Interface technical specifications
for France Telecom's network

As required by Directive 1999/5/EC

Giga high rate multisite service (Giga SMHD) access interface characteristics

Summary: This document gives a brief description of the technical characteristics of the different interfaces used for accessing the Giga SMHD services.

Warning :

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Notice

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France Telecom further points out users' attention on the following points:

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 GIGA SMHD SERVICE

France Telecom supplies a dedicated high bit rate metropolitan network to customers with n sites (n≥3), located in a given geographical area, which meets all telecommunications needs between their sites. The sites are connected through the France Telecom network by an optical loop which offers various rates (≤2.5 Gbit/s) and protocol links between any two nodes on the loop, using wavelength multiplexing.

The eligibility criteria for the service are defined in the France Telecom price catalogue.

The service provided between the customer sites is a point-to-point bidirectional digital transmission service accessible via the following types of interface:

- **155 Mbit/s, 622 Mbit/s or 2.5 Gbit/s optical SDH interface**
- **100 Mbit/s Fast Ethernet, 1 Gbit/s Giga Ethernet interface**
- **1062 Mbit/s Fibre Channel interface**
- **200 Mbit/s ESCON channel interface**
- **270 Mbit/s D1 SDI video interface**

The interface type is the same at both ends of a link.

The links are protected by a duplicate optical path and can be backed up in two ways:

- Standard: The customer has a single tributary interface at each end of the link. The service access equipment (EAS) switches the traffic to the back-up path in the case of a fibre break or a line card problem.
- Birouted: The customer has two tributary interfaces at each end of the link, and each interface corresponds to a path (normal or back-up). The customer equipment switches the traffic to the back-up path in the case of a fibre break, a line card problem or a tributary card problem.

    The birouted service can only be used with links with a rate greater than 270 Mbit/s.

Links with a rate < 270 Mbit/s and with identical ends are said to be clustered and are aggregated on a single four-link concurrent wavelength.

The optical interface requires 2 single-mode or multimode Fibre Optic (FO) cables (input/output) depending on the protocols being transported.

The data transfer time from a tributary input to a tributary output can reach a maximum of 3 ms.

2   TRIBUTARY INTERFACE CHARACTERISTICS

This chapter defines the interworking between the customer equipment and the EAS installed by France Telecom.

This mainly depends on respecting the optical levels. The customer is responsible for providing any optical attenuators necessary for adapting the optical levels between the EAS and the customer equipment.

The optical connection uses **SC/PC connector technology**.

2.1   STM4 AND STM16 SDH INTERFACES

The STM4 or STM16 SDH optical hardware interface complies with ITU-T Recommendations G.957 and G.958.

The STM4 or STM16 SDH software layer interface complies with Recommendation G.707.

The optical interface connection is made using 2 **SM** FO cables.

The Optical Add-Drop Multiplexer (OADM) optical interface transmits at **1310 nm** (1270 to 1360 nm) and receives in the range **1250 to 1600 nm**.

The optical levels must respect the following values:

EAS incoming optical levels	Maximum	-3 dBm
	Minimum	-18 dBm
EAS outgoing optical levels	Maximum	0 dBm
	Minimum	-11 dBm

2.2   GIGA ETHERNET AND 1062 MBIT/S FIBRE CHANNEL INTERFACES

The optical interface connection is made using 2 **SM** or **multimode (MM)** FO cables depending on the protocols being transported.

The OADM optical interface transmits at:

- **1310 nm** (1280 to 1340 nm) and receives in the range on **1270 to 1350 nm**

- **850 nm** (830 to 860 nm) and receives in the range on **770 to 860 nm**

The optical levels must respect the following values:

EAS incoming optical levels	Maximum	-3 dBm
	Minimum	-17 dBm
EAS outgoing optical levels	Maximum	-3 dBm
	Minimum	-11 dBm

2.3   STM1 SDH, FAST ETHERNET, ESCON AND SDI VIDEO INTERFACES

The optical interface connection is made using 2 **SM** or **MM** FO cables depending on the protocols being transported.

The optical interfaces are concentrated at a ratio of 4 per wavelength.

The OADM optical interface transmits at **1310 nm** (1280 to 1350 nm) and receives in the range **1270 to 1380 nm**.

The optical levels must respect the following values:

EAS incoming optical levels	Maximum	-8 dBm
	Minimum	-28 dBm
EAS outgoing optical levels	Maximum	-8 dBm
	Minimum	-15 dBm

3   HISTORY

Edition	Date	Comments
1	December 2001	First version