/or repair of existing high voltage and new power cable diagnostics & fault location equipment installed inside the test units vehicles or a trailer of CENTLEC (SOC) Ltd for the duration of the contract.

6. TECHNICAL SPECIFICATION

The specifications of the high voltage test equipment must be according to Table 1 below.

Table 1: Specifications

Unit Number	<u>Technical data SPG 40</u>	
1	Display	¼ VGA
	Insulation test	Voltages 1,000 V and 5,000 V ranges 1 kΩ, 1 MΩ, 100 MΩ
	DC testing	0 ... 40 kV DC
	Leakage current	0 ... 1/10/100 mA automatic measuring area setting
	Breakdown detection	0 ... 40 kV
	Burning	0 ... 8 kV; 0.7A; 0 ... 20 kV ; 0.1A
	Upper surge voltages	0 ... 12.5 / 25 kV or 0 ... 16 / 32
	Lower surge voltages optional	0 ... 4 kV or 0 ... 8 kV
	Surge energy	0 ... 3 kV or 0 ... 6 kV 1,000 J in every range (optionally 2,000 J for vehicle installation)
	Surge sequence	3 ... 10 sec. and single pulse
	Sheath fault location	0 ... 5 kV and 0 ... 10 kV
	Cycle intervals	DC; 1:3 ; 1:4 ; 1:6 (sec.)
	HV prelocation with optional TDR	ARM, ICE current decoupling Decay voltage coupling ICE Plus option (for 4 and 8 kV)
	Operating temperature	-10 °C ... + 50 °C
	Power supply	230 V; 50 / 60 Hz (110 V optional)
	Power consumption	1.7 kVA max.
	Dimensions (L x W x H)	520 x 430 x 1,050 mm

	Connecting cable	25 m
	Weight	ca. 116 kg (incl. opt. surge level)
	<u>Portable Time Domain Reflectometer</u>	
2	Display	Industrial grade colour TFT panel
	LCD size	10.1"
	Aspect ratio	16:10
	Resolution	1,280 x 800 (WXGA)
	Backlight	LED
	Luminance	1000 cd/m ² direct bonded Anti-glare capacitive touchscreen
	Measuring range	20 m ... 160 km at VOP = 80 m/μs
	Pulse width	20 ns ... 10 μs
	Pulse amplitude	10 ... 50 V
	Resolution	0.1 m at VOP = 80 m/μs
	Accuracy	0.001
	Timebase Accuracy	100 ppm
	Sampling rate	true 400 MHz
	Dynamic range	96 dB, with adjustable ProRange (Distance-dependent De-attenuation)
	Velocity of propagation	10 ... 149.9 m/μs (or ft/μs or nvp)
	Output impedance	50 Ω 10 Ω ... 500 Ω, adjustable
	ARM® trigger	ΔU trigger technology with automatic adjustment
	Proof voltage	< 400 V, only with separation filter
	Memory	4 GB for program and data
	Connections	USB, BNC, CAN
	Protection class	IP 65 enclosed, IP 54 open

	Battery	12 V Li-Ion rechargeable battery Overload protection Deep Discharge protection Smart charger 110 ... 240 V, 50/60 Hz 10 ... 17 V DC, 3.8 A 6 hrs of operating time on full charge 4 hrs recharge time
	Dimensions (W x H x D)	362 x 195 x 305 mm (14.2 in. x 7.6 in. x 12 in.)
	Weight	7.8 kg (17.1 lbs)
	Operating temperature	- 10 °C ... + 50 °C (14 °F ... +122 °F)
	Storage temperature	- 20 °C ... + 60 °C (-4 °F ... +140 °F)
	<u>Technical data HV-Module SPG 32</u>	
3	Testing	0 ... 32 kV DC
	Surge	0 ... 8 kV; 1750 J, 0 ... 16 kV; 1750 J, 0 ... 32 kV; 1750 J
	Surge rate	3 ... 10 s, Single pulse
	Burning	0 ... 32 kV; 160 mA
	Sheath fault locating	0 ... 5 kV; 160 mA
	Connecting cable	25 m
	Mains supply	230 V; 50 / 60 Hz, 2 kVA (110 V
		optional)
	Dimensions (W x H x D)	800 x 1280 x 800 mm
	Weight	approx. 140 kg
	<u>Technical data TDR Teleflex T30-E</u>	
4	Range	TDR 10 m ... 50 km Transient 20 m ... 100 km
	Pulse width	35 ns to 4 µs

	Sampling rate	200 MHz
	Time Base Accuracy	± 0.01%
	Display	10.4" VGA colour TFT display
	V/2	50 m/μs ... 150 m/μs
	Modes	ARM-Mode, Quick Steps, Step-by-Step, ICE Impulse Current Method, Decay, Direct L1, Direct L2, Comparison L1/L2, Difference L1-L2.
	Memory	100 traces
	Interface	RS 232 for PC and printer
	Impedance matching	12 ... 150
	Operating temperature	-15 °C ... 50 °C
	Mains supply	NiMh-Batterie, 230 V; 50 / 60 Hz (110 V optional), 12 V DC
	Dimensions (W x H x D)	360 x 160 x 270 mm
	Weight	6 kg
	<u>Inverter System</u>	
	<u>Charger:</u>	
5	Output Current:	40A
	Output Voltage:	14.4V
	Input Voltage:	100—240VAC
	Input Current:	3.4A
	Over Voltage Protection:	16—18V (Shut down with re-power on recovery)
	Over Temperature Protection:	Shutdown with auto recovery after voltage goes down
	<u>Batteries:</u>	

6	Type:	Sealed High Cycle Maintenance Free Battery
	Output Voltage:	12V
	Output Current:	102Ah
	<u>Inverter: Technical Data</u>	
7	Output Frequency:	50/60 Hz (Switch Selectable)
	Continuous Output	3000W
	Surge Rating:	6000W
	Input Voltage:	12/24/48 V DC
	Output Voltage:	220/230/240 VAC +- 3%
	Output Waveform:	Pure Sine Wave (THD < 3%)
	Protection:	Overload, Short Circuit, Reverse Polarity (Fuse) Over / Under Input Voltage, Over Temperature
	Operating Temperature Range:	0 to 40°C
	Storage Temperature Range:	-30°C to 70°C
	High Efficiency Full Load:	88%, 91%, 92%, 90%, 93%, 94%
	Tri-Colour Indicators:	Display Input Voltage, Output Load Level and Failure Status
	Advanced Microprocessor:	Internal
	Protections:	SC / OV / UV / OT / OL
	No Load Current Draw:	2.0A, 1.6A, 0.8A, 2.8A, 1.5A, 0.7A

	Input Level Indicator:	Red / Orange / Green LED
	Failure Indicator:	Red LED
	Cooling:	Loading Controlled Cooling Fan
	Remote Control Unit:	CR-6 / CR-7 / CR-8 Optional Safety Meet UL458 EN60950-1
	Input & Output Fully Isolation Design	
8	Spiking Gun, Karl Schermer	
9	Spiking Gun Cartridges Red Extra Strong (50)	
10	Installation Trailer (Full)	
11	Installation Vehicles (Full)	
	<u>Portable reflectometer for fault location systems TECHNICAL DATA</u>	
12	Distance range	20 m ... 160 km at $v/2 = 80 \text{ m}/\mu\text{s}$
	Pulse width	20 ns ... 10 μs
	Pulse amplitude	10 ... 50 V
	Resolution	0.1 m at $v/2 = 80 \text{ m}/\mu\text{s}$, 1.0 cm at $v/2 < 40 \text{ m}/\mu\text{s}$
	Sampling rate	Up to 400 MHz (real sampling rate)
	Amplification	- 37 ... + 37 db
	De-attenuation	0 ... +22 dB for ProRange (adjustable from 0 to 100%)
	Transit time setting $v/2$	10 ... 149.9 $\text{m}/\mu\text{s}$, $\text{ft}/\mu\text{s}$ or nvp

	Dynamic response range	> 80 dB
	Output impedance	50 Ω
	Adjustment	8 Ω ... 500 Ω , adjustable
	ARM trigger	Automatic adjustment with ΔU trigger
	Blind spot	No
	Withstand voltage	< 400 V, operation only with separation filter
	Display	10.4" colour TFT XGA 1,024 x 768, capacitive touchscreen, 600 cd/m ² , LED backlight, dimmable
	Memory	4 GB mSATA for program and data
	Connections	Ethernet, USB, BNC, CAN (LON optional)
	Protection class	IP 65 enclosed, IP 54 open
	Supply	Battery operation, 110 ... 240 V, 50/60 Hz, 30 VA, 10 V ... 17 V DC, 3,8 A
	Dimensions (W x H x D)	362 x 195 x 195 mm (option 19" plug-in, 6 HE)
	Weight	10 kg
	Operating temperature	- 10 °C ... + 50 °C
	Storage temperature	- 20 °C ... + 60 °C
	<u>All round pinpointing receiver TECHNICAL DATA</u>	
	Display module	
13	Display	TFT-color display, 320 x 240 pixels
	Protection	IP 54
	Dimensions (H x W x D)	65 x 225 x 100 mm (receiver)
	Weight	0.9 kg (including batteries)
	Acoustic part/Sensor DDP-SU	

	Safety	Volume limitation to 84 dB(A)
	Gain	>120 dB, automatic
	Dimensions	Diameter 230 mm
	Height	140 mm
	Handle length	450 ... 750 mm adjustable
	Weight	2.2 kg (including handle)
	Dynamic range	Acoustic channel > 110 dB
	Frequency operating range	100 ... 1500 Hz
	Filter stages	Off 100 ... 1500 HzLow pass 100 ... 400 HzBand pass 150 ... 600 HzHigh pass 200 ... 1500 Hz
	Protection	ratingIP 65
		Step voltage part
	Sensitivity	5 μ V ... 200 V
	Suppression of disturbances	50/60 Hz, 16 2/3 Hz, KKS, DC
	Zero adjustment	Automatically
	Pulse recognition	Automatically
	Length – earth rods	1 m (dividable and isolated)
	Weight – earth rods	0.8 kg each
	Length – test leads	2 m
	Multi-purpose precision buried utility locator receiver and transmitter	
		Receiver Characteristics
14	Construction	High impact ABS injection molded housing
	Weight	4.6lbs (2.1kg)
	Dimensions	12.6in(L) x 4.9in(W) x 26.6in(H) (321mm x 124mm x 676mm)

Display type	Transmissive 480 x 272 Pixel, 16-bit Color, High Visibility LCD, 4.3"/10cm
Receiver antennas	Two sets of 3D antennas
Battery	Six x AA Alkaline batteries - Rechargeable custom Lithium-ion batteries with 100-240V AC mains charger
Battery life	Alkaline Li-ion (Rechargeable) 12 hours 27 hours - Intermittent use at 70°F (21°C) - With the full backlight turned on - Li-Ion batteries will withstand 500 charging life cycles - Battery life varies with temperature.
Environmental	IP65 and NEMA 4
External connectors	- Accessory Socket – to charge the internal batteries and attach accessories - Mini USB socket for data transfer and programming
Temperature Range	- Operating: -4°F to 122°F (-20°C to 50°C) - Storage: -40°F to 140°F (-40°C to 60°C)
Compliance and approvals	<ul style="list-style-type: none"> - Complies with European standard CE (Directive 99/5/EC) • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 61000-4-8: A1 ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 - Complies with FCC Rules Part 15 • CFR 47 part 2 • CFR 47 Part 15
Manufacturing	- ISO 9001:2015
Standard Accessories (comes with receiver)	- USB data transfer cable - Custom lithium-ion battery pack - 100-240V AC mains charger - Six x AA Alkaline battery holder - User handbook - Carry bag or hard case (decided at the time of ordering)
Compatible Accessory Options	- MLA (Marker Locator Attachment) to locate buried EMS Markers - A-frame fault locator - Remote Antenna (Stethoscope) - Vehicle Charging DC Lead - Tx-Link - factory fitted radio link to remote control the

		Loc3 series transmitters - Range of Sondes (waterproof, self-contained transmitters for use in pipes & ducts)
		Receiver
Information displayed		Status Bar Information: - Antenna configuration: Peak, Peak with arrows, Null, Broad, Delta Null, Omni Directional Peak, Omni Directional Broad - Line location - depth & current measurement - Battery condition - Speaker volume - Bluetooth and GNSS status (If fitted) - Cellular connection status - Radio link to transmitter status (if fitted)
Locate screen (Classic display):		<ul style="list-style-type: none"> Signal strength - moving bar graph & numeric value - Bar graph color-coded indicating distortion level - Peak level indicator - Proportional left/right indication - Compass: full 360°-line direction indicator - Gain level (in dB) - Frequency selected - Product configuration menu & submenus including GNSS status and data logging transfer status. - Customer definable start-up screen - Depth and current - Warnings (if activated) - Plug and play automatic recognition of accessories - Accessory specific custom screens
Information screen:		<ul style="list-style-type: none"> - GPS co-ordinates - Real-time horizontal accuracy in 2DRMS - Signal current and depth value - SiS Reset - Log number
Alternative locate screens:		<ul style="list-style-type: none"> - Transverse Graph Screen - visual assessment of the locate quality and distortion - Sonde Locate Screen – directing arrow to move to the Sonde position along the polar axis - Vector Locate Screen – fully-automatic locate including offset, depth and locate uncertainty - Plan View Screen – fully-automatic graphical representation of the cable position independent of cable direction including depth/current and locate uncertainty.

Configuration	The intuitive setup menu enables the user to configure: - Set up frequency selection to toggle by "f" pushbutton - Setup location mode selection to toggle by "m" pushbutton - Setup screen views selection to toggle by long press "m" pushbutton - Units of measure (feet/meter) - Sound (Pitch) – normal/modulated - Language - Continuous depth/current options - Loudspeaker level - Backlight - Bluetooth pairing - Transmitter Radio Link (if ordered)- Warnings (Excessive Tilt, Overhead Signal, Shallow Cable, Signal Overload - Auto shut down – configurable to power down at five minutes, ten minutes, or never
Operating frequencies	- Configurable frequencies from 98Hz to 200 kHz • Power 50Hz and 60Hz • Radio 10kHz - 22.7kHz bandwidth - Signal Direction - enhanced product model giving the direction of outgoing current: • SD-USA: 256Hz/512Hz, SD-EUROPE: 320Hz/640Hz - Signal Select – a real-time measurement of signal bleed-over caused by capacitive or inductive coupling to other utilities: • SIS-491Hz, SIS-982 Hz, SIS-8440 Hz, SIS-9820 Hz, SIS-35kHz
Operating modes	Classic Locate (2-section Bar graph) - Transverse Graph Mode - Plan View (Omni Directional) - Vector Locate (Lateral Position & Depth) - Sonde Locate
Gain/scaling control	Manual gain using "+" or "-" with one touch to return to center (60% of FSD) "+" or "-" used to rescale the vector screen dependent on cable depth and offset
Accuracy	Locate pinpointing accuracy: - Over 9ft (3m) – +/- 5% of depth - Up to 9ft (3m) – +/- 3% of depth Depth measurement accuracy: +/- 5% of depth Current measurement accuracy: - +/- 5% of actual current – over 9ft (3m) - +/- 3% of actual current – up to 9ft (3m) Depth range: Dependent on the strength of the signal radiating to the locator Performance rated using a single undistorted signal source
Compatible transmitters	Loc-10SiSTx, and Loc3-10SiSTx
Bluetooth	Internal Bluetooth for communicating with: External GPS or data logging devices Apple® devices Android™ devices
GPS	GPS, GLONASS, Galileo 2.5m accuracy Internal GNSS module
Transmitter Link	Optional Tx-Link (Remote transmitter control from the receiver)
Data logging	- 50 million record internal storage - All parameters stored at each location including depth, current, date, time, mode, gain setting, frequency, locate uncertainty, longitude, latitude, and height above sealevel - GPS data coordinates, date, and time

	Data Transfer	The data can be saved in csv, klm, shp, xls, orxlsx formats - Via the free "MyLocator3" PC desktop app - Via cloud through the VMMap web portal
		Transmitter Characteristics
15	Construction	High-impact ABS plastic
	Weight	- With Alkaline battery tray: 9.9lbs (4.4kg) - With Rechargeable battery tray: 7.15lbs (3.24kg)
	Dimensions	13.1in(L) x 7.2in(W) x7.3in(H) (332mm x 182mm x 185mm)
	Display Type	- Monochrome dot matrix graphic LCD with backlight - 2.4in x 1.3in (60mm x 32mm)
	Power Options	- 12 x Alkaline "D" cells - 12~22V external DC power - Optional Li-Ion rechargeable battery tray - 18V
	Battery Life	Output Power Alkaline Li-ion (Rechargeable) 1-watt 25 hours 50 hours 5-watt 6 hours 10 hours 10-watt 4-5 hours 6 hours At 70°F (21°C) - continuous use (based on the battery type and quality) Li-Ion batteries will withstand 500 charging life cycles
	Environmental	IP54 and NEMA 4
	External Connectors	1 x 3 pin connection socket (XLR) 1 x fuse (output protection) 1.6A/250V 1 x Mini-USB socket 1 x socket for battery charger & 12V DC power
	Temperature Range	- Operating: -4°F to 122°F (-20°C to 50°C) - Storage: -40°F to 140°F (-40°C to 60°C)
	Output Protection	Output protected against accidental momentary connection to up to 240V AC
	Compliance / Approvals	- Complies with European standard CE (Directive 99/5/EC) • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 61000-4-8: A1 • ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 - Complies with FCC rules part 15 • CFR 47 part 2 • CFR 47 part 15
	Manufacturing	ISO 9001:2015
	Standard Accessories (Supplied with Transmitter)	- Direct Connection Leads (XLR plug with 10ft (3.5m) red/black leads) - Ground stake - Alkaline battery tray - 12 x D Cell alkaline batteries

	Compatible Accessories Options	<ul style="list-style-type: none"> - Optional Tx-Link (Remote transmitter control from the receiver) - 2-inch (50mm) signal clamp - 4-inch (100mm) signal clamp - 4-inch (100mm) SiS signal clamp - 5-inch (125mm) signal clamp - 18-inch (450mm) flexible signal clamp - Live Plug Connector - to connect and use the transmitter on lines carrying up to 240V AC - Live Cable Connector - to connect and use the transmitter on lines carrying up to 480V AC - Rechargeable battery tray – Custom Li-Ion battery tray and charger (input DC12V 3A, output DC18V-93.6 Wh) - 12V DC vehicle power lead for powering and charging the optional rechargeable battery from a vehicle
		Transmitter
16	Information Displayed	<ul style="list-style-type: none"> - Current (numeric) - Volts - Resistance - Frequency of output signal - High voltage warning if volts online exceed 30V AC - Beeper volume (three levels & off) - Battery condition icon - Bar graph showing the proportion of successfully applied signal - Animation icon confirming connection mode (Induction, Direct connection, Clamp) - Transmitter control connection status (if the Tx-Link feature is installed)
	Transmitting Modes	<ul style="list-style-type: none"> Induction mode – applies Signal inductively using the internal antenna - Direct Connection mode - applies Signal directly to the cable by clipping one output lead to the cable, the other to an independent ground - Clamp mode – applies the Signal using a Signal Clamp (also known as a toroid or coupler) placed around the target pipe or cable. * Modes are automatically selected when accessories are plugged in. the default mode (no accessories) is Induction.
		Transmitting Frequency by Mode
17	Induction Mode	Multiple induction frequencies between 8.19 kHz and 200 kHz
	Direct Connection Mode	Available frequencies between 98Hz and 200 kHz with default frequencies of 512Hz, 8.19 kHz, 33 kHz, 65 kHz, 200 kHz, Fault-find, SD, SiS
	Clamp Mode	Available frequencies between 8Hz and 200 kHz with default frequencies in 8.19 kHz, 33 kHz, 65 kHz SiS Clamp - Frequencies: 491Hz, 982Hz, 8.44 kHz, and 9.82 kHz.

Transmitting Mode	Power Output Following FCC part 15: - Frequencies under 45 kHz - 10 watts - Frequencies over 45 kHz - 1 watt
Maximum Output Voltage	50V RMS
Maximum Output Current	1A RMS constant current
Output Protection	Output protected against accidental momentary connection to up to 240V AC
Audio indication	Connection quality – Increased beep rate indicates a better-applied signal - Beeps to confirm the selected action
Controls	Use pushbuttons to select: • Power on/off • Frequency • Output level • Information (volts & resistance) / Setting (volume, frequency & multi-mode)
Compatible Receivers	vLoc3 series, vLoc2 series, vLoc series, VM-510FFL+ Signal Select and Distortion Alert line ID features are available only with the vLoc-5000 and vLoc3-5000 receivers.
	Rechargeable Battery Tray
Description	Optional Li-Ion rechargeable battery tray with charger for Loc3 series transmitters
Input/output	- Input DC 12V 3A - Output DC 18V-93.6 Wh
Battery Type	Li-Ion battery
Temperature Range	- Operating: 14°F to 140°F (-10°C to 60°C) - Storage: -4°F to 140°F (-20°C to 60°C) - Charging: 32°F to 113°F (0°C to 45°C)
Storage humidity	≤75% RH
Weight	- Battery Tray: 3.31lbs. (1.5kg) - Transmitter with battery tray: 7.1lbs. (3.2kg)
Dimension	13.1in(L) x 7.2in(W) x 2.9in(H) (332mm x 182mm x 73mm)
Warranty	12 Months
Receiver in a SOFT KIT BAG.	Weight : 16lbs. (7.3kg). Dimension : 30in(L) x 11in(W) x 14in(H) (762mm x 279mm x 356mm)
Receiver in a HARD CASE.	Weight : 20lbs. (9.1kg). Dimension : 34in(L) x 15in(W) x 20in(H) (864mm x 381mm x 508mm)

	Transmitter with Alkaline battery tray	Weight : 14lbs. (6.4kg). Dimension : 16in(L) x 12in(W) x 9in(H) (406mm x 305mm x 229mm)
	Transmitter with Li-ion battery tray and charger	Weight : 12lbs. (5.4kg). Dimension : 16in(L) x 12in(W) x 9in(H) (406mm x 305mm x 229mm)
	Kit in a SOFT KIT BAG.	The receiver, transmitter with ALKALINE Battery, and 5" Clamp Weight : 31lbs. (14.1kg). Dimension : 32in(L) x 12in(W) x 16in(H) (813mm x 305mm x 406mm)
	Kit in a SOFT KIT BAG.	The receiver, transmitter with LI-ION Battery, and 5" Clamp Weight : 31lbs. (14.1kg). Dimension : 32in(L) x 12in(W) x 16in(H) (813mm x 305mm x 406mm)
	Kit in a HARD CASE.	The receiver, transmitter with ALKALINE Battery, and 5" Clamp Weight : 34lbs. (15.4kg). Dimension : 34in(L) x 15in(W) x 20in(H) (864mm x 381mm x 508mm)
	Kit in a HARD CASE.	The receiver, transmitter with LI-ION Battery, and 5" Clamp Weight : 33lbs. (15kg). Dimension : 34in(L) x 15in(W) x 20in(H) (864mm x 381mm x 508mm)
	Software	The receiver firmware can be upgraded using a PC with a USB port via the free MyLocator3 app.
		Cable Identifier Reliable cable selection for energized and de-energized cables
		Transmitter for identification on de-energized cables CI TX
18	Pulse voltage	55 VDC
	Pulse current	max. 100 A
	Pulse sequence	30 / min
	Pulse width	72 m's
	Power supply	100 ... 240 VAC 50 / 60 Hz 12 VDC rechargeable battery
	Operating time	4 h ion rechargeable battery
	Charging time	6 h
	Weight	1,6 kg
	Dimensions (W x H x D)	201 x 120 x 80 mm
	Protection class	IP 54

	Operating/storage temperature	- 10 °C ... + 60 °C
	Relative humidity	93 % at 30 °C (non-condensing)
		Transmitter for identification on energized cables LCI TX
19	Operating voltage	100 ... 240 VAC 50 / 60 Hz
	Pulse current	80 A
	Pulse sequence	15 / min
	Pulse width	1,5 ms
	Weight	0,5 kg
	Dimensions (W x H x D)	151 x 101 x 60 mm
	Protection class	IP 54
	Operating/storage temperature	- 10 °C ... + 60 °C CAT IV/300V
	Relative humidity	93% at 30 °C (non-condensing)
		Transmitter for phase-to-phase identification on energized cables LCI TX 440X
20	Operating voltage	100 ... 440 VAC 50 / 60 Hz
	Pulse current	80 A
	Pulse sequence	15 / min
	Pulse width	1,5 m's
	Weight	0,5 kg
	Dimensions (W x H x D)	151 x 101 x 60 mm
	Protection class	IP 54
	Operating/storage temperature	- 10 °C ... + 60 °C CAT IV / 600V

	Relative humidity	93% at 30 °C (non-condensing)
		Universal-receiver CI RX
21	Sensor	Flex-Coupler Ø ca. 150 mm (oder ca. 250 mm)
	Amplifier setting	10 steps 3 ... 24 dB
	Power supply	2 x 1,5 V AA batteries
	Operating time	> 50 h
	Weight	0,4 kg
	Dimensions (W x H x D)	150 x 65 x 35 mm
	Protection class	IP 54
	Operating/storage temperature	- 10 °C ... + 60 °C
	Relative humidity	93% at 30 °C (non-condensing)
		Insulation Resistance Tester
22	AC voltage (auto ranging)	90 - 264 V rms,50/60 Hz, 100 A; 90 - 264 V rms,50/60 Hz, 200 A
	Battery life	6 hours (typical) continuous testing at 5 kV with a 100 MΩ load; 4.5 hours (typical) continuous testing at 15 kV with a 100 MΩ
	30 min quick charge	1 hour operation at 5 kV with a 100 MΩ load
	Battery charge time	2.5 hours deep discharge,2 hours normal discharge
	Test voltage	250 V, 500 V, 1000 V, 2500 V, 5000 V, 10000 V, 15000 V, VL
	Lock test voltage	40 V to 1 kV in 10 V steps,1 kV to 5 kV in 25 V steps,5 kV to 15 kV in 25 V steps
	Test voltage accuracy	+4%, -0%, ±10 V nominal test voltage at 1 GΩ load (0°C to 30°C)
	Resistance range	10 k to 15 TΩ @ 5 kV, 10 k to 35 TΩ @ 10 kV, 10 k to 35 TΩ @ 15 kV

Operating temperature range	-20 °C to 50 °C
Storage temperature range	-25 °C to 65 °C
Humidity	90% RH non-condensing at 40 °C
IP rating	IP65 (lid closed), IP40 (lid open)
Dimensions	305 mm x 194 mm x 360 mm
Weight	6,5 kg
Guard terminal performance	Guards out parallel leakage resistance down to 250 kΩ with a maximum additional resistance error of 1% with a 100 MΩ load
Display range analogue	100 kΩ to 10 TΩ
Display range digital:	10 kΩ to 35 TΩ
Short circuit/charge current	6 mA
Insulation test Alarm	100 kΩ to 10 GΩ
Capacitor charge(on battery):	< 2.5 s/μF to 5 kV ,<5 s/μF to 10 kV,< 6.3 s/μF to 15 kV
Capacitor charge(with AC):	< 1.5 s/μF to 5 kV ,<2.7 s/μF to 10 kV,< 4 s/μF to 15 kV
Capacitor discharge	5 kV to 50 V :< 120 ms/μF 10 kV to 50 V:< 250 ms/μF 15 kV to 50 V:< 3500 ms/μF
Capacitance range With test	10 nF to 50 μF

	voltage set above 500V	
	Capacitance measurement accuracy	10 nF to 10 μ F : $\pm 10\%$ ± 5 nF
	Current range	0.01 nA to 6 mA
	Current accuracy	$\pm 5\%$ ± 0.2 nA at all voltages (20 °C)
	Interference	8 mA from 2800 V to 15 kV
	Software 4 filter settings	0 s, 30 s, 100 s, 200 s
	Voltmeter range	30 V to 660 V ac or dc, 45Hz – 65Hz
	Voltmeter accuracy	$\pm 3\%$, ± 3 V
	Timer range	Up to 99 minutes 59 seconds, 15 second minimum setting
	Memory capacity	11 hrs logging @ 5 sec intervals
	Test modes	IR, IR(t), DAR, PI, SV, DD, ramp test
	Interface	USB type B (device), Bluetooth® Class 2
	Real time output	(V, I, R) readings at a rate of 1 Hz
	Remote control	Remote control via USB cable only (requires RC dongle to be in position)
	TEST LEADS	15 kV leads supplied with a 3m lead-set, with large clips with insulation suited to 15 kV use.
		Industrial Label Printer
23	Display Type	16 chrs x 3 lines backlit graphic LCD with print preview
	Interfaces	USB 2.0, Wi-Fi, Wireless Direct
	Print Speed	30mm / sec (maximum)
	Maximum Tape Width	24mm
	Maximum Print Height	18mm

	Cutter Type	Automatic (Full & Half)
	Battery Type	BA-E001 Li-ion rechargeable battery (supplied) 6 x AA alkaline/rechargeable batteries - not supplied)
	Dedicated Labelling Functions	General, Faceplate, Patch panel, Punch Block, Cable wrap, Cable ag, Heat shrink tube Serialise (automatic number incrementation)
	Fonts	14 fonts, 10 styles, 6-48 point size
	Max. Lines per Label	7 (on 24mm width tape cassette)
	Max. text blocks	99
	Symbols	384
	Frames	7
	Barcodes	9 protocols (built into device)
	Automatic numbering	1-99
	Copy Printing	1-99
	Vertical Text Printing	Yes
	Rotated text printing	Rotate once, Rotate and repeat
	Supported Operating Systems	Windows Vista®, Windows® 7, Windows® 8, Mac OS X 10.6 or greater
	Cable Labelling Wizard	Yes
	Font Faces	All installed true-type fonts
	Font Styles	12
	Image Import	JPG, BMP, TIFF and other popular types
	Screen capture	Yes
	Frames	153

	Barcodes	21 protocols including 1D/2D barcodes
	Tape type; Tape widths	TZe tape cassettes; 6, 9, 12, 18, 24mm HSe tube cassettes; 5.8, 8.8, 11.7, 17.7, 23.6mm
	Supplies	USB cable, wrist strap and Carry case
		Surge wave receiver
24		Receiver DPP-CU
	Display	TFT-colour display, 320 x 240 Pixel
	Safety	Volume limitation to 84 dB (A)
	Gain	> 120 dB, automatic
	Supply	6 x LR6 Alkali-Mangan batteries
	Operation time	> 10 hrs.
	Protection rating	IP 54
	Dimensions (H x W x D)	65 x 225 x 100 mm
	Weight	0.9 kg (incl. batteries)
		Sensor DPP-SU
	Dimensions	Diameter 230 mm (outer rim)
	Height	140 mm
	Handle length	480 ... 750 mm adjustable
	Weight	2.2 kg (incl. batteries and handle)
	Dynamic range	Magnetic channel > 110 dB Acoustic channel > 110 dB
	Frequency range	100 ... 1500 Hz
		Single-pole Phase Comparators
25	Technical description:	Integrated TEST push-button.
		Orange LED = indication that frequency and voltage are in memory.
		Green LED = phasing indication.
		Voltage (kV) 10-30

		Length of antenna (m) 0.85
		Red LED = non-phasing indication.
		Powered by a LF 22 9 V battery. Delivered in carrying case.
VLF sine wave 34 kV		
26	Output voltage	VLF sine wave 0 ... 24 kVRMS / 0 ... 34 kVpeak DC voltage ± 0 ... 34 kV VFL rectangular voltage 0 ... 34 kV Precision ± 1 % Resolution 0.1 kV
	Output current	Measuring range 0 ... 14 mA Precision ± 1 % Resolution 1 µA
	General	Frequency range 0.01 Hz ... 0.1 Hz autom. frequency adjustment Output 0.6 µF @ 0,1 Hz at 24 kVRMS 5 µF @ 0,01 Hz at 21 kVRMS Input voltage 100 V ... 260 V, 50/60 Hz, 400 VA Sheath testing 0 ... 5 kV, 0 ... 10 kV DC Sheath fault pinpointing 0 ... 5 kV, 0 ... 10 kV DC, Pulse rate 1:3 and 1:4 Safety Earth loop ground monitoring, autom.discharging of the test object Dimensions (W x H x D) 520 x 450 x 300 mm Weight 25 kg Protection class IP 20/IP 54 (operation/transportation) Operating temperature - 20 °C ... + 55 °C Storage temperature - 25 °C ... + 70 °C

The successful bidder must be able to provide a fully equipped Test Trailer or Build all relevant test equipment inside the vehicle (equivalent to SPG 40; Portable Time Domain Reflectometer; Inverter System; All round pinpointing receiver; Multi-purpose precision buried utility locator receiver and transmitter TX and RX; Cable Identifier Reliable cable selection for energized and de-energized cables; Transmitter for identification on energized cables; Universal-receiver CI Rx; Insulation Resistance Tester; Industrial Label Printer; Surge wave receiver; Single-pole Phase Comparators). This test Trailer or Vehicle pricing must be included in the bid pricing list.

7. HEALTH AND SAFETY REQUIREMENTS (IF APPLICABLE)

6.1 Provide safety operation/instruction and maintenance manuals with each set of test unit equipment.

8. EVALUATION CRITERIA

All proposals submitted will be evaluated in accordance with the criteria set out in the policy of Supply Chain Management of the Entity.

The most suitable candidate will then be selected. Please take note that CENTLEC (SoC) Ltd is not bound to select any of the firms submitting proposals. CENTLEC (SoC) Ltd furthermore reserves the right to select more than one bidder.

Furthermore, technical competence is the principal selection criteria, CENTLEC (SoC) Ltd will evaluate the technical criteria first and will only look at the price and BBBEE level of contribution if it is satisfied with the technical evaluation. As a result of this, CENTLEC (SoC) Ltd does not bind itself in any way to select the firm offering the lowest price. The relative technical weighting of the criteria is as follows:

Table: 2. Evaluation Criteria

8.1.1	Capability	Submit signed referral letters from previous companies, on letter heads, of completed projects. (a) Submit at least two (2) referral letter to demonstrate their capability to complete project as indicated in the scope of works = 10 points (b) Submit three (3) or more referral letter to demonstrate their capability to complete project as indicated in the scope of works. = 30 points	30
8.1.2.	Locality	Does the bidder have an existing and established local office (CENTLEC distribution area) = 20 points If not (Within South Africa) = 10 points	20
8.1.3.	Capacity	Does the bidder have the resources to complete project as indicated in the scope of works. Supply project organizational structure with CVs' and certified copies of qualifications of all personnel involved. (a) Professional Engineer (ECSA registered) = 20 points (b) A Qualified Technician = 10 points	30
8.1.4.	Quality Assurance	ISO 9001 Certificate = 20 points	20
	TOTAL		100

A bidder who gets a minimum of 80 points and above will qualify to the next stage. Individual tenders would have to be evaluated according to the preferential point system. The bidder must score minimum points as follows:

Item 8.1.1 – 10 points

Item 8.1.2 – 10 points

Item 8.1.3 – 10 points

Item 8.1.4 – 20 points; in the Evaluation Criteria.

8.2 PRICE AND REFERENTIAL POINTS SCORING – STAGE 2 (Price and Specific Goals requirement)

All Bidders that have passed the technical evaluation threshold of 80 points would also be scored based the 80/20 principle where 80 Points is for the Price and 20 points for specific goals as per the detail given below.

8.3 Points awarded for price

A maximum of 80 Points is allocated for price on the following basis:

$$\text{Where } P_s = 80 \left[1 - \frac{P_t - P_{\min}}{P_{\min}} \right]$$

P_s = Points Scored for comparative price of bid under consideration

P_t = Comparative Price of bid under consideration

P_{\min} = Comparative Price of lowest acceptable bid

8.4 Points awarded for Specific Goals Requirement

In terms of Regulation 3.(1) An organ of state must, in the tender documents, stipulate—
(a) the applicable preference point system as envisaged in regulations 4, 5, 6 or 7; (b) the specific goal in the invitation to submit the tender for which a point may be awarded, and the number of points that will be awarded to each goal, and proof of the claim for such goals in accordance with the table below;

Table 3: Specified Goals for Preferential Point System

Specified Goals	Points Allocation
50% Black owned	10
50% Women owned	5
50% Youth owned <35 years	5
Total Points	20

9. PRICING SCHEDULES

The contract price(s) shall be CPA based priced. The contract price(s) shall be subject to negotiated increase, if absolutely unavoidable, should the contract be extended for one or more further periods, each period not exceeding 12 months.

Table 4 Pricing Schedule

Unit Number	<u>Technical data SPG 40</u>		Quantity	Make and Model offered	Price
1	Display	¼ VGA	1		
	Insulation test	Voltages 1,000 V and 5,000 V ranges 1 kΩ, 1 MΩ, 100 MΩ			
	DC testing	0 ... 40 kV DC			
	Leakage current	0 ... 1/10/100 mA automatic measuring area setting			
	Breakdown detection	0 ... 40 kV			
	Burning	0 ... 8 kV; 0.7A; 0 ... 20 kV ; 0.1A			
	Upper surge voltages	0 ... 12.5 / 25 kV or 0 ... 16 / 32			
	Lower surge voltages optional	0 ... 4 kV or 0 ... 8 kV			
	Surge energy	0 ... 3 kV or 0 ... 6 kV 1,000 J in every range (optionally 2,000 J for vehicle installation)			
	Surge sequence	3 ... 10 sec. and single pulse			
	Sheath fault location	0 ... 5 kV and 0 ... 10 kV			
	Cycle intervals	DC; 1:3 ; 1:4 ; 1:6 (sec.)			
	HV prelocation with optional TDR	ARM, ICE current decoupling Decay voltage coupling ICE Plus option (for 4 and 8 kV)			
	Operating temperature	-10 °C ... + 50 °C			
	Power supply	230 V; 50 / 60 Hz (110 V optional)			
	Power consumption	1.7 kVA max.			

	Dimensions (L x W x H)	520 x 430 x 1,050 mm			
	Connecting cable	25 m			
	Weight	ca. 116 kg (incl. opt. surge level)			
	<u>Portable Time Domain Reflectometer</u>		Quantity	Make and Model offered	Price
2	Display	Industrial grade colour TFT panel	1		
	LCD size	10.1"			
	Aspect ratio	16:10			
	Resolution	1,280 x 800 (WXGA)			
	Backlight	LED			
	Luminance	1000 cd/m ² direct bonded Anti-glare capacitive touchscreen			
	Measuring range	20 m ... 160 km at VOP = 80 m/μs			
	Pulse width	20 ns ... 10 μs			
	Pulse amplitude	10 ... 50 V			
	Resolution	0.1 m at VOP = 80 m/μs			
	Accuracy	0.001			
	Timebase Accuracy	100 ppm			
	Sampling rate	true 400 MHz			
	Dynamic range	96 dB, with adjustable ProRange (Distance-dependent De-attenuation)			
	Velocity of propagation	10 ... 149.9 m/μs (or ft/μs or nvp)			
	Output impedance	50 Ω 10 Ω ... 500 Ω, adjustable			
	ARM® trigger	ΔU trigger technology with automatic adjustment			
	Proof voltage	< 400 V, only with separation filter			

	Memory	4 GB for program and data			
	Connections	USB, BNC, CAN			
	Protection class	IP 65 enclosed, IP 54 open			
	Battery	12 V Li-Ion rechargeable battery Overload protection Deep Discharge protection Smart charger 110 ... 240 V, 50/60 Hz 10 ... 17 V DC, 3.8 A 6 hrs of operating time on full charge 4 hrs recharge time			
	Dimensions (W x H x D)	362 x 195 x 305 mm (14.2 in. x 7.6 in. x 12 in.)			
	Weight	7.8 kg (17.1 lbs)			
	Operating temperature	- 10 °C ... + 50 °C (14 °F ... +122 °F)			
	Storage temperature	- 20 °C ... + 60 °C (-4 °F ... +140 °F)			
	<u>Technical data HV-Module SPG 32</u>		Quantity	Make and Model offered	Price
3	Testing	0 ... 32 kV DC	1		
	Surge	0 ... 8 kV; 1750 J, 0 ... 16 kV; 1750 J, 0 ... 32 kV; 1750 J			
	Surge rate	3 ... 10 s, Single pulse			
	Burning	0 ... 32 kV; 160 mA			
	Sheath fault locating	0 ... 5 kV; 160 mA			
	Connecting cable	25 m			
	Mains supply	230 V; 50 / 60 Hz, 2 kVA (110 V			
		optional)			
	Dimensions (W x H x D)	800 x 1280 x 800 mm			
	Weight	approx. 140 kg			

	<u>Technical data TDR Teleflex T30-E</u>		Quantity	Make and Model offered	Price
4	Range	TDR 10 m ... 50 km Transient 20 m ... 100 km	1		
	Pulse width	35 ns to 4 µs			
	Sampling rate	200 MHz			
	Time Base Accuracy	± 0.01%			
	Display	10.4" VGA colour TFT display			
	V/2	50 m/µs ... 150 m/µs			
	Modes	ARM-Mode, Quick Steps, Step-by-Step, ICE Impulse Current Method, Decay, Direct L1, Direct L2, Comparison L1/L2, Difference L1-L2.			
	Memory	100 traces			
	Interface	RS 232 for PC and printer			
	Impedance matching	12 ... 150			
	Operating temperature	-15 °C ... 50 °C			
	Mains supply	NiMh-Batterie, 230 V; 50 / 60 Hz (110 V optional), 12 V DC			
	Dimensions (W x H x D)	360 x 160 x 270 mm			
	Weight	6 kg			
	<u>Inverter System</u>		Quantity	Make and Model offered	Price
	<u>Charger:</u>				
5	Output Current:	40A	1		
	Output Voltage:	14.4V			
	Input Voltage:	100—240VAC			

	Input Current:	3.4A			
	Over Voltage Protection:	16—18V (Shut down with re-power on recovery)			
	Over Temperature Protection:	Shutdown with auto recovery			
		after voltage goes down			
	<u>Batteries</u>				
6	Type:	Sealed High Cycle Maintenance Free Battery	1		
	Output Voltage:	12V			
	Output Current:	102Ah			
	<u>Inverter: Technical Data</u>		Quantity	Make and Model offered	Price
7	Output Frequency:	50/60 Hz (Switch Selectable)	1		
	Continuous Output	3000W			
	Surge Rating:	6000W			
	Input Voltage:	12/24/48 V DC			
	Output Voltage:	220/230/240 VAC +- 3%			
	Output Waveform:	Pure Sine Wave (THD < 3%)			
	Protection:	Overload, Short Circuit, Reverse Polarity (Fuse) Over / Under Input Voltage, Over Temperature			
	Operating Temperature Range:	0 to 40°C			
	Storage Temperature Range:	-30°C to 70°C			

	High Efficiency Full Load:	88%, 91%, 92%, 90%, 93%, 94%			
	Tri-Colour Indicators:	Display Input Voltage, Output Load Level and Failure Status			
	Advanced Microprocessor:	Internal			
	Protections:	SC / OV / UV / OT / OL			
	No Load Current Draw:	2.0A, 1.6A, 0.8A, 2.8A, 1.5A, 0.7A			
	Input Level Indicator:	Red / Orange / Green LED			
	Failure Indicator:	Red LED			
	Cooling:	Loading Controlled Cooling Fan			
	Remote Control Unit:	CR-6 / CR-7 / CR-8 Optional Safety Meet UL458 EN60950-1			
	Input & Output Fully Isolation Design				
8	Spiking Gun firing with 9 mm blank cartridge		1		
9	Spiking Gun Cartridges Red Extra Strong (50)		1		
10	Installation Trailer (Full)		1		
11	Installation Vehicles (Full)		1		
	<u>Portable reflectometer for fault location systems TECHNICAL DATA</u>		Quantity	Make and Model offered	Price
12	Distance range	20 m ... 160 km at $v/2 = 80 \text{ m}/\mu\text{s}$	1		

Pulse width	20 ns ... 10 µs			
Pulse amplitude	10 ... 50 V			
Resolution	0.1 m at v/2 80 m/µs, 1.0 cm at v/2 < 40 m/µs			
Sampling rate	Up to 400 MHz (real sampling rate)			
Amplification	- 37 ... + 37 db			
De-attenuation	0 ... +22 dB for ProRange (adjustable from 0 to 100%)			
Transit time setting v/2	10 ... 149.9 m/µs, ft/µs or nvp			
Dynamic response range	> 80 dB			
Output impedance	50 Ω			
Adjustment	8 Ω ... 500 Ω, adjustable			
ARM trigger	Automatic adjustment with ΔU trigger			
Blind spot	No			
Withstand voltage	< 400 V, operation only with separation filter			
Display	10.4" colour TFT XGA 1,024 x 768, capacitive touchscreen, 600 cd/m2, LED backlight, dimmable			
Memory	4 GB mSATA for program and data			
Connections	Ethernet, USB, BNC, CAN (LON optional)			
Protection class	IP 65 enclosed, IP 54 open			
Supply	Battery operation, 110 ... 240 V, 50/60 Hz, 30 VA, 10 V ... 17 V DC, 3,8 A			
Dimensions (W x H x D)	362 x 195 x 195 mm (option 19" plug-in, 6 HE)			
Weight	10 kg			
Operating temperature	- 10 °C ... + 50 °C			

	Storage temperature	- 20 °C ... + 60 °C			
<u>All round pinpointing receiver TECHNICAL DATA</u>					
		Display module	Quantity	Make and Model offered	Price
13	Display	TFT-color display, 320 x 240 pixels	1		
	Protection	IP 54			
	Dimensions (H x W x D)	65 x 225 x 100 mm (receiver)			
	Weight	0.9 kg (including batteries)			
		Acoustic part/Sensor DDP-SU			
	Safety	Volume limitation to 84 dB(A)			
	Gain	>120 dB, automatic			
	Dimensions	Diameter 230 mm			
	Height	140 mm			
	Handle length	450 ... 750 mm adjustable			
	Weight	2.2 kg (including handle)			
	Dynamic range	Acoustic channel > 110 dB			
	Frequency operating range	100 ... 1500 Hz			
	Filter stages	Off 100 ... 1500 HzLow pass 100 ... 400 HzBand pass 150 ... 600 HzHigh pass 200 ... 1500 Hz			
	Protection	ratingIP 65			
		Step voltage part			
	Sensitivity	5 µV ... 200 V			
	Suppresion of disturbances	50/60 Hz, 16 2/3 Hz, KKS, DC			
	Zero adjustment	Automatically			

	Pulse recognition	Automatically			
	Length – earth rods	1 m (dividable and isolated)			
	Weight – earth rods	0.8 kg each			
	Length – test leads	2 m			
Multi-purpose precision buried utility locator receiver and transmitter					
		Receiver Characteristics	Quantity	Make and Model offered	Price
14	Construction	High impact ABS injection molded housing	1		
	Weight	4.6lbs (2.1kg)			
	Dimensions	12.6in(L) x 4.9in(W) x 26.6in(H) (321mm x 124mm x 676mm)			
	Display type	Transmissive 480 x 272 Pixel, 16-bit Color, High Visibility LCD, 4.3"/10cm			
	Receiver antennas	Two sets of 3D antennas			
	Battery	Six x AA Alkaline batteries - Rechargeable custom Lithium-ion batteries with 100-240V AC mains charger			
	Battery life	Alkaline Li-ion (Rechargeable) 12 hours 27 hours - Intermittent use at 70°F (21°C) - With the full backlight turned on - Li-Ion batteries will withstand 500 charging life cycles - Battery life varies with temperature.			
	Environmental	IP65 and NEMA 4			
	External connectors	- Accessory Socket – to charge the internal batteries and attach accessories - Mini USB socket for data transfer and programming			
	Temperature Range	- Operating: -4°F to 122°F (-20°C to 50°C) - Storage: -40°F to 140°F (-40°C to 60°C)			

	Compliance and approvals	<ul style="list-style-type: none"> - Complies with European standard CE (Directive 99/5/EC) • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 61000-4-8: A1ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 - Complies with FCC Rules Part 15 • CFR 47 part 2 • CFR 47 Part 15 			
	Manufacturing	- ISO 9001:2015			
	Standard Accessories (comes with receiver)	- USB data transfer cable - Custom lithium-ion battery pack - 100-240V AC mains charger - Six x AA Alkaline battery holder - User handbook - Carry bag or hard case (decided at the time of ordering)			
	Compatible Accessory Options	- MLA (Marker Locator Attachment) to locate buried EMS Markers - A-frame fault locator - Remote Antenna (Stethoscope) - Vehicle Charging DC Lead - Tx-Link - factory fitted radio link to remote control the Loc3 series transmitters - Range of Sondes (waterproof, self-contained transmitters for use in pipes & ducts)			
		Receiver	Quantity	Make and Model offered	Price
	Information displayed	Status Bar Information: - Antenna configuration: Peak, Peak with arrows, Null, Broad, Delta Null, Omni Directional Peak, Omni Directional Broad - Line location - depth & current measurement - Battery condition - Speaker volume - Bluetooth and GNSS status (If fitted) - Cellular connection status - Radio link to transmitter status (if fitted)	1		

	Locate screen (Classic display):	<ul style="list-style-type: none"> Signal strength - moving bar graph & numeric value - Bar graph color-coded indicating distortion level - Peak level indicator - Proportional left/right indication - Compass: full 360°-line direction indicator - Gain level (in dB) - Frequency selected - Product configuration menu & submenus including GNSS status and data logging transfer status. - Customer definable start-up screen - Depth and current - Warnings (if activated) - Plug and play automatic recognition of accessories - Accessory specific custom screens 			
	Information screen:	<ul style="list-style-type: none"> - GPS co-ordinates - Real-time horizontal accuracy in 2DRMS - Signal current and depth value - SiS Reset - Log number 			
	Alternative locate screens:	<ul style="list-style-type: none"> - Transverse Graph Screen - visual assessment of the locate quality and distortion - Sonde Locate Screen – directing arrow to move to the Sonde position along the polar axis - Vector Locate Screen – fully-automatic locate including offset, depth and locate uncertainty - Plan View Screen – fully-automatic graphical representation of the cable position independent of cable direction including depth/current and locate uncertainty. 			
	Configuration	<p>The intuitive setup menu enables the user to configure:</p> <ul style="list-style-type: none"> - Set up frequency selection to toggle by "f" pushbutton - Setup location mode selection to toggle by "m" pushbutton - Setup screen views selection to toggle by long press "m" pushbutton - Units of measure (feet/meter) - Sound (Pitch) – normal/modulated - Language - Continuous depth/current options - Loudspeaker level - Backlight - Bluetooth pairing - Transmitter Radio Link (if ordered) - Warnings (Excessive Tilt, Overhead Signal, Shallow Cable, Signal Overload 			

		- Auto shut down – configurable to power down at five minutes, ten minutes, or never			
	Operating frequencies	- Configurable frequencies from 98Hz to 200 kHz • Power 50Hz and 60Hz • Radio 10kHz - 22.7kHz bandwidth - Signal Direction - enhanced product model giving the direction of outgoing current: • SD-USA: 256Hz/512Hz, SD-EUROPE: 320Hz/640Hz - Signal Select – a real-time measurement of signal bleed-over caused by capacitive or inductive coupling to other utilities: • SIS-491Hz, SIS-982 Hz, SIS-8440 Hz, SIS-9820 Hz, SIS-35kHz			
	Operating modes	Classic Locate (2-section Bar graph) - Transverse Graph Mode - Plan View (Omni Directional) - Vector Locate (Lateral Position & Depth) - Sonde Locate			
	Gain/scaling control	Manual gain using "+" or "-" with one touch to return to center (60% of FSD) "+" or "-" used to rescale the vector screen dependent on cable depth and offset			
	Accuracy	Locate pinpointing accuracy: - Over 9ft (3m) – +/- 5% of depth - Up to 9ft (3m) – +/- 3% of depth Depth measurement accuracy: +/- 5% of depth Current measurement accuracy: - +/- 5% of actual current – over 9ft (3m) - +/- 3% of actual current – up to 9ft (3m) Depth range: Dependent on the strength of the signal radiating to the locator Performance rated using a single undistorted signal source			
	Compatible transmitters	Loc-10SiSTx, and Loc3-10SiSTx			
	Bluetooth	Internal Bluetooth for communicating with: External GPS or data logging devices Apple® devices Android™ devices			
	GPS	GPS, GLONASS, Galileo 2.5m accuracy Internal GNSS module			

	Transmitter Link	Optional Tx-Link (Remote transmitter control from the receiver)			
	Data logging	- 50 million record internal storage - All parameters stored at each location including depth, current, date, time, mode, gain setting, frequency, locate uncertainty, longitude, latitude, and height above sealevel - GPS data coordinates, date, and time			
	Data Transfer	The data can be saved in csv, klm, shp, xls, or xlsx formats - Via the free "MyLocator3" PC desktop app - Via cloud through the VMMap web portal			
		Transmitter Characteristics	Quantity	Make and Model offered	Price
15	Construction	High-impact ABS plastic	1		
	Weight	- With Alkaline battery tray: 9.9lbs (4.4kg) - With Rechargeable battery tray: 7.15lbs (3.24kg)			
	Dimensions	13.1in(L) x 7.2in(W) x 7.3in(H) (332mm x 182mm x 185mm)			
	Display Type	- Monochrome dot matrix graphic LCD with backlight - 2.4in x 1.3in (60mm x 32mm)			
	Power Options	- 12 x Alkaline "D" cells - 12~22V external DC power - Optional Li-Ion rechargeable battery tray - 18V			
	Battery Life	Output Power Alkaline Li-ion (Rechargeable) 1-watt 25 hours 50 hours 5-watt 6 hours 10 hours 10-watt 4-5 hours 6 hours At 70°F (21°C) - continuous use (based on the battery type and quality) Li-Ion batteries will withstand 500 charging life cycles			
	Environmental	IP54 and NEMA 4			
	External Connectors	1 x 3 pin connection socket (XLR) 1 x fuse (output protection) 1.6A/250V 1 x Mini-USB socket 1 x socket for battery charger & 12V DC power			
	Temperature Range	- Operating: -4°F to 122°F (-20°C to 50°C) - Storage: -40°F to 140°F (-40°C to 60°C)			

	Output Protection	Output protected against accidental momentary connection to up to 240V AC			
	Compliance / Approvals	- Complies with European standard CE (Directive 99/5/EC) • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 61000-4-8: A1 • ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 - Complies with FCC rules part 15 • CFR 47 part 2 • CFR 47 part 15			
	Manufacturing	ISO 9001:2015			
	Standard Accessories (Supplied with Transmitter)	- Direct Connection Leads (XLR plug with 10ft (3.5m) red/black leads) - Ground stake - Alkaline battery tray - 12 x D Cell alkaline batteries			
	Compatible Accessories Options	- Optional Tx-Link (Remote transmitter control from the receiver) - 2-inch (50mm) signal clamp - 4-inch (100mm) signal clamp - 4-inch (100mm) SiS signal clamp - 5-inch (125mm) signal clamp - 18-inch (450mm) flexible signal clamp - Live Plug Connector - to connect and use the transmitter on lines carrying up to 240V AC - Live Cable Connector - to connect and use the transmitter on lines carrying up to 480V AC - Rechargeable battery tray – Custom Li-Ion battery tray and charger (input DC12V 3A, output DC18V-93.6 Wh) - 12V DC vehicle power lead for powering and charging the optional rechargeable battery from a vehicle			
		Transmitter	Quantity	Make and Model offered	Price
16	Information Displayed	- Current (numeric) - Volts - Resistance - Frequency of output signal - High voltage warning if volts online exceed 30V AC - Beeper volume (three levels & off) - Battery condition icon - Bar graph showing the proportion of successfully applied signal - Animation icon confirming connection mode (Induction, Direct connection, Clamp) - Transmitter control connection status (if the Tx-Link feature is installed)	1		

	Transmitting Modes	<p>Induction mode – applies Signal inductively using the internal antenna -</p> <p>Direct Connection mode - applies Signal directly to the cable by clipping one output lead to the cable, the other to an independent ground -</p> <p>Clamp mode – applies the Signal using a Signal Clamp (also known as a toroid or coupler) placed around the target pipe or cable.</p> <p>* Modes are automatically selected when accessories are plugged in. the default mode (no accessories) is Induction.</p>			
		Transmitting Frequency by Mode	Quantity	Make and Model offered	Price
17	Induction Mode	Multiple induction frequencies between 8.19 kHz and 200 kHz	1		
	Direct Connection Mode	Available frequencies between 98Hz and 200 kHz with default frequencies of 512Hz, 8.19 kHz, 33 kHz, 65 kHz, 200 kHz, Fault-find, SD, SiS			
	Clamp Mode	Available frequencies between 8Hz and 200 kHz with default frequencies in 8.19 kHz, 33 kHz, 65 kHz SiS Clamp - Frequencies: 491Hz, 982Hz, 8.44 kHz, and 9.82 kHz.			
	Transmitting Mode	Power Output Following FCC part 15: - Frequencies under 45 kHz - 10 watts - Frequencies over 45 kHz - 1 watt			
	Maximum Output Voltage	50V RMS			
	Maximum Output Current	1A RMS constant current			
	Output Protection	Output protected against accidental momentary connection to up to 240V AC			
	Audio indication	Connection quality – Increased beep rate indicates a better-applied signal - Beeps to confirm the selected action			
	Controls	Use pushbuttons to select: • Power on/off • Frequency • Output level • Information (volts & resistance) / Setting (volume, frequency & multi-mode)			

	Compatible Receivers	vLoc3 series, vLoc2 series, vLoc series, VM-510FFL+ Signal Select and Distortion Alert line ID features are available only with the vLoc-5000 and vLoc3-5000 receivers.			
		Rechargeable Battery Tray			
	Description	Optional Li-Ion rechargeable battery tray with charger for Loc3 series transmitters			
	Input/output	- Input DC 12V 3A - Output DC 18V-93.6 Wh			
	Battery Type	Li-Ion battery			
	Temperature Range	- Operating: 14°F to 140°F (-10°C to 60°C) - Storage: -4°F to 140°F (-20°C to 60°C) - Charging: 32°F to 113°F (0°C to 45°C)			
	Storage humidity	≤75% RH			
	Weight	- Battery Tray: 3.31lbs. (1.5kg) - Transmitter with battery tray: 7.1lbs. (3.2kg)			
	Dimension	13.1in(L) x 7.2in(W) x 2.9in(H) (332mm x 182mm x 73mm)			
	Warranty	12 Months			
	Receiver in a SOFT KIT BAG.	Weight : 16lbs. (7.3kg). Dimension : 30in(L) x 11in(W) x 14in(H) (762mm x 279mm x 356mm)			
	Receiver in a HARD CASE.	Weight : 20lbs. (9.1kg). Dimension : 34in(L) x 15in(W) x 20in(H) (864mm x 381mm x 508mm)			
	Transmitter with Alkaline battery tray	Weight : 14lbs. (6.4kg). Dimension : 16in(L) x 12in(W) x 9in(H) (406mm x 305mm x 229mm)			
	Transmitter with Li-ion battery tray and charger	Weight : 12lbs. (5.4kg). Dimension : 16in(L) x 12in(W) x 9in(H) (406mm x 305mm x 229mm)			
	Kit in a SOFT KIT BAG.	The receiver, transmitter with ALKALINE Battery, and 5" Clamp Weight : 31lbs. (14.1kg). Dimension : 32in(L) x 12in(W) x 16in(H) (813mm x 305mm x 406mm)			

	Kit in a SOFT KIT BAG.	The receiver, transmitter with LI-ION Battery, and 5" Clamp Weight : 31lbs. (14.1kg). Dimension : 32in(L) x 12in(W) x 16in(H) (813mm x 305mm x 406mm)			
	Kit in a HARD CASE.	The receiver, transmitter with ALKALINE Battery, and 5" Clamp Weight : 34lbs. (15.4kg). Dimension : 34in(L) x 15in(W) x 20in(H) (864mm x 381mm x 508mm)			
	Kit in a HARD CASE.	The receiver, transmitter with LI-ION Battery, and 5" Clamp Weight : 33lbs. (15kg). Dimension : 34in(L) x 15in(W) x 20in(H) (864mm x 381mm x 508mm)			
	Software	The receiver firmware can be upgraded using a PC with a USB port via the free MyLocator3 app.			
Cable Identifier Reliable cable selection for energized and de-energized cables					
		Transmitter for identification on de-energized cables CI TX	Quantity	Make and Model offered	Price
18	Pulse voltage	55 VDC	1		
	Pulse current	max. 100 A			
	Pulse sequence	30 / min			
	Pulse width	72 m's			
	Power supply	100 ... 240 VAC 50 / 60 Hz 12 VDC rechargeable battery			
	Operating time	4 h ion rechargeable battery			
	Charging time	6 h			
	Weight	1,6 kg			
	Dimensions (W x H x D)	201 x 120 x 80 mm			
	Protection class	IP 54			
	Operating/storage temperature	- 10 °C ... + 60 °C			
	Relative humidity	93 % at 30 °C (non-condensing)			

		Transmitter for identification on energized cables LCI TX	Quantity	Make and Model offered	Price
19	Operating voltage	100 ... 240 VAC 50 / 60 Hz	1		
	Pulse current	80 A			
	Pulse sequence	15 / min			
	Pulse width	1,5 ms			
	Weight	0,5 kg			
	Dimensions (W x H x D)	151 x 101 x 60 mm			
	Protection class	IP 54			
	Operating/storage temperature	- 10 °C ... + 60 °C CAT IV/300V			
	Relative humidity	93% at 30 °C (non-condensing)			
		Transmitter for phase-to-phase identification on energized cables LCI TX 440X	Quantity	Make and Model offered	Price
20	Operating voltage	100 ... 440 VAC 50 / 60 Hz	1		
	Pulse current	80 A			
	Pulse sequence	15 / min			
	Pulse width	1,5 m's			
	Weight	0,5 kg			
	Dimensions (W x H x D)	151 x 101 x 60 mm			
	Protection class	IP 54			
	Operating/storage temperature	- 10 °C ... + 60 °C CAT IV / 600V			
	Relative humidity	93% at 30 °C (non-condensing)			

		Universal-receiver CI RX	Quantity	Make and Model offered	Price
21	Sensor	Flex-Coupler Ø ca. 150 mm (oder ca. 250 mm)	1		
	Amplifier setting	10 steps 3 ... 24 dB			
	Power supply	2 x 1,5 V AA batteries			
	Operating time	> 50 h			
	Weight	0,4 kg			
	Dimensions (W x H x D)	150 x 65 x 35 mm			
	Protection class	IP 54			
	Operating/storage temperature	- 10 °C ... + 60 °C			
	Relative humidity	93% at 30 °C (non-condensing)			
		Insulation Resistance Tester	Quantity	Make and Model offered	Price
22	AC voltage (auto ranging)	90 - 264 V rms,50/60 Hz, 100 A; 90 - 264 V rms,50/60 Hz, 200 A	1		
	Battery life	6 hours (typical) continuous testing at 5 kV with a 100 MΩ load; 4.5 hours (typical) continuous testing at 15 kV with a 100 MΩ			
	30 min quick charge	1 hour operation at 5 kV with a 100 MΩ load			
	Battery charge time	2.5 hours deep discharge,2 hours normal discharge			
	Test voltage	250 V, 500 V, 1000 V, 2500 V, 5000 V, 10000 V, 15000 V, VL			
	Lock test voltage	40 V to 1 kV in 10 V steps,1 kV to 5 kV in 25 V steps,5 kV to 15 kV in 25 V steps			
	Test voltage accuracy	+4%, -0%, ±10 V nominal test voltage at 1 GΩ load (0°C to 30°C)			

	Resistance range	10 k to 15 TΩ @ 5 kV, 10 k to 35 TΩ @ 10 kV, 10 k to 35 TΩ @ 15 kV			
	Operating temperature range	-20 °C to 50 °C			
	Storage temperature range	-25 °C to 65 °C			
	Humidity	90% RH non-condensing at 40 °C			
	IP rating	IP65 (lid closed), IP40 (lid open)			
	Dimensions	305 mm x 194 mm x 360 mm			
	Weight	6,5 kg			
	Guard terminal performance	Guards out parallel leakage resistance down to 250 kΩ with a maximum additional resistance error of 1% with a 100 MΩ load			
	Display range analogue	100 kΩ to 10 TΩ			
	Display range digital:	10 kΩ to 35 TΩ			
	Short circuit/charge current	6 mA			
	Insulation test Alarm	100 kΩ to 10 GΩ			
	Capacitor charge(on battery):	< 2.5 s/μF to 5 kV ,<5 s/μF to 10 kV,< 6.3 s/μF to 15 kV			
	Capacitor charge(with AC):	< 1.5 s/μF to 5 kV ,<2.7 s/μF to 10 kV,< 4 s/μF to 15 kV			
	Capacitor discharge	5 kV to 50 V :< 120 ms/μF 10 kV to 50 V:< 250 ms/μF 15 kV to 50 V:< 3500 ms/μF			

	Capacitance range With test voltage set above 500V	10 nF to 50 μ F			
	Capacitance measurement accuracy	10 nF to 10 μ F : $\pm 10\%$ ± 5 nF			
	Current range	0.01 nA to 6 mA			
	Current accuracy	$\pm 5\%$ ± 0.2 nA at all voltages (20 °C)			
	Interference	8 mA from 2800 V to 15 kV			
	Software 4 filter settings	0 s, 30 s, 100 s, 200 s			
	Voltmeter range	30 V to 660 V ac or dc, 45Hz – 65Hz			
	Voltmeter accuracy	$\pm 3\%$, ± 3 V			
	Timer range	Up to 99 minutes 59 seconds, 15 second minimum setting			
	Memory capacity	11 hrs logging @ 5 sec intervals			
	Test modes	IR, IR(t), DAR, PI, SV, DD, ramp test			
	Interface	USB type B (device), Bluetooth® Class 2			
	Real time output	(V, I, R) readings at a rate of 1 Hz			
	Remote control	Remote control via USB cable only (requires RC dongle to be in position)			
	TEST LEADS	15 kV leads supplied with a 3m lead-set, with large clips with insulation suited to 15 kV use.			
		Industrial Label Printer	Quantity	Make and Model offered	Price
23	Display Type	16 chrs x 3 lines backlit graphic LCD with print preview	1		
	Interfaces	USB 2.0, Wi-Fi, Wireless Direct			
	Print Speed	30mm / sec (maximum)			

	Maximum Tape Width	24mm			
	Maximum Print Height	18mm			
	Cutter Type	Automatic (Full & Half)			
	Battery Type	BA-E001 Li-ion rechargeable battery (supplied) 6 x AA alkaline/rechargeable batteries - not supplied)			
	Dedicated Labelling Functions	General, Faceplate, Patch panel, Punch Block, Cable wrap, Cable - ag, Heat shrink tube Serialise (automatic number incrementation)			
	Fonts	14 fonts, 10 styles, 6-48 point size			
	Max. Lines per Label	7 (on 24mm width tape cassette)			
	Max. text blocks	99			
	Symbols	384			
	Frames	7			
	Barcodes	9 protocols (built into device)			
	Automatic numbering	1-99			
	Copy Printing	1-99			
	Vertical Text Printing	Yes			
	Rotated text printing	Rotate once, Rotate and repeat			
	Supported Operating Systems	Windows Vista®, Windows® 7, Windows® 8, Mac OS X 10.6 or greater			
	Cable Labelling Wizard	Yes			
	Font Faces	All installed true-type fonts			

	Font Styles	12			
	Image Import	JPG, BMP, TIFF and other popular types			
	Screen capture	Yes			
	Frames	153			
	Barcodes	21 protocols including 1D/2D barcodes			
	Tape type; Tape widths	TZe tape cassettes; 6, 9, 12, 18, 24mm HSe tube cassettes; 5.8, 8.8, 11.7, 17.7, 23.6mm			
	Supplies	USB cable, wrist strap and Carry case			
Surge wave receiver					
24		Receiver DPP-CU	Quantity	Make and Model offered	Price
	Display	TFT-colour display, 320 x 240 Pixel	1		
	Safety	Volume limitation to 84 dB (A)			
	Gain	> 120 dB, automatic			
	Supply	6 x LR6 Alkali-Mangan batteries			
	Operation time	> 10 hrs.			
	Protection rating	IP 54			
	Dimensions (H x W x D)	65 x 225 x 100 mm			
	Weight	0.9 kg (incl. batteries)			
		Sensor DPP-SU			
	Dimensions	Diameter 230 mm (outer rim)			
	Height	140 mm			
	Handle length	480 ... 750 mm adjustable			
	Weight	2.2 kg (incl. batteries and handle)			
	Dynamic range	Magnetic channel > 110 dB Acoustic channel > 110 dB			
	Frequency range	100 ... 1500 Hz			

		Single-pole Phase Comparators	Quantity	Make and Model offered	Price
25	Technical description:	Integrated TEST push-button.	1		
		Orange LED = indication that frequency and voltage are in memory.			
		Green LED = phasing indication.			
		Voltage (kV) 10-30			
		Length of antenna (m) 0.85			
		Red LED = non-phasing indication.			
		Powered by a LF 22 9 V battery. Delivered in carrying case.			
		VLF sine wave 34 kV	Quantity	Make and Model offered	Price
26	Output voltage	VLF sine wave 0 ... 24 kVRMS / 0 ... 34 kVpeak DC voltage \pm 0 ... 34 kV VFL rectangular voltage 0 ... 34 kV Precision \pm 1 % Resolution 0.1 kV	1		
	Output current	Measuring range 0 ... 14 mA Precision \pm 1 % Resolution 1 μ A			
	General	Frequency range 0.01 Hz ... 0.1 Hz autom. frequency adjustment Output 0.6 μ F @ 0,1 Hz at 24 kVRMS 5 μ F @ 0,01 Hz at 21 kVRMS Input voltage 100 V ... 260 V, 50/60 Hz, 400 VA Sheath testing 0 ... 5 kV, 0 ... 10 kV DC Sheath fault pinpointing 0 ... 5 kV, 0 ... 10 kV DC, Pulse rate 1:3 and 1:4 Safety Earth loop ground monitoring, autom.discharging of the test object Dimensions (W x H x D) 520 x 450 x 300 mm Weight 25 kg			

		Protection class IP 20/IP 54 (operation/transportation) Operating temperature - 20 °C ... + 55 °C Storage temperature - 25 °C ... + 70 °C			
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10. CONTACT DETAILS

- 10.1 For any further technical information regarding the document contents please contact Mr. I Smith e-mail: Isaac.smith@CENTLEC.co.za. Such queries must be done in writing, the email address provided serves this purpose.
- 10.2 For Supply Chain Related questions, Please contact Ms. Palesa Makhele at Palesa.Makhele@CENTLEC.co.za.

11.ANNEXURES

- a. Health and Safety specification document as a guideline to assist with compiling of Safety File.



**OCCUPATIONAL HEALTH
AND
SAFETY
SPECIFICATION
FOR
PUBLIC DOMESTIC ELECTRICITY HOUSE CONNECTIONS AND
PROCUREMENT OF MATERIAL.**

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OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

“Act” occupational health and safety act 85 of 1993

“Agent” means any person who acts as representative for the client

“Health and Safety Specification” means a documented specification of all health and safety requirements pertaining to the associated Works on a construction site, so as to ensure the health and safety of person during construction process. This document is prepared by the Client or Client agency.

“Health and Safety Plan” means a documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified. This document is prepared by the Principal Contractor or the Sub Contractor.

“Fall protection plan” means documented plan, of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk.

“Employer” Where used in contract documents and in this specification, means the employer as defined in the General Conditions of Contract and it shall be

have the same meaning as “**Client**” as defined in the Construction Regulation 2003.

“**Employer**” and “**Client**” is therefore interchangeable and shall be read in context of the relevant document.

“**Contractor**” where used in the contract documents and in this specification shall have meaning as “contractor” as defined in the General Conditions of Contract.

In this specification the terms “**Principal Contractor**” and “**Contractor**” are replaced with “**Contractor**” and “**Sub Contractor**” respectively for the purpose of this contract, the **Contractor** will, in terms of the OHS Act 1993, be the mandatory of the Employer, without derogating from his/her status as an employer in his/her own right.

“**Engineer**” where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent of behalf of the Employer (the client as defined in the Construction Regulations)

“OHS Section” means Occupational Health and Safety Division within CENTLEC will oversees all Projects to ensure that Principal Contractor comply with Occupational Health & Safety Act 85 of 1993, Construction Regulation and all related codes of practice.

“Fall risk” means a risk that a person could fall from an elevated position, which is deemed 2 meters or higher, or a risk that something associated with the work can fall on a person.

“Construction vehicle” mean a vehicle used for means of conveyance for transporting persons or material or both such person and material, as the case may be both on and off the construction site for the purpose of performing construction work.

“Contractor” means an employer, who perform construction work and includes principal contrac

1. General Statement

It is a requirement of CENTLEC that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the contractor shall take full responsibility to conform to all the provisions of the occupational health and safety Act (Act 85 of 1993), and all relevant regulations as stated in section 44 of Occupational Health and Safety Act 85 of 1993.

For the purpose of this contract the Contractor is required to confirm his status as mandatory to CENTLEC and employer representatives in his own right for the execution of the contract, and he shall enter into Section 37.2 agreement in respect of the Act 85 of 1993.

2. Scope

This specification includes health and safety elements in terms of the Act and to satisfy the requirements of the Construction Regulation (CR), which will be applicable to the Principal Contractor and all sub-contractors for the safe execution of work during the project.

3. Purpose

The purpose of this specification is to ensure that the Principal Contractor and all sub-contractors provides and maintains, as far as reasonably a safe working environment for all employees and the public at large during the construction work.

4. Project Description

The project includes all activities regarding public domestic electricity house connections and procurement of material within CENTLEC's area of supply and Additional work or changes to the contract may result in a change to the scope of work. The principal contractor shall make allowance for this in his Health and Safety Plan.

The principle health, safety and environmental risks involved on this specific site will be that of:-

- Risk of employees falling from a height. /certificates of basic fall arrest./appointment letters for those responsible for rescue.
- Use of suitable harnesses.
- Risk
- Ladder usage.
- Cranes/simons certificate of servicing by a.i.a
- Safe storage of petrol.
- Excavations- person (employee or public), Danger of walls falling in / shore the walls/soil away from the hole
- Use of safety nets instead of safety tapes.
- Heavy loads to be carried by cranes and not manual Labour.(re-inforcing and masts)
- Road closures when assembling and erecting the mast. (Application to traffic dept.).

5. Details of Specifications

5.1 Job specific details of specifications.

In general when supply domestic houses with electricity, workers must follow and adhere to the following methods and procedures, in order to prevent accidents and injuries:

- a) In the township area where there is high density housing and population (contractor needs to be mindful of children, traffic, existing services and animals within the vicinity in which they will be working from.
- b) Should it be necessary to enter a private property, the reason for such entry must be explained courteously to the occupier of the premises.
- c) Whenever possible, ladders must be used to get to higher places and correct procedures for the use of ladders must be followed.
- d) Environmental factors must be taken into consideration (type of soil in the area, water streams and vegetation in the area.

Safety and Health

- e) Supervisor must always assure themselves about their worker's skills and knowledge of all safety procedures, and if necessary, arrange for workers to be trained or re-trained.
- f) Excavated area needs to be visible and properly barricaded and must be backfilled within 3 days in order to reduce the risk of accidental falls. (Use of safety nets and not tapes).
- g) Chemicals used must not affect the health of the employees and of the public.
- h) Hearing protection to be used if noise levels exceeds 85 dB.

5.2 Site Standards and Rules

- The contractor shall be responsible for enforcing and respecting all applicable health and safety rules in performance of all work covered by the contract, particularly those relative to the OHS Act and relevant regulations made under them;
- The contractor shall be responsible to ensure the use of traffic cones and warning signs at all times to warn traffic.
- Any deviation found shall be reported at the site instruction book by CENTLEC representatives, or dept. of labour inspector.
- All times there shall be three spares personal protective equipment's for visitors and be marked visitors;
- Two toilets for male and female separately be provided and clearly marked to identify male and female gender;
- There shall be site office(s) built structure, change room for both male and female and they can be used for shelter for eating facility;
- Proper drinking water at the strategic location shall be provided for employees;

- Health and Safety Committee meetings that involve CENTLEC Health and Safety division representative shall be held on the monthly basis;
- Contractor shall provide their workers with proper training so that they can perform their work safely. Train all staff to be aware of their own responsibilities for, and to provide information, instruction, and training on, the particular hazards and risks in relation to the scope of work; and
- The contractor shall ensure that every lifting machine is operated by an operator specifically trained for a particular type of lifting machine.

6. Safety File

The contractor shall appoint a suitable qualified person to prepare the Health and Safety File and to keep it up to date for the duration of the contract. The health and Safety File shall include the following information:

- Notification of construction Work (Construction Regulation 3) (Schedule A)
- Copy of OHS Act (updated and not abridged version) (General Administrative Regulation 4) and relevant regulations as stated by section 44 of OHS Act 85 of 1993.
- Proof of Registration and good standing with a COID Insurer (Construction Regulation 4(g))
- Copy Health and Safety plan (Construction Regulation 5(1)) that include the followings:-

6.1 Applicable requirements

- a. List of equipment and specialized equipment
- b. List of PPE issued
- c. Recent inspection lists of equipment in use.
- d. Training records
- e. Proof of training by an accredited for working at heights.
- f. Hazards identification and risk assessments.
- g. Test records for lifting equipment by an accredited body.
- h. Incident history
- i. Notices issued
- j. Protection against biological agents like ants-infested trees.
- k. OHS programme agreed with client including the underpinning Risk Assessment and Method Statements (Construction Regulation 5(1))
- l. Appointment/Designation forms required by the ACT and Regulations
- m. Registers as follows:

6.2 Register required

- OHS Representatives Inspection Register (monthly)
- Power tools inspection register.
- Lifting equipment (before use and monthly)
- Fire equipment inspection and maintenance (monthly)
- First aid (monthly)
- Hazardous Chemical Substances (MSDS and listing of chemicals)

- Inspection of cranes (daily before use and yearly inspection records)
- Inspection of ladders (daily before use and monthly)
- Inspection of vessels and pressure (monthly and 3 yearly)
- Machinery inspections (before use and monthly)
- Drivers/Operators of mobile plant/construction vehicles daily inspections

The Health and Safety File shall be handed over to the client on completion of the contract. It must contain all the documentation handed to the contractor by any contractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project

6.3 Written Safe Work Procedures and Risk Assessments

- Written Safe Work Procedures are to be available in order to mitigate, reduce or control the hazards and risks identified in the Risk Assessment.
- Initially a generic document can be produced, by the first three weeks of operation a task- based document must be produced and be updated as per changes in tasks.

6.4 Personal Protective Equipment

The Principal Contractor shall ensure that the following minimum personal protective equipment and wear are issued to his employees:

- No person is allowed to be on site without the required PPE as prescribed by risk assessments. This must be discussed at the safety meeting and adhered to by all contractors on site.
- Contractor must ensure that PPE is being used as a last resort upon trying all reasonable means to remove the hazard.
- All contractors are required to keep an updated register of all PPE issued.
- Strict compliance measures must be administered to ensure employees use PPE.
- Hard hats, safety shoes with steel toe caps and protective clothing shall be provided by the contractor free of charge for all his employees and shall be worn at all times. Employees working on site must not wear metallic helmets. Other protective equipment such as gloves, safety glasses, face shield, dust mask, ear plugs etc shall be issued and used when required as per tasks in the risk assessment and safe work procedure. The contractor shall ensure that his employees understand why the PPE is necessary and that they use them correctly and sign for receiving them
- When handling corrosive liquids e.g. acids or caustic suitable eye protection, gloves, and special overalls shall be worn.
- Any person refusing to wear protective clothing when instructed to do so by the responsible person shall be removed from the site.
- Clearly outline the procedure to be followed when PPE is 1. Lost or stolen; 2. Worn-out or Damaged.

6.5 Appointment of Health and Safety Personnel

- The Contractor and Sub Contractors shall ensure that all relevant appointments specified in the Occupational Health and Safety Act 85 of 1993

and Construction Regulations are made in writing prior to commencement of the Project.

- The Principal contractor shall provide adequate levels of suitable trained, experienced and competent management and supervision to ensure that the works proceed and without risks to health or environment and that all operations and personnel for whom the contractor is responsible are adequately monitored and supervised.

The Principal Contractor shall ensure that the appointments listed below are made where applicable:

Required appointments as per the Construction Regulations (CR):-

Item	Regulation	Appointment	Responsible Person
1.	4(1)(c)	Principal contractor for each phase or project	CENTLEC/Consultant
2.	5.(3)(b)	Contractor	Principal Contractor
3.	5(11)	Contractor	Contractor
4.	6(1)	Construction supervisor	Contractor
5.	6(2)	Construction supervisor sub-ordinates	Contractor
6.	6(6)	Construction Safety Officer	Contractor
7.	7(1)	Person to carry out risk assessment	Contractor
8.	7(4)	Trainer/Instructor	Contractor
9.	8(1)(a)	Fall protection planner	Contractor
10	11(3)(b)(ii)(b)	Professional engineer or technologist/land surveyor.	Contractor
11.	15(2)(c)	Compliance plan developer	Contractor
12.	17(8)(a)	Material hoist inspector	Contractor
14..	19(2)(b)	Power tool expert	Contractor
15.	19.2 (g) (i)	Power tool controller	Contractor
16.	27 (h)	Fire equipment inspector	Contractor
17.	16(2)	CEO assistant	Contractor

6.6. Establishment of Health and Safety Committee

The Principal Contractor shall establish a Health and Safety Committee in terms of Section 19 of the Occupational Health and Safety Act 85 of 1993.

The Principal Contractor shall hold meeting at least once a month with appointed supervisors, Health and Safety Reps and the chairperson of the Health and Safety Committee and copies of the safety meeting to be forwarded to CENTLEC and the CENTLEC health and safety representative need to be informed and invited to such meetings.

Matters that are to be discussed should include at least the following as minimum:

- Make recommendations to resolve health and safety matters (i.e. internally by representatives or externally by DOL inspector)
- Accident/safety incident and they must be recorded for audit and for reporting to CENTLEC safety representative
- Hazardous conditions
- Hazardous material/substances
- Work procedures
- PPE
- Housekeeping
- Work permits
- Non conformances
- Emergency preparedness
- Traffic control
- Access control
- Medicals
- Training
- Forthcoming high hazard activities
- Liquor and drugs
- Occupational health and hygiene issues
- General health and safety issues
- Matters arising from principal contractor safety meetings

6.8 Health and Safety Hazards

The Principal Contractor shall take cognizance of the following hazards that are prevalent in the project:

6.8.1 Hazardous Environment

- Inclement weather – (Heat/Rain/Wind)
- Scarring or defacing of the environment.

6.8.2 Hazardous Equipment

- Trucks
- Ladders
- Lifting equipment
- Pressure vessel
- Chains and slings
- Fall protection equipment's

6.8.3 Hazardous Operation

- Use of step ladder
- Usage of the carry picker by unauthorized personnel
- Wacker
- Poker

6.8.4 Hazardous Tool

- Electric hand tools

6.8.5 Hazardous Substances

- Chemicals (cad weld)
- Oil
- Diesel
- Degreaser
- Cement

7 Arrangements for controlling significant site risks

The following are some examples requiring arrangements for controlling the most significant site risks.

7.1 Safety Risks

- The maintenance of plant and equipment
- Traffic.
- Failure to carry out daily inspections of machinery.
- Dealing with existing unstable structures/land
- Other significant safety risks as and when identified

7.2 Health Risk

- Manual handling
- Reducing noise and vibration
- Extreme heat and cold temperature considerations
- Dealing with HIV/Aids and other illnesses
- Provision of maintaining ablution and eating facilities
- Other significant health risks as and when identified
- Distribution of condoms
- Allow employees to test voluntarily when CENTLEC Wellness section arrange testing for HIV/AIDS and other chronic diseases.
- Allow employees to donate blood voluntarily when CENTLEC Wellness section arrange for blood donation

All safe operating procedures, method statements or rules implemented mitigate the risk whilst performing hazardous tasks are to be effectively communicated to the contractor's staff performing the tasks.

It is to be noted that these are some of the hazards that may be prevalent in this Project.

Others may be identified during the Risk Assessment.

8. Fire precautions on construction sites

The provisions of the environmental Regulations for Workplaces (Government Notice R2281 of 16 October 1987) shall apply with its amendments.

In addition the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 27 of the Construction Regulations.

No open fire will be allowed on site, unless a proper arrangement with site manager and authority has been made.

All fire extinguishers shall be:

- clearly labelled;
- conspicuously numbered;
- entered in a register;
- inspected monthly by a competent person; and
- tested and serviced at recommended intervals by an accredited supplier

9. Communication & Liaison

- Occupational Health and Safety Liaison between the Employer, the Principal Contractor, the other Contractors, the Designer and other concerned parties shall be through the H&S Committee as per the procedures determined by the H&S Committee. If possible emergency committee meeting will be held to address emergency issues.
- In addition to the above, communication may be directly to the CENTLEC representative or his appointed Agent, verbally or in writing, as and when the need arises.
- Consultation with the workforce on Occupational Health and Safety matters will be through their Supervisors and H&S Representatives ('SHE – Reps')
- The Principal Contractor will be responsible for the distribution of all relevant Occupational Health and Safety information to other sub-contractors.

10. Fall protection plan

A comprehensive fall protection plan is to be established in order to prevent employees from falling from elevated positions

- The contractor shall stop all persons working with the usage of a ladder during periods of inclement weather or if the possibility of lightning is present.
- Working at heights shall only be carried out under the supervision of a competent person;
- Provision must be made to prevent objects and material from falling from height.

11. Permit to work

The contractor is to ensure that the proper permit is in hand and duly authorised by appointed person before commencing with the work in question, some of the activities that require a permit to work are:

- Permit to be requested to work near live overhead network to be isolated.
- Use of hazardous chemical substances (all MSDS shall be available and kept in the safety file), CENTLEC Health and safety Division shall be informed of all chemicals used on site or to be used.
- Work to be carried near/adjacent to live electrical network. Work permit shall be requested by the project manager representing CENTLEC and it shall be issued by CENTLEC control. Work will be carried out under the supervision of CENTLEC representative project manager and contractor shall sign acknowledgement letter to understand the risks associated with that specific work.

Contractor shall liaise with project manager from CENTLEC for the issue of work permit.

12. Housekeeping on Site

The Principal Contractor shall ensure a high level of housekeeping on site. On completion, the contractor is responsible for clearing the site. (Excess soil and rocks).

13. First Aid Facilities

- Conspicuous sign shall be placed where first aid equipment is kept and stored. The name of the responsible person shall be placed against the first aid box.
- Adequate first aid facilities are to be available on site.
- Individuals that are trained and certified competent to administer first aid are to be on site at all times, serving as First Aid Officer.
- The following welfare facilities must be provided for and kept in clean and suitable condition, shower facility, sanitary facility, changing facility, sheltered eating facility and drinking water at strategic locations on site.

14. Health and Safety Induction

- The Principal Contractor shall ensure that all employees undergo a health and safety induction.
- Proof of induction is to be included in the "Safety File".
- The contractor is expected to have a daily safety "tool box" meeting. Subject topics that are applicable to the job at hand e.g. near misses that have happened, accident and up and coming work will be discussed along suggestion and comments.
- These meetings can be used as a training meeting with the central idea of educating employees.

15. ACCIDENT/INCIDENT REPORTING AND INVESTIGATIONS

15.1 REPORTING OF INCIDENTS AND OCCUPATIONAL DISEASES

All accidents and incidents shall be reported the same day to Health and Safety Division of CENTLEC within 24 hours.

Section 24 of the Act refers to certain incidents occurring at the workplace, or in connection with the use of machinery whereby a person dies or is injured to be extent where he is likely to die or could have resulted in a major incident. Such incidents should be reported to the Provincial Director on a WCL 1 or WCL 2 form within seven days.

Certain other types of incidents must be reported to the Provincial Director telephonically, facsimile or similar means of communication and these types of incidents are as follows:

- (a) Where a person, as a result of the incident;
 - i) Dies;
 - ii) Becomes unconscious;
 - iii) Suffers the loss of a limb or part thereof;
 - iv) Is injured to the extent that he is likely to die;
 - v) Is injured to the extent that he is likely to be permanently disabled;
 - vi) Is injured to the extent that he is likely to be off for a period of 14 days or more;
 - vii) Cannot perform his normal duties (those duties for which he was employed).
- (b) An incident of major consequence arising out of the use of industrial equipment or machinery or industrial practices at a workplace.
- (c) The health and safety of any person is endangered and where –
 - i) A dangerous substance was spilled;
 - ii) The uncontrolled release of any substance under pressure (pressure greater than 1 atmosphere) took place;
 - iii) Machinery or any part thereof fractured or failed, resulting in flying, falling or uncontrolled moving objects; or
 - iv) Machines, which ran out of control.

These incidents should also be recorded and investigated in accordance to Regulation 8 of the General Administrative Regulations.

If an injured person is to die as a result of an incident, which has already been reported in terms of the above, the employer or user should report such death to the Provincial Director.

Any registered medical practitioner should, in terms of Section 25 of the Act, report all (to the employer and Chief Inspector) cases of occupational diseases or any other disease, which he believes arose out of a person's employment, which he/she has treated. This must be done within 14 days in the form of a WCL 22 form.

Any other person may in writing, give notice of any disease suspected to be an occupational disease, to the employer and chief inspector.

15.2 RECORDING AND INVESTIGATION OF INCIDENTS

The employer or user of machinery should keep record and investigate all incidents referred to in terms of Section 24 of the Act together with any other incident, which resulted in the person concerned having had to receive medical treatment other than first aid.

These incidents must be recorded in the form of Annexure 1 of these regulations and be kept for a period of at least 3 years. This record shall be kept on the premises and available for perusal by an inspector.

The contractor, a designated person, a health and safety representative or a member of the health and safety committee must investigate the above-mentioned incidents. This investigation should take place within 7 days from the date of incident and completed as soon as is reasonable practicable or within the contracted period of contract workers. The employer should record the result of the investigation in the Annexure 1. The purpose of the investigation is to establish the cause of the incident together with the safety measures that can be implemented to prevent the re-occurrence of such incidents in the future.

The health and safety committee shall examine this record at their next meeting.

- All accidents/incidents shall be recorded and investigated and reported to Occupational Health & Safety Section.
- Accidents/incidents are to be reported to CENTLEC Project Manager.
- All reportable incidents in terms of Section 24 of the OHS ACT shall be investigated and recorded by the contractor as required by the Act and also reported to Occupational Health & Safety Unit.
- The contractor shall compile an investigation report and ensure that all the preventative actions recommended are in place.

16 RESPONSIBILITIES

16.1 Client

16.1.1 The Client or his appointed Agent on his behalf will appoint each Principal Contractor for this project or phase/section of the project in writing for assuming the role of Principal Contractor as intended by the Construction Regulations and determined by the Bills of Quantities.

16.1.2 The Client or his appointed Agent on his behalf shall discuss and negotiate with the Principal Contractor the contents of the health and safety plan of the both Principal Contractor and Contractor for approval.

16.1.3 The Client or his appointed Agent on his behalf will take reasonable steps to ensure that the health and safety plan of both the Principal Contractor and Contractor is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month.

16.1.4 The Client or his appointed Agent on his behalf will prevent the Principal Contractor and/or the Contractor from commencing or continuing with construction

work should the Principal Contractor and/or the Contractor at any stage in the execution of the works be found to:

- have failed to have complied with any of the administrative measures required by the Construction Regulations in preparation for the construction project or any physical preparations necessary in terms of the Act;
- have failed to implement or maintain their health and safety plan;
- have executed construction work which is not in accordance with their health and safety plan; or
- Act in any way which may pose a threat to the health and safety of any person(s) present on the site of the works or in its vicinity, irrespective of him/them being employed or legitimately on the site of the works or in its vicinity.

16.2 Principal Contractor

16.2.1 The Principal Contractor shall accept the appointment under the terms and Conditions of Contract. The Principal Contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the Department of Labour of the intended construction work in terms of Regulation 3 of the Construction Regulations. Annexure B of this Specification contains a "Notification of Construction Work" form. The Principal Contractor shall submit the notification in writing prior to commencement of work and inform the Client or his Agent accordingly.

16.2.2 The Principal Contractor shall ensure that he is fully conversant with the requirements of this Specification and all relevant health and safety legislation. This Specification is not intended to supersede the Act nor the Construction Regulations or any part of either. Those sections of the Act and the Construction Regulations which apply to the scope of work to be performed by the Principal Contractor in terms of this contract (entirely or in part) will continue to be legally required of the Principal Contractor to comply with. The Principal Contractor will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may perceivable be applicable to this contract.

16.2.3 The Principal Contractor shall provide and demonstrate to the Client a suitable and sufficiently documented health and safety plan based on this Specification, the Act and the Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works. This plan shall, as appendices, include the health and safety plans of all Sub-contractors for which he has to take responsibility in terms of this contract.

16.2.4 The Principal Contractor shall provide proof of his registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement with the works.

16.2.5 The Potential Principal Contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the Act and Construction Regulations. (Note: This shall have to be contained in the conditions of tender upon which a tenderer's offer is based.)

16.2.6 The Principal Contractor shall consistently demonstrate his competence and the adequacy of his resources to perform the duties imposed on the Principal Contractor in terms of this Specification, the Act and the Construction Regulations.

16.2.7 The Principal Contractor shall ensure that a copy of his health and safety plan is available on site and is presented upon request to the Client, an Inspector, Employee or Sub-contractor.

16.2.8 The Principal Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this Specification, the Act and the Construction Regulations, is opened and kept on site and made available to the Client or Inspector upon request. Upon completion of the works, the Principal Contractor shall hand over a consolidated health and safety file to the Client.

16.2.9 The Principal Contractor shall, throughout execution of the contract, ensure that all conditions imposed on his Sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Principal Contractor.

16.2.10 The Principal Contractor shall from time to time evaluate the relevance of the Health and Safety Plan and revise the same as required, following which revised plan shall be submitted to the Client and/or his/her Agent for approval.

17. Health and Safety Inspections/Audits

- The Principal Contractor shall ensure that the work area, equipment, machinery, safety equipment and wear, etc are inspected on a regular basis.
- Proof of such inspections are to be maintained in the "Safety File"
- All non-conformances revealed during the inspections are to be noted and rectified as soon as possible. The client, health and safety unit will also conduct formal audits at least once a month and deviations that are revealed must be rectified within the required time frame.
- All portable tools shall be inspected daily by the user as well as weekly recorded inspections and testing to be done.

18. Emergency Preparedness

The Principal Contractor shall develop and implement an emergency plan for site in collaboration with sub-contractors and the client representative. The plan would have to be revised due to the changing environment on construction site. Specific requirements for first aid and medical as well as fire and rescue will be addressed. The contractor is to ensure that the necessary firefighting equipment is in place in respective areas and proper signage placed at the conspicuous places. Emergency preparedness plan shall ensure that all emergency contact details are placed in a conspicuous place where they can be easily seen and accessed by employees.

19. Non Compliance to Health and Safety Standards

The CENTLEC Representatives reserve the right to stop the operations of the Principal Contractor should it be found that the operations are being undertaken in noncompliance with the laid down health and safety plan based on this specification.

The client has the authority to issue a non-conformance report to any contractor not complying to the SHE requirements on site, with necessary required rectification action required within a specific time frame.

It is noted to the contractors that any expenses incurred due to non-conformances shall be for Contractor's account in question.

Safety officers and other personnel have the authority to stop work if there is a life threatening situation or danger of material loss/damage and direct immediate remedial action under the supervision of contractor's manager is required.

Any "stop work order" shall be followed up and the site manager shall present a written report including remedial actions to avoid the re-occurrence and disciplinary action for contravening safety regulation and if considered necessary to instruct the site manager to remove certain of his personnel from site.

20. Legal Framework

Part of legal obligations

The more important Acts and relevant subordinate/secondary legislation as well as other (inter alia Local Government) legislation that also apply to the State as well as to State owned buildings and premises: -

1. The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority
2. The Fire Brigade Services Act 1987, Act 99 of 1987 as amended
3. Traffic Act.
4. Legislation pertaining to water usage and the environment
5. Common Law

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- 2. EMERGENCY SERVICE NUMBER**
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ANNEXURE A

NOTIFICATION OF CONSTRUCTION WORK
Regulation 3 of the Construction Regulations, 2003

1. (a) Name and postal address of principal contractor:
.....
- (b) Name and telephone number of principal contractor's contact person:
.....
2. Principal contractor's compensation registration number:
.....
3. (a) Name and postal address of client:
.....
- (b) Name and telephone number of client's contact person or agent:
.....
4. (a) Name and postal address of designer(s) for the project:
.....
- (b) Name and telephone number of designer's contact person:
.....
5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 6(1):
.....
6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 6(2):
.....
7. Exact physical address of the construction site or site office:
.....
8. Nature of the construction work:
.....
.....
.....
9. Expected commencement date:

10. Expected completion date:

11. Estimated maximum number of persons on the construction site:
.....

12. Planned number of contractors on the construction site accountable to principal contractor:
.....

13. Name(s) of contractors already chosen:
.....
.....
.....

.....
Principal Contractor

.....
Date

.....
Client

.....
Date

- THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.
- **ALL PRINCIPAL CONTRACTORS** THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

EMERGENCY SERVICES TELEPHONE

Ambulance	10177
Police Flying Squad	(051) 10111
Fire Brigade	(051) 406 6452
Electricity	(051) 409 2345/2455
Water & Sewage	(051) 405 8191/2
Toxic Bureau	(051) 082 491 0160
Disaster Management	(051) 406 6434
Bees	(051) 400 5331

GENERAL EMERGENCY CONTACTS

Traffic	(051) 406 6500
Environment Protection Authority	(051) 406 6441
Pelonomi Hospital	(051) 405-1911
Universitas Hospital	(051) 405 3911
National District Hospital	(051) 403 9600
Mediclinic Hospital	(051) 404 6225
Rose Park Hospital	(051) 505 5111
Netcare Hospital	(051)

UTILITIES

Gas Leaks (24 hours)
Electricity
Water & Sewage

(051) 406 0500
(051) 409 2345/2455
(051) 405 8191/2

CONTRACTOR DETAIL

Employer Particulars	
Employer:	
Registered Name of Enterprise:	
Trade Name of Enterprise:	
Company Registration No.:	
SARS Registration No.:	
UIF Registration No.:	
COIDA Registration No.:	
Relevant SETA for EEA purposes:	
Industry Sector:	
Bargaining Council:	
Contact Person:	
Address of Premises:	
Postal Address:	
Telephone Number:	
Fax Number:	
E-mail Address:	
Chief Executive Officer:	
Chief Executive Officer Address:	
Competent Person:	
Maximum power demand: in KW	
Health and Safety Representatives:	
Activities, products manufactured and/ services rendered:	
Raw materials, materials and chemical/ biological substances:	
Total Number of Employees:	Male: Female.....

Contractor Particulars	
Contractors:	
Site Address:	
Contracts Manager:	
Managing Director:	
Competent Persons:	
CR14: SCAFFOLDING:	

CR15: SUSPENDED SCAFFOLDING:	
CR17(6): MATERIAL HOIST (S):	
CR18(1): BATCH PLANT:	
CR8(1)(a): FALL PROTECTION:	
CR11(1)(1): EXCAVATION WORK:	
CR19(2)(b): EXPLOSIVE POWER TOOLS	
CR26(a): STACKING	

MANDATORY AGREEMENT AS PER SECTION 37(2) OF THE ACT

Agreement between CENTLEC and _____ **(contractor name)** as per the provisions of Section 37 (2) of the Act, to ensure that no provision is given to the contractor to deviate from the Occupational Health and Safety Act 85 of 1993 and the incorporated regulations as stated in Section 44 of the Act.

In terms of the provisions of the Construction Regulations CR 4(1) (c),

I, _____ do hereby
appoint

CENTLEC Representative OHS 16.1/16.2

_____ as
represented

Name of contractor

by _____ for this construction
work

Contractor Representative OHS 16.1/16.2

of construction at area/s:

Places where construction has to take place

on the project/construction site: _____.

It is your duty in terms of CR 5(4), to provide and demonstrate to all your sub-contractors a suitable and sufficiently documented health and safety plan and Health & Safety Specification from CENTLEC, based on the relevant sections of the Health & Safety specification for this project, contemplated in CR 5(3) (a) which we shall

provide to yourselves, which shall be applied from the date of commencement of and for the duration of your construction work.

Furthermore in terms of CR 5(7) you shall ensure that a Health & Safety file, which shall include all documentation required in terms of the Act and these Regulations, is opened and kept on site and made available to an inspector, CENTLEC Safety Division Representative.

As per CR 5(1) (d), you shall stop any contractor from executing construction work, which is not in accordance with, your health and safety plan for the site or which poses a threat to the health and safety of person.

In terms of CR 6(1) & CR 6(2), appoint a full-time competent person in writing as a Construction Supervisor, and if warranted, one or more Assistant Construction Supervisors, who shall have the same H&S duties as the Construction Supervisor. Provided that a sufficient number of competent employees have been appropriately designated under Construction Regulation CR 6(2) on this construction site, the appointed Construction Supervisor may supervise more than one site. On large projects, or those with high risks or accumulation of hazards or risks, must appoint a full-time or part-time Construction Safety Officer, as required by Construction Regulation CR 6(6). You are to lodge copies of these appointments with ourselves.

The responsible/competent person/s appointed in terms of the Act, shall work/consult with _____ (*Contractor name*) and other contractors employed on the project, on an H&S committee established specifically to ensure that the intentions of the OHASA are complied with, as per section 19 of the Act & Construction Regulation CR 7(3). Please furnish us with proof of appointment of H&S representatives, as required by section 18 of the OHASA. Every employee of yours must have undergone H&S induction, pertaining to the hazards prevalent on this construction site/project, prior to them entering the site. All employees must be in possession of proof of such H&S induction, and carry this proof with them for the period that they are on the site as per CR 7(8) and CR 7(9).

You must cause a risk assessment to be performed by a competent person appointed in writing, prior to work commencing & be updated during construction, in terms of Construction Regulation CR 7(1), which shall form part of your H&S plan.

By your signature on the acceptance of the appointment, you accept that both you & your company are fully responsible for any acts or omissions in terms of the Act by any of your employees or mandatories.

You must lodge a certificate with us confirming your registration in terms of the *Compensation for Occupational Injuries & Diseases Act No.130 of 1993*, when start on site.

Your company shall comply with all applicable legislation & amendments thereto, including, but not limited to the following:

- The Aliens Act of 1952;
- The Unemployment Insurance Act of 1986;
- The Labour Relations Act of 1995;
- The Basic Conditions of Employment Act of 1997;
- The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority
- The Fire Brigade Services Act 1987, Act 99 of 1987 as amended
- The National Building Regulations and Building Standards Act 1977 (Act 103 of 1977) as amended and relevant proclaimed Regulations (SANS10 0400)
- The Post Office Act 1958 (Act 44 of 1958) as amended
- The Electricity Act 1984, Act 41 of 1984
- The Regulations of Local Gas Board(s), including Publications of the SANS Standards and Codes of Practice, with specific reference to GNR 17468 dated 4th October 1997
- Legislation pertaining to water usage and the environment
- Legislation governing the use of equipment, which may emit radiation (e.g. X-Rays etc.)
- Common Law

Date: _____ Signature: _____
CENTLEC OHS Act Section 6(1) /16(2)

ACCEPTANCE OF APPOINTMENT

I, _____ being CEO of

_____ do hereby accept this appointment, and understand the requirements of this appointment and the Act and Construction Regulations, applicable Municipal regulations & By-laws.

_____	_____	_____	_____
Signature of Mandatory Or his Representative	Name (please print)	Designation	Date

_____	_____	_____	_____
Signature (16 (2) appointee)	Name (please print)	Designation	Date

COPY OF THIS APPOINTMENT IS TO BE AVAILABLE ON THE CONSTRUCTION SITE, AS WELL AS SHEQ DIVISION OF CENTLEC.