

UNHCR

Data structured network installations for a computer network at the UNHCR Main Building Reception Area

Technical requirements and specifications for the installation of a Category 6 network cabling infrastructure for very high-rate data transfer for voice and data applications for Data structured network installations for a computer network at the UNHCR Main Building Reception Area in 06th October, Egypt.

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1. General

1.1. Goals and needs

The purpose of this document is to define the technical requirements and specifications for the installation of a Category 6 network cabling infrastructure for very high-rate data transfer for voice and data applications for a computer network at the UNHCR Main Building Reception Area in 06th October, Egypt. Developed by the UNHCR Administration / ITSDM team in Egypt, responsible entity for the administration and management of the network; it defines the framework of the requested service to meet the needs of UNHCR, particularly in terms of performance, reliability, scalability, and compliance with regulations.

The requirements expressed concern the supply, installation, testing, commissioning, and acceptance of structured data network using Category 6 - Class E VDI (Voice, Data, and Images) standard structured cabling system. This cabling system will provide the transport of VDI signals, all in a transparent way.

The structured Local Area Network (LAN) installation is category 6 network and to meet future needs, it must allow easy maintenance and possible scalability.

To guarantee a great flexibility, the wiring to be made must be commoditized and modular. It must be efficient and allow each workstation to be connected to the various telephone and computer systems used (at least application class E).

The operations envisaged within the framework of these services will occur in continuity, the new wiring must be fulfilled in parallel with the previous one, to avoid any disruption of staff activities during working hours.

The components to be used shall be of good technical quality, preferably LeGrand brand marks. Siemens, Systimax and Premium-Line are also suitable.

1.2. Opening remarks

In all that follows, the mention S.T.S means Special Technical specifications, i.e. this document.

Project management for this work is provided by the Administration/ITSDM section of UNHCR in Egypt.

The contractor awarded the contract, will appoint a project manager acting for his name during the full duration of the project. It will be the single point of contact with UNHCR (the client) to ensure good communication and close collaboration. The interventions will be executed under the direction of the Contractor who must strictly comply with the requirements of the client.

The Contractor shall be responsible for all employees assigned by himself, his co-contractors, and subcontractors to this operation, under any circumstances and for any reason whatsoever. He will be responsible for accidents and thefts caused by and/or to, the personnel under his responsibility. Similarly, the damage of any kind produced during the performance of its work will be at his expense. The project manager reserves the right to prohibit access to the site to staff deemed by him undesirable.

The project manager will have to inform all the personnel assigned to the operation of the nature of the environment of the intervention sites, after having taken cognizance of his own initiative with the local manager. He will have to adapt his intervention to the environmental conditions and will not be able to avoid the obligations of the market nor raise the claim.

The Contractor shall, if he deems it necessary, make any corrections and include the financial implications in his unit price by means of a separate annex to the tender corresponding to the present S.T.S

The Contractor must inform the client in writing of any error, omission, inaccuracy, or contradiction detected. If this is not the case, the present S.T.S is considered accepted in its entirety. In case of dispute related to a difference of interpretation of the S.T.S during the execution of the works, the client's (UNHCR) interpretation will prevail.

1.3. Confidentiality

The contractor is bound by professional secrecy. In particular, he undertakes to use the documents and information provided by the contracting authority only within the framework of this consultation.

Any unauthorized disclosure and / or disclosure may give rise to damages and interest to be paid by the party who committed them. The amount will be determined by the complainant based on the injury.

1.4. Compliance with rules and internal regulations

Bidders are required to comply with UNHCR rules and procedures in all the phases of the project.

1.5. Documents to be submitted at the same time as the proposal to the project owner

The Contractor is required to submit an offer complying with the technical requirements of this S.T.S any offer that does not meet the required technical specifications will result in the elimination of the bidder.

The contractor is required to conduct a site survey to be considered eligible.

The Contractor must provide at least but not only:

- An engineering brief
- Pricing summary including but not limited to:
 - a) Cost of Materials per quote
 - b) Installation (labor) cost per quote
 - c) Total Cost of Cable Plant per quote
 - d) Total Cost of complete project
 - e) Materials List
 - f) Specification sheets on materials used.
- A table summarizing the references of the proposed materials
- The complete technical instructions for the proposed equipment (cables, male and female connection modules, faceplates, panels, racks, etc.)
- For Data network installations, the manufacturer shall guarantee all Class E "Permanent Link" level links for a minimum of fifteen (15) years
- Evidence that they are specialized in the installation of the data cabling of the continuous minimum 5 years to date.
- Evidence assigned engineer/project manager must have a minimum of 5 years expertise in data cabling.
- Evidence that the personnel working on the site has a proven track record in structured data network (LAN) installations
- Datasheet of the labelling machine, subject to a sample request

- Succinctly, in a very precise and fair manner the scope and schedule of work to be done

1.6. Work to be done by the contractor.

1.6.1. Work to be done by the contractor.

1.6.1.1. At the tendering

The following mandatory documents must be sent in two (02) copies:

- A quantitative quote completed and quantified,
- A technical documentation, with photocopies, detailing all the characteristics of the materials presented by the Company.

1.6.1.2. After the selection and during the works

Before the start of the works, the contractor awarded the contract must make available to the project manager, an execution file for validation consisting of:

- Layout plans for cable routing.
- Filing in tabular format, on paper and in computer file in an MS Office compatible format, comprising:
 - For each link number, the number of the part served by the terminal outlet.
 - For each equipped room, the numbers of the links which serve it
- The comprehensive technical manuals of equipment
- The schedule of work to be done
- The duration and conditions of warranty.

1.6.1.3. Upon completion of the work

The Company must provide, on the day of the handover of the completed works:

- The plans and diagrams of the installations carried out,
- The fluke test reports in accordance with the agreement with UNHCR.
- Document (Excel) mapping the patch panel with the switch-ports.
- The maintenance file and one year of warranty as agreed with UNHCR.
- Proposed a "Frequency of Periodic verification" and a template for "Reporting for periodic verification".
- Provide briefing for UNHCR staff in charge of network administration

The acceptance can be pronounced only in these conditions.

1.6.2. Scope of work

The proposed LAN will be structured with Category 6 - Class E VDI (Voice, Data, and Images) standard cabling system between the patch panels and the wall terminal point. The contractor must particularly take care of:

- Supply and installation of RJ45 data outlets ports for structured and integrated data connections as detailed in Annex II. Noting that the cable route (PVC pipes) are already installed in place.
- Perform piercings, drilling holes, seals and special devices to cross the walls.
- The lining of all the drillings made respecting the constructive provisions of the buildings
- Finishing paints and fittings of existing surface coatings modified or altered by its intervention.
- The necessary debugging tests to restore the installation to perfect working order and to deliver it in accordance with the technical and functional specifications of this document.

- The removal of any packaging, unused supply, waste of supply or work.

All trunking (be it vertical or horizontal) must be installed flush with the wall.

Switches, or access points and other active network components shall be provided by UNHCR.

At the slightest uncertainty as to the conditions of execution, the Contractor will have to refer to the project owner for an adjustment.

1.7. Additional information

The Contractor could obtain any additional technical information enabling him to draft his proposal by soliciting UNHCR.

In the same way, UNHCR reserves the right to ask the Contractor for any additional information allowing him to clarify his analysis and validate his choices.

2. Technical specifications

The data cables should run on the trunkings. The trunkings should be flush to the wall.

The contractor must provide mosaic support 45 06 modules for plastic trunking 50*105 of Legrand lid width 85mm compartment trunkings with all the accessories and the joineries for the whole installation.

2.1. Standards and Regulation

The pre-cabling installation will comply with the Arabic Republic of Egypt standards, regulations, and policies especially the:

- Public Safety Standards of the Arab Republic of Egypt
- Egypt Telecommunication Regulation Law
- Egyptian Electricity Utility and Consumer Protection Agency (EGYPTERA)
- Arab Republic of Egypt Electricity Law and Regulations
- The latest relevant recommendations of the International Electro Technical Commission and other approved national Standards.

In absence of national Standards and Policies or where quality control is a vague concept, the following international standards must be followed:

- EIA / TIA 568 B.
- PN 2948, PN 3287, PN 3193 and TSB 67.
- ISO / IEC 1801 version 2.
- EN 50167 (horizontal distributions).
- EN 50168 (cables connections)
- EN 50169 (vertical distributions) EN 50173.
- EN 50174 (installation guide)
- HD 608 (cables and cabling systems).
- The following directives and standards for electromagnetic compatibility (EMC): EMC Directive 89/336 EEC a (amended by 92/31 EEC and 93/69 ECC).
- EN 55022 (emission/class B) EN 50081.1 (emission)
- EN 50082.1 and Pr EN 55204 (immunity).

2.2. Expected performance of links

The cabling system will comply with the European standards EN 50173 (components & system), EN55022 (EMC), as well as ISO / IEC 11801 Class EA 11801.

The implemented wiring system should support all existing IEEE, EIA / TIA and ISO protocols defined as working on this medium for a minimum of fifteen (15) years.

The cabling system shall incorporate end-to-end compatibility with the IEEE 802.3af standard, namely, to allow low-voltage power transmission over copper cable links.

2.3. Components of the wiring system

The expected installation will be of VDI type (standard cabling for IT and telephony) on an infrastructure corresponding to the performance standards category 6 (Class E) organized in a star pattern to the distribution frames of the building.

The expected performance of each link must at least comply with the "permanent link class E" performance of ISO / IEC 11801 Edition 2.

The cabling system must support all IEEE, EIA / TIA protocols and existing ISOs defined as working on this medium for **a minimum of fifteen (15) years**.

All installed components will be new and certified at least category 6, according to the standard ISO / IEC 11801 edition 2 and standard EIA / TIA 568B.21 of June 2002. They must have all the guarantees of good operation. The category of the complete link will be that of the component of the lowest category.

The Contractor has the obligation to provide a link chain consisting of elements of necessarily uniform quality of a single manufacturer, type compatible INFRA +, resulting in a complete "**permanent Link Class E**" guarantee from end to end of the wall socket to the bay strips.

The cabling system will have to integrate end-to-end compatibility with the IEEE standard 802.3af (**PoE**), namely, to allow the transmission of low voltage current on the copper cable links.

At this level, telephony and computers will be completely integrated, the assignment to be made according to the needs with the greatest flexibility possible at the output of the patch panel. The infrastructure for telephony will be up to the integrated bay in the computer.

2.4. "Copper" cable

The "copper" distribution will be made from cables comprising a general braid and an individual screen by quarter, four pairs of single-stranded twisted wires of characteristic impedance of 100 Ohms (U / FTP). The bandwidth performance of the cable will be at least 350 MHz. The cables will comply with the performance of Class E and F channel as described in ISO / IEC 11801 Edition 2.

The routed cables can be once 4 pairs or twice 4 pairs depending on what will be deemed most convenient by the provider.

The outer sheath will be of any colour other than black to limit confusion with electrical cables.

The company shall provide category 6 cable performance compliance certificates in accordance with ISO / IEC 11801 Edition 2 and the EIA / TIA 568B.21 standard, performed by an accredited and independent test laboratory.

The company must provide the technical data sheet of the cable, indicating, among other things, the Nominal Velocity of Propagation of the cable (N.V.P).

2.5. RJ45 connectors

The connector selected will be RJ45 type (except for Fibre switches, which will use multimode SC-LC fibre patch cord) in accordance with IEC 60603-7-51, identical to both ends of the vertical and horizontal distribution cable (terminal and patch panel) and will have the following characteristics:

- Category 6 performance according to IEC 60603-7-51 (for shielded connectors). a metal shielding cap (not made of metallized plastic) with a metal braid allowing the 360 ° cable screen to be taken back.
- The rear forks of the self-stripping connections must be protected to prevent their deformation during the implementation.
- The configuration of the connections of the pairs must be in accordance with the connection method "T568A" or "T568B" according to the manufacturer's recommendation. The configuration of the connections must be unique throughout the building.
- A mobile protection flap (on the connector or front plate).
- A cable tie "anti-traction pair".
- The Contractor must provide the technical data sheet of RJ45 connectors.

2.6. Terminal socket

The outlets at the workstation will be installed in a trunking. The faceplates used for the terminal sockets will be in mosaic format 45*45mm.

The sockets will have a movable and irremovable protective shutter. The shutter can be on the connector or the plastron.

Outlets will also be equipped with a system for marking and identifying connectors. A removable transparent protective flap will protect the identification tag. Unprotected labels will not be accepted.

The colour of the plastrons and / or trunking will be white unless otherwise specified in writing by the supervisor.

The Contractor must provide the technical data sheet for the terminal sockets.

2.7. "RJ45" patch panel

"RJ45" patch panels will be sized to the 19" standard for rack installation and will be 1U high.

They must be able to accommodate 24 RJ45 connectors and allow the automatic grounding of each connector.

They will have to allow the loading of the cables without excessive stress on each of the cables. A tie-down system is preferable.

Each connector slot will be indelibly numbered, whether it is empty or occupied, the slots not equipped with connectors will be provided with a removable shutter.

Each panel will be delivered empty and must be equipped on site with the exact number of connectors required.

The crimping of the modules that will equip the brewing panels, will be done without tools

The Contractor must provide the technical data sheet of the "RJ45" patch panels.

2.8. Horizontal cable routing

The grommets will be metallic and dimensioned according to the standard 19 inches. They must have at least 5 metal rings. They will be 1U high and 2U deep for patch panels up to 24 outlets. For patch panels with more than 24 outlets, they will be 2U high and 2U deep.

There will be at least one cable run per patch panel, the colour of the grommets must be coordinated with the colour of the panels.

The Contractor must provide the data sheet of the cable glands.

2.9. Data's "Copper" Patch cord: full IP

To achieve class E performance, patch cords will be certified at least category 6 according to ISO / IEC 11801

They will be of the same brand as that used for the constitution of the link "permanent Link Class E",

Each category 6 cord will be F / UTP type, consisting of 4 twisted pair single-strand impedance characteristic of 100 Ohms and will be equipped with an RJ45 connector over-molded at each end.

The outer sheath will preferably be white or gray in colour (in any case different from blue) and must be made of a material that does not produce toxic smoke in the event of fire and that has flame retardant properties in accordance with the IEC 60332 standard. -1 (sheath type LSOH).

The Contractor must provide the technical data sheet of the cords.

2.10. Network engineering rules

The installation must be carried out according to the requirements of this S.T.S and following the rules of art.

2.11. General characteristics of structured cabling

The cabling system put in place must be:

- **Reconfigurable:** The configurations and topological reconfigurations to be carried out according to the networks must be able to be carried out quickly, economically and without structural modification of the wiring.
- **Standardized:** Distribution cables, sockets and their connection conventions must be identical in all parts of the site, regardless of the topologies and types of networks to be supported.
- **Universal:** The infrastructure is adaptable to the transport of all types of information (voice, data, images, etc.). To do this, its components must have transmission performance at least equal to that shown in the standard for all applications in the EA class.
- **Backward Compatibility:** The cabling system will allow the use of lower grade equipment on higher grade cabling.

2.12. Technical recommendations concerning implementation

To guarantee the quality of the assembly and the performances of the cabling, the Contractor will take care to respect:

- The length of the "copper" links that will be a maximum of 90 meters (from end to end of the link, excluding patch cords and service lines).
- Electromagnetic environment constraints
- Mechanical constraints. The cables will be laid and not pulled. The cables should not be subjected to excessive mechanical stress when installed, such as bending, pulling, or crushing.

- The minimum bending radius recommended by the manufacturer of "copper" cables during and after installation. In the absence of the manufacturer's recommendation, the minimum radius of curvature retained will be 8 times the outer diameter for the "copper" cable.
- The unsheathed cable length (less than 20 mm) and the twisted length (less than 13 mm). The connection will be made without tools or with the help of adequate tools, according to the manufacturer's recommendations.
- The tightening will be done manually so as not to crush the cables. The interval between two collars must be greater than 20 cm. It is requested to use reusable collars equipped with a hook and loop closure system to avoid damaging the cables. Plastic collars will be refused.
- Mass recovery between the connector and the cable that must be performed using the strap or braid 360 ° without the aid of the drain. Any mass recovery system using the drain will be refused.
- Patch panels that will be metal and connected to the rack mass in a safe manner using a suitable mass recovery system and not using the retaining screws.
- The system design and the path defined for the cable routing that will consider the limitations defined by the EN 50173 and EN 50174-2 standards to optimize the transmission performance.

2.13. The electromagnetic compatibility constraints

Compliance with the following environmental constraints directly affects the performance of the cabling infrastructure.

The separation between the data cables and the power supply cables must be at least in accordance with EN 50174 part 2 to ensure the correct operation of the equipment.

It is requested to respect a minimum separation distance of:

- 12 cm with incandescent lights.
- 60 cm with fluorescent lights.
- 1 meter with sources of energy higher than 10 KVA.
- 2 meters with electric motors.
- 3 meters with high voltage lines or radiating sources in HF, VHF, UHF and SHF.

In case of parallel routing, the cables will be at least:

Length of the parallel path	Source < 2KVA	Source from 2 to 5 KVA	Source > 5 KVA
3 m	10 mm	20 mm	40 mm
5 m	15 mm	40 mm	80 mm
10 m	30 mm	70 mm	140 mm
15 m	50 mm	120 mm	240 mm
20 m	60 mm	150 mm	300 mm
> 30 m	120 mm	300 mm	600 mm

Perpendicular crossing is allowed apart from crossing with fluorescent lights.

The proposed cabling system must comply with the electromagnetic compatibility requirements described in EN 50288 and ISO 11801 2nd edition, which states that the installed wiring

must not in any way impair the proper functioning of the equipment connected to it. The Contractor will have to guarantee this conformity.

2.14. Cable routing

Perpendicular crossing is allowed except for crossing with fluorescent lights.

The proposed cabling system must comply with the electromagnetic compatibility requirements described in EN 50288 and ISO 11801 2nd edition, which states that the installed wiring must not in any way impair the proper functioning of the equipment connected to it. The Contractor will have to guarantee this conformity.

2.14.1. Cable routes

The cables in Server Room will be laid and fixed in cable trays.

The laying of "weak current" cableways and / or the respect of the recommendations associated with them are the responsibility of the Contractor of this lot.

Cable trays for weak power cables should not be shared with other resources. Horizontal cable trays must be made of perforated galvanized sheet metal of the "marine slab" type with no sharp edges, the vertical cable trays shall be made of welded steel wire or of the "marine slab" type.

All cable trays will be grounded in a continuous manner, by a bare copper conductor (unsheathed) of at least 16 mm² in section, flowing on the outer flange of the cable trays. This conductor will be fixed by uninsulated brass terminals at each change of section, direction and at least every 5 m, and by plastic collar to each meter.

The fixing means of the cable trays must also be provided to support the excess weight generated by the possible extensions. The spacing between the fixings of the cable trays must guarantee the rigidity of the assembly, including the maximum weight that can be put in place.

All assembly and grounding accessories should be linked to the main grounding of the building as it is mandatory.

Cable trays in premises open to the public should be closed with a cover when visible.

An etched label marked "reserved V.D.I" will be placed at least every 5 meters on the cable tray.

For places where the installation of cable trays is not possible, the cables must be supported and protected by appropriate arrangements, validated by the Client.

2.14.2. Trunking

Trucking will be composed:

- A body or a rear part of lids
- Outside corners
- Interior angles
- Closing tips

In the case of works (high / low currents), the trunkings must be compartmentalized by partition walls provided for this purpose. This partition will separate computer logical cables from electrical ones.

Note: electrical cables using the same routing as computer cables must be at least isolated at a voltage less than or equal to 1000V.

- The trunking will be fixed to the walls using screws and dowels adapted to the support or by hardened steel points of type.
- Vertical descents from the false ceiling will be made by the same type of trunking.

2.14.3. Sheath

The cables should be protected in flexible ring sleeves (ICA / ITSDMA), particularly in the case of configuration preventing the installation of a cable tray or trunking,

Channels or corrugated sheaths shall be made of a material that does not produce smoke that is toxic in the event of fire and that has flame retardant properties.

The sheaths will be green.

The sleeves will be sized with a reserve of 30% free space.

An immovable label marked "reserved V.D.I" shall be placed at least every 5 meters on the sheath.

2.14.4. Identification and flagging of links

All links must be clearly marked on the connectors, modules, and sockets from which they come and to which they lead.

The identification will be legible and indelible by immovable identification labels on the modules of brewing and on the outlets of workstations. The coding of the decision numbers is imposed by the client as follows:

The bay will be identified by a roman figure from (I to X), starting from the top followed by a dash

Each patch panel will be identified by the letter (from A to G).

Each plug of a patch panel will be identified by a two-digit number (01 to 24)

For each outlet, the number is reminiscent of the bay letter, the patch panel letter and the outlet number on the patch panel.

Example: The identification "**V-C18**" corresponds to socket 18 of panel C of bay five (V).

2.14.5. Organization of the ground network

The grounding of the cabling system must be carried out in accordance with the manufacturer's recommendations and the standards EN50303, EN50174-2 and TIA / EIA-607.

All the grounding in the building must be interconnected (mesh network, single and equipotential). A measurement of the grounding value of the building should be made to ensure its good quality.

3. Fire safety standards

Smoke emission (EN 50268, IEC 61034, NFC 20902, and NFC 32073)

Release of toxic and corrosive gases (IEC 60754.1, NF C 20454, EN 50267, IEC 60754.2, NFC3074, NFC 20453)

Absence of halon (NFC 32062).

The cabling system must also have fireproof properties according to the standards and decrees in force.

In general, safety standards must be met and respected and possibly readjusted with the legislation in force for Rwanda fire safety regulations.

Note: This list is not exhaustive and the company responsible for the performance of the service must comply with all regulations that may appear before the start of work.

4. Technical acceptance.

The technical recipe is the operation that guarantees the project owner that the installation complies with:

- Present S.T.S.
- Expected performance.
- The standards in force.
- The manufacturer's installation guide for obtaining the warranty.
- The rules of art.
- The recipe has three levels of control:
- A visual check against the specifications.

The client must be notified of the verification and testing operations so that they can proceed in the presence of his representative.

The recipe document must include all the elements necessary for the management of the cabling (identification of the cables and plugs, respect of the environmental constraints and the rules of the art) as well as the result of the tests carried out (visual controls).

4.1. "Copper" Link – Fluke Test

All "copper" links shall be tested in "permanent Link class E" configuration in accordance with ISO / IEC 11801 Edition 2 or EIA / TIA 568B.21.

The test results must be higher than the values given by the standards in the "permanent Link class E" configuration in accordance with ISO / IEC 11801 Edition 2 or EIA / TIA 568B.21.

All these tests will be performed using a Tier 3 or higher tester, in its latest software version at the time of testing, as defined by ISO / IEC 11801 Edition 2 and the EIA / TIA standard. 568B.21.

Each measurement sheet must include at least:

- The brand, type, serial number, and software version of the hardware used.
- The date of the test.
- The mark, the reference, and the nominal speed of propagation of the cable (N.V.P).
- The identification of the link.
- Assignment of pairs.
- The length of the pairs in meters.
- Impedance.
- The loop resistance.
- Insertion loss.
- The crosstalk.
- The TV crosstalk.
- The signal-to-noise ratio.
- Toss by reflection.
- The propagation delays.
- The propagation gaps.
- The graphs of the results

The copy of the calibration certificate or the proof of purchase of the tester for a device less than one year old, must accompany the test report.

The measuring heads of the device shall be of category 6. The purpose of the visual inspection is to verify that the wiring performed complies with the requirements of this specification about:

- The verification of the materials used.
- Respect for environmental constraints.
- The routing of the cables.
- The implementation of the cables.
- The connection of the cables.
- Fixing elements (racks, panels, sockets, modules, supports, etc.).
- Tagging.
- The aesthetic aspect.

5. Staff briefing and Maintenance

5.1. Staff briefing

The briefing of the persons designated by the contracting authority for the use of the facilities is part of the contract.

This briefing should take the necessary time for these people to be able to master the facilities and use know-how without assistance from the provider.

5.2. Maintenance contract

At the time of submission, the company will submit a draft contract for the maintenance services of the system. The Contractor must propose:

- Full maintenance of the facilities during the warranty period
- The performance of these services after the warranty period

6. Control and reception

It is agreed that the client may carry out at any time any type of check to verify that the installation is made according to the requirements of this S.T.S and the rules of the art. A complete inspection of the construction site area to be approved will be carried out and the conformity as well as the acceptance will only be validated by the main contractor.

At the end of the full visit, the decision (receipt with or without reservation or refusal of receipt) will be recorded in the minutes. This report will be signed by both parties.

6.1. Reception with reservations

If the minutes mention reservations motivated by omissions or imperfections, the contractor will have a deadline to be defined with the supervisor to carry out the requested work. The Contractor will have to follow the imposed schedule, as from the day of the receipt of the minutes. After this period, the client may reserve the right to have the work carried out by another company, at the expense and risk of the defaulting contractor.

6.2. The entry in possession by the client

It is at the signing of the acceptance report with all the reservations raised that the UNHCR takes possession of the full installation and starts the warranty period.

7. Decomposition of the Bill of Quantities.

The Contractor must read carefully all the specifications and will present a Decomposition of the Lump Global Amount including at least the following items:

- Patch panel
- Data network Pre-wiring
- Cable routing by DLP Schneider or LeGrand trunking's
- Technical recipe.

The Decomposition of the bill of quantities will be accompanied by an explanatory note of its solution and Table summarizing the references of the proposed equipment.

8. Annexes

- Annex B - Number of ports