ITU-T SG13 회의 기고서

ITU—Telecommunication Standardization Sector

Study Group 13
Geneva, 14-25 November 1994

Delayed Contribution. No. D.

Document addressed to : WP 1/13

Question(s) : 7/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : OAM FLOWS FOR FIVE CONNECTION TYPES BY WAY OF TMN

ABSTRACT

This contribution discusses how OAM information for five connection types at the ATM-layer can be transferred to end-to-end points. To transfer the OAM information, we propose a method using TMN and signalling channels. The TMN is used to transfer OAM information between network nodes in a public domain and the signalling channels are used to convey OAM information between a end-point and a network node.

INTRODUCTION

It is noted that current rec. I. 610 has no way to satisfy the transfer capability of OAM information for capability set 2 or Release 2. And also the work on I.610 will be frozen at the end of 1994. The current rec. I.610 is limited to Capability set 1 or Release 1, although it is expected that the TMN may play a major role in further work on the requirement of OAM, especially bi-directional end-to-end OAM flows. Therefore, we propose the using of TMN and signalling channels to convey OAM information for all types of connections.

In BISDN, connection types are specified as follows in the section 5 of draft recommendation I. 31x.

5.1 Type1 – Point to Point Connection

5.2 Type2 – Point to Multi-point Connection

5.3 Type3 – Multi-point to point Connection

5.4 Type4 – Multi-Point to Multi-point Connection

5.5 Type5 – Bi-directional Point to Multi-point Connection

The bi-directionality of F5 OAM flows is treated as a critical issue in I.610 currently. The five type connections defined above are easily applied to convey user data and signalling information. However, these connection types are inadequate to transfer OAM information bi-directionally and cause following severe problems that was discussed in the previous SG 13 meeeting.

First, there are many problems to transfer the bi-directional OAM information between end-to-end point by using the rest connection types except the Type1 connection. Second, it is not able to recognize the source of OAM information when the information is sent to a root by merged stream, and the root bears a huge burden to process the meaningless information.

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Study Group 13 Delayed Contribution. No. D.
Geneva, 14－25 November 1994

Document addressed to : WP 2/13

Question(s) : 5/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : GFC MECHANISM AT THE MULTI-ACCESS USER-NETWORK INTERFACE

ABSTRACT

This contribution proposes the generic flow control (GFC) mechanism at the multi-access user-network interface(UNI).

INTRODUCTION

At the last SG 13 meeting(Geneva, March 1994), the draft text was proposed for the GFC protocol at the point-to-point UNI(i.e., S_B and T_B reference points). Now, this contribution proposes the GFC mechanism at the multi-access UNI(i. e. the SSB interface), and suggests the text proposal.

To consider the GFC mechanism for the multi-access UNI, we discuss the following reguirements.

－compatibility with GFC mechanism for the point-to-point UNI,
－terminal portability for the multi-access environments,
－individual control for the cascading B-TE*.

To satisfy the above requirements, we consider the following assumptions.

－every B-TE* for the multi-access environment should be operated only in the controlled transmission,
－virtual ATM connections from one of the cascading B-TE* 's should be identified by assigning the specific group of VPI/VCI valuse,
－all the B-TE* 's connecting to the S_B or T_B interface could be simultaneously controlled by the GFC signals for the point-to-point UNI

It assumes that the GFC protocol for the multi-access UNI. could be acceptable only if an end-user terminal should be identified by the virtual connetions with specific group of VPI/VCI values. In the other word, the controlling equipment(e. g., B-NT2, LEX) should selectively control the traffic flows from one of the cascading B-TE*'s by identifying the specific gorup of VPI/VCI connections. It may be easily compatible to that for the point-to-point UNI.

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Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP 2/13

Question(s) : 7/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : VP/VC-AIS Cell Generation Condition

ABSTRACT

This contribution proposes the VP/VC-AIS Cell Generation condition in Fault Management.

INTRODUCTION

The VP/VC-AIS Cell Generation condition are currently specified in ITU-T Rec. I. 610 as follows:

6.2.1.1.1.1 VP-AIS

VP-AIS Cell Generation condition-VP-AIS cells are generated and transmitted as soon as possible after observing a defect indication, and transmitted periodically during the defect condition in order to indicate ……

VP-AIS cell generation shall be stopped as soon as the defect indications (e. g., transmission path-AIS defect) are removed.

6.2.2.1.1.1 VC-AIS

VC-AIS cell Generation condition— VC-AIS cells are generated and transmitted as soon as possible after observing a defect indication, and transmitted periodically during the defect condition in order to indicate……

VC-AIS cell generation shall be stopped as soon as the defect indications (e.g., transmission path -AIS defect, VP-AIS and loss of VPC continuity) are removed.

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Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP 2/13

Question(s) : 6/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : PRIMITIVES FOR MANAGEMENT PLANE IN AAL 3/4 and 5

ABSTRACT

This contribution proposes the AALM primitives of AAL 3/4 and 5, exchanged for peer-to-peer communication between AALM-entities and for local communication between AAL entity and AALM-entity It proposes the text statements for the management primitives between AAL-entity and AALM-entity in section 4.2.1 and 6.2.1 of I. 363.

INTRODUCTION

In section 4.2.1 and 6.2.1 of I. 363, the interaction with the management plane has been left for further study. There are two types of interactions between AAL-entity and AALM-entity:One is for the exchange of local information between these two entites and the other is for peer-to-peer communication between AALM-entities.

The interactions for local communication would be needed to indicate an error event and to assign/remove an association of AAL connection with the related parameters. The interaction for peer-to-peer communication would be used to perform layer management functions which may include connection management and routing, etc.

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Delayed Contribution. No. D.

Document addressed to : WP 2/13

Question(s) : 5/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : PRIMITIVES EXCHANGED WITH ATM MANAGEMENT ENTITY

ABSTRACT

This contribution proposes to add the ATMM primitives exchanged for peer-to-peer communication between ATMM-entities and for local communication between ATM-entity and ATMM-entity in I. 361. The layer management primitives are for ATM virtual initialization, activation, status monitoring, connection establishment, and error monitoring.

INTRODUCTION

In section 3.3 of I. 361, there are two types of interactions between the ATM-entity and ATM management(ATMM) entity:One is for the exchange of local information between ATM-entity and ATMM-entity and the other is for the peer-to-peer communication between ATMM-entities. Here, it notes that the exchange of local information between the ATM-entity and ATMM-entity requires for further study.

Based on the activities for the generic flow control at last ITU-T SG 13 meeting, we propose to insert the parameters for the GFC protocol in the primitives for peer-to-peer communication in section 3.3 of I. 361. It is used for the credit value and operation mode of GFC protocol between ATM links.

Also, we propose some primitives for local communication between ATM-entity and ATMM-entity. The local informations between ATM-entity and ATMM-entity should be needed for ATM protocol initialization, activation/deactivation, status monitoring, connection establishment/release, error monitoring, and handling the GFC mode, etc. It may be also needed to add/drop new virtual connections on an active virtual connection for support of point-to-multi-point connection.

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Delayed Contribution. No. D.

Document addressed to : WP 3/13

Question(s) : 13/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : BIT RATES LOWER THAN 155.52 MBIT/S FOR S_B AND T_B INTERFACES

ABSTRACT

This contribution proposes the bit rates for the S_B and the T_B interfaces lower than 155.52 Mbit/s. 17.280 Mbit/s (net rate: 16.128 Mnit/s) is proposed for the S_B interface and 51.84 Mbit/s is proposed for the T_B interface.

INTRODUCTION

At the March 1994 meeting, it was agreed that a middle range bit rate interface is needed and the bit rate will be selected among three candicates(17, 34 and 51 Mbit/s) using the following criteria:

1. The existing installed cables at customer premises
2. The EMC regulatory and legal requirements
3. The cost relationships with the 155 Mbit/s interface
4. The compatibility with the SDH structure
5. Expected minimum distance classification

Based on the above criteria we conclude that 17.28 Mbit/s is appropriate for the S_B interface lower than 155.52 Mbit/s, which was suggested by Korea at July 1993 meething. We also propose 51.84 Mbit/s for the T_B interface lower than 155.52 Mbit/s.

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Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP 1/13

Question(s) : 2/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : CLARIFICATION OF USAGE OF SUB-ADDRESS FIELD FOR PUBLIC B-ISDN ADDRESSING IN I. 31X

ABSTRACT

This contribution proposes to clarify the usage of sub-address field in section 6.1 of dratf recommendation I. 31x for the public B-ISDN addressing. We propose to change the statements relating to the usage of sub-address field for the private ATM addressing.

INTRODUCTION

The statements of section 6.1 in draft recommendation I. 31x are as follows.

The Public Network shall support one of the following:

1) E.164 Addressing
2) When required, private ATM addressing(carried in the sub-address field shown in Figure 6). There is currently a three format option which is being reviewed for private B-ISDN addressing schemes. These three formats are based on upon a) country code format b) an international code format or c) E.164 number. Figure 6 illustrates the different plans.

This statement means that the users attached at a public network could be identified by the E. 164 addressing or the private ATM addressing. Now, the followring questions could be raised.

－Could the user with E.164 address be simultaneously identified by a private ATM addressing with three format option?

- Could the users with a private ATM addressing be uniquely identified by a user with E.164 address?
- Should the public network globally support the private ATM addressing using the sub-address field?
- Could the B-ISDN sub-address field have three format option?
- In addition, the sub-address field is uniquely identified in the private network?

To avoid some confusions, we have to clarify the usage of private ATM addressing schemes on the public B-ISDN Networks. In addition, the statement of "private ATM addressing" in the parapraph 2) of section 6.1 may be confused with that of section 6.2.1.

PROPOSALS

We propose to change the section 6.1 as follows.

The Public Network shall support the following;

1) E.164 Addressing
2) When required, the sub-address field shown in Figure 6 is used to identify one endpoint to originate a call to any other endpoint on the private ATM network. The sub-address field format is being reviewed for private ATM addressing scheme.

Then, it could avoid the confusions that the public network may support E.164 addressing and private ATM addressing alternatively.

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Study Group 13
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Document addressed to : WP 3/13

Question(s) : 13/13

SOURCE : KOREA(Republic of)

TITLE : Loss of cell delineation algorithm

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ABSTRACT

This contribution Presents a cell delineation algorithm. It presents a cell delineation state diagram for an OCD Anomaly, a LCD Defect and a LCD Failure, corresponding to the present recommendation of I. 332.

INTRODUCTION

In the March '94 SG Q.13/13 meeting, Study point N.33 is proposed for improving the existing text of section 4.5.1.1. This contribution adds or modifies the items as following, based on the study point N33

1) include a LCD Failure at the cell delineation state diagram.
2) divide a OCD Anomaly into the OCDAH state and the OCDAP state.
3) rename a LCDDH state, a LCDDP state and a LCDDS state to a LCD Defect state, a Presynch state and a verification state, respectively.

4) define the initial state for cell delineation in equipment.
5) apply Receiver modes of operation in FIG 11/I. 432 to cell delineation states
6) define the new parameters of BETA, GAMMA and ETA at cell delineation state diagram.
7) correct ALPHA for DELTA in the verification state of study point N.33.
8) use the acronyms as following
   - An OCDAH is an OCD Anomaly in Hunt.
   - An OCDAP is an OCD Anomaly in Presynch.
   - A LCDDH is a LCD Defect in Hunt
   - A LCDDP is a LCD Defect in Presynch.
   - A LCDDS is a LCD Defect in Synch.
   - A LCDFH is a LCD Failure in Hunt.
   - A LCDFP is a LCD Failure in Presynch.
   - A LCDFS is a LCD Failure in Synch.

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Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP 2/13

Question(s) : 7/13

SOURCE : KOREA(Republic of)

TITLE : Differentiation between CLP＝0 and CLP＝1 cells for Performance Monitoring

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ABSTRACT

This contribution investigates the complexities of calculating of the lost/mis-inserted cell counts among CLP＝0, CLP＝1, and CLP＝0+1 sub-streams and proposes a differentiation of CLP＝0 and CLP＝1 cells of TUC field.

INTRODUCTION

In the March '94 SG Q.7/13 meeting, the introduction of two new fields into PM cells discussed. Now in the Living List 3/I. 610, the PM cells could contain two TUC fields and two lost/misinserted cell count fields.

Two different possibilities in setting two TUC fields are still existing.

1) One lpossibility is as follows: the value of the first field shall equal to the number of all transmitted cells(CLP＝0+1) for ensuring backward compatibility. The value of the second TUC field may either equal to the number of the cells with CLP+0 or CLP＝1
2) Another possibility is to count separately CLP＝0 and CLP＝1 cells that jas advantage of being less complex since the CLP＝0 cells need not be counted twice.

For both solutions, the lost/mis-inserted count fields are set accordingly.

ITU—Telecommunication Standardization Sector

Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP 2/13

Question(s) : 8/13

SOURCE : KOREA(Republic of)

TITLE : The Network Capabilities for ABR Service in the Public Networks.

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ABSTRACT

In this contribution, we pointed out the network capabilities to guarantee the ABR service's QoS when the network supports the ABR services.

INTRODUCTION

In the last march Q.8/13 meeting, the issues of the ATM bearer services to support adaptive sources were proposed by the Living List 10/I. 371. These issues have recently received much attention because these have many important discussion points to be considered. This new ATM bearer service is the ABR (Available Bit Rate) service which is called Class-Y.

As the ABR services are data transmission services, these are very sensitive to loss. (Minimum cell loss or loss-free) but can tolerate variation in delay. To guarantee the ABR service's QoS, the networks allocate bandwidth dynamically according to the network state. It means that the bandwidth of the ABR service connection is the time-varying available.

The flow control mechanisms for the ABR services are discussed and proposed in the ATM Forum TM SWG. However, we first have to recommend the network capabilities to support the

ABR service in the public networks before standardization of the flow control mechanism and other study issues for the ABR services in the ITU-T recommendation.

In this contribution, we summarize and propose the network capabilities to support the ABR service and to guarantee the QoS in the public networks.

ITU—Telecommunication Standardization Sector

Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP 2/13

Question(s) : 8/13

SOURCE : KOREA(Republic of)

TITLE : The Use of Resource Management Cell for Traffic Control and Resource Management

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ABSTRACT

In this contribution, we propose that only resource management cell is used for all traffic control and resource management in the B-ISDN networks.

INTRODUCTION

In the last march Q.8/13 meeting, experts of Q.8 have agreed for the resource management cell to provide a generic resource management capability. Recommendation I. 361 also has identified a specific payload type identifier code point PTI=110 for use of resource management function.

One of the proposed uses of the generic resource management cell is for potential Fast Reservation Protocols such as FRP and the other one is for potential use of EBCN as a congestion control. Other uses of generic resource management cell will be defined as the new traffic control function and resource management function such as the Class-Y service control mechanism.

However, in the section 3.2.3.8 of the recommendation I. 371, the possibility of using OAM cell

for the traffic control and resource management is depicted as followings.

"The use of OAM cells for traffic control and resource management purposes(e.g. to estimate delay and delay variation) is for further study."

Two different kinds of ATM cells(Resource Management cell and OAM cell) may be used for the traffic control and resource management in ATM networks.

ITU—Telecommunication Standardization Sector

Study Group 13 Delayed Contribution. No D.
Geneva, 14－25 November 1994

Document addressed to : WP 2/13, WP 4/13

Question(s) : 8/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : Definition of Cell Loss Ratio and UPC/NPC algorithm to guarantee the Cell Loss Ratio when two Peak Cell Rates are specified

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ABSTRACT

Under the current definitions of cell conformance, UPC/NPC actions, and Cell Loss Ratio(CLR), the definition and commitment of cell loss ratio(CLR) of CLP=0 cells have some weakness due to measurement phasing problem and require further study in the connection supporting two peak cell rates; one for CLP=0 component and the other for CLP=0+1 aggregate component, when some user cells are not conforming to the CLP=0+1 conformance test.

In this contribution we introduce a new concept, for the CLR definition. We define CLR based on the acceptance for CLR commitiment in ATM networks. We propose a standardized UPC/NPC algorithm to guarantee the CLR commitment of CLP=0 substream based on the acceptance definition. We clarify the definition of cell conformance, cell acceptance by UPC/NPC, and the relationship between cell conformance and cell acceptance. For the use of the proposed UPC/NPC algorithm, we propose some modifications in I. 371.

ITU—Telecommunication Standardization Sector

Study Group 13
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Delayed Contribution. No. D.

Document addressed to : WP

Question(s) : 7/13

SOURCE : KOREA(REPUBLIC OF)

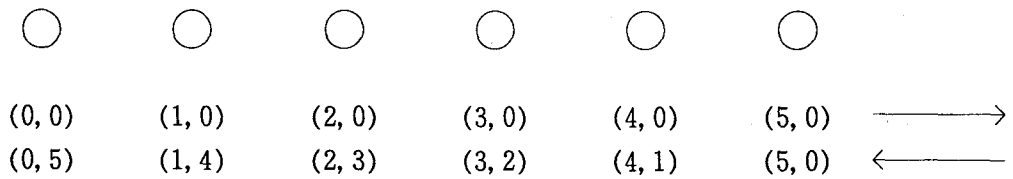
TITLE : Domain of VP/VC-AIS, VP/VC-RDI cells

1. Discussion

AIS/RDI alarms shall be used for identifying and reporting VPC/VCC defect end-to-end. VP/VC-AIS Cells shall be generated and sent downstream to all affected active PVC/VCC connection points which detect the VPC/VCC defect. VP/VC-RDI is sent to the far-end from a VPC/VCC end-point as soon as it has declared a PC/VC-AIS state or detected VPC/VCC defect. In the last march document, OAM function of the ATM layer shows defect type of F4, F5. Path not available and Channel not available error is so critical for continuing the service. If this kind of error(for further study) happened, Service must be stopped and connection may be RELEASED with CAUSE message. In this case RDI/AIS signal do not have an effect on NNI.

2. CONCLUSIONS

Because AIS/RDI cell is used for identifying and reporting VPC/VCC defect. Predefined RDI/AIS cell must be classified as two category. First, critical error which can not be continued current service may be treated as RELEASE message with CAUSE value instead of AIS/RDI cell. Rest of error can be used as RDI/AIS cell and service continuity are up to the end-to-end decision. distance(Source/Destination Distance). If senders encode a Loopback location id. field as all 0's(or special predefined value), this is for source to end distance procedure. This case its source/destination distance values are following.



Relative position identifies its loop back position(from a sender to the destination) and tells how far from soure to the destination. If we use relative distance, Loopback location Id. may not be unique on the network and sender does not worry about destination Loopback location. It can extend loop back capability and flexibility, and can easily detect defect location.

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Study Group 13 Delayed Contribution. No. D.
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Document addressed to : WP

Question(s) : 7/13

SOURCE : KOREA(REPUBLIC OF)

TITLE : Loopback Location Id.

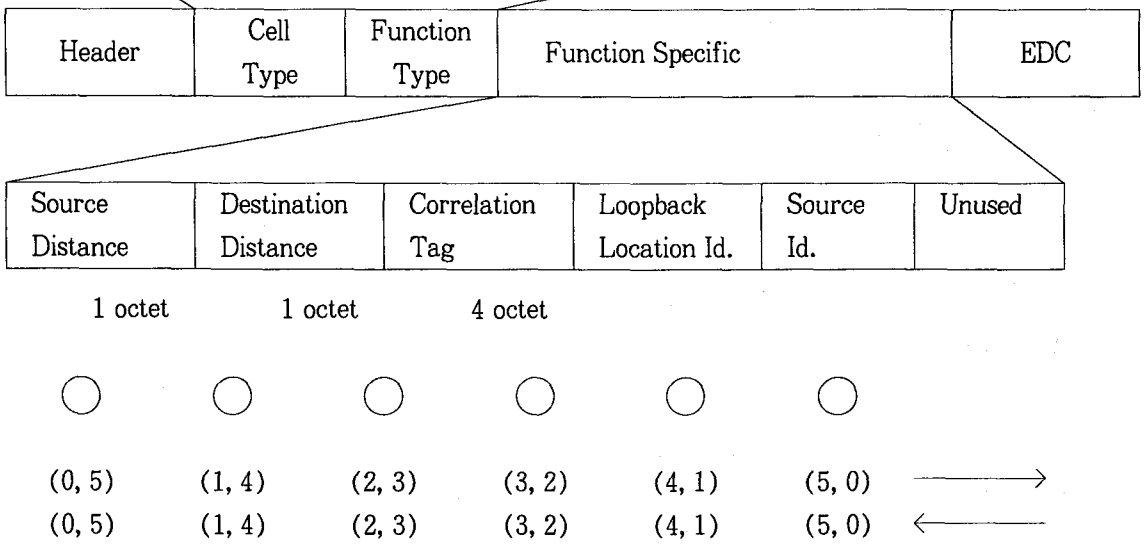
1. Discussion

For sending Loopback cell, Sender must know the receiver's location address or sender may encode a loop back Location Id Field as all 1's for the end-point of the connection or connection segment, depending on the flow. The use of the Loopback Location Identifier(i.e. and identifier to address the particular node where the loop back is to occur) for the case of loop back at a connecting point, is a network operator option. Loopback cells can loop back at connecting point as well as segment and connection end-points. Only connection segment and end-to-end connection loop back cannot support full loop back capability. The problem is a loop back location identifier must be unique on the network. This means every node must have a network configuration that the wants to a loop backed. It is impossible to have a network configuration and also to have unique location identifier. Network operator who does not know other's location identifier, he could not send any loop back cell. This is a contraint to use loop back capability.

2. CONCLUSIONS

We propose new procedure(Loopback Distance procedure) for identiies his relative position from sender to the loop backed(destination) address and Loopback Function specific field for loopback relative

OAM Type(Cell Type)	4bit	Function Type	4bit
Fault Management	0001	AIS	0000
	0001	RDI	0001
	0001	Continuity	0100
	0001	Loopback	1000



Source Distance : This tells the distance from the source

Destination Distance : This tells the distance to the destination

Loopback loctioan Id : This can fill all 0's when it used for Loopback distance procedure.
A receiving loop back cell destination can fill his location id.(for example it may be consist of state name, and city name). It may not be unique on the network. Actually, this field may be use for TMN.