**TECHNICAL SPECIFICATION No TS 1506.003 v1**

**Cable Test Van, 40 kV**

Procurement of automated cable test van for testing, fault location of underground power cables from 0.4 kV to 20 kV based on vehicle, commercial motor transport up to 3.5t. Weight information: cable test van total weight could be ≤ 3500 kg.

| **No** | **Description** | **Minimal technical requirement** | **The offer with technical specification** | **The exact source[[1]](#footnote-1)** | **Remarks** |
| --- | --- | --- | --- | --- | --- |
| **Priority “A” requirements** | | | | | |
|  | **GENERAL REQUIREMENTS** |  |  |  |  |
|  | Manufacturer (name and factory location) | Specify |  |  |  |
|  | 1506.003 Cable Test Van, 40kV [[2]](#footnote-2) | Specify type reference |  |  |  |
|  | User manual | LV or EN or RU |  |  |  |
|  | Cable Test Van photo | available |  |  |  |
|  | Complies with European directives | confirm |  |  |  |
|  | Before delivery all the offered equipment must be carried out by type of metrology and production tests. Checks must comply with the IEC / CENELEC standards, according to each type of equipment. | confirm |  |  |  |
|  | The offeror must offer all the necessary hardware and computer software for all of the specific (display) functions, including all the necessary protection, accessories and connecting parts, the operating and maintenance documentation in Latvian or English or Russian languages | confirm |  |  |  |
|  | **FUNCTIONAL REQUIREMENTS** |  |  |  |  |
|  | Cable testing with >38 kV DC; | available |  |  |  |
|  | Cable testing with >38 kV VLF (Square wave - SW) (5.0μF 0.1 Hz @ 38 kV); | available |  |  |  |
|  | Advanced TDR pre-location methods including  [1] high flash over faults up to >38 kV,  [2] long cables,  [3] intermittent faults; | available |  |  |  |
|  | Arc Reflection Technology (ART) cable fault pre-location in LV/MV/HV network with >32 kV and > 2000 Joules (for 4, 8, 16, 32 kV) | available |  |  |  |
|  | Burning- Power burning:  Voltage: 10 kV power burning  Current: max. output current: A | available |  |  |  |
|  | Cable fault pinpointing based on acoustic-magnetic method with fast (min. 5s) impulse charging across all voltage levels; | available |  |  |  |
|  | Integrated or Portable system for field use- audio frequency generator for cable line tracing, depth indication and line identification with min. 2 powerful operating frequency ranges <2000Hz and <10kHz. Transmitter output power at 2000Hz and 10kHz frequencies >200W | available |  |  |  |
|  | Cable sheath testing according to IEC 60229  Sheath testing & pinpointing Fully integrated module Voltage: 0 … 5 / 10 kV, Current: 90 mA, Pulsed HV DC output | available |  |  |  |
|  | **DESIGN REQUIREMENTS** |  |  |  |  |
|  | Integrated modular design of system based on separate functioning measurement units for high system performance, redundancy and high safety standards. | available |  |  |  |
|  | System operation with control units, (Teleflex SX or PC or External unit) | available |  |  |  |
|  | User Friendly Human Machine Interface (HMI) with step-by-step help for Cable Van operator is preferred.  - Data transfer requirements: data transfer via flash memory card  ~~-~~ The system should create inspection reports  - Cable Van software update and upgrade must be supported 5 years. The software upgrade can be provided only by manufacturer or authorized representative. Software diagnostics and its upgrade must be provided at least once per year.  - Office productivity software for Inspection reports with possibility to create .pdf format files. | available |  |  |  |
|  | Automated one-phase high voltage system (HVS) switch rated >38 kV completely encapsulated. | available |  |  |  |
|  | HV pre-location technology based on inductive type Arc Reflection Technology (ART). Systems that provide only resistive type Arc Reflection methods are not accepted.ui | available |  |  |  |
|  | HV DC/VLF test unit with short duty cycle (<1hr) are not accepted. | available |  |  |  |
|  | Automated line impedance matching of TDR | available |  |  |  |
|  | Advanced safety system. The faulty ground conditions monitor should also monitor fast ramp voltage.  -Safety standard in accordance with EN 50191 and EN 61010-1  -Safety monitoring Protective earthing, operational earthing, auxiliary earthing, potential monitoring, HV connections, rear doors, emergency stop button.  -Monitoring of the supply voltage Overvoltage protection, undervoltage protection | available |  |  |  |
|  | Overall measurement system power rating <6 kVA for all measurement modes including burning. | available |  |  |  |
|  | **DETAILED SPECIFICATION** |  |  |  |  |
|  | **Control Panel and System Controls** |  |  |  |  |
|  | **Display Unit**  - Reflectometer or PC or External unit for high productivity and greater clarity during the test results evaluation. | available |  |  |  |
|  | **Control Unit**  -Operation of system via central unified control unit or PC with embedded operating system user interface or External unit. | available |  |  |  |
|  | **Control System**  ~~-~~ Semi or Fully automated control system  - Cable test van should have a modular system that will enable proper van functioning through any HV module would be removed | available |  |  |  |
|  | **Safety**  -Safety and power distribution unit incl. separation transformer;  -Low energy consumption of system; | available |  |  |  |
|  | **Automatic HV Switch** - 1ph  -Semi or Completely automated switch for switching all HV and LV modes.  -Rapid switching of modes without need to change connections to device under test. | available |  |  |  |
|  | **Automatic LV Switch** – 1ph  -Automatic switch for distributing LV signals (e.g. TDR/ISO/ect.) | available |  |  |  |
|  | **Sockets**  -Socket bar with two power sockets 230V and external system connection socket | available |  |  |  |
|  | **Cable Fault Analytics and HV Testing** |  |  |  |  |
|  | **Insulation resistance measuring device:**  Integrated measurement device  -Max. Voltage DC 1000V;  -Riso: >100 MΩ | available |  |  |  |
|  | **HV DC**  Integrated HV- DC testing mode;  Including leakage current measurement  -Max. output voltage DC: 0 - >38 kV;  -Resolution: 0,1kV  -Max. output current at 38kV: 10mA  -Resolution: 10µA  -Accuracy: ±<5% | available |  |  |  |
|  | **HV VLF**  Integrated HV-VLF, VLF (Square wave - SW) standard testing mode;  Continuous duty cycle without thermal limitations.  -Max. Output Voltage: 0- >38 kV CR;  -Output Frequency: 0,1 Hz CR;  -Max. Output Load at 5.0 μF 0.1 Hz @ 38 kV  -Accuracy: ±<5% | available |  |  |  |
|  | **HV Sheath**  Sheath testing & pinpointing Fully integrated module Voltage: 0 … 5 / 10 kV, Current: 90 mA, Pulsed HV DC output | available |  |  |  |
|  | **Pre-Location** |  |  |  |  |
|  | **TDR 1 Phase**  Integrated TDR for reflection measurement and additional modes.  -Measuring Range: min 20m-50 km;  -Max. Pulse Amplitude: >50V;  -Pulse width: 20ns – <1.3mks  -Velocity of Propagation: 40 m/µs – 149.9 m/µs;  -Direct TDR 1 Phase measurement over HV cable | available |  |  |  |
|  | -SIM/MIM, ARM, ARC or equivalent  -Impulse current  -Decay | available |  |  |  |
|  | **Inductive Arc Reflection Technology**  -Max. Voltage: 0-32 kV (inductive) | available |  |  |  |
|  | **Surge Current Coupling**  -Max. Voltage: 0->32 kV | available |  |  |  |
|  | **Decay Voltage Coupling**  -Max. Voltage: >38kV | available |  |  |  |
|  | **Intermittent Fault Scanning** | available |  |  |  |
|  | **Burning**- Power burning:  Voltage: 10 kV power burning  Current: max. output current: A | available |  |  |  |
|  | **Fault Pinpointing** |  |  |  |  |
|  | **Surge Generator LV/MV/HV**  Increased surge energy  -Surge Voltage: 0-4/8/16/32 kV;  -Max. Surge Power: >1500 Joules (0-4kV step);  -Max. Surge Power: >2000 Joules (8/16/32 kV step);  -Surge Sequence: 5-10 s (each step);  -Single shot mode | available |  |  |  |
|  | **Cable Line Locating** |  |  |  |  |
|  | **Locator Set**  Integrated or Portable system for field use powerful audio frequency generator with high precision locator:  -Output frequency: 0 - 10kHz (two frequency ranges: 0- 2 kHz and 0 - 10kHz are preferred);  -Preferred output power at 10kHz: > 200W @10kHz;  -Automatic or manual impedance matching;  -Automatic or manual depth measurement | available |  |  |  |
|  | **Surge Wave Receiver**  -Bright light and sun-readable TFT-colour display  -High acoustic and magnetic field sensitivity  -Active ear protection by an 84dB(A) limiter (according to noise and vibration protection laws, e.g. “OSHA”)  -Suppression of external noise and interferences  ~~-~~Auto Proximity Mute when approaching the handle  -Distance measurement to fault position in ms, m  -Fault direction indication and easy tracing with left-right indication  -Windproof ground microphone with additional equipment  -High ground stability of the sensor up to 45°  -Protections rating >IP54 | available |  |  |  |
|  | **Connecting Cables and Drums** |  |  |  |  |
|  | **HV (1ph)**  **-**HV Cable drum length >50m;  **-**HV Rating: >80kV;  Manual operation | available |  |  |  |
|  | **LV-Unit**  -Rack with LV connection cables  -Mains Cable – >50m;  -Protective Earth – >50m;  -Earth Potential (FU/EP) – >10m  Manual operation | available |  |  |  |
|  | **Mounting** |  |  |  |  |
|  | Ergonomic Operator’s Desk for mounting Control Units | available |  |  |  |
|  | **Furniture** |  |  |  |  |
|  | Swivel Chair with Transport Fixation | available |  |  |  |
|  | **VEHICLE CONVERSION** |  |  |  |  |
|  | Internal Coachwork | available |  |  |  |
|  | External Coachwork | available |  |  |  |
|  | **AFTER- SALE SERVICE** |  |  |  |  |
|  | Calibration, Maintenance and repair services in Baltic States | available |  |  |  |
|  | Warehouse for most commonly used spare parts, located in Baltic States | available |  |  |  |
|  | **2 year** warranty period for Cable van equipment | available |  |  |  |
| **Priority “B” requirements** | | | | | |
|  | **ADDITIONAL EQUIPMENT** |  |  |  |  |
|  | Remote app via smartphone or tablet  – Switching the surge voltage generator on and off  – Setting the surge voltage and the surge sequence | available |  |  |  |
|  | **STAFF TRAINING** |  |  |  |  |
|  | The offeror takes responsibility to provide staff training according to consumer’s requirements: |  |  |  |  |
|  | 3 days (3 x 8 hours) staff training at manufacturer’s facilities (exc. flights, transfer, accommodation costs) | available |  |  |  |
|  | 1 day (8 hours) staff training about specific technologies at consumer’s facilities (inc. flights, transfer, accommodation costs for manufacturer or offeror staff) | available |  |  |  |

1. An accurate source presenting the technical information (title and page of the instruction) [↑](#footnote-ref-1)
2. Name and number of material category of AS “Sadales tīkls” [↑](#footnote-ref-2)