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" Vehicle for Extinguishing Forest Fires"

For The Causeni Regional Directorate for Exceptional Situations of General Inspectorate for Emergency Situations of the Ministry of Internal Affairs of the Republic of Moldova



the photo of the vehicle is indicative

General Description

Fire Fighting Vehicle built on Iveco Eurocargo, chassis with body made of aluminum and steel. Superstructure integrated with 3000 l water tank and 400 l secondary tank. High quality pump. Vehicle is equipped with 5 lockers.

Chassis

Iveco Eurocargo
ML150E25WS-E5
Euro 5 GVW: 15000kg

Engine

6 cylinder 16V,
Capacity – 6728
cm³
Max power – 185kW(250HP)
at 2500 rev/min
Maximum torque: 850Nm at
1250 rev/min

1.1 Gearbox

Cambio Automatico ZF

Braking system

All disc
brakes ABS
system



1.2 Cabin

Four-door, 6-seat. 2 front seats, driver's seat with adjustable seat and backrest position, equipped with seat belts and headrests.

2. Superstructure

Built as a self-supporting shell construction, made of stainless steel and aluminum, fully resistant to corrosion. Superstructure equipped with working light – 2 on the left side, 2 on the right side and one at the rear of the superstructure. Roof can be used as a working platform or to carry equipment like ladder, suction hoses etc. Access to the roof possible by foldable ladder mounted on a rear wall of the superstructure. All lockers are closed by dust and water-proof, roller shutters with bar grips locked with key. Each compartment contains LED lighting automatically switching on when shutter is opened. Two blue lights on the roof of the cabin, one blue beacon at the back of the superstructure. Two blue LED lights at the front of the cabin.

3. Water and foam tanks

Water tank made of high quality GRP, capacity 3000 l secondary tank, made of GRP, capacity 400 l man hole, breakwaters.

4. Pump compartment and water foam system Pump compartment is located at the back of the vehicle and is closed by dust and water proof roller shutter. In the pump compartment there are pump, foam mixer and piping.

4.1 Rapid intervention line

with a hose, with manual and electric drive. Located in rear right side of superstructure.

4.2 Pump.

$Q \geq 2500 \text{ l/min at } 10 \text{ Bar}$;

5. Parameters

Approximate exterior dimensions:



Item	Parametr	Unit	Dimension
1.	Length of vehicle	mm	7000
2.	Width of vehicle	mm	2550
3.	Height of vehicle	mm	3300

LIST
of Equipment and Accessories of the Vehicle for Extinguishing Forest Fires

No	Name	MU	Quantity
EQUIPMENT AND ACCESSORIES			
1.	4-inch (Type A) suction coupling , mounted at the suction point, in the case of the vehicle being supplied with water from unpressurized sources, positioned at the rear of the vehicle, without obstructing the operation of the control panel during suction	Unit	1
2.	4-inch (Type A) blind coupling.	Unit	1
3.	Fixed Type B coupling (mounted for discharge and water supply to the vehicle's tank from pressurized sources).	Unit	4
4.	Blind Type B coupling.	Unit	4
5.	Fixed Type C coupling (mounted for discharge).	Unit	2
6.	Blind Type C coupling.	Unit	2
7.	Fork with a minimum of 3 teeth, with a handle. The handle shall be made of composite material (PAFS or equivalent). The fork shall be made of heat-treated steel, resistant to torsion, bending, and extreme temperatures, secured with a system to prevent accidental detachment.	Unit	4
8.	Shovel: <ul style="list-style-type: none"> - Length: minimum 1200 mm - Weight: maximum 3 kg The handle shall be made of fiberglass-reinforced polyester (PAFS) obtained through the pultrusion process, non-conductive, and resistant to shocks, flames, water, UV damage, and low temperatures.	Unit	4
9.	Wildfire beater with a handle. The handle shall be made of material (PAFS or equivalent). The beater shall be made of rubber, resistant to shocks and high temperatures (200 degrees Celsius for at least 5 minutes), attached with rivets to the handle	Unit	4
10.	Hydrant key made of heat-treated steel, resistant to torsion, bending, mechanical shocks, and extreme temperatures. Designed for operation of the type B portable hydrant from the position no. 29.	Unit	1
11.	Hydrant key made of heat-treated steel, resistant to torsion, bending, mechanical shocks, and extreme temperatures. Designed for operation of the GOST type portable hydrant from the position no. 30.	Unit	1
12.	Coffret key made of heat-treated steel, resistant to torsion, bending, mechanical shocks, and extreme temperatures.	Unit	1
13.	Type A coupling key made of heat-treated steel, resistant to torsion, bending, mechanical shocks, and extreme temperatures.	Unit	2
14.	Type B coupling key made of heat-treated steel, resistant to torsion, bending, mechanical shocks, and extreme temperatures.	Unit	2
15.	Type C coupling key made of heat-treated steel, resistant to torsion, bending, mechanical shocks, and extreme temperatures.	Unit	2
16.	Hose tying cord: Type C.	Unit	4
17.	Suction hose support cord: Type A.	Unit	1
18.	Suction basket.	Unit	1
19.	Elbow for hose.	Unit	2
20.	Distributor B-CBC made of aluminum alloy.	Unit	1
21.	Distributor C-DCD made of aluminum alloy.	Unit	2
22.	Hose band for discharge hose type B.	Unit	2
23.	Hose band for discharge hose type C.	Unit	4
24.	Hose band for discharge hose type D.	Unit	4

25.	<p>Type B Hose, with type B “STORZ” fittings, protected on the outside by</p>										
	<p>rubber.</p> <p>To increase mechanical resistance, the material (corrosion-resistant) from which the fittings are made shall be made from aluminum alloys exposed to pressure.</p> <p>The hose shall be collapsible, made from rubber-coated textile material, whose cross-section becomes circular only under internal pressure, and in an unfilled state, it can be folded and rolled flat. The inner diameter and length shall comply with the table below:</p> <p>The hose shall meet the conditions at hydrostatic pressure according to the table below:</p> <table><tr><th rowspan="2">Product</th><th colspan="2">Check pressure [bar]</th></tr><tr><th>Test pressure</th><th>Minimum burst pressure</th></tr><tr><td>Hose type B</td><td>25</td><td>40</td></tr></table>	Product	Check pressure [bar]		Test pressure	Minimum burst pressure	Hose type B	25	40	M.L.	100
Product	Check pressure [bar]										
	Test pressure	Minimum burst pressure									
Hose type B	25	40									
26.	<p>Type C Hose, with type B “STORZ” fittings, protected on the outside by</p> <p>rubber.</p> <p>To increase mechanical resistance, the material (corrosion-resistant) from which the fittings are made shall be made from aluminum alloys exposed to pressure.</p> <p>The hose shall be collapsible, made from rubber-coated textile material, whose cross-section becomes circular only under internal pressure, and in an unfilled state, it can be folded and rolled flat. The inner diameter and length shall comply with the table below:</p> <p>The hose shall meet the conditions at hydrostatic pressure according to the table below:</p> <table><tr><th rowspan="2">Product</th><th colspan="2">Check pressure [bar]</th></tr><tr><th>Test pressure</th><th>Minimum burst pressure</th></tr><tr><td>Hose type C</td><td>25</td><td>40</td></tr></table>	Product	Check pressure [bar]		Test pressure	Minimum burst pressure	Hose type C	25	40	M.L.	100
Product	Check pressure [bar]										
	Test pressure	Minimum burst pressure									
Hose type C	25	40									

27.	<p>Type D Hose, with type C “STORZ” fittings, protected on the outside by rubber.</p> <p>To increase mechanical resistance, the material (corrosion-resistant) from which the fittings are made shall be made from aluminum alloys exposed to pressure.</p> <p>The hose shall be collapsible, made from rubber-coated textile material, whose cross-section becomes circular only under internal pressure, and in an unfilled state, it can be folded and rolled flat. The inner diameter and length shall comply with the table below:</p> <p>The hose shall meet the conditions at hydrostatic pressure according to the table below</p>	M.L.	200								
	<table><tr><th rowspan="2">Product</th><th colspan="2">Check pressure [bar]</th></tr><tr><th>Test pressure</th><th>Minimum burst pressure</th></tr><tr><td>Hose type D</td><td>30</td><td>50</td></tr></table>			Product	Check pressure [bar]		Test pressure	Minimum burst pressure	Hose type D	30	50
	Product				Check pressure [bar]						
				Test pressure	Minimum burst pressure						
Hose type D	30	50									
28.	Progressive hose pack backpack (for 2 D type hoses)	Unit	5								
29.	Bag for keys with straps and handles	Unit	1								
30.	Bandage bag for discharge hose.	Unit	1								

31.	Portable hydrant type B with valves (according to EN 14339)	Unit	1
32.	Portable hydrant (GOST type, used in the post-Soviet Union countries) with valves.	Unit	1
33.	<p>Portable LED lighting lamp with rechargeable battery, charger connected to the vehicle's electrical system, and a 230 V AC charger.</p> <ul style="list-style-type: none"> - ATEX certification or equivalent; - Usage: handheld and mountable in a desired working position; - The reflector is equipped with a swiveling head that can be directed to the desired direction by maneuvering it; - Weight: maximum 2 kg (including batteries); - Brightness: minimum 500 lumens (high) / 200 lumens (low); - Light intensity: minimum 18,000 candelas (high) / 6,500 candelas (low); - Light source: LED; - Weatherproof, water and dust resistant; - Battery life: minimum 4 hours (high) / minimum 10 hours (low); - Batteries are included (2 per set); - 230VAC charger (1 pcs.) 	Unit	2
34.	Rubber hose bridge for 2 type B hoses that ensures the safe passage of the fire truck. Construction material – rubber.	Unit	2

35.	Halligan tool set 760 mm: Halligan tool: forged steel tips, solid handle (steel or durable composite material), At one end, two points: - one flat, long, smooth, angled (for forcing windows and doors), the other sharp (cone-shaped and slightly curved). At the other end: two sharp and parallel claws. Axe: Minimum weight 2400 g. and 3000 g. (2+2 pieces), <ul style="list-style-type: none"> • Handle made of fiberglass or composite, • The blade made of steel, one end is an axe, and the opposite end is beveled, Axe blade width: 100 mm - 150 mm.	Set.	1
36.	Reduction coupling B-C.	Unit	2
37.	Reduction coupling C-D.	Unit	4
38.	Strainer with mesh made of lightweight metal materials or corrosion-resistant aluminum alloy.	Unit	1
39.	A pickaxe designed for emergency interventions related to fire extinguishing. The handle is made of composite material (PAFS or equivalent). The axe blade is made of hardened steel, resistant to impact in metal. The axe shall have a sheath with a fastening system and a strap for shoulder carrying.	Unit	2
40.	A small axe designed for emergency interventions related to fire extinguishing. The handle is made of composite material (PAFS or equivalent). The axe blade is made of hardened steel, resistant to impact in metal. The small axe shall have a sheath with attachment systems for a belt or strap.	Unit	5
41.	Suction hose type A with couplings for the pumping unit. Minimum length of 4 meters.	Unit	2
42.	Type C Water Discharge nozzle: <ul style="list-style-type: none"> - automatic pressure regulation system with variable flow between 0 (zero) l/min and minimum 400 l/min at 6 bar pressure; - optimized for the technique of pushing in the form of pulses; - body made of composite material (polymers reinforced with glass fiber or equivalent) or aluminum alloy; - pistol grip for support; - close-close valve, the valve is operated by moving back and forth, the position of the valve shall be on the opposite side of the support handle; - the valve and the handle shall be sized for using the gun with protective gloves; - external discharge mode selection ring, made of polyurethane, with tactile indicator to indicate the conical shape of the jet, with 3 main shapes of the jet: compact, conical and dispersed as a protective curtain; - the outer selection ring shall allow all forms of the jet to be traversed; 	Unit	2
	<ul style="list-style-type: none"> - internal sieve to prevent large impurities from entering; - teeth cut in aluminum for the generation of fine drops; - type C connection in the back on the same axis as the nozzle, with the possibility of 360° rotation of the gun connected to the hose. 		

43.	Type D Water Discharge nozzle: <ul style="list-style-type: none"> - automatic pressure regulation system with variable flow; - optimized for the technique of pushing in the form of pulses; - body made of composite material (polymers reinforced with glass fiber or equivalent) or aluminum alloy; - pistol grip for support; - close-close valve, the valve is operated by moving back and forth, the position of the valve shall be on the opposite side of the support handle; - the valve and the handle shall be sized for using the gun with protective gloves; - external discharge mode selection ring, made of polyurethane, with tactile indicator to indicate the conical shape of the jet, with 3 main shapes of the jet: compact, conical and dispersed as a protective curtain; - the outer selection ring shall allow all forms of the jet to be traversed; - internal sieve to prevent large impurities from entering; - teeth cut in aluminum for the generation of fine drops; - type D connection in the back on the same axis as the nozzle, with the possibility of 360° rotation of the gun connected to the hose. 	Unit	4
44.	Motor pump for dirty water , with connections compatible with the pumping unit. Specifications: <ul style="list-style-type: none"> - 4-stroke engine. - Engine power: minimum 7 HP. - Equipped with a self-priming system. - Water discharge flow rate: minimum 1600 l/min. - Minimum working flow rate: 1000 l/min at a pressure of at least 2 bar. - Solid particle diameter that can be absorbed: up to 30 mm. - Maximum discharge pressure: at least 2.5 bar. - Water discharge will be performed using type B hoses. - Maximum weight: 80 kg. - Minimum suction depth: 7.5 m. - Metal frame with the ability to be transported by 2–4 operators. Includes a suction hose with a minimum length of 6 m, equipped with connections compatible with the pump's inlet connection and a strainer.	Cpl.	1
45.	Collapsible Water Tank (minimum volume 1000 Liters) suitable for installation of the suction hoses of the motor pump	Unit	1
46.	Bolt/Rebar Cutter: <ul style="list-style-type: none"> - length: minimum 850 mm; - weight: maximum 7 kg; - cutter head made of high-alloy chrome-molybdenum forged material; - cutting capacity: minimum 10 mm; - handles made of composite material (PAFS or equivalent), steel, or PVC, ergonomic to allow work with protective gloves; - adjustable screw for grip spacing 	Unit	1
47.	Motor chainsaw with chain , spare chain set, sharpening file, and wrench: <ul style="list-style-type: none"> - engine power: minimum 4.8 HP; - bar length: minimum 50 cm; - weight without cutting equipment: maximum 6.5 kg; - noise level: maximum 112 dB(A); - carburetor with self-adjustment. 	Unit	2
48.	Thermal imaging device: <ul style="list-style-type: none"> - designed for use in firefighting; - detector sensor resolution minimum 384x288 pixels; - detectable temperature range minimum from -40°C to minimum 1100°C; - sensor frequency minimum 60 Hz; 		

	<ul style="list-style-type: none"> - optic lens protected with a germanium window; - LCD screen size: minimum 3.5 inches; - startup time maximum 5 seconds; - color display modes: at least fire, search, cold, inverted, multicolor; - freeze-frame function with color scheme change capability; - built-in laser pointer; - video recording with auto-start option upon camera activation, with storage for at least 8 hours and simultaneously 1000 photos; - USB interface for accessing, transferring, and deleting saved data; - USB cable for PC connection; - detachable handle and retractable strap with carabiner; - minimum battery life of 5 hours; - two sets of LiFePO4 batteries, safe against fire and impact; - charger with 230V AC adapter; - vehicle charger for charging the device and backup batteries simultaneously; - minimum protection rating of IP67; - drop resistance of at least 2 meters; - temperature resistance of 150°C for 15 minutes and 260°C for 5 minutes; - device weight with batteries: maximum 1 kg; rigid carrying case for transport.	Cpl.	1
49.	Self-contained breathing apparatus set with 4 panoramic masks, air cylinder and transport harness.	Unit.	4 SCBA 16 masks
50.	Spare compressed air cylinders.	Unit.	4
51.	TETRA handheld radio terminals.	Unit.	6
52.	Crowbar 1700 mm, 7.2 kg.	Unit.	1
53.	Crowbar 800 mm x 19 mm.	Unit.	1
54.	Sledgehammer, 2 kg , handle made of fiberglass.	Unit.	1
55.	Sledgehammer, 10 kg , handle made of fiberglass.	Unit.	1
56.	Carpenter's hammer with split claw, 14" (570 g).	Unit.	1
57.	Medical Backpack (Red) – Dimensions: 65 cm x 40 cm x 30 cm	Unit.	1

Note: All accessories and equipment shall be certified/approved according to EU standards and regulations. The flame-resistant protective suit falls into risk category III and is subject to the conformity assessment procedure, regulations, and conditions for applying the CE marking, corresponding to PPE category III. Only products bearing the CE marking accompanied by the number of the EU notified certification body shall be accepted.

All equipment and accessories that are not secured in/on drawers, floors, doors, or side walls shall be arranged in compartments, in durable plastic boxes with handles for handling. The boxes shall contain a list of the materials contained for easier identification during intervention. The boxes shall be numbered, and the inventory of the complete firefighting vehicle to be provided shall be structured in the order of the boxes. Items fixed to the firefighting vehicle shall be included in an annex to the complete inventory.

Annex no. 2
to the technical specification

LIST
of specific materials on the chassis

No	Product name	U.M.	Quantity
1.	First aid kit for vehicles	units	1
2.	Tool kit and specific accessories for the chassis	units	1
3.	Hydraulic jack that allows the replacement of a wheel on a fully loaded vehicle	units	1
4.	Reflective triangles	units	2
5.	Jack support plate	units	1
6.	Spare wheel (rim + tire) mounted on the chassis or vehicle	units	1
7.	Type P6 fire extinguisher mounted in the cabin	units	1
8.	Wheel chocks	units	2
10.	Anti-slip chains for all driving wheels of the vehicle	Set	2

Annex no. 3

to the technical specification

TETRA RADIO TERMINALS

The communications module for vehicles shall consist of:

- One TETRA standard radio terminal for installation in vehicles;
- Six portable TETRA standard radio terminals.

Technical Specification

„TETRA radio terminals for installation in special vehicles”

1. Compatibility

All the terminals offered shall be compatible with the services available on the operational TETRA system infrastructure in the Republic of Moldova.

2. Applicable technical requirements

2.1. Environmental Requirements

The offered TETRA terminals shall have the following environmental characteristics:

- Operating temperature: -30 / +60° C
- Humidity: ETSI 300 019-1-5 CLASS 5.2
- Shocks and vibrations: ETSI 300 019-1-5 CLASS 5M3
- Dust and water protection: minimum IP 54.

2.2. Configuration

For easy installation, the mobile terminal shall be in "dash mount" or "remote mount" configuration depending on the vehicle model and installation possibilities in the cabin.

2.3. RF

The offered TETRA terminals shall have the following RF characteristics:

- a) RF band (TMO&DMO): 380-400 MHz
- b) Modulation: $\pi/4$ DQPSK
- c) Receiver: Class A and B
- d) Power Tx terminal: minimum 10 W

2.4. TETRA services and functionalities

2.4.1. Voice services

- a) Group call (minimum 200 pre-programmed TMO groups);
- b) Semi-duplex and full duplex individual call;
- c) Emergency call;
- d) Full duplex telephone call;
- e) Call in DMO mode (at least 100 pre-programmed DMO groups).

2.4.2. Additional services

- a) TPI, CLIP, DGNA, Late entry, Priority call; Tx inhibit;
- b) Group scanning (minimum 10 groups);
- c) Operation as a "DMO repeater";
- d) Operation as "TMO/DMO and DMO/TMO gateway."

2.4.3. Data Services - SDS/SDS-TL, Status messages, IP PDS.

2.5. Mobility

- a) Cell selection/reselection: type 3 or higher (according to the ETSI TETRA 300 392-2 standard);
- b) Supports multiple networks (MNC) based on a list programmed in the terminal.

2.6. Security

a) The authentication keys shall be provided in a format that complies with TETRA MoU recommendations. The authentication keys shall be provided respecting the security rules established by the TETRA MoU SFPG recommendations.

b) Air Interface Encryption;

c) Encryption on the radio interface – TEA1 (**Terminals shall be supplied with the TEA1 algorithm**);

d) Security class: class 1 (Clear), class 2 (SCK) and class 3 (DCK and CCK);

f) Disable/Enable terminals (*Remote disable/enable*).

2.7. Other features

a) Transmission inhibition in special environments (function to prevent transmission in sensitive areas to radio frequencies).

3. Specific technical requirements for the mobile TETRA terminal

3.1. Nominal power supply conditions: 12 V DC

3.2. User interface (MMI) Display

- color display, number of display colors: minimum 65K;
- backlight, flip screen, large icons and scalable text font options;
- multiple display languages, user selectable;
- indicators displayed on the display for working modes (eg: TMO, DMO, Tx inhibit,

etc.);

- menu navigation with intuitive operation

A) Keypad alphanumeric keypad;

- menu navigation keys;
- emergency call initiation button/key;
- button/key for group selection;
- volume button/key.

B) phonebook (tel. no. + private no. up to. 1000 contacts);

- easy calling (e.g. by searching in the phone book, the last dialed numbers, etc.)

a) Interfaces:

- for connecting audio accessories;
- multifunctional interface for programming/data transmissions/AT commands.

3.3. Integrated GPS receiver

a) The TETRA mobile terminal shall be equipped with an integrated GPS receiver with the following specifications:

- satellites received simultaneously: minimum 10;
- sensitivity: min. – 152 dBm;
- precision/accuracy: max 5 m.

b) The TETRA mobile terminal shall support the ETSI LIP protocol.

c) The TETRA mobile terminal shall support simultaneous location data transmission (from the user's point of view) using the TETRA Packet Data service.

4. Accessories and installation kit

For each terminal the Seller shall provide accessories and installation kit. These shall include:

- standard microphone with PTT and fixing support;
- speaker with connecting cable and fixing support;

- power cable with fuse and suitable connectors (adapted to practical situations);
- fixing support in the vehicle;
- omnidirectional car antenna, band 380...400 MHz, VSWR<1.5 in the band of interest, impedance 50 ohms, type of fixation on the body, provided with an installation kit (fixation, RF cable, connectors, etc.);
- converter from 24V DC to 12V DC (if the voltage available on the vehicle requires it);
- active GPS antenna integrated on the same support as the UHF antenna, band 1.5...1.6GHz, VSWR<1.5 in the band of interest, impedance 50 ohm, type fixing on the vehicle chassis body, provided with an installation kit (fixing, RF cable, connectors, etc.).

5. Terminal installation:

- The contractor shall carry out the installations of mobile TETRA terminals;
- The installation shall be based on a prototype installation agreed between the Contractor and the Beneficiary;
- The installation of the equipment (radio terminal and accessories), the DC power supply solution, the RF and DC cable routes, the power supply solution, shall be established/carried out on the basis of solutions coordinated with the Beneficiary as well as with the manufacturer (official representative) of the vehicle so as not to affect the warranty for the vehicle;
- All installations shall allow easy access to the radio unit of the terminal so that the beneficiary can program the terminal without being removed from the vehicle.

Technical Specification

„Portable (handheld) TETRA radio terminals”

1. Interoperability

All the terminals offered shall be compatible with the services available on the operational TETRA system infrastructure in the Republic of Moldova

2. Applicable technical requirements

2.1. Environmental Requirements

The offered TETRA terminals shall have the following environmental characteristics:

- Operating temperature: -30 / +70° C
- Humidity: ETSI 300 019-1-7 CLASS 7.3E
- Shocks and vibrations: ETSI 300 019-1-7 CLASS 5M3
- Dust and water ingress protection: IP 65/66/67

2.2. RF

The offered TETRA terminals shall have the following RF characteristics:

- a) RF band (TMO&DMO): 380-400 MHz
- b) Modulation: $\pi/4$ DQPSK
- c) Receiver: Class A și B
- d) Power Tx terminal: adjustable in steps up to **1.8W (class 3L)**;

2.5. TETRA services and functionalities

2.5.1. Voice services

- a) Group call (minimum 200 pre-programmed TMO groups);
- b) Semi-duplex and full duplex individual call;
- c) Emergency call;
- d) Full duplex telephone call;

e) Call in DMO mode (at least 100 pre-programmed DMO groups).

2.5.2. Additional services

- a) TPI;
- b) CLIP;
- c) DGNA;
- d) Late entry;
- e) Priority Call;
- f) Group scanning (minimum 10 groups in scanning);
- g) Operation in "repeater" mode;
- h) Operation in "gateway interface" mode.

2.5.3. Data Services

- a) SDS/SDS-TL;
- b) Status messages
- c) IP PDS;
- d) AT Commands.

2.6. Mobility

- a) Cell reselection: type 3 or higher;
- b) Supports multiple networks (MNC) based on a list programmed in the terminal.

2.7. Security

- a) The authentication keys shall be provided in a format that complies with TETRA MoU recommendations. The authentication keys shall be provided respecting the security rules established by the TETRA MoU SFPG recommendations;
- b) Air Interface Encryption;
- c) Encryption on the radio interface – TEA1 (**Terminals shall be provided with the TEA1 encryption algorithm**).
- d) Security class: class 1 (Clear), class 2 (SCK) and class 3 (DCK and CCK);
- f) Disable/Enable terminals (*Remote disable/enable*).

2.8. Other features

- a) Transmission inhibition in special environments (function to prevent transmission in sensitive areas to radio frequencies).

3. Connectivity

3.1. Wi-Fi

- supported IEEE Standards 802.11 a, b, g, n, ac;
- Wi-Fi bands: 2.4GHz and 5GHz;
- authentication and encryption;
- security TLS 1.2.

3.2. Bluetooth

- supported versions: at list Bluetooth 4.0, and 2.1;
- headset profile (HSP), fast PTT with accessories.

4. User interface (MMI)

a) Display

- color screen with the possibility of rotating the image;
- color display minimum 1.7 inches;
- backlight, flip screen, large icons and scalable text font options;
- multiple display languages, user selectable;
- indicators shown on the display for working modes (eg: TMO, DMO, etc.);

- menu navigation with intuitive operation.

b) Keypad

- alphanumeric keypad;
- menu navigation keys;
- emergency call initiation button/key;
- button/key for selecting group and volume;
- user configurable one touch buttons and keys;
- keypad lock.

c) Phonebook

- phonebook (tel. no. + private no. up to 1000 contacts);
- easy dialing (e.g. by searching in the phone book, the last dialed numbers, etc.)

d) Audio & programming interface/data transmissions

- audio amplifier and speaker (the amplifier and speaker shall have sufficient power to ensure the terminal is usable in noisy environments);

- audio mode: loudspeaker/discrete (loud/discrete) selectable from the MMI. The audio volume shall be controllable from the MMI;

- possibility of using audio accessories;
- multifunctional interface for programming/data transmissions;
- supports Over-The-Air Programming.

5. Integrated GPS receiver

a) The portable TETRA terminal shall be equipped with an integrated GPS receiver with the following specifications:

- satellites received simultaneously: minimum 8;
- sensitivity: min. – 163 dBm;
- precision/accuracy: max 5 m (50% probability);

b) Active GPS antenna, integrated in the TETRA antenna or in the terminal;

c) The TETRA portable terminal shall support ETSI LIP.

6. Battery

a) Battery type: Lithium-Ion or Lithium-Polymer;

b) Capacity: minimum 1950 mAh;

c) Autonomy for mode 5/5/90 (Tx/Rx/Standby): ≥ 18 hours.

7. Accessories

Each terminal shall be supplied with the following accessories:

- compact RF Antenna;
- handsfree accessory with integrated microphone, loudspeaker and PTT button, equipped with a rotating clip for attachment to the lapel;
- clip for fixing the portable terminal to the belt;
- dual charger for simultaneous charging of terminal and battery (EU plug);
- vehicle charger;
- spare battery with specifications according to point 6.

I. Terminal programming and general requirements for all TETRA radio terminals

(for vehicle and handheld terminals mentioned)

1. Programming

1.1 The programming of the TETRA terminals shall be possible by the Beneficiary through a PC/laptop equipped with a USB port.

1.2 A programming set shall be provided for the entire quantity of TETRA mobile terminals. This shall contain all the necessary elements for programming the

TETRA mobile terminals provided, namely:

- USB programming cable;
- programming application (including radio software versions);
- the license/hardware key for the programming application (if applicable);
- for the programming application, the User Guide shall be delivered,

which shall include the description of how to install and operate the application, in English;

For TETRA terminals, an instance of the software application and/or hardware device shall be provided for uploading the authentication/encryption keys (**only if the TETRA radio communication system administrator does not have such software/hardware products**), so that the keys authentication/encryption can be loaded by the Beneficiary on any of the types of terminals provided. If uploading authentication/encryption keys is done with a software application, it shall work on any PC/laptop with Windows 10/11 64-bit operating system.

2. General requirements

2.1 The terminals shall be programmed by the Beneficiary with the support of the Seller, in collaboration with the administrator of the TETRA radio communication system, in which they are to be integrated. The Bidder undertakes that, at the Beneficiary's request, it shall provide technical assistance free of charge, whenever necessary, during the entire programming period of the terminals, including the phase of entering the authentication/encryption keys, respectively of registering the terminals in the TETRA infrastructure.

2.2 The delivered products shall be new and unused. Equipment declared by the manufacturer as EoS (End of Sale) or EoL (End of Life), or to be declared as EoS or EoL in the year of purchase, shall not be accepted.

2.3 Any software/firmware license required for the operation of the equipment according to the technical specifications within this specification shall be provided and included in the equipment price

2.4 Any material or accessory, device or sub-assembly and any other similar materials, which are necessary for the correct installation and operation at the parameters specified in this specification shall be considered a priori requested, and the equipment shall be delivered with all of them.

2.5 A user manual in English shall be provided for each portable terminal.

3. Warranty

The warranty for the supplied equipment, including its accessories, of 24 months from the date of final acceptance.

4. Abbreviations for all TETRA radio terminals:

AL - Ambience Listening

ARL - Automatic Resource Location AVL

- Automatic Vehicle Location

CLIP - Calling Line Identification

Presentation DGNA - Dynamic Group

Number Assignment DMO - Direct Mode
Operation

DTE - Data Terminal Equipment

ETSI - European Telecommunications Standards

Institute GC - Group Call

GPS - Global Positioning System IC

- Individual Call

IP - Internet Protocol

ISCOM - Istituto Superiore delle Comunicazioni e delle Tecnologie
deirinformazione (Italian Ministry of Communications Laboratory)

LIP - Location Information Protocol MCC

- Mobile Country Code

MNC - Mobile Network Code

MoU - Memorandum of Understanding PC

- Personal Computer

PDS - Packet Data Services

PEI - Peripheral Equipment

Interface PIN - Personal

Identification Number PTT - Push
To Talk

PSU - Power Supply Unit RF

- Radio Frequency Rx -
Receive

SDS - Short Data Services

SFPG - Security and Fraud Prevention

Group ST - Technical Specification

SwMI - Switching and Management Infrastructure

TEA - Tetra Encryption Algorithm

TETRA - Terrestrial Trunked

Radio TL - Transport Layer

TMO -Trunk Mode Operation

TPI - Talking Party Identification
Tx - Transmit
URL - Uniform Resource Locator
V+D - Voice + Data
VSWR - Voltage Standing Wave
Ratio WAP – Wireless
Application Protocol

WARRANTY IVECO AND WIZZ	5 years or 150 000 km
Post-Warranty	10 years
Place of delivery	<i>Republic of Moldova, Causeni city, Mihail Kogălniceanu street no. 11, beneficiary's headquarters.</i>
Terms of delivery:	no later than 01.11.2026
Offer validity:	120 days