

SECTION 6 - SUBSECTION C1

COMMUNICATION INFRASTRUCTURE, TELEPHONE SYSTEM AND PUBLIC ADDRESS (PA) SYSTEM

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1.1 Scope of Work

1.1.1 General

The Contractor shall design, supply and install the communication infrastructure for the Inspection Site accordance to the International, Israeli Communication and Bezeq standards.

1.1.2 Communication Systems to be installed

The communication systems shall be installed for four **separated** purposes:

- a. “Telephony”, “Data” and “PA system communication.
- b. “Customs Data” communication.
- c. Radiography System communication
- d. Security & CCTV communication - infrastructures shall be defined by the contractor (outdoor & indoor).

1.2 Communication Room

1.2.1.1 The radiography building will have a dedicated communications room. The room will hold the customs communications rack.

1.2.1.2 The rack will have 8 electrical sockets. Each socket will be backed up by UPS & generator.

1.2.1.3 The room be airconditioned.

1.2.1.4 The room air-conditioning system will be backed up by generator.

1.2.1.5 The room will have gas-based fire suppression system.

1.3 Communication Infrastructure Content

The communication infrastructure shall consist of the following:

1.3.1 Outdoor Communication to the Site

1.3.1.1 The site shall be connected to the outside Bezeq communication facility by a fiber optic cable (24 fibers) and a copper multi pair cable (50 pairs - 50x2x0.6 PJ).

- 1.3.1.2 The Contractor shall coordinate and order the feeding site cables from Bezeq at no additional cost to the Client.

1.4 Outdoor Communication Ducts and Cables

1.3.1 Sub communication room connections

- 1.4.1.1 Radiography building will connect to the main communication (CDS) room which is located at the customs office in the arrivals hall.

- a. Radiography building shall be connected by 2X 50 mm ducts.
- b. Camera poles by 50 mm ducts (to the CDS).

- 1.4.1.2 The ducts used shall be according to Bezeq standard. The Contractor shall make the necessary road crossings, including excavation and asphalt repair back to the original condition.

- 1.4.1.3 A minimum clearance of 60 cm shall be maintained between the Customs Data (red) communication ducts to the other communication systems ducts.

- 1.4.1.4 A minimum clearance of 100 cm shall be maintained between the communication ducts and any other conduit such as RF, power etc.

- 1.4.1.5 At the building entrance, the ducts shall have a bend radius of at least 1.1 m.

- 1.4.1.6 The entrance to existing manholes shall be constructed according to Bezeq standards.

1.4.2 Cable installation

The Contractor shall supply and install the following outdoor communication cables:

1.4.2.1 Copper cables:

- a. From main Telephone communication room / Bezeq room:
 - by a 20 pairs cable: 50x2x0.6 PJ to the radiography building
- b. The copper cables shall terminate with twisted pairs UTP CAT3 50 ports patch panels (on both ends) mounted on the communication racks.

- c. Outdoor Copper “Data” network cables S/STP GIGADOR 1000 MHz, CAT. 7A outdoor cables (products by Teldor or equal) will be installed from the communication rack in building R to the CDS if the distance does not exceed 90 meters, 6 connections.

1.4.2.2 Internet Data Fiber Optic cables

- a. From the radiography communication room to the CDS room:
 - by a 12 Fibers 9 μ SM
- b. Outdoor Copper “Data” network cables S/STP GIGADOR 1000 MHz, CAT. 7A outdoor cables (products by Teldor or equal) will be installed from the communication rack in building R to the CDS if the distance does not exceed 90 meters, 12 connections.

The fiber cables shall terminate at fiber optic panels with LC Connectors (products by Fibernet or approved equal).

- c. Installed on 19” communication racks.
- d. Unused connector shall be sealed in order to prevent the fiber optic connector contamination.

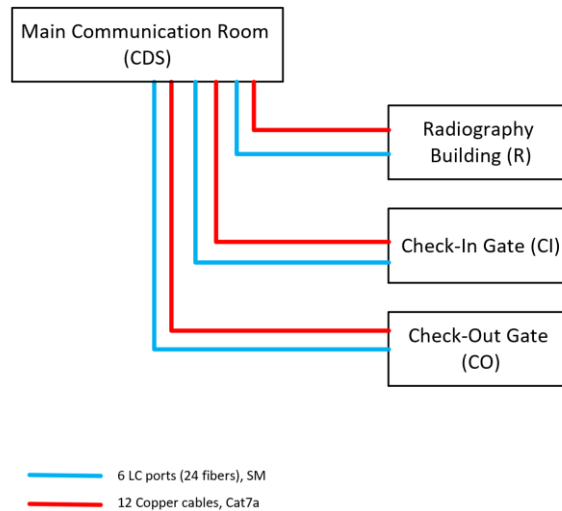
1.4.2.3 Customs Data Fiber Optic cables

- a. From main customs data communication room in the CDS room (Existing room & rack):
 - By a 12 Fibers 9 μ SM to R building.
 - by a 6 Fibers 9 μ SM to to exit gate
 - by a 6 Fibers 9 μ SM to to entrance gate

The fiber cables shall terminate at fiber optic panels with LC Connectors (products by Fibernet or approved equal).

- b. Installed on 19” communication racks.
- c. Un used connector shall be sealed in order to prevent the fiber optic connector contamination.

Customs Data Backbone



1.4.2.4 Security Systems cables

The main communication room (Existing room & rack) shall be connected by Fiber optic cables to the following buildings according to the contractor’s final design:

- Each gate (exit, entrance)
- Radiography building

All fiber will be 9μ SM.

1.5 Indoor Communication Ducts and Cables

1.5.1 Indoor communication installation

1.4.1.1 Duct dimensions and materials:

- a. Ducts for the Telephone, Radiographic and Security systems (BLACK) cabling shall be 30x8.5 cm (main routes) 20x8.5/10X8.5 cm (secondary routes). The ducts shall be wire mesh cable trays from stainless steel.
- b. Conduits shall be 29mm diameter for each module in the box (for 4 sockets).
- c. Ducts for the Custom data communication systems (RED)

Cabling shall be 30x10 cm (main routes) 20x10 / 12X6 cm (secondary routes). The ducts shall be plastic PVC cable ducts. The minimum distance from red ducts to other systems should be **20 cm**. The distance between red horizontal ducts and black racks should be **100 cm**.

- d. Conduits shall be 29mm diameter for each module in the box (for 4 sockets).
- e. In the main communication room, there shall be a galvanized steel ladder 30 cm wide above the racks and surrounding the room.

1.4.1.2 Main communication systems shall be installed in the ceiling or below the raised floor.

1.4.1.3 Duct width as well as vertical and horizontal bends shall accommodate suitable curving of all duct cables (45 °bend).

1.5.2 Indoor Cable Installation

1.5.2.1 Racks

- a. The Contractor shall supply communication racks:
 - Floor racks (25”W x 100mmD x 44uH) In buildings R.
 - Wall racks (19”W x 100mmD x 10uH) In each gate and in the manual pit.
- b. All racks on site shall include: sealed perforated door at the front and back with a lock , shelves for equipment, 24RJ panels, fiber optic panels, brush panels , 50 RJ45 telephone panels ,blank panels, shelves, vents, 6/12 electricity panels (PDUs) with CEE plugs 16A, grounding kit , and a bottom drawer 3U height (for 44uH racks only).

1.5.2.2 Indoor Cables

Indoor Cabling communication system shall be installed in the building for network cabling – double S/STP GIGADOR 1000 MHz, CAT 7A (Products by Teldor PN 99XG54XXX or approved equal)

1.4.2.3 Outlets

- a. Standard communication outlets/sockets shall be provided in rooms for

each customs workstation:

- Telephone – minimum 4 shielded RJ-45, CAT6A outlets, (products by RIT, R&M, Panduit, TE or approved equal).
- Customs Data – minimum 4 shielded RJ-45, CAT6A outlets, (products by RIT, R&M, Panduit, TE or approved equal).

Note: These Customs sockets will be installed at a distance of at least 1m from other systems outlets.

- At supervisor's workstations an 8 sockets outlet will be installed for each system.
- Radiographic – minimum 4 shielded RJ-45, CAT6A outlets, (products by RIT, R&M, Panduit, TE or approved equal) according to contractor's final plan.

1.4.2.4 **Patch Panels**

- a. Data copper patch panels will be S/STP RJ-45, CAT6A patch panels, (products by RIT, R&M, Panduit, TE or approved equal) .
- b. Patch panels for telephony system will be 50 port UTP RJ-45 CAT5e (products by Tiger or approved equal).
- c. Patch panel for 12 / 24 optic fibers LC connectors (products by Fibernet or approved equal).

1.4.2.5 **Patch cords**

- a. Copper CAT 7A patch cords – RJ45 to RJ45 connectors CAT6A both ends, CAT7A cable. The cords will be provided in 2 (two) different colors (for CUSTOMS DATA and RADIOGRAFIC systems).
- b. Copper pairs patch cords (for Telephone system) - RJ45 to RJ11.
- c. Fiber patch cords – 9μ SM. LC connectors at both ends.
- d. Lengths, labeling and quantities of patch cords shall be determined (0.5 / 1 / 2 / 3 meters).

Note: Cables, outlets, panels and communication system parts shall be approved by the customer. The equipment shall be with accordance to the **updated** standards at the installation period with no additional cost.

- 1.4.2.6 **SWITCHS** – switches with 24/48 ports (according to the customs standards), including a SM mini-GBIC.

1.4.2.7 **TV outlets** – approx. 2 outlets shall be installed in **TBD** and shall be connected to a dedicated satellite antenna mounted on the roof (via Israeli satellite TV Provider Company “YES”).

1.4.2.8 **Multimedia** – the screen that will be installed at the arrivals hall:
Communication infrastructures (USBC and HDMI cables) shall be installed to operate the screen from a panel located at the customs office. Specific location **TBD**. Connection of a computer to the screen (The screen will be supplied by the contractor. The resolution will be at least 4K. The contractor will provide a ceiling mounting kit).

1.5.3 Marking and Signs

1.5.3.1 Communication ducts will be marked in HEBREW with clearly visible signs:

“COMMUNICATION” / “DATA COMMUNICATION “.

1.5.3.2 The signs shall be placed along the duct, with at least 3-m intervals and especially adjacent to all branching points and passages between rooms.

1.5.3.3 All communication outlets shall be marked with clearly visible labels (building-floor-number). Colors shall be given at the design stage.

1.5 Installation, Operation and Training

1.5.1 Installation

The installation will be professional, expert and efficient using standard and safe materials and tools complying with Israeli Standards and work practices.

1.5.2 Acceptance Tests

1.5.2.1 The supplier will attach acceptance tests or specifications (copper pass test, fiber optic OTDR test) .

1.5.2.2 The tests will be conducted by the supplier in the presence of customer’s representative. Once tests are completed, the supplier will prepare a summary report. The supplier and the customer’s representative will append their signatures as mark of approval of the tests and their results.

1.5.3 All approvals will be under the responsibility of the supplier.

1.5.4 Maintenance Commitment

The supplier will be committed to stocking necessary spare parts for a minimum period of 10 years.

1.5.5 Training

Once the system is operating, the supplier will train the customer's employees in system operation, features and capabilities. The training will be based on documentation provided to the customer. The customer will be able to order refresher courses and additional training for a period of 6 month from exchange start-up date, at no additional cost.

1.6 Service and Maintenance

1.6.1 Service

1.6.1.1 Supplier's service center will be ready to provide telephone diagnostic and troubleshooting support. To this end, a professional will be available to respond to queries within 10 minutes from the call for service, or for telephone support.

1.6.1.2 Response time required for urgent failures - Technician arrival within 2 to 4 hours.

1.6.1.3 Ordinary failure response times -

- a. For failure message received before 11:00 the technician will arrive the same working day before 15:00. For failure message received after 11:00 the technician will arrive until 11:00 the next working day.
- b. The supplier will make sure the customer is available and the faulty equipment is accessible. No technician visit will take place without prior coordination.

1.6.2 Maintenance

1.6.2.1 The supplier will visit the site once every three months. The periodic inspection will include system, peripheral units, ambient conditions etc. Visit report will be submitted to the customer or as pre-assigned.

1.6.2.2 The supplier will keep a maintenance and event log.

1.7 Documentation

1.7.1 While installing the system the supplier will attach the following documentation in Hebrew.

- 1.7.2 He will be responsible for providing documentation and technical literature as follows:
- a. Technical documentation – all equipment user instructions and specifications. This documentation will be forwarded to communication manager on special request within 24 hours.
 - b. Operational documentation – equipment operating instructions, troubleshooting etc. This documentation will be forwarded to communication manager.
- 1.7.3 The supplier will provide the customer with 4 documentation sets including:
- a. Technical specifications of system and interfaces.
 - b. System layout with connection and interface points.
 - c. Detailed user guide for operator and system manager allowing optimal system operation.
 - d. Operating instructions for end users.
- 1.7.4 Any other information and documentation pertaining to optimal operation;
- 1.7.5 The documentation will have a clear and good-looking graphic layout, incorporating advanced graphic features that facilitate reader's comprehension. Documentation samples will be submitted on customer's request.
- 1.7.6 The documentation will be submitted in a bound book format and, where possible, in Microsoft Word, AutoCAD, Excel on DiskOnKey.

1.8 Ambient Conditions

1.8.1 Required Conditions

The system with all equipment will operate under the following conditions:

- a. Temperature: -2°C to 60°C
- b. Relative humidity: 20% - 80%
- c. Dust: 14 mg/ m²

1.8.2 Grounding

The supplier will list the equipment grounding requirements and verify their compatibility at the site.

1.8.3 Compliance with Standards

The supplier will attach standards and compliance certificates for all equipment supplied (cables, patch panels, sockets, etc.).

The supplier will attach RFI/EMI compliance certificates according to IS 961, Articles 6.1 and 6.2 for any equipment supplied.

The supplier will attach safety compliance certificates according to Israeli Safety Standard 1124.

1.8.4 Lightning Protection

All supplied equipment will be lightning and surge protected.

The protection will comprise: power sources, electrical sockets, data lines etc.