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Interface technical specifications
for France Telecom's network

Directive 1999/5/EC

**InterLAN 2.0 ATM service access interface
characteristics**

Summary: This document gives a brief description of the InterLAN 2.0 ATM service, and describes the technical characteristics of the interfaces used for accessing the service.

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1. timer values are indicative and can be subject to modification,
2. due to various technical constraints, some services or service options may not be available on some interfaces,
3. the fact that a service not yet commercially open is described in this document can in no case be considered as a binding commitment on France Telecom part to actually open this service.

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1. OVERVIEW OF THE INTERLAN 2.0 ATM SERVICE

1.1 GENERAL DESCRIPTION

The InterLAN 2.0 ATM service is a high bit rate digital link service for interconnecting a customer's local networks.

The interconnection service offered is limited to OSI layer 2 (bridging service).

The links are deployed within a town, with rates reaching up to 100 Mbit/s.

The InterLAN 2.0 ATM service can be used by customers who have equipment fitted with ATM interfaces. It allows permanent connections to be established in Asynchronous Transfer Mode (ATM), as defined by the ITU-T and ATM Forum.

The service includes supervision functions (proactive supervision) and QoS commitments (guaranteed service restoration time, maximum service unavailability time and commissioning delays).

1.2 SERVICE ACCESS EQUIPMENT

The service can be accessed on the customer site via the service access equipment (EAS) supplied by France Telecom. The EAS has an ATM-type User Service Interface (USI) to which the customer equipment can be connected. This interface is the boundary of France Telecom's responsibility.

Three types of ATM interface are offered to the customer:

- ATM UNI 3.1 interface, 34 Mbit/s
- ATM UNI 3.1, STM1 interface, 155 Mbit/s on multimode fibre
- ATM UNI 3.1, STM1 interface, 155 Mbit/s on single-mode fibre

Table 1 gives the characteristics of these interfaces and the associated standards.

InterLAN 2.0 ATM service interfaces				
Type of service interface	Type of cables to be used	Range (metres)	Type of connector	Reference standards
E3	Coaxial	150	75 Ω BNC connector	G.703 - G.804
STM1	Single-mode fibre optic	35000	ST	G.957 - S1.1 - I.432
STM1	Multimode fibre optic	2000	SC	ANSI T1.646

Table 1: ATM interface characteristics

2. CHARACTERISTICS OF THE INTERLAN 2.0 ATM SERVICE

2.1 LINKS

As illustrated in Figure 1, each customer site equipped with EAS is connected to France Telecom's ATM network via a Virtual Channel (VC) or Virtual Path (VP) type ATM connection.

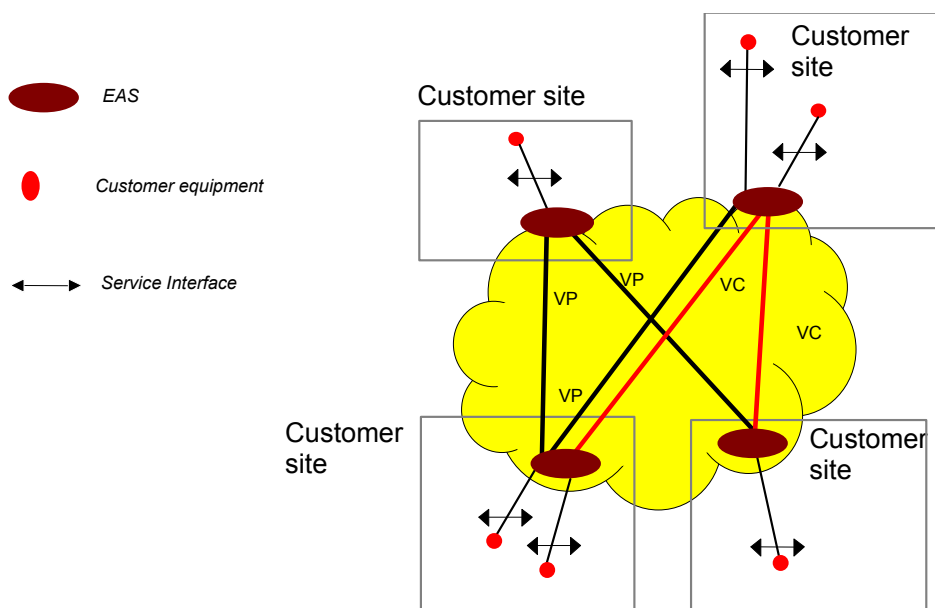


Figure 1: Accessing the InterLAN 2.0 ATM service

In both cases, the ATM connections between sites have the following characteristics:

- permanently established for information transfer,
- traffic contract for each connection,
- traffic parameter symmetry (parameters identical in both directions).

2.1.1 VC SERVICE

The VC service allows the customer to have a VC type ATM link between two service interfaces linking two remote sites, the two VC endpoints being located in the customer equipment. The ATM cell fields of a VC connection must comply with the conditions given in Table 2.

<i>Field</i>	<i>User data cell value restrictions</i>	<i>Notes</i>
Generic Flow Control (GFC)	None	The GFC protocol is not used by France Telecom (the GFC field is not read).
Virtual Path Identifier (VPI)	Number negotiated with FT in the range 0 to 3 inclusive.	Cells with a different VPI are destroyed.
Virtual Circuit Identifier (VCI)	Number negotiated with FT in the range 32 to 240 inclusive.	Cells with a different VCI are destroyed.
Payload Type Identifier (PTI)	Cells with a PTI of 0 to 3 are transmitted transparently. Cells with a PTI of 4 to 7 must be used in compliance with Recommendation I.361.	Cells where PTI=5 are available to customer end-to-end F5 streams.
Cell Loss Priority (CLP)	This bit can have a value of 0 or 1 (value chosen by customer).	Cells where CLP=5 can be marked CLP=1 by the network. Cells where CLP=1 can be destroyed first by the network if there is congestion.
Information	This is transported transparently.	

Table 2: VC service ATM cell field values

2.1.2 VP SERVICE

The VP service allows the customer to have a VP-type ATM link between two service interfaces linking two remote sites, the two VP endpoints being located in the customer equipment. Within this VP, the customer can create as many VC as required as long as the restrictions given in Table 3 are respected.

<i>Field</i>	<i>User data cell value restrictions</i>	<i>Notes</i>
Generic Flow Control (GFC)	None.	The GFC protocol is not used by France Telecom (the GFC field is not read).
Virtual Path Identifier (VPI)	Number negotiated with FT in the range 4 to 127 inclusive.	Cells with a different VPI are destroyed.
Virtual Circuit Identifier (VCI)	Number chosen by the customer in the range 32 to 65535 .	Cells with a VCI of 0 to 31 must be used in compliance with Recommendation I.361.
Payload Type Identifier (PTI)	Cells with a PTI of 0 to 3 are transmitted transparently. Cells with a PTI of 4 to 7 must be used in compliance with Recommendation I.361.	Cells where PTI=5 are available to customer end-to-end F5 streams.
Cell Loss Priority (CLP)	This bit can have a value of 0 or 1 (value chosen by customer).	Cells where CLP=0 can be marked CLP=1 by the network. Cells where CLP=1 can be destroyed first by the network if there is congestion.
Information	This is transported transparently.	

Table 3: VP service ATM cell field values

2.2 CONFIGURATIONS AVAILABLE

Three types of configuration are offered:

- **point-to-point** configuration: interconnection of two remote sites,
- **point-to-multipoint** configuration with **shared** service interface: interconnection of a central site with several remote sites, with a single service interface on the central site on which all the streams from the remote sites are centralised,
- **point-to-multipoint** configuration with **separate** service interfaces: interconnection of a central site with several remote sites, with a service interface on the central site for each remote site.

The possible service access interface combinations for each configuration type are:

FOR A POINT-TO-POINT CONFIGURATION		FOR A POINT-TO-MULTIPOINT CONFIGURATION	
Site 1	Site 2	Central site	Remote sites
34 Mbit/s electrical	34 Mbit/s electrical	34 Mbit/s electrical	34 Mbit/s electrical
34 Mbit/s electrical	STM1 155 Mbit/s	STM1 155 Mbit/s	34 Mbit/s electrical
STM1 155 Mbit/s	STM1 155 Mbit/s	STM1 155 Mbit/s	STM1 155 Mbit/s

2.3 OPERATION AND MAINTENANCE (OAM)

2.3.1 END-TO-END OAM STREAMS

The service is transparent to Alarm Indication Signal (AIS), Remote Defect Indication (RDI), Continuity Check (CC) and end-to-end Loopback OAM streams transmitted by the customer equipment. The service offered is not transparent to end-to-end OAM performance streams delivered by the customer equipment.

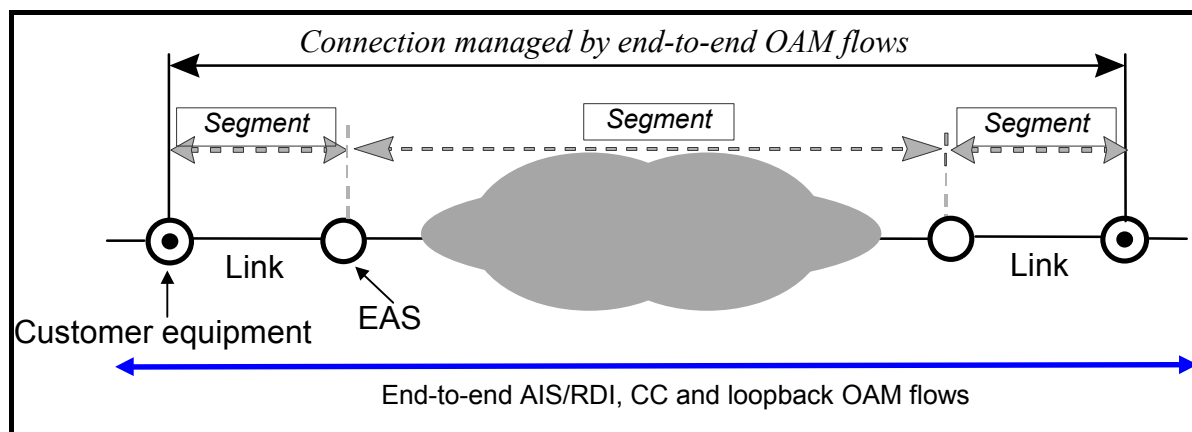


Figure 2: Transparency to end-to-end OAM streams

2.3.2 SEGMENT OAM STREAMS

The EAS is a segment endpoint for connections, allowing the customer to be provided with the segment loopback between the customer equipment and the USI. The customer can then use the segment loopback cells to check the continuity of the connection to a given USI at hardware level.

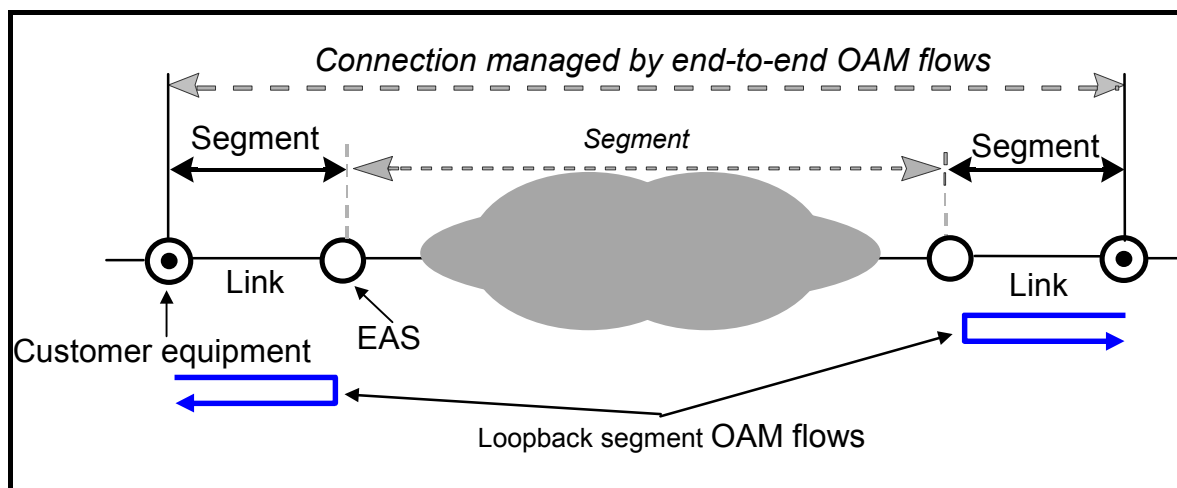


Figure 3: Segment OAM streams

2.3.3 END-TO-END SIGNALLING STREAMS

The customer signalling streams are transported transparently through the network. The signalling streams transmitted by the customer can be supported by a VC created by the customer within a VP connection.

3. STANDARDS TO BE RESPECTED

The ATM layer of the InterLAN 2.0 ATM service complies with ITU-T international recommendations and with ATM Forum specification UNI 3.1.

The ATM cells generated by the customer equipment must comply with ITU-T Recommendation I.361.

The use of the OAM streams must comply with Recommendation I.610.

4. HISTORY

Edition	Date	Comments
1	May 2002	First version