

**TECHNICAL DESCRIPTION – SPECIFICATIONS**

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### **1. GENERAL FRAMEWORK OF THE PROJECT**

#### **1.1 New AFCS - OASA**

The Athens Urban Transport Organization (OASA) is currently running a PPP Contract for a project that embodies the design, funding, installation, testing, operation, operation support, maintenance and technical management of a Unified Automatic Fare Collection System (AFCS) which will cover all transport modes of Athens (buses, trolley buses, tramway, Metro Lines 1, 2 and 3 and suburban railway). The system's key feature is the electronic ticket, which will give a decisive push to the public transport system, shall minimize ticket evasion and shall offer a substantial assistance to all transport studies and activities by providing a detailed record of passenger trips.

In particular, OASA's Contractor – Private Sector Partner (PSP), has undertaken the following tasks:

- Design, installation, ensuring the full / uninterrupted operation and technical management of the system
- Preparation of the necessary designs for the installation of the new equipment needed for the smooth operation of the system and the integration of the existing infrastructure into the new complete AFC System.
- Ensuring the correct and reliable operation of the new equipment, at specific availability rates
- Maintenance of the system and its components
- System and equipment customization in view of implementing the applicable fare types and the policies related to fare pricing, control and distribution, as decided by OASA.
- Technical support of the system, which shall address the periodical system upgrades, as well as the staffing of the system control centers throughout the contract duration
- Personnel training on system operation
- Procurement / printing of the initial quantity of the electronic “card”, as well as initial procurement of the “Multiple” ticket, either pre-loaded or not
- Insurance coverage for the equipment and other installations and systems comprising the AFC System and forming the PPP Contract scope, covering the project both during its design and construction stage, as well as during its operation maintenance period.

More specifically, for each station on the Metro Lines 2 and 3 the Contractor – Private Sector Partner (PSP) shall install:

- Access control Gates
- Station Management Center (SMC)
- In parallel, the existing ticket issuing machines shall be upgraded so as to accept smart cards – electronic tickets.

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### **1.2 E/M Metro Systems interoperability with OASA’s AFCS**

In this framework and in order to ensure interoperability among:

- the new systems of the AFCS (mainly the access control gates)
- the local (in stations) and central (in the OCC) gate control systems
- the already installed (earlier contracts) in the stations E/M systems for fire detection, Building Control & Automation Systems (BACS), direct telephones (DLT), data transmission (OTN), cameras (CCTV), clocks and power supply system

the aforementioned existing and operating E/M systems in the stations along Lines 2 and 3 must be amended and upgraded, with the view of finally achieving the smooth and safe operation of OASA’s AFCS, ensuring primarily the safety of the passengers both during normal operating conditions, as well as in emergency conditions which will likely call for passenger evacuation.

The above interfaces shall be implemented through a series of independent contracts, on a per technical scope basis.

Specifically :

- The fire detection systems must be interfaced with the new AFCS, so that - in case a fire is detected – the gates will open automatically in order to facilitate passenger evacuation procedures. It is stressed that the Metro network is served by five distinct providers / installers of fire detection systems, each one being responsible for a distinct geographical area of the Lines 2 & 3 network; even though the general architecture and operational requirements are similar, a different technical approach is generally required in terms of DFD, required new equipment and implementation, as well as different software for each case. Certainly, any amendments to existing E/M systems shall be carried out in a manner not affecting their current functions and capabilities. Among the amendments to the fire detection system will be the interfacing between the fire detection systems with the stations BACS. The scope of the amendment to the fire detection systems also includes the relevant preliminary safety assessment on a design level, so as to ensure that the combined AFCS, Fire Detection and BACS systems achieve the required SIL levels.

The amendment of the fire detection systems and their interface with the AFCS shall take place by means of an separate contract.

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- The BACS systems must be interfaced with the new AFCS, so that in case of an emergency (e.g. activation of fire scenarios) the gates will open automatically in order to facilitate passenger evacuation procedures. It is stressed that the Metro network is served by two distinct providers / installers of the BACS systems, each one being responsible for a distinct geographical area of the Lines 2 & 3 network, namely one for the Base Project (Sepolia – Dafni on Line 2 and Ethniki Amaryna on Line 3) and one for all other extensions. Even though the general architecture is different, the operational requirements are similar in the two BACS systems. A different technical approach is generally required in terms of DFD for the required new equipment and implementation, as well as different software for each case. Certainly, any amendments to existing E/M systems shall be carried out in a manner not affecting their current functions and capabilities. Among the amendments will be the interfacing between the BACS and the respective fire detection systems in the stations. The scope of the amendments to the BACS systems also includes the relevant preliminary safety assessment on a design level, so as to ensure that the combined AFCS, Fire Detection and BACS systems achieve the required Safety Integrity Levels (SIL)

The amendment of the BACS systems and their interface with the AFCS shall take place with the present contract.

- The direct telephone system is mainly required for the normal operation of the stations and is related to the option that must be provided to the passengers to directly communicate with the personnel of each station at the gate control line area and/or with the OCC, whenever the passengers are unable to pass through the gates to either enter or exit the station (faulty electronic tickets or cards, inability to exit from the gates etc.). One DLT shall also be installed near the Fireman Box in each station.

This system shall be amended – upgraded by means of this contract.

- The data transmission system is mainly required in order to serve the great number of new telephones to be installed in the stations and their connection to the OCC, but also for data transmission purposes as required by the amended BACS system in the Base Project Stations.

This system shall be amended – upgraded by means of a separate contract.

- The cameras – CCTV system is mainly required in order to provide the capability for automatic activation of the surveillance cameras at the control line area of the access gates in each station and, thus, to provide the capability to the Station Master and the OCC for immediate surveillance on the line, in case one or more gates fail.

This system shall be amended – upgraded by means of a separate contract.

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- The Clock system must be connected to the AFCS system so as the new AFCS system is synchronized with the existing E/M systems in each station, in order to provide a more precise recording of the time of all events and functions, especially in case of failures or incidents that require special addressing and/or subsequent investigation.

This system shall be connected with the AFCS by OASA’s Contractor for the AFCS system.

- The power supply system must be expanded/amended so as to feed the new AFCS system without affecting the operation of the existing E/M systems. These amendments shall be carried out by the PSP – OASA’s existing Contractor.

This system shall be supplemented, amended and connected with AFCS by OASA’s AFCS Contractor.

Before any works are executed, the required interfaces, the methodology for their implementation, the new software and all relevant tasks must be designed at a DFD level, in cooperation with the original suppliers of the operating E/M systems.

All the above works shall require the cooperation with the PSP Contractor of OASA, at a technical and operation level, as well as with STASY S.A., because the systems to be amended must not lose their functionality at any given time period, other than the night time engineering hours, after a detailed planning in terms of time and technical matters.

The amendments to the above E/M systems and to their connections with the AFCS system will be followed by individual and combined tests, which will demonstrate that the original function of each E/M system has not been altered, but also that the new operational requirements are met after each system is connected with the AFCS.

Finally, in parallel to the above activities and until their completion, an overall and independent safety assessment shall be required (by a specialized independent safety assessor) for the entire combined AFC system – E/M systems for:

- The layout of the gates in the stations and their operation both during normal and emergency conditions;
- The safety and compliance with the required SIL levels as regards the connections and the combined operation of the AFCS with the E/M systems of the stations.

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### **2. SCOPE OF THE PROJECT**

#### **2.1 Purpose**

In view of the proper and safe operation of the gates, in front and behind the gate lines telephone sets must be installed to be used by the passengers wishing to communicate with the station master or the OCC. This shall be implemented partially by OASA’s Contractor (TEPNA – LG) for the gates and the e-ticket (as described below) and partially by the Contractor of this Contract. In total, 122 DLT telephone sets shall be required.

More specifically, the scope of this contract includes:

- (a) the installation and commissioning of the DLT sets near the Fireman Boxes in each station, i.e., 36 sets, one for each operating Metro stations along Lines 2 & 3.
- (b) the additions, modifications and upgrading of the local (in stations) and central (in the OCC) DLT systems, in terms of additional equipment or software for all new DLT sets (i.e., for 122 DLT sets), the testing, commissioning and verification that all DLTs are correctly and reliably incorporated in the DLT system of each station.

The installation of the DLT sets at both sides of the gate lines in the 36 stations along Lines 2 & 3, where gates shall be installed in the framework of the AFC-OASA project, including the stanchions, the wiring to the telecommunication room of each station and the associated architectural works on the granite floors shall be implemented by the OASA Contractor (TEPNA – LG). This concerns 86 out of the totally 122 required sets.

More specifically, the scope of this Contract incorporates:

- The design for the above items (a) and (b);
- The supply of 36 new telephone sets near the Fireman Box, the new wiring and the necessary infrastructure for the installation and connection of the new sets, the associated cable routing required for their installation, as described below;
- The supply of the necessary interface equipment (e.g. PCBs), the software and its necessary modifications and upgrades at a local and central level, the testing and commissioning of all (122) telephone sets to be installed in the framework of this Contract and by OASA Contractor (TERNA – LG).

The DLT system is completely independent from the Automatic Telephone system of the Metro network.

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The new Direct Line Telephone sets near the gates shall be used by the passengers, enabling them to communicate with the Station Master or the OCC.

The 122 new DLT sets are allocated as per the following tables.

<b>LINE 2</b>			
<b>No.</b>	<b>STATION</b>	<b>CONTROL LINES</b>	<b>TELEPHONE SETS</b>
1	ANTHOUPOLI	2	5
2	PERISTERI	1	3
3	AG. ANTONIOS	1	3
4	SEPOLIA	1	3
5	ATTIKI	1	3
6	LARISSA	1	3
7	METAXOURGIO	1	3
8	OMONIA	3	7
9	PANEPISTIMIO	2	5
10	SYNTAGMA	1	3
11	ACROPOLI	1	3
12	SYNGROU - FIX	1	3
13	NEOS KOSMOS	1	3
14	AG. IOANNIS	1	3
15	DAFNI	1	3
16	AG. DIMITRIOS	2	5
17	ILIOUPOLI	1	3
18	ALIMOS	1	3
19	ARGYROUPOLI	1	3
20	ELLINIKO	1	3
<b>TOTAL</b>		<b>25</b>	<b>70</b>

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<b>LINE 3</b>			
<b>No.</b>	<b>STATION</b>	<b>CONTROL LINES</b>	<b>TELEPHONE SETS</b>
1	DOUK PLAKENTIAS	1	3
2	HALANDRI	1	3
3	AG. PARASKEVI	1	3
4	NOMISMATOKOPIO	1	3
5	HOLARGOS	2	5
6	ETHNIKI AMYNA	1	3
7	KATEHAKI	1	3
8	PANORMOU	1	3
9	AMBELOKIPI	1	3
10	MEGARO MOUSIKIS	1	3
11	EVAGGELISMOS	1	3
12	SYNTAGMA		
13	MONASTIRAKI	2	5
14	KERAMIKOS	1	3
15	ELEONAS	1	3
16	EGALEO	1	3
17	AG. MARINA	1	3
<b>TOTAL</b>		<b>18</b>	<b>52</b>

The Contractor of OASA (TERNA-LG) shall supply and install the DLT sets and their wiring to the MDF panel in Telecommunications room (3.4 t) of each station for the sets to be installed on both sides of the control gates in each station (this concerns 86 out of 122 totally).

## **2.2 Designs**

The Contractor shall be responsible for the Detailed Final Designs dealing with all necessary upgrades, amendments and additions to the equipment, new interfaces, software amendments or new software, as required, new materials, new cable routing, installation procedures, test procedures and safety assessment of the BACS Systems for their interface with the Automatic Fare Collection system of OASA and, more specifically, with the access gates. The requirements set forth in this specification must be viewed as the minimum requirements.

In order to prepare the above designs, the Contractor's immediate cooperation with the following agents must be ensured:



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- OASA’s Contractor (TERNA – LG) who installs the access gates and the AFC system;
- The Operations Company STASY S.A., because the existing operating Direct Telephones may need to be amended in time windows to be specified by STASY S.A. without losing the functionality of the original systems during the Metro service hours;
- An independent Contractor who shall upgrade and amend both locally and centrally the OTN system to enable it to accept the new telephones;

This cooperation shall be achieved through AM and OASA as required.

The designs shall incorporate the adopted standards, design reports, operational analysis of the amended system, calculations, single/multi line diagrams, connection diagrams, plan views of routing in each station (at a grid to be provided by AM), MSSs for each piece of material and equipment to be incorporated in the Project, installation and testing procedures and methodologies, FAT, SAT and SIT testing procedures, as well as all other items required at a design level for the Project’s implementation. Especially as regards the telephone sets, the Contractor shall submit detailed data, along with schematic diagrams, pictures, etc., accompanied by reliability declarations, as well as the Contractor’s past experience gained from the application of such telephone sets in similar railway projects worldwide.

All the above items shall be submitted to AM for approval. All employed symbols, abbreviations and code names shall be described in the drawings. The designs shall be precise, concise, easily understood, with sufficient information to provide a full understanding of the functionalities and the characteristics of the new combined system. After the implementation and successful testing of this system, the “As Built” drawings shall be submitted.

The design approval codes are the following:

- Code 1 : “APPROVED” or “APPROVED AS NOTED”:  
The design is approved, the works can be executed. In case the submittal receives comments of minor importance, AM can approve it with Code 1 – “Approved as noted” without the need for resubmission, but these comments shall be incorporated in the “As Built” drawings.
- Code 2 : “REVISE AND RESUBMIT”:  
Works cannot be executed. The design shall be revised and resubmitted incorporating the comments, corrections and remarks of AM.
- Code 3: “REVIEW NOT NECESSARY”:  
Review of the submittal is not necessary.

Each design shall be submitted in three (3) copies and in a digital form (CD or DVD) in two (2) copies.

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Once the designs are approved, any design changes shall be submitted for approval and, after approval by AM, they shall be incorporated in the “As built” drawings.

The designs must be submitted within a period of 30 days from Contract signing. AM shall review and return the designs along with any eventual comments within 15 days. The designs shall be resubmitted for final approval also within 15 days.

### **3. EXISTING DLT SYSTEM INSTALLED IN THE METRO NETWORK**

A Direct Telephone system (DLT) operates on Lines 2 & 3 of the Metro network; this system is independent of the Automatic Telephone System (PABX). The DLT-PABX central unit (Alcatel Omni PCX 4400 by Alcatel) is installed in Syntagma OCC in room 2.14.3. In all stations (first and second phase of the Metro extensions), the Direct Telephone Lines are directly connected to the Data Transmission System (OTN) for direct connection among stations, as well as stations with the OCC.

The DLT consoles are installed in the OCC (for the Power/Environment Controller and the Traffic Controller) and in the stations (for the Station Masters).

Hands-free direct Telephone sets capable to switch off the traction power and be connected with the Power Controller have been installed on the tunnel headwall in each station, as well as at 200m intervals within the tunnel. These telephone sets form part of the Traction Circuit Removal (TCR) system.

On station platforms, the DLTs are destined to be used by the personnel (installed between the headwall and the SMR/neighboring stations).

On all platforms, the DLT sets are installed at the Emergency Consolidated Devices for passenger alarm purposes.

All DLT system related information available to AM from earlier DFDs is at the Contractor’s disposal.

### **4. TECHNICAL AND FUNCTIONAL REQUIREMENTS AND SPECIFICATIONS**

The main functional requirements and specifications for the installation and connection of the new DLT sets are the following:

1. Each of the 36 operating Metro stations on Lines 2 & 3 has one or more ticket control lines, i.e. areas where gate lines shall be installed (see attached tables in article 2.1).

On each ticket control (gate) line, two (2) new DLT sets shall be installed, one in front and one behind the line (TERNA-LG scope).

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An additional DLT set shall be installed near the Fireman Box, which is occasionally located in public areas and is visible, and in some other cases it is located inside the technical rooms (scope of the Contractor of this Contract).

In stations with more than one ticket control/gate lines, two (2) new additional DLT sets shall be added for each extra line (TERNA-LG scope).

2. In Metro stations common for Metro/Line 1 – former ISAP/Suburban railway, all requirements are set forth in the Table of paragraph 2.1.
3. The new DLT lines shall be incorporated in the existing DLT network and shall be fully compatible with the already operating devices connecting the stations and the OCC; the sets shall be fully independent from the PABX system, including the associated power supply units. After the additional DLT sets have been installed in each station, the DLT system shall remain a fully functional and unified system.
4. The new sets located at the gate lines and near the Fireman Box shall be directly connected to the OTN system of each station via an MDF panel located in the telecommunications room (3.4 t) of each station. From there, the sets shall be directly connected to the OTN fiber optics of the station (room 3.4 t) and, subsequently, to the central DLT module (ALCATEL OMNI 4400) in Syntagma OCC.

The new wiring from the new sets to the MDF panel in room 3.4 t shall be installed by TERNA-LG for the sets in front and behind the gate lines and by the Contractor of this Contract for the telephones located near the Fireman Box. The wiring shall terminate in the respective MDF panel in each station. Subsequently, all connections on all MDF panels shall be implemented by the Contractor of this Contract.

Wiring from the MDF panel to the OTN system shall be supplied by the Contractor of this Contract, but all required connections on the OTN side shall be implemented by a separate AM Contract to be concluded for the installation and upgrading of the OTN equipment by providing locally and centrally extra equipment/software as required in order to accommodate the new telephone sets.

5. The new DLT lines shall ensure telephone communication for the passengers on either side of the gate line in the stations. These DLT sets shall be button operated and the call shall be directed to the SMR. If the call is not responded, it shall be re-directed to the OCC (communications controller). Calls made from the DLT sets near the Fireman Boxes shall be directed to the OCC (Power / Ventilation Controller).
6. The sets shall be vandal and moisture resistant, hands-free type and shall be equipped with an activation button. The appearance and mechanical

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characteristics of the sets must be approved by AM; this approval must be granted both to the gate Contractor (sets installed in front and behind the gate line), as well as the Contractor of this Contract who shall supply the sets near the Fireman Box. The telephone sets for the passengers shall be selected so as there is a uniformity among all stations, as well as a clear distinction from the sets for the railway service. The telephone sets near the Fireman Boxes shall be selected so as to be uniform with the existing railway service telephones.

7. Wiring for the telephone sets at the gate lines shall be installed by TERNA-LG, while wiring for the sets near the Fireman Boxes, by the Contractor of this Contract. Wiring shall be routed either within the existing or new cable ducts embedded in the floor underneath the granite paving at the Concourse level near the central axis – gate line, or where required in the LV cable trays of the stations; if new independent and exposed/visible wiring is required, this shall be routed within new steel galvanized ducts. Moreover, the wiring of new telephone sets on the stanchions shall be locally routed within new ducts in the floor and approximately five (5) granite slabs shall be removed for the placement of each stanchion, since each stanchion shall be installed at a distance of approximately five (5) granite slabs from the gates. The removed slabs shall be replaced by new ones of a type and color to be determined by the architectural design to be prepared by the gates Contractor. The said wiring and ducts, as well as all associated works for the modification and replacement of granite slabs shall be also carried out by the gates Contractor (TERNA-LG).

No visible wiring in public areas is permitted. Whenever wiring has to pass through fire resistant walls, the drilled openings shall be sealed again using a special fire resistant mortar.

Wiring and cable ducts of the Fireman Box shall be installed by the Contractor of this Contract, along with all routing and drilling required from the Fireman Box to the MDF panel in the Telecommunications Room.

8. All cables for the DLT sets shall be fire resistant, low smoke emission and halogen free.
9. All interventions/expansions/modifications to equipment and/or software shall not affect at all the functionality and capabilities of the DLT system in its current form.
10. The addition of new telephone sets will generate the need to add extra PCBs on the local equipment of the OTN system and/or PCBs on the central OTN equipment in the OCC. When the design of the telephones is finalized, this information shall be passed to the independent Contractor for the upgrade of the OTN system; this Contractor shall take all necessary actions in cooperation with AM in order to add the necessary PCBs or other equipment necessary for the new telephones.

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11. All DLT sets installed near the Fireman Box shall have the same specifications as the already installed DLT sets. Appendix 1 encloses an indicative type of DLT sets that have been installed and operate in various Metro stations. The Contractor is obliged to supply and install sets with the described characteristics but not necessarily of the same manufacturer.
12. The Contractor of this Contract is responsible for the upgrading of the central DLT system in Syntagma OCC, so as it can accommodate the new direct telephone sets of the AFC OASA project. All required modifications shall be implemented on the telephone center for the direct telephones and on the OTN system in telecommunications room 2.14.3 in the OCC (modifications to the OTN shall be implemented by a separate contract between AM and the supplier of the OTN system).
13. All calls to and from the gate lines shall be recorded on the existing central recorder along with the date, time stamp and source of the call. The recorder in the OCC shall be capable to record all calls for a minimum period of 48 hours without the need for intervention, while the recorded material shall be preserved for a minimum period of 30 days.
14. The completion of all interfaces shall be followed by the SAT and SIT tests in order to demonstrate the smooth operation of the new sets (as well as of all telephone sets in general).
15. For reasons of uniformity and to enable the passengers to distinguish the telephone sets at the gates, the new telephone sets shall be placed on special stainless steel stanchions which shall be embedded in the floor with the proper configuration of the floor granites (i.e. no extruding items, such as bolts, nuts etc.). The supply of the materials and the works shall be implemented by the gates Contractor (TERNA-LG). Given that the granite floors shall be removed and reconfigured for the installation of the gates by the gate Contractor, the respective configuration of the stanchions pedestal shall be incorporated in the same framework. The stanchions shall be installed in front and behind the gates on the same line with the edge of the last gate. The height of the stanchion shall be approximately 1.20m housing a telephone set on its upper part accessible to passengers and PSN.
16. Works for the implementation of the Project on the operating Metro network are permitted to be executed as follows:
  - Works on equipment and software of the operating DLTs shall be executed during the night engineering hours (00.30 – 04.30);
  - Works in technical rooms of the stations can be executed any day and time;
  - Works in public areas (e.g. cable routing/pulling) shall be executed during the night engineering hours (00.30 – 04.30);
  - The possibility to close down the stations for short periods of time (few days) for the safe and swift execution of the works for gates installation is open to examination.

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The working hours of the Joint Venture to install the access gates has not yet been defined, but the option will be examined to execute works in phases during the station operation hours (obviously during night hours), while a short-lasting closure of the stations (successively) is not excluded for the time being in view of the rapid and safe installation of the gates. Therefore, on the basis of the above assumptions, the parallel execution of works is not ruled out.

17. Upon completion of the Project, the following items must be delivered to AM:

- a) All functional information of the new DLT system, which may eventually lead to amended operating procedures of the Operations Company, as regards the operation of the AFCS/Gates system;
- b) Modifications/upgrades to the Operation and Maintenance Manuals of the DLT system, as required, possibly in the form of an Appendix to the original Manuals. The requirements of the above point (a) can be included in these Manuals;
- c) “As Built” drawings of the new/additional routing cable layouts and new cable layouts, as well as single/multi-line diagrams for each station;
- d) A list with the required spare parts;
- e) There will be a 3-year good performance guarantee and any failures during this period shall be at the Contractor’s cost.

## **5. TESTS**

### **5.1 Site Acceptance Test (SAT)**

Upon completion of all required works of the Contractor for the modification and expansion of the DLT system in the framework of the AFCS gates by TERNA – LG / OASA, the Site Acceptance Test (SAT) shall be carried out in each station.

The purpose of these tests is to verify the proper function of the new DLTs (those installed by TERNA –LG and by the Contractor of this Contract).

The time schedules of the SAT tests shall be developed by the Contractor and submitted to AM for approval.

### **5.2 System Integration Tests (SIT)**

The System Integration Tests (SIT) shall be carried out after the successful completion of the SAT tests in all stations.

The time schedules of the SIT tests shall be developed by the Contractor in cooperation with the OTN upgrading Contractor, as well as with the Gates Contractor (TERNA – LG) and shall be submitted to AM for approval,



**“PROCUREMENT OF EQUIPMENT FOR THE MODIFICATION OF  
THE DIRECT LINE TELEPHONES (DLT) IN THE METRO  
STATIONS ON LINES 2 & 3 FOR THE INSTALLATION THE  
AUTOMATIC FARE COLLECTION SYSTEM GATES- OASA”**

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The purpose of these tests is to verify the proper function of all new DLTs, in combination with the OTN system.

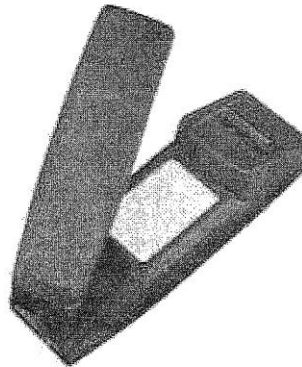
**6. APPENDIX 1 – TECHNICAL DATA FOR TELEPHONE SETS (DLT)**



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**Slim-line Hotline Telephone– 9826N**



**Key Features**

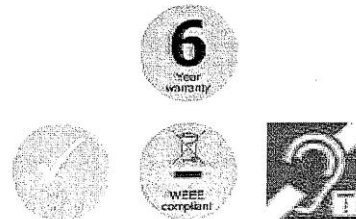
- No keypad
- Hotline or answer only
- Ringer volume adjust
- Hearing aid compatible
- Wall mountable – no additional bracket required

Designed specifically as hotline or answer only telephones these instruments are ideal for emergency use. The bright red finish makes them stand out from the crowd.

DIMENSIONS	
Individual telephone	
Length, width, height	23 x 7 x 7
Individual telephone (boxed)	
Length, width, height	24 x 13 x 8
Weight	0.65 kg
Outer carton of 10	
Length, width, height	39 x 25 x 28 cm
Weight	7.5 kg

COLOUR	MODEL NUMBER
RED	9826NK
GREY	9826NH05

*Double injected dial keys  
Gold-plated electrical contacts  
High impact plastic casing  
Non-slip rubber feet*



As part of our continuous efforts to improve, we reserve the right to alter the specification of our products without prior notice.

Tel: +44 (0)161 763 5122 / Fax: +44 (0)161 763 4029 / Web: [www.interquartz.co.uk](http://www.interquartz.co.uk)



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**INTERQUARTZ®**



**INTERQUARTZ TELEPHONE**  
**MODEL 9826N**

Slim Line No Keypad

USER MANUAL

ZEΛ. 304 / 338

**TECHNICAL DESCRIPTION – SPECIFICATIONS**

This Interquartz telephone has been manufactured to very high standards and is very easy to use. Please read this manual carefully to find out how to use the features.

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**TECHNICAL DESCRIPTION – SPECIFICATIONS**

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**1. Important Notes**

**Intended use**

This apparatus is intended for use on 2 wire analogue PSTN and PABX circuits within the United Kingdom.

**Declaration of Conformity**

Interquartz (UK) Limited declares under its sole responsibility that this product

Model: 9826N

Is in conformity with the following relevant harmonised standards

Health & Safety	73/23/EEC
Electromagnetic Compatibility	89/336/EEC

Following the provisions of Council Directive 1999/5/EC on radio equipment and telecommunications terminal equipment.

A J Roberts  
Director

April 2000

**Telephone Facilities**

This telephone has been designed for the use of the following facilities :

- PABX "hot-line" applications
- answer only applications
- ringer volume control

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## **TECHNICAL DESCRIPTION – SPECIFICATIONS**

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### **REN Number**

The REN number of this telephone is 1.

If you wish to connect any other equipment to the line, simply add the REN numbers of each piece together and ensure that the total does not exceed 4. If too many phones are connected to the line, the circuit may be overloaded and your telephone may not ring. Not all telephones have the same REN.

If a British Telecom phone is supplied unmarked, you can assume that it has a REN of 1.

### **Emergency Calls**

"999" calls cannot be made on this telephone.

## **2. Installation**

This telephone is designed to plug straight into a modular style socket. If you do not have one of these sockets, they can be obtained from your network supplier.

### **Connection**

Insert the line cord into the socket.  
Set the ringer volume and ringer pitch control, as desired.

### **Wall Mounting**

Before mounting the telephone, follow the procedure shown in Figure 3 to enable the handset to be supported in the cradle.

Using the template supplied, position it where you want to fix your telephone. Drill two holes and fix roundheaded screws, leaving them slightly proud of the surface. Position the telephone over the screws and slide downwards into place.

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## **TECHNICAL DESCRIPTION – SPECIFICATIONS**

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**TECHNICAL DESCRIPTION – SPECIFICATIONS**

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**3. Telephone Features**

**Ringer Volume Switch**

Located on the base of the unit ( see *Figure 2* ). Move switch to select no sound (OFF), muted sound (LOW) or full sound (HIGH) for ringing on incoming call.

**4. Operating Instructions**

***It is not possible to make normal outgoing calls  
on this telephone***

**PABX "Hot-line"**

If connected to a PABX which has the capability to "hot-line", the telephone will automatically call the number designated by the PABX, once the handset is lifted.

**Answer Only**

If connected to a PABX extension or to a direct exchange line, the telephone can be used only to answer incoming calls.

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## **TECHNICAL DESCRIPTION – SPECIFICATIONS**

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### **5. Maintenance and Problem Solving**

Your telephone is a precision electronic instrument. Avoid rough handling and extreme temperatures.

Use a mild detergent and a damp cloth when cleaning. Never use a stronger cleaner.

If your telephone does not appear to be working correctly, please check the following :

- No dial tone - Is phone cord properly connected to the wall socket ?
- Will not ring - ringer switch is set to off
- REN number may exceed 4, for all telephones connected to the line. Disconnect a phone until the number is below 4.

If there are still problems, and you have more than one telephone :

Remove the "problem" telephone. Insert another telephone and check that it works. If "yes" then the "problem" telephone is possibly faulty. If not, then you may have a faulty line. Try using the other socket and see which telephones work. If you do have a faulty line then you should contact your network supplier.

You should however be aware that if you request them to repair a fault that is found not to be theirs, then they are entitled to charge you for a visit.

In the event that you still have problems then you should consult your supplier.

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## **TECHNICAL DESCRIPTION – SPECIFICATIONS**

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### **6. Warranty and Service**

This product is guaranteed, by Interquartz (UK) Limited, for six years from the date of manufacture.

Every Interquartz telephone has a unique serial number and part of that number refers to the date of manufacture. A label, similar to that shown below is affixed to each telephone

9515	030852
(model no.)	QC.P

The figure 9515 means that the telephone was made during week 15 (10 April) 1995. Under the new warranty, cover will apply until 10 April 2001.

A warranty is designed to cover either manufacturing faults or component defects. It is not designed to cover fair wear and tear. The Interquartz warranty is no exception.

We look to you, our customer, to be reasonable and sensible over the warranty. We will endeavour to repair any telephone sent in to us within the warranty period but we reserve the right to charge for items that we consider replaceable under wear and tear. For example, if a handset cord splits within a few months, it will be replaced. If a phone is returned after, say, four years of heavy use with a similar problem, we might take a different view and wish to charge.

If you have a genuine warranty problem and provided that the warranty seal has not been broken, we will either repair your telephone, or, at our sole discretion, replace it with a similar telephone. In the event that a model may have been discontinued, any replacement would have similar or better features.

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**TECHNICAL DESCRIPTION – SPECIFICATIONS**

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If you need to return a faulty unit to us, send it to :

**Interquartz (UK) Limited  
Pennine House  
Salford Street  
Bury  
BL9 6YA**

Make sure that you tell us what appears to be wrong with the phone.

**DO NOT FORGET TO INCLUDE YOUR OWN NAME AND ADDRESS.**

We ask that you bear the cost of returning any telephones to us. We will return them to you, at our expense.

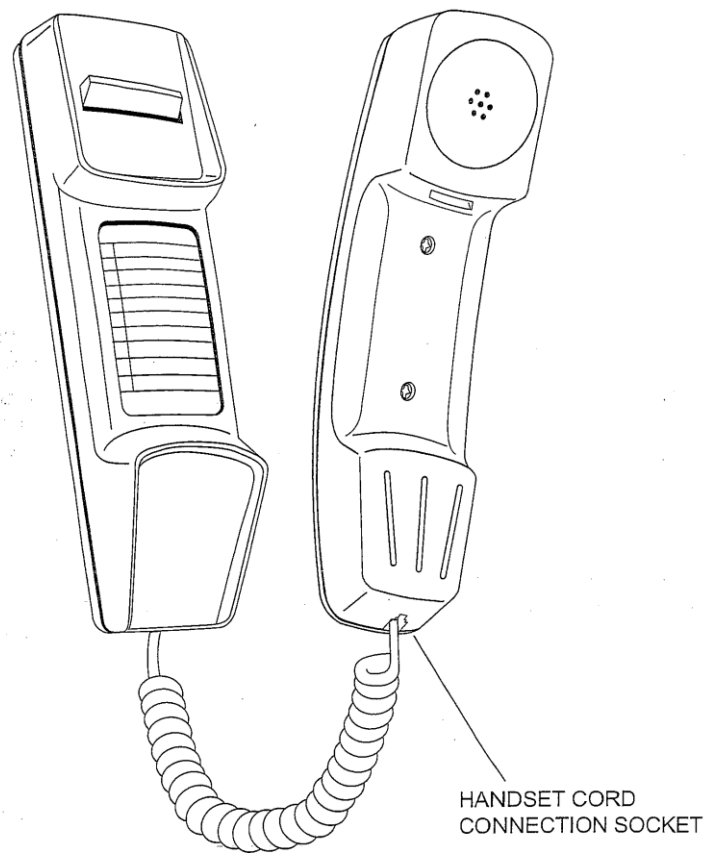
***This warranty is in addition to any statutory rights.***

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**TECHNICAL DESCRIPTION – SPECIFICATIONS**

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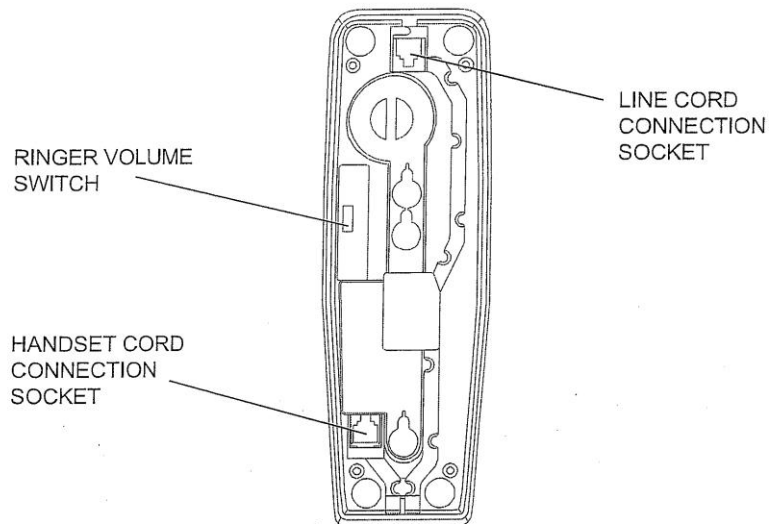


*Figure 1. General Appearance*

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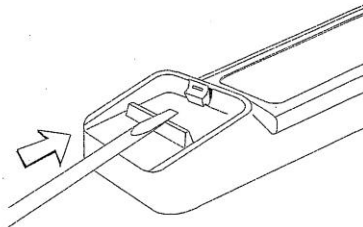
8

**TECHNICAL DESCRIPTION – SPECIFICATIONS**

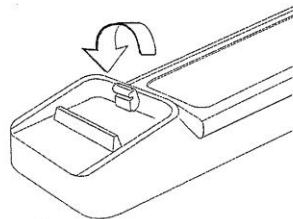


**Figure 2. Bottom View**

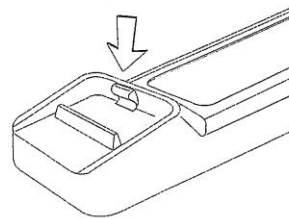
1. Insert screw driver into slot and then pry to release HANDSET RETAINER



2. Turn the HANDSET RETAINER upside-down



3. Insert the HANDSET RETAINER back into it's slot



**Figure 3. Wall Mounting**  
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