SERVICES ACCESS TECHNICAL SPECIFICATIONS INTERNATIONAL ETHERNET LINK

CPMC

12-2024

Version history :

Version	Date updated	Updated by	Update Description
1.1	Creation - 2016		
1.2	2018		
1.3	15/11/2024	H. David, S. Jeorger, B. Bottcher	• Addition of the SUVA destination • Distinction between the local and international parts • Removal of customer equipment hosting in OPT-NC bays for the international part for all new subscriptions starting December 31, 2024. • Removal of guarantees on jitter performance • Addition of Article 4.3.1 – G "Cleaning and Disassembly » • Removal of the "copper cable medium" section. The OPT-NC medium for L.C.E.I will exclusively use optical fiber for both the local and international parts up to the DCTE (Data Circuit Termination Equipment). • Addition of new optical fiber interface types.

1. GENERAL DESCRIPTION OF SERVICE

The L.C.E.I. service (Liaisons Céléris Ethernet Internationales – International Celeris Ethernet Links) consists of providing bidirectional digital rented connections between two separate endpoints: one located in New Caledonia and the other in a country listed on the **www.helia.nc** website. This list is regularly updated on the **www.helia.nc** website and customers will be informed of any changes impacting their service.

Distant site interconnection is operated in a bidirectional mode (full duplex mode), with symmetrical, guaranteed transmission rates and bandwidth, compliant with Ethernet standards (Layer 2 OSI model).

The L.C.E.I. service is divided into two segments: the "local segment," deployed in New Caledonia, and the "international segment," connecting the remote site to international networks.

OPT-NC 's commitments are detailed in the general terms and conditions for leased line services and in the specific terms and conditions for L.C.E.I. subscriptions.

The technical specifications for service access described in this document are subject to change. Any changes to these specifications will be directly incorporated into the updated document.

2. LEVEL OF SERVICE

The level of service offered by OPT-NC is characterized by 3 criteria:

- Link availability and garanteed throughput
- Latency
- The packet loss rate

Note: Jitter, while indicative and dependent on the location of the international endpoint, is not included in the guaranteed service level agreement (SLA).

2.1 Link availability and associated throughput

The availability of subscribed throughput, endpoints, and local links for each of the international links is defined as follows:

Cities	Connection availability
Sydney	99,5%
Suva	99,5%

2.2 Latency

The guaranteed level of service for latency periods (round-trip time) to the destinations listed in the catalog is defined as follows:

Key cities	Latency (round trip) in milliseconds
Sydney	69
Suva	60

2.3 Packet Loss Rate

The guaranteed service level for packet loss rates to the destinations listed in the catalog is defined as follows :

Key cities	Packet Loss Rate (%)
Sydney	0,5
Suva	0,5

2.4 GIGUE (not guaranteed)

The indicative service level for jitter is 45 milliseconds end to end in accordance with normal network operating conditions. However, this value may vary depending on the performance of the international connections provided by our service providers.

3. DESCRIPTION OF THE INTERNATIONAL PART OF L.C.E.I

3.1 Delivery to Sydney Global Switch's POP OPT-NC:

The L.C.E.I. to Sydney transit through the Gondwana 1 submarine cable and are delivered to the MMR2 Meet Me Room on Level 2 of the Global Switch Data Center at the following address:

Global Switch Data Center
400 Harris Street
Ultimo NSW 2007

OPT-NC will provide the customer with the connection positions in the MMR2 room through a LOA (Letter Of Authorization) document.

3.2 Delivery to Fintel Suva's POP OPT-NC:

The L.C.E.I. to Suva transit through the Gondwana 2 submarine cable and are delivered to the MMR bay of the Fintel Data Center in Suva at the following address:

OPT-NC FINTEL DATACENTER
151, Rifle Range Road
Vatuwaka, Suva , Fidji

OPT-NC will provide the customer with the connection positions in the MMR room through a LOA document.

3.3 Traffic and interface specifications

On the L.C.E.I. OPT-NC CPE (Customer Premises Equipment) installed in Sydney and Suva POPs, L.C.E.I traffic will be delivered to the customer over a single-mode 1G optical interface module of type GLC-LH-SM.

For optimized data flow, OPT-NC recommends that the customer regulate its traffic in such a way as to align the outgoing speed of its terminal equipment with that subscribed to with OPT-NC.

The number of MAC addresses is limited to 100.

OPT-NC's International Ethernet Celery service is transparent end-to-end to the VLANs used by the customer for its traffic.

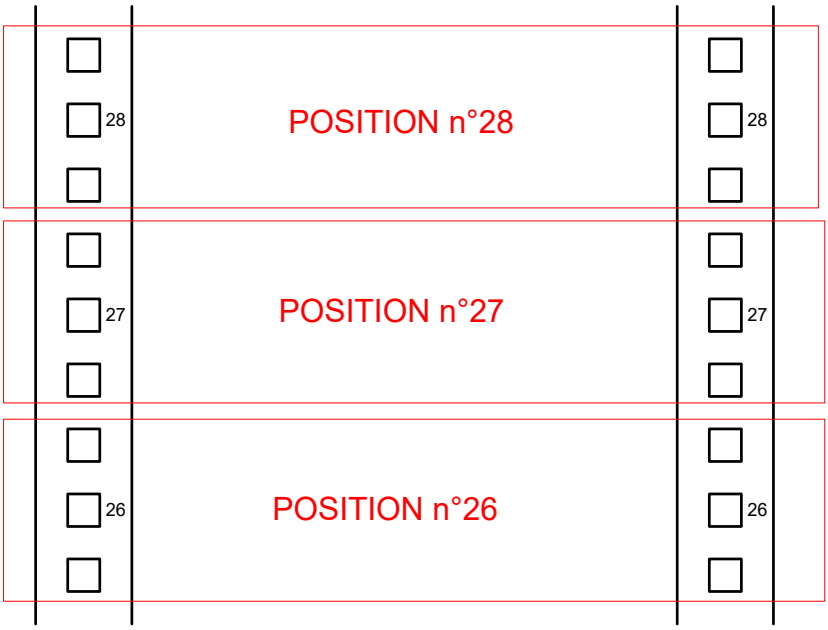
OPT-NC's equipment operating the International Celeris Ethernet service is configured to support Ethernet frames (Jumbo Frames) with a length exceeding 1500 bytes (max 9000 bytes).

3.4 Customer hosting in the OPT-NC Bay (Exclusively reserved for connections subscribed before 31 December 2024)

Hosting of terminal equipment in OPT-NC's bay remains available exclusively to customers who subscribed to this option before December 31, 2024. The conditions for installation and positioning of equipment for these customers are maintained as follows:

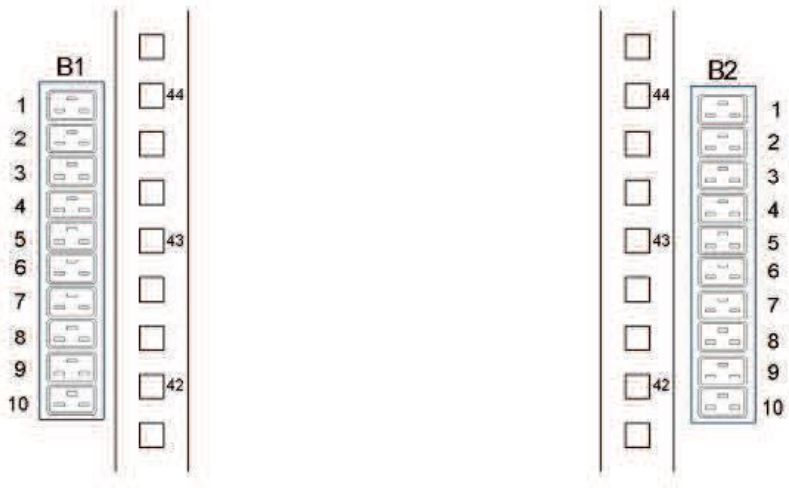
- **Position in the bay to accommodate customer equipment**

Depending on the size of equipment to accommodate, ranging between 1 and 2U, OPT-NC shall provide one or two positions designated by a number between 1 and 44. The customer must position his equipment such as described here under, centring it on the numbered fastening:



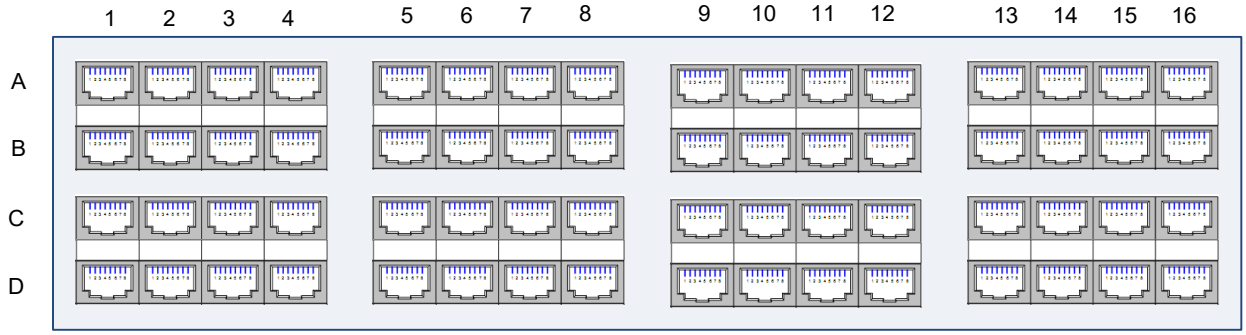
- **<u>Position of electric socket (IEC320 – 220V) on the power strip included in customer bay</u>**

OPT-NC shall provide one or two positions on the BX- YY form where X is a figure (1 or 2) and YY a number (between 1 and 10) identifying in a unique way one or more plugs attributed by OPT-NC.



- **<u>Position of electric port RJ45 10/100/1000 on the distribution band included in the customer bay</u>**

OPT-NC shall provide a position in form of X- YY where X is a letter (between A and D) and YY a number (between 1 and 16) identifying the port in a unique way.



4. DESCRIPTION OF THE LOCAL PORTION OF THE L.C.E.I

The Celeris Ethernet Link (L.C.E), which is the local part of the L.C.E.I. service deployed on New Caledonian soil, will be implemented on an Optical Fiber support, regardless of the L.C.E.I. bandwidth subscribed to by the customer.

4.1 ACCESS TO CELERIS ETHERNET SERVICES

Architecture of a Customer Site

As part of the CELERIS ETHERNET service, for each Customer site involved, OPT-NC implements all or part of a CELERIS ETHERNET endpoint, to which the Customer's Service Access Equipment (EAS) is connected. Thus, each Customer site has the following configuration

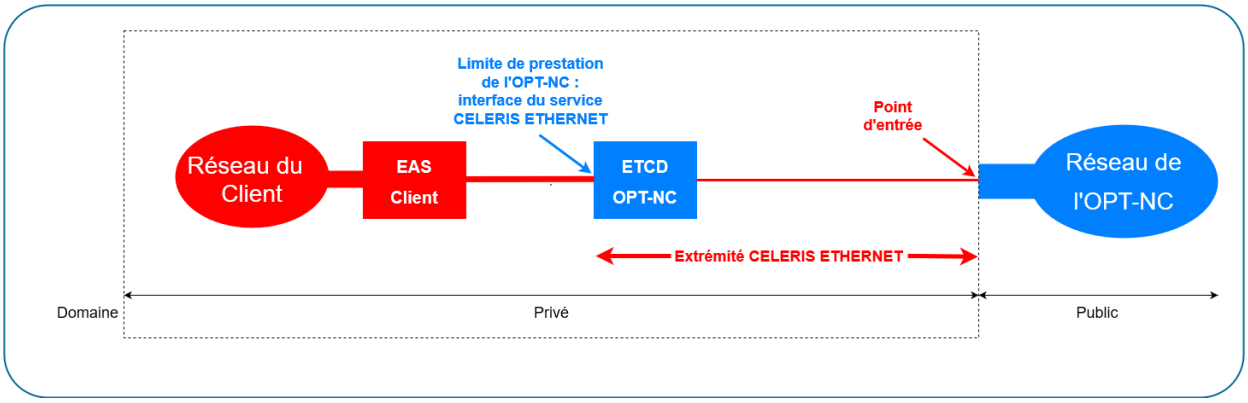


Figure 1 : Customer site architecture

Celeris Ethernet endpoint

The CELERIS ETHERNET endpoint installed at a customer site ensures the connection and communication between the Customer's equipment and OPT-NC network. A CELERIS ETHERNET endpoint consists of all the equipment (racks, cables, conduits, splitters, Data Circuit Termination Equipment, etc.) required for the operation of the CELERIS ETHERNET link, and located between:

- OPT-NC entry point at the Customer's site,

and,

- the termination point materialized by the CELERIS ETHERNET service interface to which the Customer connects.

The technical implementation of the CELERIS ETHERNET endpoint is specified in Article 4 0 *Figure 6 : End configuration – optical Fiber Support*

OPT-NC Services

As part of the implementation of this type of support, OPT-NC provides and deploys optical fiber between its network and the Customer site, terminated by an optical patch panel, supplied and installed by OPT-NC. Additionally, OPT-NC provides and installs a Data Circuit Termination Equipment (DCTE) near the Customer's Service Acces Equipment (EAS) and ensures its operation

Customer Responsibilities

The Customer is responsible according to the Customer Operation Plan for the internal wiring between the optical endpoint of OPT-NC network and OPT-NC optical patch panel, as well as the connection between OPT-NC's DCTE and their EAS.

CELERIS ETHERNET Service Interface

A. Copper Medium Connection Connector

The interface is available on an 8-pin female physical connector compliant with the following standards:

- ISO 8877 (RJ45),
- IEEE 802.3, specifying the 10Base-T physical layer,
- IEEE 802.3u, specifying the 100Base-TX physical layer,
- IEEE 802.3ab, specifying the 1000Base-T physical layer.

Depending on the DCTE (Data Circuit Termination Equipment) provided by OPT-NC at the Customer site, the CELERIS ETHERNET service interface may be:

- MDI (Medium Dependent Interface): an interface dependent on the transmission medium,
- MDI-X (Medium Dependent Interface with Internal Crossover): an interface dependent on the transmission medium with internal crossover.

These interfaces are presented below (ISO 8877 Connector):

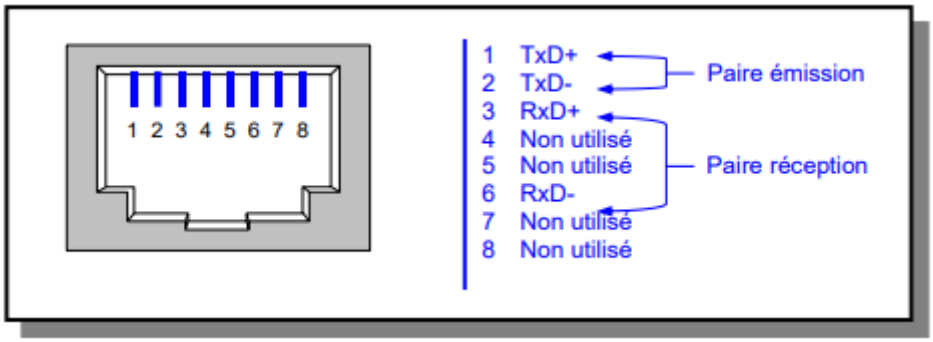


Figure 2 : Wiring 10/100-TX MDI

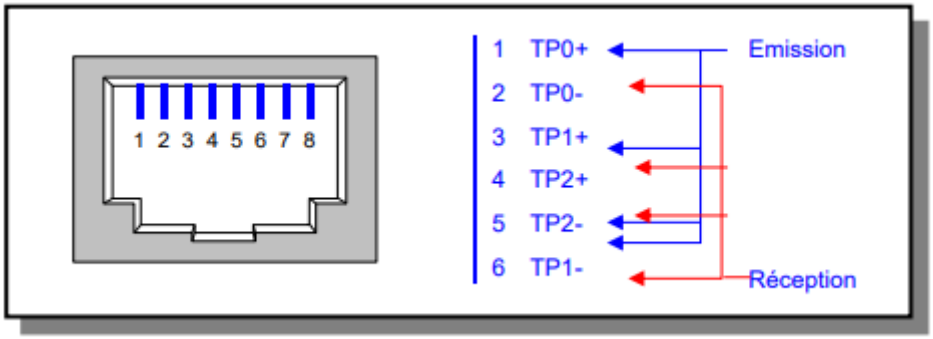


Figure 3 : Wiring 1000-T MDI

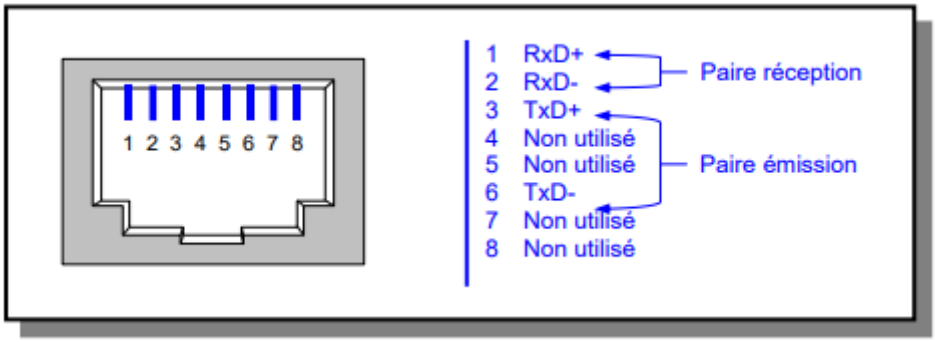


Figure 4 : Wiring MDI-X

The connector is physically attached to the DCTE, to a patch panel, or to the end of an adapter box. "The CELERIS ETHERNET endpoint offers the following interface types at the CELERIS ETHERNET service interface level:"

Common Name	Standardized name	Specifications			Recommanded Support
		Portée Maximale	Impédance	Connector	
Ethernet cuivre	10BaseT	100 m	100 Ohms	ISO 8877 (RJ 45)	UTP 5
Fast Ethernet cuivre	100BaseTX	100 m	100 Ohms	ISO 8877 (RJ 45)	UTP 5
Fast Ethernet optique	100Base-FX 100Base-LX	10 000 m 10 000 m		SFP SFP	Multimode Monomode
Giga Ethernet cuivre	1000BaseTX	75 m	100 Ohms	ISO 8877 (RJ 45)	UTP 5
Giga Ethernet optique	1000Base-SX 1000base-LX	220 m 10 000 m		SFP SFP	Multimode Monomode

Table 1 : Celeris Ethernet Service Interfaces Spécifications

Service Access Equipment (EAS)

The Customer implements and supervises an EAS on their site, which is connected to the CELERIS ETHERNET endpoint at the CELERIS ETHERNET service interface. This EAS must ensure communication with the CELERIS ETHERNET endpoint on the Customer's side.

Endpoint Configuration

For optimal data flow, OPT-NC recommends that the customer regulate their traffic to align the outgoing throughput of their EAS with the bandwidth subscribed to with OPT-NC.

The configuration of a CELERIS ETHERNET endpoint varies depending on the type of physical medium connecting the customer to OPT-NC network.

B. Optical Medium Connection Connector (excluding exceptions)

The interface is available on a duplex optical female SFP (Small Form-factor Pluggable LC connector) compliant with the following standards:

- IEEE 802.3z, specifying the 1000Base-X physical layer.
- IEEE 802.ae for 10GBase-LR;
- IEEE 802.ba for 100GBase-LR4.

Depending on the DCTE (Data Circuit Termination Equipment) provided by OPT-NC at the Customer site, the CELERIS ETHERNET service interface can be:

- Duplex Multimode Optical.

- Duplex Single-mode Optical.

These interfaces are detailed below with the following specifications

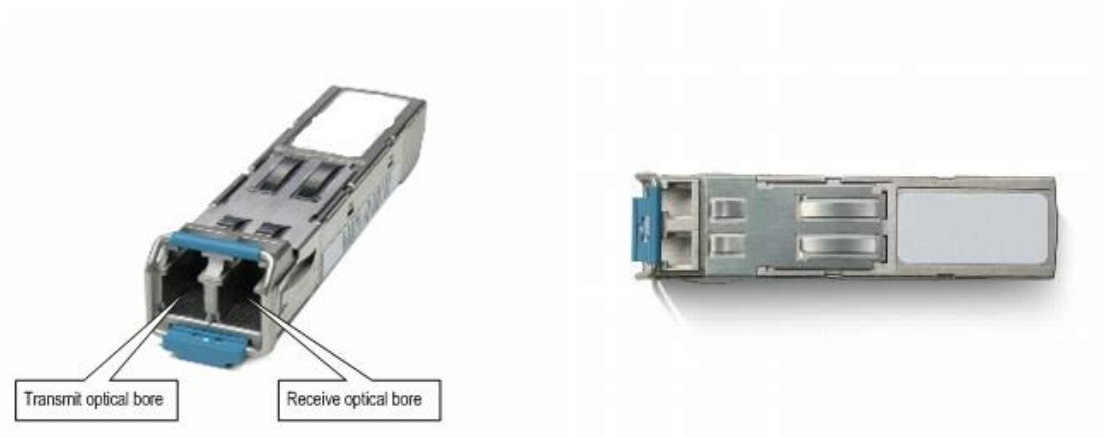


Figure 5 : Duplex Optical Female SFP Connector

Interface	Wavelenght (nm)	Fiber Type	Core Size (µm)	Distance (m)
100Base-FX	850	MMF (MultiMode Fiber)	62,5 ou 50	10000
100Base-LX	1310	SMF (Single Mode Fiber)	ITU-T G.652 SMF compliant as specified by IEEE 802.3z	10000
1000Base-SX	850	MMF (MultiMode Fiber)	62,5	220
			50	500
1000Base-LX	1310	SMF (Single Mode Fiber)	ITU-T G.652 SMF compliant as specified by IEEE 802.3z	10000

Tableau 2 : Interface Used Based on Fiber Type

The connector is physically attached to the DCTE or a patch panel.

Ethernet Frame

The Ethernet frames generated by the Customer's equipment must comply with the IEEE 802.3 standard. This standard specifies the physical layer and the MAC layer for Ethernet networks.

Interface	Standard
100Base -FX	802.3u (1995)
100Base-LX	802.3u (1995)
1000Base-SX	802.3z (1998 CL38)

The use of Full-Duplex mode must comply with the IEEE 802.3x standard.

For optimal data flow, OPT-NC recommends that the customer ensures the traffic policy applied to the interface of their DCTE is adapted to the duplex mode. The customer is informed that OPT-NC endpoint equipment is configured to support Ethernet frames (Jumbo Frames) with a length exceeding 1500 bytes (maximum 9216 bytes).

Endpoint Operation

C. All type of CELERIS ETHERNET (excluding exceptions)

OPT-NC ensures the supervision of equipment at a CELERIS ETHERNET endpoint.

D. Exceptions

OPT-NC does not ensure the supervision of equipment at each endpoint of the 10 Gbps "Point-to-Point" CELERIS ETHERNET service, as the configuration does not allow it.

4.2 SETTING UP CONDITIONS

OPT-NC EQUIPMENT SETTING UP

The Customer is responsible before OPT-NC for the layout of technical premises where an L.C.E.I. terminal is set up, whoever the owner of premises may be.

The Customer assumes the risks associated with OPT-NC equipment installed in the technical premises.

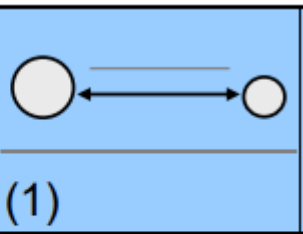
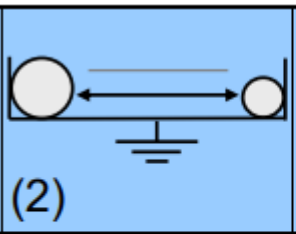
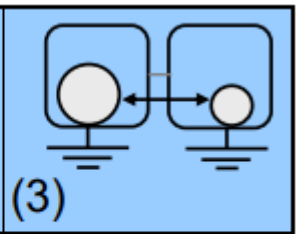
The Customer must provide technical premises with Environmental Conditions that ensure their proper operation These conditions are detailed in Article 4.3 "Environmental Conditions" of this document and include:

- Power supply,
- Climatic and mechanical environment,
- protection against electromagnetic disturbances,
- layout, especially minimum area to be provided (equipment, bay)

Inner distribution

Internal distribution must be compliant with the following rules:

- Conditions of use of screened cables the use of screened cables is fixed by OPT-NC.
- Distances between power and telecommunication cables the following distances between cables must be respected to keep the telecommunication cables immune from disturbances radiated by Low Voltage power cables.

Mise en oeuvre / Types de câbles	 (1)	 (2)	 (3)
2 câbles sans écran	2 cm / m minimum 3 cm	0,3 cm / m minimum 3 cm	0,1 cm / m minimum 2 cm
1 câble écranté 1 câble sans écran	1 cm / m minimum 3 cm	0,15 cm / m minimum 2 cm	0,05 cm / m minimum 1 cm
2 câbles écrantés		0,05 cm / m minimum 1 cm	pas de distance particulière à respecter

(1) No support or support other than those stated hereunder; (
(2) Cable path of the marine slab type (full metal or slightly apertured);
(3) Two metal ducts that can be assimilated with tubes (electric continuity all along the section).

Table 3 : Inner distribution – distance between power and telecom cables

Note: Between two equipments on a customer site, including terminal and customer equipment, cabling will be made without cut off. In the case of an internal optical service, the customer must provide the

infrastructure from the closest OPT-NC tube room optical drawer until OPT-NC is responsible for laying optical fibre.

Specific Configurations of customer sites

The making of some L.C.E.I. terminals require specific equipments to be implemented on the Customer site, besides formerly described equipments. In this case, OPT-NC shall provide the Customer with detailed specifications stating its needs in:

- Area,
- Energy,
- Cabling…

4.3 ENVIRONMENTAL CONDITIONS OF CUSTOMER SITE

This section defines the environment conditions of OPT-NC on site provided by the Customer.

OPT-NC equipments are established in technical premises provided by the Customer (belonging to the customer or a third party) according to recommendations issued by OPT-NC. Those technical premises must allow ensuring an optimum operation of installed equipments, their satisfactory setup and to manage and maintain them in a satisfactory way.

The technical premises are a permanent structure, accessible by a person, little-influenced by external weather or electromagnetic conditions. The ceiling, walls and floor are free from humidity marks and shall not disintegrate under contact. The flooring is a permanent structure (concrete, coating) and perfectly level.

The standards and recommendations which are referred to be the minimum required and may under some circumstances be insufficient for a correct operation of equipments, in which case OPT-NC reserves the possibility to require extra corrective actions.

General Measures

A. Premises Description

OPT-NC requires the customer to provide a server rack with a minimum of 6U available in a secured technical room. The specific requirement for available space in the customer's server rack will be refined on a case-by-case basis during a preliminary technical visit. The room must be ventilated or air-conditioned

B. Premises accessibility

Access to premises, for set up as well as for maintenance, is easy and without risks for the safety of OPT-NC staff that may be driven to operate in them. Equipment transportation between the place of delivery and technical premises must be examined:

- sufficient space for equipment passage through the doors,
- stairs, goods lift, corridors,
- admissible loads /m^2…

In no event must equipment be hauled into the premises using ladders or other means not offering full safety guarantee. Conditions of access to the premises shall be agreed on between both parties.

C. Volume of work

Sufficient space must be provided for OPT-NC to operate without difficulty on the equipment, perform its connection (power, and telecom) and position measuring instruments.

As a rule, a minimum space of 1 m is to be provided around installed equipment. Height under ceiling will be at least equal to that of the outer frame of the general OPT-NC equipment, plus 0.5m. It may be reduced according to the type of equipment used, by agreement between both parties.

Positioning of equipment installed by OPT-NC must allow work at a man's height (mini: 0,35m, maxi: 1,5m)

D. Lighting

Lighting is provided by incandescent or fluorescent lights positioned in such a way they give light in front of and behind equipments.

Lighting at 1m above the floor is 400 Lux minimum (Cf. UTE 15-900 guide). The level of electro-magnetic disturbances driven and radiated from the lighting system must comply with the requirements of standard NF EN 55015. Lighting switch shall be at the entrance of the premises.

E. Environment

The technical premises' environment permits equipments operation under nominal conditions. It respects the criteria defined by OPT-NC for its own technical premises regarding electromagnetic electrostatic, climatic (temperature, humidity, dusts, ventilation or air conditioning) physical, chemical and mechanical environment, specifically:

- OPT-NC equipment provided is designed for fixed use in an office or technical room with a maximum ambient temperature of 30°C. It must not be installed in a location exposed to direct sunlight and/or heat radiation. It must not be placed in conditions where heat accumulation occurs (e.g., on or under another electronic device) and must not be exposed to humidity or condensation.
- OPT-NC equipment must not be subjected to a dusty environment that could impede its proper ventilation and, consequently, its correct operation.

F. Sealing

The premises are considered non-floodable and arranged in such a way that the installed equipment is free from any risk of water splashes, runoff, or condensation.

Do not install OPT-NC equipment in a damp or dusty location. Do not expose it to water or other liquids.

No liquid should enter the OPT-NC equipment. Do not use this equipment near a water source.

If any liquid or substance enters OPT-NC equipment, immediately turn it off or unplug the power cord from the electrical outlet. Continuing to use it may cause electric shock or even a fire hazard.

G. Cleaning and Disassembly

Do not use liquid detergents or aerosols to clean OPT-NC equipment, nor any chemicals that could damage plastic materials, nor substances containing alcohol, benzene, thinner, or other flammable products. Using such products may cause a fire.

To reduce the risk of electric shock, do not disassemble OPT-NC equipment. None of its internal components can be replaced by a non-professional; therefore, there is no reason to open it. Opening or removing the covers may expose you to dangerous voltages. If the equipment needs to be repaired or serviced, contact OPT-NC.

H. Access control

Control of access to the premises is defined by agreement between both parties and implementation is at the customer's expense.

I. Fire safety

The customer, as a keeper of the equipment installed in his technical premises, takes measures to prevent fire. In no case can OPT-NC be held responsible for damages caused by malfunction of one of its equipments.

Fire detection system will be operated at least two detectors functioning under separate principles.

J. Telephone set

A telephone set is provided to OPT-NC agents during operations on the customer's site. This element is to facilitate operations and improve operations and reduce fault repair and opening.

K. Delivery

Premises are delivered all work terminated.

No work can be undertaken by the customer after delivery of the premises, without OPT-NC being given notice and judging whether service can be continued or not during the work on site.

Technical Measures

A. Power

Personal safety

The Customer commits to ensuring that their installations comply with worker protection measures against electrical risks.

It should be noted that these provisions may technically conflict with those taken to protect equipment from overvoltage caused by lightning.

For its part, OPT-NC prioritizes taking the necessary measures to ensure the safety of personnel working on the telecommunications network, which may prevent the implementation of lightning protection for the equipment.

If OPT-NC is required to upgrade the Customer's Site, beyond the standard protection of equipment installed by OPT-NC, to comply with worker protection regulations, the costs incurred will be charged to the Customer.

Power cut off in the premises must be made possible by:

- An emergency punch cut off system,
- A fire detection.
- A water detection
- An abnormal temperature rise in the premises

In the event of sites being served by high voltage power or situated in the vicinity of high voltage electric units (pylons, stations, private sites powered under high voltage…) where there is a risk linked with potential elevation in case of high voltage electric fault, measures to be applied first are those necessary to guarantee the safety of persons having to work on equipments or on the telecom network.

230V power

A minimum 230V undulating power, such as defined here after is provided by the Customer. Any other available power at the Customer's (particularly 48V) may be used by agreement between the two parties.

Technical specifications of the source

- Voltage : 207 à 253 V rms
- Frequency : 49 à 51 Hz
- Frequency variation : 0,5 Hz/s max

- Level of harmonic distortion under power: 5 % max

B. Distribution

At least one circuit breaker is dedicated to the protection of power provided to OPT-NC equipments.

Two dedicated circuit breakers are provided in the case of two sources being available and if OPT-NC equipment permits their use, conditioned by an agreement between both parties. Sources may be mains and relayed by a generator or any other generating system providing autonomy of several hours.

Two French standards 2P+T 10/16A (2 poles & earth 16 Amp) mains plug with a 30mAmp differential circuit breaker shall be provided to connect measuring instruments or a lighting system. That circuit breaker may be common to other uses, except power for OPT-NC equipment, and its opening is reckoned to be without effect for the Customer.

The calibre and the setting off curve of each circuit breaker are chosen according to the features of the powered equipment and to the evolution possibilities of the unit. If the opening of these circuit breakers through a fault set off the upper circuit breaker (non-selective unit), consequences will be under the Customer's responsibility.

In a general way, the power network provided to OPT-NC by the Customer must follow the recommendations of NF C 15-100 standard.

C. Protection against voltage

When transmission carriers between the Customer Site and OPT-NC network are of the metal wire type, it may be necessary to provide those carriers with galvanic insulation systems eventually completed by flow regulating equipments and an adapted electric insulation device.

In the most severe cases, it may be inevitable to use an optical fibre carrier.

Expenses linked with the setting up of those devices, eventual flow regulation or optical connection shall be charged to the Customer.

It must be noted that those dispositions may be in technical contradiction with those taken for the protection of equipments against over voltages due to lightning and so prevent their implementation.

To satisfy simultaneous protection against an elevation of earth potential and against lightning requirements, the answer is an optical fibre connection. This may be imposed by OPT-NC for particularly lightning exposed structures, due to their great height above their environment such as pylons or on account of their geographical situation, such as for buildings situated at the top of an L.C.E.I. column or in any frequently lightning hit location.

Note: In so called tense urban zones, typically city centres or close suburbs, where buildings are close to one another and networks are buried underground, it is admitted that the density of buried metal structures confers the area an equipotential character rendering useless the application of protective measures against earth potential elevations.

Overvoltage generated by lightning striking the site

Consequences of a direct hit by lightning on the telecom access unit are under the responsibility of the Customer, so far as the following protective actions have not been taken.

The extent of the damages may concern OPT-NC equipments situated at the customer's, the cable associated to their connections, and the equipments on the line.

The customer must reduce damage risks by setting up a unit for protection against lightning. In the case of sites fitted with pylons, the following extra measures also help reduce risks and thus are greatly advised:

- presence of lightning protectors with an adapted flow power on the telecom cable head (provided by OPT-NC),
- use, for the course of cables of inner distribution connected to our network, of metal chutes connected to the mass network at their ends and at least every 10 metres,
- presence of protections, with a power of flow or adapted rigidity at the head of the power cable feeding the OPT-NC equipments,
- Provision by the Customer of two mini cables, preferably buried deep or else in a tube up to the limit of the private property, along the connection cable route.

Overvoltage from external accesses

These over voltages may originate in electromagnetic disturbances coupling (lightning, induction by electric lines) to metal cables entering the site.

Deterioration of telecom equipment given power by the Customer, caused by over voltages spread around by the power access, may not be attributed to OPT-NC, as far as no technical measure will have been taken by the Customer to protect that access.

The Customer must reduce damage risks:

- by protecting his power supply (displaying anti-lightning and/or insulation transformers, for instance),
- by ensuring the decoupling of high and low voltage earth connections in accordance with agreements between OPT-NC and power distributors.

OPT-NC ensures the protection of its own lines, by supplying lightning stoppers and connecting them to the earth network.

Generally, protections against over voltages must comply with the recommendations of NF C 15-443 Standard.

D. Grounding network

For each system, OPT-NC determines the need for setting up a grounding network. Its setting up and its connection to the building's ground (or grounding terminal) are at the Customer's expense.

In the premises where OPT-NC equipments are displayed, all the large metal structures (water mains, heating, metal construction elements, cubicles or bays) are linked, made of a copper wire of at least 25 mm2.

Any other metal structure located at less than 2m from the grounding network is connected to it.

Whenever the setting of metal elements on the premises makes it possible, to complete the electromagnetic protection, 2mx2m meshes shall be setup between those various metal structures by other similar connections.

The grounding network thus constituted is directly connected by a copper conductor of at least 25 mm2 to the grounding terminal of the premises, to which the protection leads of the electric system (PE) are connected.

That lead and the cable path laid from the Entry to the premises are connected to the metal structures of the building, themselves being connected to the ground. One aims at producing a connection every 10 meters or if not at each unit crossing.

That cable path may take the place of the ground connecting wire of the unit to the main ground if its electric continuity is good, which is to say if a contact resistance < 1 mΩ is measured between the various sections.

The cable paths inside the unit belong to the grounding network.

E. Standards

NF C 13-100: Delivery stations established inside a building and powered by a 2nd class public distribution network,

NF C 15-100: Low voltage electric systems: Rules,

NF C 15-443: Low voltage electric systems – Practical guide - Low voltage systems protection against atmospheric over voltages. Selection and setting up of anti-lightning devices,

NF C 17-100: Protection against lightning – Protection of structures against lightning- setting up an anti-lightning device,

NF C 18-510: Book of general electric safety instructions,

NF EN 50102: Degrees of protection provided by electric appliance envelopes against external mechanical impacts (IK)

NF EN 50173: Information technologies – Generic cabling systems,

NF EN 50174-2: Information technologies – Installing cables – Part 2: planning and practices for installing inside buildings,

NF EN 50310: Applying equipotential connection and earth connection in places fitted with information technologies equipments,

NF EN 55015: Limit and measuring methods of radio electrical disturbances produced by electric lighting appliances and similar,

NF EN 60529: Degrees of protection provided by envelopes (IP code),

NF EN 61000-4-11: Electromagnetic compatibility (CEM) – Part 4: Trial and measuring techniques – Section 11 immunity trials concerning power lows, short interruptions and voltage variations,

NF EN 61000-6-1: Electromagnetic compatibility (CEM) - Part 6-1: Generic standards – Immunity for residential, commercial and light industry environments,

NF EN 61340-5-1: Electrostatics – Part 5-1: protection of electronic devices against electrostatic phenomenon – General directions,

ETS 300 019-1-3: Telecommunications – Equipment engineering (EE) – Conditions and environment trials for telecom equipments - Part 1-3: classification of environment conditions – Fixed operation in weather protected sites,

FD ETR 127: Telecommunications – Equipment engineering – Electrostatic environment and reduction measures for public telecommunications networks (PTN).

FD ETR 127: Equipment engineering – Electrostatic environment and reduction measures for public telecommunications networks (PTN).

F. Formulaires fournis dans le cas d'un hébergement dans la BAIE CLIENT à Global Switch.

The bay allocated to customers' terminal equipment is indexed as F26.

5. GLOSSARY OF TECHNICAL TERMS

CPE (Customer Premises Equipment): Equipment installed at the customer's premises to connect their network to the Celeris Ethernet link service.

Customer EAS (Service Access Equipment): The customer's EAS is the customer-owned equipment located in the private domain, which connects the customer's internal network to the Celeris Ethernet endpoint managed by OPT-NC. It ensures interaction between the customer's equipment and OPT-NC's network via the DCTE.

OPT-NC DCTE (Data Circuit Termination Equipment) : The DCTE is provided by OPT-NC and installed in the private domain, near the EAS. It marks the boundary of OPT-NC's service and acts as the connection point between OPT-NC network and the customer's network.

Jumbo Frame: Ethernet frames with a size exceeding 1500 bytes, enabling more efficient data transport over modern networks.

POP (Point of Presence): An interconnection points between the OPT-NC network and third-party or customer networks, located in Data Centers.

VLAN (Virtual Local Area Network): A virtual local network that segments a physical network into multiple logical sub-networks.