

# ANNEX I TRANSPORT OVER ATM (NORMATIVE)

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## I.1 Normative References

ITU Recommendation Q.704 (07/96) - Signalling network functions and message

ITU Recommendation Q.2110 (07/94) - B-ISDN ATM adaptation layer - Service specific connection oriented protocol (SSCOP)

ITU Recommendation Q.2210 (07/96) – Message transfer part level 3 functions and message using the services of ITU-T Recommendation Q.2140.

ITU Recommendation I.361 (02/99) - B-ISDN ATM layer specification

## I.2 Transport over MTP 3B/N-SAL/Type 5AAL

Protocol messages defined in this document may be transmitted over an SS 7 network. Service indicator value 14, as defined in section 14.2.1 of ITU recommendation Q.704, shall be used. The value corresponds to the bits DCBA equal 1110. These protocol messages is using the services of MTP 3 B as described in recommendation Q.2210.

In a transaction-oriented protocol there are still ways for transaction requests or responses to be lost. As such it is recommended that entities using MTP 3 B transport implement application timers for each TransactionRequest.

### I.2.1 Providing At-Most-Once Functionality

Messages, being carried over MTP3B, may be subject to losses. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times. The transmission procedures shall thus provide an "At-Most-Once" functionality.

The procedures in H.248 Section D.1.1 shall be followed with two exceptions

- theLONG-TIMER shall not be used
- TransactionResponseAck parameter, shall not be used.

### I.2.2 Transaction identifiers and three way handshake

#### I.2.2.1 Transaction identifiers

Section D.1.2.1 of H.248 is recommended to be followed.

#### I.2.2.2 Three way handshake

Section D.1.2.2 of H.248 is not applicable.

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### **I.2.3 Computing retransmission timers**

With reliable delivery, as MTP 3B provides, the incidence of loss of a transaction request or reply is expected to be very low. Therefore, only simple timer mechanisms are required. E.g the first retransmission of a request can occur after a short interval. If additional retransmissions are required a longer time interval is recommended between the retransmissions.

### **I.2.4 Provisional responses**

The procedures in section 8.2.3 of H.248 apply. If an entity receives a repetition of a transaction that is still being executed a TransactionPending should be sent.

### **I.2.5 Ordering of commands**

MTP 3B provides ordered delivery of transactions therefore no special procedures are required.

## **I.3 Transport using SSCOP/Type 5 AAL**

Protocol messages described in this document may be transmitted via SSCOP links. These protocol messages are using the services of SSCOP as described in recommendation Q.2110.

In a transaction-oriented protocol there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using SSCOP transport implement application timers for each request and response.

### **I.3.1 Providing the At-Most-Once functionality**

Messages, being carried over SSCOP, are not subject to transport losses, but loss of a transaction request or its reply may none-the-less be noted in real implementations. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times.

To guard against such losses, it is recommended that entities follow the procedures in Section in D.1.1 in H.248.

### **I.3.2 Transaction identifiers and three way handshake**

#### **I.3.2.1 Transaction identifiers**

Section D.1.2.1 of H.248 applies.

#### **I.3.2.2 Three way handshake**

It is possible that transaction replies may be lost even with a reliable delivery protocol such as SSCOP. Entities, using SSCOP shall follow the procedures in Section D.1.2.1 of H.248.

### **I.3.3 Computing retransmission timers**

With reliable delivery, the incidence of loss of a transaction request or reply is expected to be very low. Therefore, only simple timer mechanisms are required.

### **I.3.4 Provisional responses**

The procedures of Section 8.2.3 of H.248 applies.

Entities that receive a Transaction Pending shall switch to a longer repetition timer for that transaction. Entities shall retain Transactions and replies until they are confirmed. The procedure of section Section D. 2.4 of H.248 should be followed, but simple timer values should be sufficient.

### **I.3.5 Ordering of commands**

SSCOP provided ordered delivery of transactions. No special procedures are required.

## **I.4 Transport using TYPE 5 AAL with ALF**

Protocol messages defined in this document may be transmitted via type 5 AAL links. These messages are using the services of Type 5 AAL as described in recommendation I.361.

In a transaction-oriented protocol there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using Type 5 AAL with ALF transport implement application level timers for each request and each response, similar to those specified for application level framing over UDP.

### **I.4.1 Providing the At-Most-Once functionality**

Messages, being carried over Type 5 AAL with ALF may be subject to losses. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times. The transmission procedures shall thus provide an "At-Most-Once" functionality.

To guard against such losses, it is recommended that entities follow the procedures in Section D.1.1 in this document.

### **I.4.2 Transaction identifiers and three way handshake**

#### **I.4.2.1 Transaction identifiers**

Section D.1.2.1 of H.248 applies.

#### **I.4.2.2 Three way handshake**

When Type 5 AAL with ALF is used as transport the entities shall follow the procedures in Section D.1.2.2. of H.248.

### **I.4.3 Computing retransmission timers**

When Type 5 AAL with ALF is used as transport the entities shall provide the same type of calculation as described in Section D.1.3 of H.248.

### **I.4.4 Provisional responses**

When Type 5 AAL with ALF is used as transport the entities shall follow the procedures in Section D.1.4 of H.248.

### **I.4.5 Ordering of commands**

When Type 5 AAL with ALF is used as transport the entities shall follow the procedures in Section 9.1 of H.248.