4.9 Overall performance measurements

See Recommendation I.603 for the performance related to the digital section of the basic rate access, and Recommendation I.604 for the V4 digital section.

4.1.3Functions allocated to the digital links

The functions, which are allocated to the digital links are:

- detection of loss of incoming signal on either end and within the digital link;
- generation and transmission of AIS within the digital link.

4.2System protection

xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx

- CRC code generation;

- RAI generation;

-CRC monitoring of the incoming signal (basic access multiplexer to the ET);

- detection of CRC error information;

-CRC error reporting (ET to the basic access multiplexer) (optional);

- AIS generation.

The implementation of these functions should be the same as for the ET in the ISDN primary rate access, as defined in Recommendation I.604 for the exchange termination (ET).

4.1.2Functions applied to the static basic access multiplexer

The functions which are allocated to the basic access multiplexer are listed below:

- detection of loss of incoming signal;

- detection of loss of frame alignment;

- detection of AIS;

- detection of RAI;

- generation of the frame signal;

- CRC code generation monitoring of the incoming signal (network to basic access multiplexer) and detection of CRC error information (if provided from the ET);

- CRC error reporting (basic access multiplexer to the ET).

The implementation of these functions should be the same as for the NT2 in the primary rate access, as defined in Recommendation I.604.

In addition, the following functions are allocated to the basic access multiplexer:

- sending of AIS on the V4 interface, in case of a defect in the basic access multiplexer between the V1 reference point and the V4 interface of the multiplexer;

- signalling to all the basic rate access the condition "out of service due to failure", in the case of a defect occurring in the basic access multiplexer, between the V1 reference point and the V4 interface of the multiplexer, and in the digital link.

FIGURE 2/I.605

Information exchange between the digital section for the ISDN basic rate access and the local exchange termination (ET)

These functions, which are allocated within this Cv1 Channel are defined in Recommendation G.960 on the digital section for the ISDN basic rate access.

These functions can be classified according to:

- activation/deactivation procedures;

- error and status reporting to the exchange (ET);

- failure localization within the digital section for the ISDN basic rate access;

- conveyance of control information from the exchange (ET) to the digital section of the ISDN basic rate access.

4.Maintenance of the digital link and basic access multiplexer

4.1Failure detection

Unlike the ISDN basic access, the digital, link and basic access multiplexer are always in the active state (as seen by the exchange). Continuous automatic supervision, supervising the correct functioning of layer 1 up to basic access multiplexer, is operating. This supervision is called continuous automatic supervision on layer 1.

4.1.1Functions applied to the ET

The functions which are allocated to the ET are listed below:

- detection of loss of incoming signal;

- detection of loss of frame alignment;

- detection of AIS;

- detection of RAI;

- generation of the frame signal;

FIGURE 1/I.605

Equipment configuration for maintenance of the multiplexed basic rate access

Note 1 - The digital link, as defined in CCITT Recommendation G.701, can make use of a variety of transmission techniques and media complying with Recommendations G.703 and G.704.

Note 2 - The digital link may not be present. (Colocated configuration).

3.Relationship to the maintenance of the basic rate access

The same principles as given in Recommendation I.603 for the ISDN basic rate accesses directly connected to the local exchange, should be applied. Therefore, the NT1 and LT for the basic rate accesses connected via a static basic access multiplexer to the local exchange must have the same functions as NT1 and LT for the basic rate accesses connected directly to the local exchange.

(Loopback mechanism must be implemented according to Recommendation I.603.)

In order to support these principles, operation and maintenance information has to be exchanged between the digital section for the ISDN basic rate access and the exchange termination (ET). This information is conveyed in the Cv1 Channel, which is defined in Recommendation Q.512. This Cv1 Channel is shown in Figure 2/I.605.

Recommendation I.605

APPLICATION OF MAINTENANCE PRINCIPLES TO STATIC MULTIPLEXED ISDN BASIC ACCESSES

1.Scope of application

This Recommendation covers the maintenance of the static multiplexed basic rate access, controlled by the network, and describes the operations and maintenance aspects of the V4 interface.

The V4 interface is defined in Recommendation Q.512. The specification of the operations and maintenance aspects of the V4 interface is the subject of this Recommendation.

This Recommendation follows the maintenance principles as defined in Recommendation M.20 and applies to the basic rate access connected to the exchange via a multiplexer.

The principle of controlled maintenance is applied for maintaining the static multiplexed basic rate access.

Controlled maintenance is a method of sustaining a desired technical performance by the systematic application of supervision, testing and performance sampling in order to minimize preventive maintenance and to reduce corrective maintenance.

2.Network configuration for maintenance activities

Figure 1/I.605 shows the general reference configuration of the multiplexed basic rate access, connected via a digital link to the Exchange Termination (ET).