# The ATM Forum
## Technical Committee

## Behavior Class Selector Signalling Version 1.0

## af-cs-0159.000

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# Preface

During preparation of this specification, the Control Signalling working group was chaired by Malcolm Wiles and his successor Gert Oster. The minutes at related working group meetings were recorded by Gert Oster and his successor Thomas Cornely. The editors of this specification were Debashis Basak and E. Mickey Spiegel. The editors would like to thank the following contributors for their help with this specification as well as all participants of the Control Signalling working group for the many days and evenings spent discussing this specification:

Debashis Basak

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E. Mickey Spiegel

Hiroshi Suzuki

Malcolm Wiles

The editors would also like to thank the many additional contributors to the UBR with MDCR Addendum to UNI Signalling 4.0, PNNI 1.0, and AINI [6], who made indirect but significant contributions to this specification.

This specification uses three levels for indicating the degree of compliance necessary for specific functions, procedures, or coding. They are indicated by the use of key words as follows:

- **Requirement:** "Shall" indicates a required function, procedure, or coding necessary for compliance. The word "shall" used in text indicates a conditional requirement when the operation described is dependent on whether or not an objective or option is chosen.

- **Objective:** "Should" indicates an objective which is not required for compliance, but which is considered desirable.

- **Option:** "May" indicates an optional operation without implying a desirability of one operation over another. That is, it identifies an operation that is allowed while still maintaining compliance.

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# 1 Introduction

## 1.1 Scope

**[Normative]**

This document is an optional addendum to UNI Signalling 4.0 [1], PNNI 1.0 [2], PNNI 1.0 Errata and PICS [5], and AINI [3]. It contains the signalling specification for the support of the Behavior Class Selector (BCS) with UBR service category calls/connections. The UBR Behavior Class and its use are defined in [4].

This addendum specifies signalling for BCS support across public and private UNIs, PNNIs, and AINIs.

BCS is an optional feature of UNI Signalling 4.0, PNNI 1.0, and AINI.

This addendum does not address the BCS procedures at a PNNI between different administrative domains within the same PNNI routing domain.

A device supporting the BCS feature shall implement these procedures for point-to-point calls/connections, and shall implement these procedures for point-to-multipoint calls/connections if point-to-multipoint calls/connections are supported.  A device shall support the BCS procedures for all supported connection types (SVCCs, soft PVCCs, SVPCs, or soft PVPCs).

A switch supporting BCS at the UNI, PNNI or AINI shall be capable of forwarding the Optional traffic attributes information element with BCS values.  A switch supporting BCS at the UNI or AINI may also be capable of generating a network-generated Optional traffic attributes information element with BCS values.

The BCS values may be mapped at administrative boundaries.  Procedures to map BCS values are beyond the scope of this specification.

## 1.2 Overview

**[Informative]**

The BCS procedures are summarized as follows:

- For UBR calls/connections the SETUP message may optionally indicate the forward and backward Behavior Class Selector values in the Optional traffic attributes information element. The indicated Behavior Class is advisory on the part of the user, and does not define a service commitment on the part of the network.

- UBR calls/connections that indicate Behavior Class Selectors will be established across PNNIs and AINIs that do not support this feature. Such interfaces will be requested to pass along the Optional traffic attributes information element with BCS values unchanged, and will provide traffic management treatment as they would for any other UBR call/connection.

- If the network receives a SETUP message, for a UBR call/connection, that does not indicate a BCS across an administrative boundary, the receiving network can optionally include an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", before forwarding the call/connection across the network. This would allow the network to implement certain policies that utilize the BCS information without requiring users to include the Optional traffic attributes information element with BCS values in the SETUP message.

- At administrative boundaries, in the case where there has been a bilateral agreement, the Behavior Class values may be mapped.

Section 2 specifies the Optional traffic attributes information element encoding and formats. Sections 3, 4, and 5 specify the signalling message additions and signalling procedures for UNI, PNNI, and AINI,

respectively.  Section 6 contains the references to other documents. Annexes A, B, and C contain the BCS Signalling PICS for UNI, PNNI, and AINI, respectively.

## 1.3    Acronyms

| | |
|---|---|
| AINI | ATM Inter-Network Interface |
| ATM | Asynchronous Transfer Mode |
| BCS | Behavior Class Selector |
| B-ISUP | Broadband Integrated Services Digital Network User Part |
| IUT | Implementation Under Test |
| MDCR | Minimum Desired Cell Rate |
| PICS | Protocol Implementation Conformance Statement |
| PNNI | Private Network-Network Interface |
| Soft PVCC | Soft Permanent Virtual Channel Connection |
| Soft PVPC | Soft Permanent Virtual Path Connection |
| SUT | System Under Test |
| SVCC | Switched Virtual Channel Connection |
| SVPC | Switched Virtual Path Connection |
| UBR | Unspecified Bit Rate |
| UNI | User-Network Interface |

# 2   Optional Traffic Attributes Information Element Coding

# [Normative]

This section defines the Optional traffic attributes information element.  The purpose of this information element is to specify traffic attributes for the connection that are optional.

The number of instances of this information element in a message is limited to five.  If this information element is received with unrecognized content or exceeds its maximum length it shall be treated as an unrecognized information element.

| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Octets |
|---|---|---|---|---|---|---|---|---|
| | | | Bits | | | | | |
| | | | Optional traffic attributes | | | | | |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| | | | Information element identifier | | | | | |
| 1 Ext | Coding Standard | | Flag | Reserved | IE Action Indicator | | | 2 |
| | | | IE Instruction Field | | | | | |
| Length of Optional traffic attributes information element | | | | | | | | 3 |
| Length of Optional traffic attributes information element (continued) | | | | | | | | 4 |
| Origin | | | | | | | | 5 |
| Forward/Backward Behavior Class Selector Identifier | | | | | | | | 6* (Note 1) |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| Forward Behavior Class Selector (BCS) value | | | | | | | | 6.1* |
| Forward Behavior Class Selector (BCS) value (continued) | | | | | | | | 6.2* |
| Backward Behavior Class Selector (BCS) value | | | | | | | | 6.3* (Note 2) |
| Backward Behavior Class Selector (BCS) value (continued) | | | | | | | | 6.4* |

Note 1 - If this octet group is present no other optional octet group may be present.

Note 2 - In the case of a point-to-multipoint call/connection, the Backward BCS value shall be ignored.

**Figure 2-1 Optional traffic attributes information element**

Coding standard (octet 2)

| Bits | | Meaning |
|---|---|---|
| 7 | 6 | |
| 1 | 1 | ATM Forum specific |

Origin (octet 5)

       Indicates the origin of this information element.

| Bits<br>8 7 6 5  4 3 2 1 | Meaning |
|---|---|
| 0 0 0 0  0 0 0 0 | Originating user |
| 0 0 0 0  0 0 0 1 | Network generated |

Forward/Backward Behavior Class Selector (octet group 6)

       The forward and backward behavior class selector values are coded as 16-bit binary integers, with bit 8 of the first octet being the most significant bit and bit 1 of the second octet being the least significant bit. A BCS value of '0xFFFF' shall be considered as if the BCS for that direction was not specified.

# 3    UNI Support of BCS

# [Normative]

## 3.1    Additions to UNI Signalling Messages

### 3.1.1    Basic Point-to-Point Call

Add the following to section 2.0/SIG 4.0 Basic Point-to-Point Call:

**3.1.7/Q.2931 SETUP:**

Add the following to Table 3-8/Q.2931:

| Information Element name | Reference | Direction | Type | Length |
|---|---|---|---|---|
| Optional traffic attributes information element | 2 | both | O (Note) | 6-10 |

Note: This information element may occur up to 5 times. At most one instance may contain a Forward/Backward BCS Identifier.

**4.5.1/Q.2931 Coding Rules**

Add the following to Table 2-1/SIG 4.0:

| Bits 8 7 6 5    4 3 2 1 | Information Element | Max Length | Max no. of Occurrences |
|---|---|---|---|
| 1 1 1 1    0 0 0 1 | Optional traffic attributes | 10 | 5 |

### 3.1.2    Point-to-Multipoint Calls

Add the following to section 5/SIG 4.0 Point-to-Multipoint Calls:

**8.1.2.1/Q.2971 ADD PARTY:**

Add the following to Table 8-10/Q.2971:

| Information Element name | Reference | Direction | Type | Length |
|---|---|---|---|---|
| Optional traffic attributes information element | 2 | Both | O (Note) | 6-10 |

Note: This information element may occur up to 5 times. At most one instance may contain a Forward/Backward BCS Identifier.

## 3.2    BCS Signalling Procedures for UNI

This section describes additional signalling procedures for handling the Optional traffic attributes information element with BCS values.

The procedures for basic call/connection control in section 2/SIG 4.0 and section 5/SIG 4.0 shall apply [1]. Only additional procedures to handle calls/connections that specify Behavior Classes and procedures to handle the insertion of a network generated Optional traffic attributes information element with BCS values for UBR calls/connections are described in this section.

### 3.2.1    Procedures at the originating interface

#### 3.2.1.1    Procedures at the user side

##### 3.2.1.1.1    Procedures at the $S_B$ and Coincident $S_B$ and $T_B$ Reference Points

If the calling user wishes to associate a Behavior Class Selector with a UBR call/connection, it shall include the Optional traffic attributes information element formatted as defined in section 2 in the SETUP or ADD PARTY message sent to the network.  The information element shall contain the appropriate BCS values for both the forward and backward direction.  The origin field shall be set to "originating user".

For a point-to-multipoint call/connection, the BCS values for both directions shall be present and the backward BCS value shall be set to unspecified (see section 2).

If the Optional traffic attributes information element with BCS values was included in the initial SETUP message, all subsequent ADD PARTY messages for the same call/connection shall include the same Optional traffic attributes information element.  If no Optional traffic attributes information element with BCS values was included in the initial SETUP message, no Optional traffic attributes information element with BCS values shall be included in the ADD PARTY message.

##### 3.2.1.1.2    Procedures at the $T_B$ Reference Point

The procedures of section 3.2.2.1 shall apply changing "network" to "user", except the terms "network specific" and "network generated" shall remain unchanged.

#### 3.2.1.2    Procedures at the network side

If an Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the ATM Service Category UBR, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If an Optional traffic attributes information element with BCS values is received in an ADD PARTY message that does not correspond to a UBR call/connection, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If the network receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, the network shall include the received Optional traffic attributes information element in the forwarded setup indication with either:

- the received BCS values, or

- when there is a bilateral agreement, it may map the received BCS values.  The origin field shall remain unaltered.

If the network side receives a SETUP or ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", then the network side shall take one of the following actions:

- Discard the Optional traffic attributes information element with BCS values and process the message as if the Optional traffic attributes information element with BCS values were not present,

- Replace the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with new BCS values (with the the origin field set to "network generated"), or

- Retain the received Optional traffic attributes information element with BCS values.

If the network receives a SETUP message for a UBR call/connection that does not contain an Optional traffic attributes information element with BCS values, then if the call/connection is progressed, the network may optionally include an Optional traffic attributes information element with BCS values and with the origin field set to "network generated" in the forwarded setup indication.

If, for a point-to-multipoint call/connection, the network generated an Optional traffic attributes information element with BCS values in the initial setup indication, then the network shall include the same Optional traffic attributes information element in all subsequent add party indications for that call/connection.

If applicable, network specific local actions are taken to process the call/connection according to the requested BCS values.

If the Optional traffic attributes information element contains a BCS value that is not supported, the normal procedures for non-mandatory information element with content error shall apply.

Validation to ensure consistency between forwarded setup and add party indications for the same call/connection is optional.

When validation is performed, upon reception of an ADD PARTY message, the following procedures shall apply:

- If the forwarded setup indication did not contain an Optional traffic attributes information element with BCS values, then no Optional traffic attributes information element with BCS values shall be included in the forwarded add party indication.

- If the forwarded setup indication contained an Optional traffic attributes information element with BCS values, the same Optional traffic attributes information element shall be included in the forwarded add party indication.

When no validation is performed, then if the received ADD PARTY message contains the Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and the party is progressed, the network shall include the received Optional traffic attributes information element in the forwarded add party indication with either:

- the received BCS values, or

- when there is a bilateral agreement, it may map the received BCS values. The origin field shall remain unaltered.

### 3.2.2    Procedures at the destination interface

### 3.2.2.1    Procedures at the network side

If an Optional traffic attributes information element with BCS values is received in a setup request that does not specify the ATM Service Category UBR, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If an Optional traffic attributes information element with BCS values is received in an add party request that does not correspond to a UBR call/connection, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If applicable, network specific local actions are taken to process the call/connection according to the requested BCS values.

If the Optional traffic attributes information element contains a BCS value that is not supported, the normal procedures for non-mandatory information element with content error shall apply.

If the network receives a setup or add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection or party is progressed the network shall include the received Optional traffic attributes information element in the forwarded message with either:

- the received BCS values, or

- when there is a bilateral agreement, it may map the received BCS values. The origin field shall remain unaltered.

If the network receives a setup or add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "network generated", the network may discard the Optional traffic attributes information element.

### 3.2.2.2     Procedures at the user side

#### 3.2.2.2.1     Procedures at the $S_B$ and Coincident $S_B$ and $T_B$ Reference Points

If an Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the ATM Service Category UBR, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If applicable, local actions are taken to process the call/connection according to the requested BCS values.

If the Optional traffic attributes information element contains a BCS value that is not supported, the normal procedures for non-mandatory information element with content error shall apply.

#### 3.2.2.2.2     Procedures at the $T_B$ Reference Point

The procedures of section 3.2.1.2 shall apply changing "network" to "user", except the terms "network generated" and "network specific" shall remain unchanged.

## 3.3     Compatibility with nodes not supporting BCS

Upon receiving a SETUP or ADD PARTY message specifying the UBR service category and containing an Optional traffic attributes information element with BCS values, nodes not supporting this feature will treat the Optional traffic attributes information element with BCS values as an unrecognized information element.

Nodes supporting the BCS capability shall set the IE instruction field in the Optional traffic attributes information element with BCS values as follows:

- The IE instruction flag field (bit 5 of octet 2) shall be set to "follow explicit instructions", and

- The action indicator (bits 1-3 of octet 2) shall be set to "discard information element and proceed" or "discard information element, proceed, and report status".

With these settings, at nodes that do not support the BCS capability, UBR calls/connections that include the Optional traffic attributes information element with BCS values will be treated the same as UBR calls/connections that do not include the Optional traffic attributes information element with BCS values.

# 4   PNNI Support of BCS

# [Normative]

## 4.1   Additions to PNNI 1.0 Signalling Messages

In section 6.4.5.1/PNNI 1.0, add the following to Table 6-5:

| Bits<br>8 7 6 5    4 3 2 1 | | Information Element | Max Length | Max no. of Occurrences |
|---|---|---|---|---|
| 1 1 1 1 | 0 0 0 1 | Optional traffic attributes | 10 | 5 |

### 4.1.1   SETUP

The following information element is added to Figure 6-8 in section 6.3.1.6/PNNI 1.0:

| Information Element | Reference | Type | Length |
|---|---|---|---|
| Optional traffic attributes | 2 | O (Note) | 6-10 |

Note: This information element may occur up to 5 times. At most one instance may contain a Forward/Backward BCS Identifier.

### 4.1.2   ADD PARTY

The following information element is added to Figure 6-19 in section 6.4.3.1/PNNI 1.0:

| Information Element | Reference | Type | Length |
|---|---|---|---|
| Optional traffic attributes | 2 | O (Note) | 6-10 |

Note: This information element may occur up to 5 times. At most one instance may contain a Forward/Backward BCS Identifier.

## 4.2     BCS Signalling Procedures for PNNI

This section describes additional signalling procedures for handling the Optional traffic attributes information element with BCS values.

The procedures for basic call/connection control in section 6.5/PNNI 1.0 and section 6.6/PNNI 1.0 shall apply [2]. Only additional procedures to handle calls/connections that specify Behavior Classes and procedures to handle the insertion of a network generated Optional traffic attributes information element with BCS values for UBR calls/connections are described in this section.

If the preceding side receives a setup or add party request containing an Optional traffic attributes information element with supported BCS values, then if the call/connection or party is progressed the preceding side shall include the received Optional traffic attributes information element in the forwarded message.

The following procedures apply at the succeeding side:

If an Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the ATM Service Category UBR, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If an Optional traffic attributes information element with BCS values is received in an ADD PARTY message that does not correspond to a UBR call/connection, the information element shall be treated as an unexpected recognized information element and the remaining procedures in this section shall be ignored.

If the succeeding side receives a SETUP message containing an Optional traffic attributes information element with supported BCS values, then if the call/connection is progressed, the succeeding side shall include the received Optional traffic attributes information element in the forwarded setup indication.

If applicable, network specific local actions are taken to process the call/connection according to the requested BCS values.

If the Optional traffic attributes information element contains a BCS value that is not supported, then:

- If the flag (bit 5) in the information element instruction field is set to "IE instruction field not significant", then the information element shall be ignored and the message shall be processed as if the information element was not received. A STATUS message may be returned as specified in Section 6.5.6.8.2/PNNI 1.0.

- If the flag (bit 5) in the information element instruction field is set to "follow explicit instructions", the procedures of Section 6.5.7.2/PNNI 1.0 shall apply based on the value of the action indicator, as if the pass along request (bit 4) in the instruction field were set to "no pass along request".

Validation to ensure consistency between forwarded setup and add party indications for the same call/connection is optional.

When validation is performed, upon reception of an ADD PARTY message, the following procedures shall apply:

- If the forwarded setup indication did not contain an Optional traffic attributes information element with BCS values, then no Optional traffic attributes information element with BCS values shall be included in the forwarded add party indication.

- If the forwarded setup indication contained an Optional traffic attributes information element with BCS values, the same Optional traffic attributes information element shall be included in the forwarded add party indication.

When no validation is performed, then if an Optional traffic attributes information element with supported BCS values is present in the ADD PARTY message and the party is progressed, the succeeding side shall include the received Optional traffic attributes information element in the forwarded add party indication.

## 4.3    Compatibility with nodes not supporting BCS

Upon receiving a SETUP or ADD PARTY message specifying the UBR service category and containing an Optional traffic attributes information element with BCS values, nodes not supporting this feature will treat the Optional traffic attributes information element with BCS values as an unrecognized information element.

Nodes supporting the BCS capability shall set the IE instruction field in the Optional traffic attributes information element with BCS values as follows:

- The IE instruction flag field (bit 5 of octet 2) shall be set to "follow explicit instructions",

- The action indicator (bits 1-3 of octet 2) shall be set to "discard information element and proceed" or "discard information element, proceed, and report status", and

- The pass along request field (bit 4 of octet 2) shall be set to "pass along request".

With these settings, at nodes that do not support the BCS capability, UBR calls/connections that include the Optional traffic attributes information element with BCS values will be treated the same as UBR calls/connections that do not include the Optional traffic attributes information element with BCS values.

# 5 AINI Support of BCS

# [Normative]

## 5.1 AINI Signalling

### 5.1.1 Additions to AINI Signalling Messages

The message coding defined in section 4.1 shall apply.

### 5.1.2 BCS Signalling Procedures for AINI

*The procedures specified in Section 4.2 shall apply with the following modifications:*

*Replace the third paragraph with the following:*

If the preceding side receives a setup or add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection or party is progressed, the preceding side shall include the received Optional traffic attributes information element in the forwarded message with either:

- the received BCS values, or

- when there is a bilateral agreement, it may map the received BCS values. The origin field shall remain unaltered.

*Replace the paragraph beginning "If the succeeding side" with the following:*

If the succeeding side receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, the succeeding side shall include the received Optional traffic attributes information element in the forwarded setup indication with either:

- the received BCS values, or

- when there is a bilateral agreement, it may map the received BCS values. The origin field shall remain unaltered.

*Replace the last paragraph with the following:*

When no validation is performed, then if an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user" is present in the ADD PARTY message and the party is progressed, the succeeding side shall include the received Optional traffic attributes information element in the forwarded add party indication with either:

- the received BCS values, or

- when there is a bilateral agreement, it may map the received BCS values. The origin field shall remain unaltered.

*The following procedures apply in addition to those specified in Section 4.2:*

If the preceding side receives a setup or add party request containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", then the preceding side may discard the Optional traffic attributes information element before forwarding the SETUP or ADD PARTY message.

If the succeeding side receives a SETUP or ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", then the

succeeding side shall take one of the following actions:

- Discard the Optional traffic attributes information element with BCS values and process the message as if the Optional traffic attributes information element with BCS values were not present,

- Replace the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with BCS values (with the origin field set to "network generated"), or

- Retain the received Optional traffic attributes information element with BCS values.

At the succeeding side of an AINI, if the received SETUP message for a UBR call/connection does not contain an Optional traffic attributes information element with BCS values, then if the call/connection is progressed, the succeeding side may include an Optional traffic attributes information element with BCS values and with the origin field set to "network generated" before forwarding the call/connection across the network.

If, for a point-to-multipoint call/connection, the succeeding side generated an Optional traffic attributes information element with BCS values in the initial setup indication, then the succeeding side shall also include the same Optional traffic attributes information element in all subsequent add party indications for that call/connection.

### 5.1.3    Compatibility with nodes not supporting BCS

Upon receiving a SETUP or ADD PARTY message specifying the UBR service category and containing an Optional traffic attributes information element with BCS values, nodes not supporting this feature will treat the Optional traffic attributes information element with BCS values as an unrecognized information element.

Nodes supporting the BCS capability shall set the IE instruction field in the Optional traffic attributes information element with BCS values as follows:

- The IE instruction flag field (bit 5 of octet 2) shall be set to "follow explicit instructions",

- The action indicator (bits 1-3 of octet 2) shall be set to "discard information element and proceed" or "discard information element, proceed, and report status", and

- The pass along request field (bit 4 of octet 2) shall be set to "pass along request".

With these settings, at nodes that do not support the BCS capability, UBR calls/connections that include the Optional traffic attributes information element with BCS values will be treated the same as UBR calls/connections that do not include the Optional traffic attributes information element with BCS values.

## 5.2    Interworking between AINI and B-ISUP

Add the following to section 4.1.1.2.1.1/AINI:

| AINI | to | B-ISUP |
|---|---|---|
| **SETUP** | | **IAM** |
| Optional traffic attributes | | Not carried (Note 1) |

Note 1:    Actions to be performed are specified in the action indicator of this information element except that no status need be returned.

Add the following to section 4.1.4.2.1.1/AINI:

| AINI | ⟶ | B-ISUP |
|---|---|---|
| **SETUP** | | **IAM** |
| Optional traffic attributes | | Not carried (Note 1) |

Note 1:    Actions to be performed are specified in the action indicator of this information element except that no status need be returned.

Add the following to section 4.1.4.2.1.2/AINI:

| AINI | ⟶ | B-ISUP |
|---|---|---|
| **ADD PARTY** | | **IAM** |
| Optional traffic attributes | | Not carried (Note 1) |

Note 1:    Actions to be performed are specified in the action indicator of this information element except that no status need be returned.

## 5.3    Interworking between AINI and PNNI

The procedures of section 4.2/AINI apply (i.e. information elements and messages are mapped to their equivalent counterparts).

# 6 References

[1] *ATM User-Network Interface (UNI) Signalling Specification Version 4.0,* af-sig-0061.000, ATM Forum Technical Committee, July 1996.

[2] *Private Network-Network Interface Specification Version 1.0 (PNNI 1.0),* af-pnni-0055.000, ATM Forum Technical Committee, March 1996.

[3] *ATM Inter-Network Interface (AINI) Specification,* af-cs-0125.000, ATM Forum Technical Committee, July 1999.

[4] *Addendum to TM 4.1: Differentiated UBR,* af-tm-0149.000, ATM Forum Technical Committee, July 2000.

[5] *PNNI V1.0 Errata and PICS,* af-pnni-0081.000, ATM Forum Technical Committee, July 1997.

[6] *UBR with MDCR Addendum to UNI Signalling 4.0, PNNI 1.0, and AINI,* af-cs-0147.000, ATM Forum Technical Committee, July 2000.

# Annex A Protocol Implementation Conformance Statement (PICS) for the UNI Signalling 4.0 Component of Behavior Class Selector Signalling Version 1.0

## A.1   Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

### A.1.1   Scope

This document provides the PICS proforma for the UNI Signalling 4.0 component of Behavior Class Selector Signalling Version 1.0, defined in [1] in compliance with the relevant requirements, and in accordance with the relevant guidelines, given in ISO/IEC 9646-7. In most cases, statements contained in notes in the specification, which were intended as information, are not included in the PICS.

### A.1.2   Normative References

[1]   Behavior Class Selector Signalling Version 1.0, af-cs-0159.000, ATM Forum Technical Committee, September 2000.

[2]   ISO/IEC 9646-1:1994, Information technology – Open systems interconnection – Conformance testing methodology and framework – Part 1: General Concepts (See also ITU Recommendation X.290 (1995)).

[3]   ISO/IEC 9646-7:1995, Information technology – Open systems interconnection – Conformance testing methodology and interconnection – Part 7: Implementation Conformance Statements (See also ITU telecommunication X.296 (1995)).

[4]   ISO/IEC 9646-3:1998, Information technology – Open systems interconnection – Conformance testing methodology and interconnection – Part 3: The Tree and Tabular Combined Notation (TTCN) (See also ITU telecommunication X.292 (1998)).

### A.1.3   Definitions

Terms defined in [1]

Terms defined in ISO/IEC 9646-1 and in ISO/IEC 9646-7

In particular, the following terms defined in ISO/IEC 9646-1 apply:

**Protocol Implementation Conformance Statement (PICS):** A statement made by the supplier of an implementation or system, stating which capabilities have been implemented for a given protocol.

**PICS proforma**: A document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which when completed for an implementation or system becomes the PICS.

### A.1.4   Acronyms

ASN.1   Abstract Syntax Notation One

ATS     Abstract Test Suite

IUT     Implementation Under Test

PICS    Protocol Implementation Conformance Statement

SUT    System Under Test

## A.1.5   Conformance

The PICS does not modify any of the requirements detailed in Behavior Class Selector Signalling Version 1.0.  In case of apparent conflict between the statements in the base specification and in the annotations of "M" (mandatory) and "O" (optional) in the PICS, the text of the base specification takes precedence.

The supplier of a protocol implementation, which is claimed to conform to the UNI Signalling 4.0 component of Behavior Class Selector Signalling Version 1.0, is required to complete a copy of the PICS proforma provided in this document and is required to provide the information necessary to identify both the supplier and the implementation.

## A.2   Identification of the Implementation

Identification of the Implementation Under Test (IUT) and system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

### A.2.1   Date of Statement

_____


### A.2.2   Implementation Under Test (IUT) Identification

**IUT Name:** _____

_____

_____

**IUT Version:** _____


### A.2.3   System Under Test (IUT) Identification

**SUT Name:** _____

_____

**Hardware Configuration:** _____

_____

_____

**Operating System:** _____

### A.2.4    Product Supplier

**Name:** _____

**Address:** _____

_____

_____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____

### A.2.5    Client

**Name:** _____

**Address:** _____

_____

_____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____

### A.2.6    PICS Contact Person

(A person to contact if there are any queries concerning the content of the PICS)

**Name:** _____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____


### Identification of the Protocol Specification

This PICS proforma applies to the following specification:

[1]    Behavior Class Selector Signalling Version 1.0, af-cs-0159.000, ATM Forum Technical Committee, September 2000.


## A.3   PICS Proforma

### A.3.1   Global statement of conformance

The implementation described in this PICS meets all of the mandatory requirements of the reference protocol.

[ ] YES

[ ] NO


Note:  Answering "No" indicates non-conformance to the specified protocol.  Non-supported mandatory capabilities are to be identified in the following tables, with an explanation by the implementor explaining why the implementation is non-conforming.

### A.3.2   Instructions for Completing the PICS Proforma

The PICS Proforma is a fixed-format questionnaire.  Answers to the questionnaire should be provided in the rightmost columns, either by simply indicating a restricted choice (such as Yes or No), or by entering a value or a set of range of values.

The following notations, defined in ISO/IEC 9647-7, are used for the support column:

Yes    supported by the implementation

No    not supported by the implementation


The following notations, defined in ISO/IEC 9647-7, are used for the status column:

M    mandatory – the capability is required to be supported.

O    optional – the capability may be supported or not.

O.i    qualified optional – for mutually exclusive or selectable options from a set.  "i" is an integer which

identifies a unique group of related optional items and the logic of their selection is defined immediately following the table.

A supplier may also provide additional information, categorized as exceptional or supplementary information. These additional information should be provided as items labeled X.<i> for exceptional information, or S.<i> for supplemental information, respectively, for cross reference purposes, where <i> is any unambiguous identification for the item. The exception and supplementary information are not mandatory and the PICS is complete without such information. The presence of optional supplementary or exception information should not affect test execution, and will in no way affect interoperability verification. The column labeled 'Reference' gives a pointer to sections of the protocol specification for which the PICS Proforma is being written.

## A.4   PICS for the support of BCS at the UNI

### A.4.1   Major Capability at UNI (MCU)

| Item Number | Item Description | Status | Condition for Status | Reference | Support |
|---|---|---|---|---|---|
| MCU 1 | Does the IUT support BCS at the user side? | O.1 | | 3.2.1.1, 3.2.2.2 | Yes__ No__ |
| MCU 1.1 | Does the IUT support BCS for point-to-multipoint calls/connections at the user side? | M | MCU 1 AND Note 1 | 1.1, 3 | Yes__ No__ |
| MCU 1.2 | Does the IUT support BCS at the user side of the $S_B$ or coincident $S_B$ and $T_B$ reference point? | O.2 | MCU 1 | 3.2.1.1.1, 3.2.2.2.1 | Yes__ No__ |
| MCU 1.3 | Does the IUT support BCS at the user side of the $T_B$ reference point? | O.2 | MCU 1 | 3.2.1.1.2, 3.2.2.2.2 | Yes__ No__ |
| MCU 2 | Does the IUT support BCS at the network side? | O.1 | | 3.2.1.2, 3.2.2.1 | Yes__ No__ |
| MCU 3 | Is the IUT capable of generating an Optional traffic attributes information element with BCS values and with the origin field set to "network generated"? | O | MCU 1.3 OR MCU 2 | 1.1, 3.2 | Yes__ No__ |
| MCU 4 | Does the IUT support validation to ensure consistency between forwarded setup and add party indications for the same call/connection? | O | MCU 1.1 OR MCU 2 | 3.2 | Yes__ No__ |
| Comments: O.1: At least one of MCU 1 or MCU 2 must be supported O.2: At least one of MCU 1.2 or MCU 1.3 must be supported Note 1: If point-to-multipoint is supported at the UNI | | | | | |

## A.4.2    Supported Information Elements at UNI (SIEU)

| Item Number | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| SIEU 1 | For a UBR call/connection with BCS, does the IUT include a forward and backward BCS value in the Optional traffic attributes information element in the SETUP message as coded in section 2? | M | | 2 | Yes__ No__ |
| SIEU 2 | For a UBR call/connection with BCS, does the IUT include a forward and backward BCS value in the Optional traffic attributes information element in the ADD PARTY message as coded in section 2? | M | MCU 1.1 OR MCU 2 | 2 | Yes__ No__ |
| SIEU 3 | Does the IUT set the action indicator (bits 1-3 of octet 2) of the Optional traffic attributes information element with BCS values to "discard information element and proceed" or "discard information element, proceed, and report status", and the IE instruction flag field (bit 5 of octet 2) to "follow explicit instructions"? | M | | 3.3 | Yes__ No__ |
| SIEU 4 | If the IUT receives an Optional traffic attributes information element with unrecognized content, does the IUT treat the information element as an unrecognized information element? | M | | 2 | Yes__ No__ |
| SIEU 5 | If the IUT receives an Optional traffic attributes information element that exceeds its maximum length, does the IUT treat the information element as an unrecognized information element? | M | | 2 | Yes__ No__ |
| Comments: | | | | | |

### A.4.3   Signalling Procedures at the Originating Interface (SPOI)

### A.4.3.1   Signalling Procedures at the User Side of the $S_B$ and Coincident $S_B$ and $T_B$ Reference Points

| Item Number | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| SPOI 1 | If a UBR call/connection with BCS is requested, does the IUT send a SETUP message to the network side that includes the Optional traffic attributes information element containing a forward and backward BCS value and the origin field set to "originating user"? | M | MCU 1.2 | 3.2.1.1.1 | Yes__ No__ |
| SPOI 2 | For UBR point-to-multipoint calls/connections with BCS, does the IUT include forward and backward BCS values in the Optional traffic attributes information element, with the backward BCS value set to unspecified? | M | MCU 1.1 AND MCU 1.2 | 3.2.1.1.1 | Yes__ No__ |
| SPOI 3 | Does the IUT set the forward and backward BCS value in the Optional traffic attributes information element in the ADD PARTY message to be the same as those signalled in the initial SETUP message? | M | MCU 1.1 AND MCU 1.2 | 3.2.1.1.1 | Yes__ No__ |
| Comments: | | | | | |

### A.4.3.2   Signalling Procedures at the User Side of the $T_B$ Reference Point

| Item Number | Item Description | Status | Condition for Status | Reference | Support |
|---|---|---|---|---|---|
| SPOI 4 | If an Optional traffic attributes information element with BCS values is received in a setup request that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 1.3 | 3.2.1.1.2 | Yes__ No__ |
| SPOI 5 | If an Optional traffic attributes information element with BCS values is received in an add party request which does not correspond to a UBR call/connection, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 1.1 AND MCU 1.3 | 3.2.1.1.2 | Yes__ No__ |

| SPOI 6 | If the IUT when acting as the user receives an Optional traffic attributes information element containing a BCS value that is not supported, does the IUT apply the normal procedures for non-mandatory information element with content error? | M | MCU 1.3 | 3.2.1.1.2 | Yes__ No__ |
|---|---|---|---|---|---|
| SPOI 7 | If the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | MCU 1.3 | 3.2.1.1.2 | Yes__ No__ |
| SPOI 8 | If the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded message? | O | SPOI 7 | 3.2.1.1.2 | Yes__ No__ |
| SPOI 9 | If the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the party is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | MCU 1.1 AND MCU 1.3 | 3.2.1.1.2 | Yes__ No__ |
| SPOI 10 | If the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the party is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded message? | O | SPOI 9 | 3.2.1.1.2 | Yes__ No__ |
| SPOI 11 | If the IUT when acting as the user receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "network generated", is the IUT capable of | O | MCU 1.3 | 3.2.1.1.2 | Yes__ No__ |

| | discarding the Optional traffic attributes information element? | | | | |
|---|---|---|---|---|---|
| SPOI 12 | If the IUT when acting as the user receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element? | M | MCU 1.1 AND SPOI 11 | 3.2.1.1.2 | Yes__ No__ |
| Comments: | | | | | |

### A.4.3.3   Signalling Procedures at the Network Side

| Item Number | Item Description | Status | Condition for Status | Reference | Support |
|---|---|---|---|---|---|
| SPOI 13 | If an Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 2 | 3.2.1.2 | Yes__ No__ |
| SPOI 14 | If an Optional traffic attributes information element with BCS values is received in an ADD PARTY message that does not correspond to a UBR call/connection, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 2 | 3.2.1.2 | Yes__ No__ |
| SPOI 15 | If the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded setup indication? | M | MCU 2 | 3.2.1.2 | Yes__ No__ |
| SPOI 16 | If the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, is the IUT capable of mapping the BCS values | O | SPOI 15 | 3.2.1.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | before including the received Optional traffic attributes information element in the forwarded setup indication? | | | | |
| SPOI 17 | If the network side of the IUT receives a SETUP message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element with BCS values and processing the message as if the Optional traffic attributes information element with BCS values were not present? | O | MCU 2 | 3.2.1.2 | Yes__ No__ |
| SPOI 18 | If the network side of the IUT receives a SETUP message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of replacing the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with BCS values (with the origin field set to "network generated")? | M | MCU 2 AND MCU 3 | 3.2.1.2 | Yes__ No__ |
| SPOI 19 | If the network side of the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element with BCS values and processing the message as if the Optional traffic attributes information element with BCS values were not present? | M | SPOI 17 | 3.2.1.2 | Yes__ No__ |
| SPOI 20 | If the network side of the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of replacing the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with BCS values (with the origin field set to "network generated")? | M | SPOI 18 | 3.2.1.2 | Yes__ No__ |
| SPOI 21 | If the IUT receives a SETUP message for a UBR call/connection that does not contain an Optional traffic attributes information element with BCS values, | M | MCU 2 AND MCU 3 | 3.2.1.2 | Yes__ No__ |

| | then if the call/connection is progressed, is the IUT capable of including an Optional traffic attributes information element with BCS values and with the origin field set to "network generated" in the forwarded setup indication? | | | | |
|---|---|---|---|---|---|
| SPOI 22 | If, for a point-to-multipoint call/connection, the IUT generated an Optional traffic attributes information element with BCS values in the initial setup indication, does the IUT include the same Optional traffic attributes information element with BCS values in all subsequent add party indications for that call/connection? | M | SPOI 21 | 3.2.1.2 | Yes__ No__ |
| SPOI 23 | If the IUT when acting as the network receives an Optional traffic attributes information element containing a BCS value that is not supported, does the IUT apply the normal procedures for non-mandatory information element with content error? | M | MCU 2 | 3.2.1.2 | Yes__ No__ |
| SPOI 24 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication did not contain an Optional traffic attributes information element with BCS values, does the IUT not include any Optional traffic attributes information element with BCS values in the forwarded add party indication? | M | MCU 2 AND MCU 4 | 3.2.1.2 | Yes__ No__ |
| SPOI 25 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication contained an Optional traffic attributes information element with BCS values, does the IUT include the same Optional traffic attributes information element in the forwarded add party indication? | M | MCU 2 AND MCU 4 | 3.2.1.2 | Yes__ No__ |
| SPOI 26 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and if the party is progressed, does the IUT include the received Optional | M | MCU 2 AND (NOT MCU 4) | 3.2.1.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | traffic attributes information element in the forwarded add party indication? | | | | |
| SPOI 27 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and if the party is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded add party indication? | O | SPOI 26 | 3.2.1.2 | Yes__ No__ |
| Comments: | | | | | |

## A.4.4    Signalling Procedures at the Destination Interface (SPDI)

### A.4.4.1    Signalling Procedures at the Network Side

| Item Number | Item Description | Status | Condition for Status | Reference | Support |
|---|---|---|---|---|---|
| SPDI 1 | If an Optional traffic attributes information element with BCS values is received in a setup request that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 2 | 3.2.2.1 | Yes__ No__ |
| SPDI 2 | If an Optional traffic attributes information element with BCS values is received in an add party request which does not correspond to a UBR call/connection, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 2 | 3.2.2.1 | Yes__ No__ |
| SPDI 3 | If the IUT when acting as the network receives an Optional traffic attributes information element containing a BCS value that is not supported, does the IUT apply the normal procedures for non-mandatory information element with content error? | M | MCU 2 | 3.2.2.1 | Yes__ No__ |

| SPDI 4 | If the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | MCU 2 | 3.2.2.1 | Yes__ No__ |
|---|---|---|---|---|---|
| SPDI 5 | If the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded message? | O | SPDI 4 | 3.2.2.1 | Yes__ No__ |
| SPDI 6 | If the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the party is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | MCU 2 | 3.2.2.1 | Yes__ No__ |
| SPDI 7 | If the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the party is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded message? | O | SPDI 6 | 3.2.2.1 | Yes__ No__ |
| SPDI 8 | If the IUT when acting as the network receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element? | O | MCU 2 | 3.2.2.1 | Yes__ No__ |
| SPDI 9 | If the IUT when acting as the network receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "network | M | SPDI 8 | 3.2.2.1 | Yes__ No__ |

| | generated", is the IUT capable of discarding the Optional traffic attributes information element? | | | | |
|---|---|---|---|---|---|

| Comments: |
|---|
| |

### A.4.4.2 Signalling Procedures at the User Side of the $S_B$ and Coincident $S_B$ and $T_B$ Reference Points

| SPDI 10 | If an Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 1.2 | 3.2.2.2.1 | Yes__ No__ |
|---|---|---|---|---|---|
| SPDI 11 | If the IUT when acting as the user receives an Optional traffic attributes information element containing a BCS value that is not supported, does the IUT apply the normal procedures for non-mandatory information element with content error? | M | MCU 1.2 | 3.2.2.2.1 | Yes__ No__ |

| Comments: |
|---|
| |

### A.4.4.3 Signalling Procedures at the User Side of the $T_B$ Reference Point

| Item Number | Item Description | Status | Condition for Status | Reference | Support |
|---|---|---|---|---|---|
| SPDI 12 | If an Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 1.3 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 13 | If an Optional traffic attributes information element with BCS values is received in an ADD PARTY message that does not correspond to a UBR call/connection, does the IUT treat the information element as an unexpected recognized information element? | M | MCU 1.1 AND MCU 1.3 | 3.2.2.2.2 | Yes__ No__ |

| SPDI 14 | If the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded setup indication? | M | MCU 1.3 | 3.2.2.2.2 | Yes__ No__ |
| --- | --- | --- | --- | --- | --- |
| SPDI 15 | If the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded setup indication? | O | SPDI 14 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 16 | If the user side of the IUT receives a SETUP message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element with BCS values and processing the message as if the Optional traffic attributes information element with BCS values were not present? | O | MCU 1.3 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 17 | If the user side of the IUT receives a SETUP message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of replacing the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with BCS values (with the origin field set to "network generated")? | M | MCU 1.3 AND MCU 3 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 18 | If the user side of the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element with BCS values and processing the message as if the Optional traffic attributes information element with BCS | M | MCU 1.1 AND SPDI 16 | 3.2.2.2.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | values were not present? | | | | |
| SPDI 19 | If the user side of the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of replacing the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with BCS values (with the origin field set to "network generated")? | M | MCU 1.1 AND SPDI 17 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 20 | If the IUT receives a SETUP message for a UBR call/connection that does not contain an Optional traffic attributes information element with BCS values, then if the call/connection is progressed, is the IUT capable of including an Optional traffic attributes information element with BCS values and with the origin field set to "network generated" in the forwarded setup indication? | M | MCU 1.3 AND MCU 3 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 21 | If, for a point-to-multipoint call/connection, the IUT generated an Optional traffic attributes information element with BCS values in the initial setup indication, does the IUT include the same Optional traffic attributes information element with BCS values in all subsequent add party indications for that call/connection? | M | MCU 1.1 AND SPDI 20 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 22 | If the IUT when acting as the user side receives an Optional traffic attributes information element containing a BCS value that is not supported, does the IUT apply the normal procedures for non-mandatory information element with content error? | M | MCU 1.3 | 3.2.1.2 | Yes__ No__ |
| SPDI 23 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication did not contain an Optional traffic attributes information element with BCS values, does the IUT not include any Optional traffic attributes information element with BCS values in the forwarded add party indication? | M | MCU 1.1 AND MCU 1.3 AND MCU 4 | 3.2.2.2.2 | Yes__ No__ |
| SPDI 24 | When validating to ensure consistency between forwarded setup and add party | M | MCU 1.1 AND | 3.2.2.2.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | indications for the same call/connection, if the forwarded setup indication contained an Optional traffic attributes information element with BCS values, does the IUT include the same Optional traffic attributes information element in the forwarded add party indication? | | MCU 1.3 AND MCU 4 | | |
| SPDI 25 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and if the party is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded add party indication? | M | MCU 1.1 AND MCU 1.3 AND (NOT MCU 4) | 3.2.2.2.2 | Yes__ No__ |
| SPDI 26 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and if the party is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded add party indication? | O | SPDI 25 | 3.2.2.2.2 | Yes__ No__ |
| Comments: | | | | | |

# Annex B Protocol Implementation Conformance Statement (PICS) for the PNNI 1.0 Component of Behavior Class Selector Signalling Version 1.0

## B.1   Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented.  Such a statement is called a Protocol Implementation Conformance Statement (PICS).

### B.1.1   Scope

This document provides the PICS proforma for the PNNI 1.0 component of Behavior Class Selector Signalling Version 1.0, defined in [1] in compliance with the relevant requirements, and in accordance with the relevant guidelines, given in ISO/IEC 9646-7.  In most cases, statements contained in notes in the specification, which were intended as information, are not included in the PICS.

### B.1.2   Normative References

[1]   Behavior Class Selector Signalling Version 1.0, af-cs-0159.000, ATM Forum Technical Committee, September 2000.

[2]   ISO/IEC 9646-1: 1994, Information technology – Open systems interconnection – Conformance testing methodology and framework – Part 1: General Concepts (See also ITU Recommendation X.290 (1995)).

[3]   ISO/IEC 9646-7: 1995, Information technology – Open systems interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements (See also ITU Recommendation X.296 (1995)).

[4]   ISO/IEC 9646-3:1998, Information technology – Open systems interconnection – Conformance testing methodology and interconnection – Part 3: The Tree and Tabular Combined Notation (TTCN) (See also ITU telecommunication X.292 (1998)).

### B.1.3   Definitions

Terms defined in [1]

Terms defined in ISO/IEC 9646-1 and in ISO/IEC 9646-7

In particular, the following terms defined in ISO/IEC 9646-1 apply:

**Protocol Implementation Conformance Statement (PICS):** A statement made by the supplier of an implementation or system, stating which capabilities have been implemented for a given protocol.

**PICS proforma:** A document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which when completed for an implementation or system becomes the PICS.

### B.1.4   Acronyms

ASN.1   Abstract Syntax Notation One

ATS     Abstract Test Suite

IUT     Implementation Under Test

PICS    Protocol Implementation Conformance Statement

SUT     System Under Test

## B.1.5   Conformance

The PICS does not modify any of the requirements detailed in Behavior Class Selector Signalling Version 1.0. In case of apparent conflict between the statements in the base specification and in the annotations of "M" (mandatory) and "O" (optional) in the PICS, the text of the base specification takes precedence.

The supplier of a protocol implementation, which is claimed to conform to the PNNI 1.0 component of Behavior Class Selector Signalling Version 1.0, is required to complete a copy of the PICS proforma provided in this document and is required to provide the information necessary to identify both the supplier and the implementation.

## B.2    Identification of the Implementation

Identification of the Implementation Under Test (IUT) and system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

### B.2.1   Date of Statement

_____

### B.2.2   Implementation Under Test (IUT) Identification

**IUT Name:** _____

_____

_____

**IUT Version:** _____

### B.2.3   System Under Test (SUT) Identification

**SUT Name:** _____

_____

**Hardware Configuration:** _____

_____

_____

**Operating System:** _____

### B.2.4   Product Supplier

**Name:** _____

**Address:** _____

_____

_____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____


### B.2.5   Client

**Name:** _____

**Address:** _____

_____

_____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____


### B.2.6   PICS Contact Person

(A person to contact if there are any queries concerning the content of the PICS)

**Name:** _____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____

**Identification of the Protocol Specification**

This PICS proforma applies to the following specification:

[1]   Behavior Class Selector Signalling Version 1.0, af-cs-0159.000, ATM Forum Technical Committee, September 2000.

## B.3   PICS Proforma

### B.3.1   Global statement of conformance

The implementation described in this PICS meets all of the mandatory requirements of the reference protocol.

[ ] YES

[ ] NO

Note:   Answering "No" indicates non-conformance to the specified protocol.  Non-supported mandatory capabilities are to be identified in the following tables, with an explanation by the implementor explaining why the implementation is non-conforming.

### B.3.2   Instructions for Completing the PICS Proforma

The PICS Proforma is a fixed-format questionnaire.  Answers to the questionnaire should be provided in the rightmost columns, either by simply indicating a restricted choice (such as Yes or No), or by entering a value or a set of range of values.

The following notations, defined in ISO/IEC 9647-7, are used for the support column:

Yes    supported by the implementation

No     not supported by the implementation

The following notations, defined in ISO/IEC 9647-7, are used for the status column:

M      mandatory – the capability is required to be supported.

O      optional – the capability may be supported or not.

O.i    qualified optional – for mutually exclusive or selectable options from a set.  "i" is an integer which

identifies a unique group of related optional items and the logic of their selection is defined immediately following the table.

A supplier may also provide additional information, categorized as exceptional or supplementary information. These additional information should be provided as items labeled X.<i> for exceptional information, or S.<i> for supplemental information, respectively, for cross reference purposes, where <i> is any unambiguous identification for the item. The exception and supplementary information are not mandatory and the PICS is complete without such information. The presence of optional supplementary or exception information should not affect test execution, and will in no way affect interoperability verification. The column labeled 'Reference' gives a pointer to sections of the protocol specification for which the PICS Proforma is being written.

## B.4    PICS for the support of BCS at the PNNI

### B.4.1    Major Capability at PNNI (MCP)

| Item Number | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| MCP 1 | Does the IUT support validation to ensure consistency between forwarded setup and add party indications for the same call/connection? | O | | 4.2 | Yes__ No__ |
| Comments: | | | | | |

### B.4.2    Supported Information Elements at PNNI (SIEP)

| Item | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| SIEP 1 | For a UBR call/connection with BCS, does the IUT include a forward and backward BCS value in the Optional traffic attributes information element in the SETUP message as coded in section 2? | M | | 2 | Yes__ No__ |
| SIEP 2 | For a UBR call/connection with BCS, does the IUT include a forward and backward BCS value in the Optional traffic attributes information element in the ADD PARTY message as coded in section 2? | M | | 2 | Yes__ No__ |
| SIEP 3 | If the IUT receives an Optional traffic attributes information element with unrecognized content, does the IUT treat the information element as an unrecognized information element? | M | | 2 | Yes__ No__ |
| SIEP 4 | If the IUT receives an Optional traffic attributes information element that exceeds its maximum length, does the IUT treat the information element as an unrecognized information element? | M | | 2 | Yes__ No__ |
| Comments | | | | | |

### B.4.3    Signalling Procedures for BCS at PNNI (SPBP)

| Item | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| SPBP 1 | If the preceding side of the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values, then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | | 4.2 | Yes__ No__ |
| SPBP 2 | If the preceding side of the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values, then if the party is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | | 4.2 | Yes__ No__ |
| SPBP 3 | If the Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | | 4.2 | Yes__ No__ |
| SPBP 4 | If the Optional traffic attributes information element with BCS values is received in an ADD PARTY message that does not correspond to a UBR call/connection, does the IUT treat the information element as an unexpected recognized information element? | M | | 4.2 | Yes__ No__ |
| SPBP 5 | If the succeeding side of the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values, then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded setup indication? | M | | 4.2 | Yes__ No__ |
| SPBP 6 | If the succeeding side of the IUT receives an Optional traffic attributes information element containing a BCS value that is not supported, does the | M | | 4.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | IUT apply the procedures for non-mandatory information element with content error as if the pass along request (bit 4) in the instruction field were set to "no pass along request"? | | | | |
| SPBP 7 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication did not contain an Optional traffic attributes information element with BCS values, does the IUT not include any Optional traffic attributes information element with BCS values in the forwarded add party indication? | M | MCP 1 | 4.2 | Yes__ No__ |
| SPBP 8 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication contained an Optional traffic attributes information element with BCS values, does the IUT include the same Optional traffic attributes information element in the forwarded add party indication? | M | MCP 1 | 4.2 | Yes__ No__ |
| SPBP 9 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and the party is progressed, does the IUT include the received Optional traffic attributes information element with BCS values in the forwarded add party indication? | M | NOT MCP 1 | 4.2 | Yes__ No__ |
| SPBP 10 | Does the IUT set the action indicator (bits 1-3 of octet 2) of the Optional traffic attributes information element with BCS values to "discard information element and proceed" or "discard information element, proceed, and report status", the IE instruction flag field (bit 5 of octet 2) to "follow explicit instructions" and the pass along request field (bit 4 of octet 2) to "pass along request"? | M | | 4.3 | Yes__ No__ |
| Comments | | | | | |

## Annex C Protocol Implementation Conformance Statement (PICS) for the AINI Component of Behavior Class Selector Signalling Version 1.0

### C.1  Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented.  Such a statement is called a Protocol Implementation Conformance Statement (PICS).

### C.1.1  Scope

This document provides the PICS proforma for the AINI component of Behavior Class Selector Signalling Version 1.0, defined in [1] in compliance with the relevant requirements, and in accordance with the relevant guidelines, given in ISO/IEC 9646-7.  In most cases, statements contained in notes in the specification, which were intended as information, are not included in the PICS.

### C.1.2  Normative References

[1]  Behavior Class Selector Signalling Version 1.0, af-cs-0159.000, ATM Forum Technical Committee, September 2000.

[2]  ISO/IEC 9646-1: 1994, Information technology – Open systems interconnection – Conformance testing methodology and framework – Part 1: General Concepts (See also ITU Recommendation X.290 (1995)).

[3]  ISO/IEC 9646-7: 1995, Information technology – Open systems interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements (See also ITU Recommendation X.296 (1995)).

[4]  ISO/IEC 9646-3:1998, Information technology – Open systems interconnection – Conformance testing methodology and interconnection – Part 3: The Tree and Tabular Combined Notation (TTCN) (See also ITU telecommunication X.292 (1998)).

### C.1.3  Definitions

Terms defined in [1]

Terms defined in ISO/IEC 9646-1 and in ISO/IEC 9646-7

In particular, the following terms defined in ISO/IEC 9646-1 apply:

**Protocol Implementation Conformance Statement (PICS):** A statement made by the supplier of an implementation or system, stating which capabilities have been implemented for a given protocol.

**PICS proforma:** A document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which when completed for an implementation or system becomes the PICS.

### C.1.4  Acronyms

ASN.1   Abstract Syntax Notation One

ATS     Abstract Test Suite

IUT     Implementation Under Test

PICS    Protocol Implementation Conformance Statement

SUT     System Under Test

## C.1.5   Conformance

The PICS does not modify any of the requirements detailed in Behavior Class Selector Signalling Version 1.0.  In case of apparent conflict between the statements in the base specification and in the annotations of "M" (mandatory) and "O" (optional) in the PICS, the text of the base specification takes precedence.

The supplier of a protocol implementation, which is claimed to conform to the AINI component of Behavior Class Selector Signalling Version 1.0, is required to complete a copy of the PICS proforma provided in this document and is required to provide the information necessary to identify both the supplier and the implementation.

## C.2   Identification of the Implementation

Identification of the Implementation Under Test (IUT) and system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

### C.2.1   Date of Statement

_____

### C.2.2   Implementation Under Test (IUT) Identification

**IUT Name:** _____

_____

_____

**IUT Version:** _____

### C.2.3   System Under Test (SUT) Identification

**SUT Name:** _____

_____

**Hardware Configuration:** _____

_____

_____

**Operating System:** _____

### C.2.4   Product Supplier

**Name:** _____

**Address:** _____

_____

_____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____


### C.2.5   Client

**Name:** _____

**Address:** _____

_____

_____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____


### C.2.6   PICS Contact Person

(A person to contact if there are any queries concerning the content of the PICS)

**Name:** _____

**Telephone Number:** _____

**Facsimile Number:** _____

**Email Address:** _____

**Additional Information:** _____

_____

_____

### Identification of the Protocol Specification

This PICS proforma applies to the following specification:

[1]   Behavior Class Selector Signalling Version 1.0, af-cs-0159.000, ATM Forum Technical Committee, September 2000.

## C.3   PICS Proforma

### C.3.1   Global statement of conformance

The implementation described in this PICS meets all of the mandatory requirements of the reference protocol.

[ ] YES

[ ] NO

Note:   Answering "No" indicates non-conformance to the specified protocol.  Non-supported mandatory capabilities are to be identified in the following tables, with an explanation by the implementor explaining why the implementation is non-conforming.

### C.3.2   Instructions for Completing the PICS Proforma

The PICS Proforma is a fixed-format questionnaire.  Answers to the questionnaire should be provided in the rightmost columns, either by simply indicating a restricted choice (such as Yes or No), or by entering a value or a set of range of values.

The following notations, defined in ISO/IEC 9647-7, are used for the support column:

Yes    supported by the implementation

No     not supported by the implementation

The following notations, defined in ISO/IEC 9647-7, are used for the status column:

M      mandatory – the capability is required to be supported.

O      optional – the capability may be supported or not.

O.i    qualified optional – for mutually exclusive or selectable options from a set.  "i" is an integer which

identifies a unique group of related optional items and the logic of their selection is defined immediately following the table.

A supplier may also provide additional information, categorized as exceptional or supplementary information. These additional information should be provided as items labeled X.<i> for exceptional information, or S.<i> for supplemental information, respectively, for cross reference purposes, where <i> is any unambiguous identification for the item. The exception and supplementary information are not mandatory and the PICS is complete without such information. The presence of optional supplementary or exception information should not affect test execution, and will in no way affect interoperability verification. The column labeled 'Reference' gives a pointer to sections of the protocol specification for which the PICS Proforma is being written.

## C.4    PICS for the support of BCS at the AINI

### C.4.1    Major Capability at AINI (MCA)

| Item Number | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| MCA 1 | Does the IUT support BCS for point-to-multipoint calls/connections at the AINI? | M | Note 1 | 1.1, 5 | Yes__ No__ |
| MCA 2 | Is the IUT capable of generating an Optional traffic attributes information element with BCS values and with the origin field set to "network generated"? | O | | 1.1, 5.1.2 | Yes__ No__ |
| MCA 3 | Does the IUT support validation to ensure consistency between forwarded setup and add party indications for the same call/connection? | O | MCA 1 | 5.1.2 | Yes__ No__ |
| Comments: Note 1: If point-to-multipoint is supported at the AINI | | | | | |

### C.4.2    Supported Information Elements at AINI (SIEA)

| Item | Item Description | Status | Condition for status | Reference | Support |
|---|---|---|---|---|---|
| SIEA 1 | For a UBR call/connection with BCS, does the IUT include a forward and backward BCS value in the Optional traffic attributes information element in the SETUP message as coded in section 2? | M | | 2 | Yes__ No__ |
| SIEA 2 | For a UBR call/connection with BCS, does the IUT include a forward and backward BCS value in the Optional traffic attributes information element in the ADD PARTY message as coded in section 2? | M | MCA 1 | 2 | Yes__ No__ |
| SIEA 3 | If the IUT receives an Optional traffic attributes information element with unrecognized content, does the IUT treat the information element as an unrecognized information element? | M | | 2 | Yes__ No__ |
| SIEA 4 | If the IUT receives an Optional traffic attributes information element that exceeds its maximum length, does the IUT treat the information element as an unrecognized information element? | M | | 2 | Yes__ No__ |

Comments

## C.4.3 Signalling Procedures for BCS at AINI (SPBA)

| Item | Item Description | Status | Condition for status | Reference | Support |
|------|-----------------|--------|----------------------|-----------|---------|
| SPBA 1 | If the preceding side of the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | | 5.1.2 | Yes__ No__ |
| SPBA 2 | If the preceding side of the IUT receives a setup request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded message? | O | SPBA 1 | 5.1.2 | Yes__ No__ |
| SPBA 3 | If the preceding side of the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the party is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded message? | M | MCA 1 | 5.1.2 | Yes__ No__ |
| SPBA 4 | If the preceding side of the IUT receives an add party request containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the party is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded message? | O | SPBA 3 | 5.1.2 | Yes__ No__ |

| SPBA 5 | If the Optional traffic attributes information element with BCS values is received in a SETUP message that does not specify the UBR ATM service category, does the IUT treat the information element as an unexpected recognized information element? | M | | 4.2, 5.1.2 | Yes__ No__ |
|---|---|---|---|---|---|
| SPBA 6 | If the Optional traffic attributes information element with BCS values is received in an ADD PARTY message that does not correspond to a UBR call/connection, does the IUT treat the information element as an unexpected recognized information element? | M | MCA 1 | 4.2, 5.1.2 | Yes__ No__ |
| SPBA 7 | If the succeeding side of the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded setup indication? | M | | 5.1.2 | Yes__ No__ |
| SPBA 8 | If the succeeding side of the IUT receives a SETUP message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", then if the call/connection is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded setup indication? | O | SPBA 7 | 5.1.2 | Yes__ No__ |
| SPBA 9 | If the succeeding side of the IUT receives an Optional traffic attributes information element containing a BCS value that is not supported, does the IUT apply the procedures for non-mandatory information element with content error as if the pass along request (bit 4) in the instruction field were set to "no pass along request"? | M | | 4.2, 5.1.2 | Yes__ No__ |
| SPBA 10 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication did not contain an Optional traffic attributes information element | M | MCA 3 | 4.2, 5.1.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | with BCS values, does the IUT not include any Optional traffic attributes information element with BCS values in the forwarded add party indication? | | | | |
| SPBA 11 | When validating to ensure consistency between forwarded setup and add party indications for the same call/connection, if the forwarded setup indication contained an Optional traffic attributes information element with BCS values, does the IUT include the same Optional traffic attributes information element in the forwarded add party indication? | M | MCA 3 | 4.2, 5.1.2 | Yes__ No__ |
| SPBA 12 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and if the party is progressed, does the IUT include the received Optional traffic attributes information element in the forwarded add party indication? | M | MCA 1 AND (NOT MCA 3) | 5.1.2 | Yes__ No__ |
| SPBA 13 | When no validation to ensure consistency between forwarded setup and add party indications for the same call/connection is performed, then if the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with supported BCS values and with the origin field set to "originating user", and if the party is progressed, is the IUT capable of mapping the BCS values before including the received Optional traffic attributes information element in the forwarded add party indication? | O | SPBA 12 | 5.1.2 | Yes__ No__ |
| SPBA 14 | If the preceding side of the IUT receives a setup request containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element? | O | | 5.1.2 | Yes__ No__ |
| SPBA 15 | If the preceding side of the IUT receives an add party request containing | M | MCA1 and | 5.1.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element? | | SPBA 14 | | |
| SPBA 16 | If the succeeding side of the IUT receives a SETUP message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element with BCS values and processing the message as if the Optional traffic attributes information element with BCS values were not present? | O | | 5.1.2 | Yes__ No__ |
| SPBA 17 | If the succeeding side of the IUT receives a SETUP message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of replacing the Optional traffic attributes information element with BCS values with a new Optional traffic attributes information element with BCS values (with the origin field set to "network generated")? | M | MCA 2 | 5.1.2 | Yes__ No__ |
| SPBA 18 | If the succeeding side of the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of discarding the Optional traffic attributes information element with BCS values and processing the message as if the Optional traffic attributes information element with BCS values were not present? | M | MCA 1 AND SPBA 16 | 5.1.2 | Yes__ No__ |
| SPBA 19 | If the succeeding side of the IUT receives an ADD PARTY message containing an Optional traffic attributes information element with BCS values and with the origin field set to "network generated", is the IUT capable of replacing the Optional traffic attributes information element with BCS values with a new Optional traffic attributes | M | MCA 1 AND SPBA 17 | 5.1.2 | Yes__ No__ |

| | | | | | |
|---|---|---|---|---|---|
| | information element with BCS values (with the origin field set to "network generated")? | | | | |
| SPBA 20 | If the received SETUP message at the succeeding side of the IUT for a UBR call/connection does not contain an Optional traffic attributes information element with BCS values, then if the call/connection is progressed, is the IUT capable of including an Optional traffic attributes information element with BCS values and with the origin field set to "network generated" before forwarding the call/connection? | M | MCA 2 | 5.1.2 | Yes__ No__ |
| SPBA 21 | If, for a point-to-multipoint call/connection, the succeeding side of the IUT generated an Optional traffic attributes information element with BCS values in the initial setup indication, does the IUT include the same Optional traffic attributes information element in all subsequent add party indications for that call/connection? | M | MCA 1 AND MCA 2 | 5.1.2 | Yes__ No__ |
| SPBA 22 | Does the IUT set the action indicator (bits 1-3 of octet 2) of the Optional traffic attributes information element with BCS values to "discard information element and proceed" or "discard information element, proceed, and report status", the IE instruction flag field (bit 5 of octet 2) to "follow explicit instructions" and the pass along request field (bit 4 of octet 2) to "pass along request"? | M | | 5.1.3 | Yes__ No__ |
| Comments | | | | | |