

TR-128

Addendum to TR-090

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Version History

Version Number	Version Date	Version Editor	Changes
Version 1	10 May 2005	Moti Morgenstern – ECI Telecom	Initial draft.
Version 2	5 December 2005	Moti Morgenstern – ECI Telecom	Added references to new items: <ul style="list-style-type: none"> • Upstream PSD Mask Configuration • Data Path related managed objects
Version 3	27 February 2006	Moti Morgenstern – ECI Telecom	<ol style="list-style-type: none"> 1. Replaced the document format 2. Revised the references to ITU-T G.997.1 3. Support of DPBOSHAPED 4. Support of Actual Impulse Noise Protection 5. Added references to new appendixes <ul style="list-style-type: none"> • Parameters mapping from ADSL management model to ADSL2 model • Profile naming conventions for migration from ADSL management model to ADSL2 model
Version 4	8 May 2006	Moti Morgenstern – ECI Telecom	Straw Ballot format.
Version 5	18 September 2006	Moti Morgenstern – ECI Telecom	Straw Ballot comments resolved.

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Summary

This Broadband Forum Technical Report provides recommendations that complement Broadband Forum TR-090 (“Protocol Independent Object Model for Managing Next Generation ADSL Technologies”).

The Broadband Forum Technical Report TR-128

Addendum to TR-090

1 Purpose

The purpose of this Broadband Forum Technical Report is to complement Broadband Forum TR-090. The Broadband Forum approved TR-090 (“Protocol Independent Object Model for Managing Next Generation ADSL Technologies”) [2] on December 2004. Since TR-090 was approved, The Broadband Forum realized that the object model is not complete and should include additional managed objects. This document includes those complementary managed objects.

Furthermore two Appendixes are defined in this Technical Report to address a parameter mapping and profile naming convention for migration purpose.

2 Scope

This Broadband Forum Technical Report complements the management model specified by Broadband Forum TR-090. The scope of the management model is new generation ADSL technologies (i.e., ADSL2, ADSL2lite and ADSL2plus). It also allows managing the original ADSL technologies, such as ADSL and ADSLlite.

Additional managed objects are described in ITU G.997.1 ([3]). This Technical Report only deals with those relating to the ADSL family. Those relating to VDSL2 are excluded.

2.1 Abbreviations

The following abbreviations apply for the purposes of this document:

ADSL	Asynchronous Digital Subscriber Line
ATM	Asynchronous Transfer Mode
ATU	ADSL Termination Unit
CV	Coding Violation
HEC	Header Error Code (ATM)
IBE	Idle Cell Bit Error (ATM)
ISDN	Integrated Services Digital Network
POTS	Plain Old Telephony Service
PSD	Power Spectrum Density
PTM	Packet Transfer Mode
STM	Synchronous Transfer Mode

2.2 Conventions

In this document, several words are used to signify the requirements of the specification. These words are often capitalized.

- MUST** This word, or the adjective “REQUIRED”, means that the definition is an absolute requirement of the specification.
- MUST NOT** This phrase means that the definition is an absolute prohibition of the specification.
- SHOULD** This word, or the adjective “RECOMMENDED”, means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications must be understood and carefully weighted before choosing a different course.
- MAY** This word, or the adjective “OPTIONAL”, means that this item is one of an allowed set of alternatives. An implementation that does not include this option **MUST** be prepared to inter-operate with another implementation that does include the option.

3 References

The following Broadband Forum Technical Reports and other references contain provisions, which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All Technical Reports and other references are subject to revision; users of this Technical Report are therefore encouraged to investigate the possibility of applying the most recent edition of the Technical Report and other references listed below. A list of the currently valid Broadband Forum Technical Reports is published at www.broadband-forum.org.

NOTE – The reference to a document within this Technical Report does not give it, as a stand-alone document, the status of a Technical Report.

- [1] The Broadband Forum TR-005, (March 2005), *ADSL Network Element Management*.
- [2] The Broadband Forum TR-090 (December 2004), *Protocol Independent Object Model for Managing Next Generation ADSL Technologies*.
- [3] ITU-T Recommendation G.997. 1 revision 3 (2006), Physical layer management for Digital Subscriber Line (DSL) Transceivers (G.ploam_bis)
- [4] IETF RFC 2662, (August 1999), *Definitions of Managed Objects for the ADSL Lines*.
- [5] IETF RFC 3440, (December 2002), *Definitions of Extension Managed Objects for Asymmetric Digital Subscriber Lines*.

4 Items Addressed By This Technical Report

This Broadband Forum Technical Report refers to the following missing managed objects in Broadband Forum TR-090 ([2]) as well as other required changes and additional items:

- Update of G.997. 1 revision – Update the reference to ITU G.997. 1 ([3]) and remove the reference to any amendments.
- ADSL Operation Modes Classification - Mapping of various modes of ADSL operation, defined by ITU G.997.1 ([3]), to instances of “ADSL Mode-Specific PSD Configuration”

defined by TR-090.

- Upstream PSD configuration – References are made to two modes of configuring the upstream PSD mask, defined by ITU G.997. 1 ([3]).
- Automode Cold-Start Forced - Add a reference for this parameter, defined by ITU G.997.1 ([3]).
- Data Path Related Parameters – Add status and performance parameters for the data path layer per ITU G.997. 1 ([3]).
- “Downstream Power Back-Off – Shaped” Related Parameters – Add configuration parameters for the downstream power back-off.
- New channel status parameters– Add an ATU channel status parameter: Actual impulse noise protection.
- Mapping Managed objects from ADSL to ADSL2 Management Model – New appendix
- Naming Conventions for ADSL2 Configuration Profiles (as part of migrating from ADSL to ADSL2 management model) – New appendix

5 Updated revision of ITU-T G.997.1

5.1 Correction Purpose

TR-090 [2] refers to ITU-T G.997. 1 document dated 2003. However, ITU-T updated the G.997. 1 document ([3]) on February 2006.

If TR-090 is updated, according to any of the following changes proposed by this document, then it should also refer to the most updated revision of ITU-T G.997. 1.

5.2 Correction Details

The management model specified by TR-090 is based on old ITU-T G.997.1 document version. The following text should be changed in the ‘References’ section in order to refer to the most recent version of that ITU-T document:

1. Remove the following lines:

“[6] ITU-T Recommendation G.997.1 (2003), *Physical layer management for Digital Subscriber Line (DSL) Transceivers (G.ploam_bis)*

[6a] ITU-T Recommendation G.997.1 Amendment-1 (December 12, 2003), *Physical layer management for Digital Subscriber Line (DSL) Transceivers (G.ploam_bis)*“

2. Add, instead, the following line:

“[6] ITU-T Recommendation G.997. 1 revision 3 (2006) *Physical layer management for Digital Subscriber Line (DSL) Transceivers (G.ploam_bis)* “

6 ADSL Operation Modes Classification

6.1 Addendum Purpose

TR-090 [2] specifies (§5.1.8): “*depending on the various modes of ADSL operation that may be supported by an ADSL Line, corresponding instances of this object [ADSL Mode-Specific PSD Configuration] will be contained in the ADSL Line Spectrum Profile*”. However, TR-090 does

not specify the association between modes of ADSL operation and instances of ADSL Mode-Specific PSD Configuration object.

This addendum specifies the details of the classification.

6.2 Addendum Details

The management model specified by TR-090 includes an ADSL Mode attribute (§5.1.8), which identifies an instance of ADSL Mode-Specific PSD Configuration object in the ADSL Line Spectrum Profile.

The following text should be appended to paragraph §5.1.8 of TR-090:

5.1.8.1 Classes of ADSL Operation Modes

The following classes of ADSL operation modes MAY be supported. Those are also the values that MAY be supported for ADSL Mode attribute:

1. ADSL - The attributes included in the ADSL Mode-Specific PSD Configuration are irrelevant for G.992.1/2. Hence, it is possible to map these modes to this generic class.
2. ADSL2_POTS
3. ADSL2_ISDN
4. ADSL2Plus_POTS
5. ADSL2Plus_ISDN
6. ADSL2_ReachExtended

5.1.8.2 Mapping ADSL Operation Modes to Classes

The following table maps each ADSL Operation Mode included in the ITU-T G.997.1 ([6]) to the ADSL Mode value:

Bit number	Mode	ADSL Mode value
<i>Octet 1</i>		
1	Regional standards (ANSI T1 .413-1998 Standard).	ADSL
2	Regional standards (Annex C of TS 101 388 v1.3.1).	ADSL
3	G.992.1 operation over POTS non-overlapped spectrum (Annex A/G.992.1).	ADSL
4	G.992.1 operation over POTS overlapped spectrum (Annex A/G.992.1).	ADSL
5	G.992.1 operation over ISDN non-overlapped spectrum (Annex B/G.992.1).	ADSL
6	G.992.1 operation over ISDN overlapped spectrum (Annex B/G.992.1).	ADSL
7	G.992.1 operation in conjunction with TCM-ISDN non-overlapped spectrum (Annex C/G.992.1).	ADSL
8	G.992.1 operation in conjunction with TCM-ISDN overlapped spectrum (Annex C/G.992.1).	ADSL
<i>Octet 2</i>		
9	G.992.2 operation over POTS non-overlapped spectrum (Annex A/G.992.2).	ADSL

10	G.992.2 operation over POTS overlapped spectrum (Annex A/G.992.2).	ADSL
11	G.992.2 operation in conjunction with TCM-ISDN non-overlapped spectrum (Annex C/G.992.2).	ADSL
12	G.992.2 operation in conjunction with TCM-ISDN overlapped spectrum (Annex C/G.992.2).	ADSL
13	Reserved.	
14	Reserved.	
15	Reserved.	
16	Reserved.	

Octet 3

17	Reserved.	
18	Reserved.	
19	G.992.3 operation over POTS non-overlapped spectrum (Annex A/G.992.3).	ADSL2_POTS
20	G.992.3 operation over POTS overlapped spectrum (Annex A/G.992.3).	ADSL2_POTS
21	G.992.3 operation over ISDN non-overlapped spectrum (Annex B/G.992.3).	ADSL2_ISDN
22	G.992.3 operation over ISDN overlapped spectrum (Annex B/G.992.3).	ADSL2_ISDN
23	Reserved.	
24	Reserved.	

Octet 4

25	G.992.4 operation over POTS non-overlapped spectrum (Annex A/G.992.4).	ADSL2_POTS
26	G.992.4 operation over POTS overlapped spectrum (Annex A/G.992.4).	ADSL2_POTS
27	Reserved.	
28	Reserved.	
29	G.992.3 All Digital Mode operation with non-overlapped spectrum (Annex I/G.992.3).	ADSL2_POTS
30	G.992.3 All Digital Mode operation with overlapped spectrum (Annex I/G.992.3).	ADSL2_POTS
31	G.992.3 All Digital Mode operation with non-overlapped spectrum (Annex J/G.992.3).	ADSL2_ISDN
32	G.992.3 All Digital Mode operation with overlapped spectrum (Annex J/G.992.3).	ADSL2_ISDN

Octet 5

33	G.992.4 All Digital Mode operation with non-overlapped spectrum (Annex I/G.992.4).	ADSL2_POTS
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34	G.992.4 All Digital Mode operation with overlapped spectrum (Annex I/G.992.4).	ADSL2_POTS
35	G.992.3 Reach Extended operation over POTS, Mode 1 (non-overlapped, wide upstream) (Annex L of G.992.3)	ADSL2_ReachExtended
36	G.992.3 Reach Extended operation over POTS, Mode 2 (non-overlapped, narrow upstream) (Annex L of G.992.3)	ADSL2_ReachExtended
37	G.992.3 Reach Extended operation over POTS, Mode 3 (overlapped, wide upstream) (Annex L of G.992.3)	ADSL2_ReachExtended
38	G.992.3 Reach Extended operation over POTS, Mode 4 (overlapped, narrow upstream) (Annex L of G.992.3)	ADSL2_ReachExtended
39	G.992.3 Extended upstream operation over POTS non-overlapped spectrum (Annex M of G.992.3)	ADSL2_POTS
40	G.992.3 Extended upstream operation over POTS overlapped spectrum (Annex M of G.992.3)	ADSL2_POTS

Octet 6

41	G.992.5 operation over POTS non-overlapped spectrum (Annex A/G.992.5).	ADSL2Plus_POTS
42	G.992.5 operation over POTS overlapped spectrum (Annex A/G.992.5).	ADSL2Plus_POTS
43	G.992.5 operation over ISDN non-overlapped spectrum (Annex B/G.992.5).	ADSL2Plus_ISDN
44	G.992.5 operation over ISDN overlapped spectrum (Annex B/G.992.5).	ADSL2Plus_ISDN
45	Reserved.	
46	Reserved.	
47	G.992.5 All Digital Mode operation with non-overlapped spectrum (Annex I/G.992.5).	ADSL2Plus_POTS
48	G.992.5 All Digital Mode operation with overlapped spectrum (Annex I/G.992.5).	ADSL2Plus_POTS

Octet 7

49	G.992.5 All Digital Mode operation with non-overlapped spectrum (Annex J of G.992.5).	ADSL2Plus_ISDN
50	G.992.5 All Digital Mode operation with overlapped spectrum (Annex J of G.992.5).	ADSL2Plus_ISDN
51	G.992.5 Extended upstream operation over POTS non-overlapped spectrum (Annex M of G.992.5)	ADSL2Plus_POTS
52	G.992.5 Extended upstream operation over POTS overlapped spectrum (Annex M of G.992.5)	ADSL2Plus_POTS
53	Reserved.	
54	Reserved.	

55	Reserved.	
56	Reserved.	

7 Upstream PSD Configuration

7.1 Addendum Purpose

TR-090 [2] specifies (§5. 1.8), among other ADSL mode-specific parameters the “Upstream PSD Mask (PSDMASK upstream **G.997.1 ammendment-1)”

However, ITU G.997.1 ([3]) defines two methods for configuring the PSD mask on upstream direction. This addendum specifies the way TR-090 should include both methods.

7.2 Addendum Details

The management model specified by TR-090 allows configuring the upstream PSD mask (§5. 1.8) for ADSL links. In order to support both the upstream PSD mask configuration and upstream PSD mask selection the following text should be changed in paragraph §5.1.8 of TR-090:

3. Remove the following line:

“ Upstream PSD Mask (PSDMASK upstream **G.997.1 ammendment-1)“

4. Add, instead, the following two lines:

“ ▶ Upstream PSD Mask
 ▶ Selection Upstream PSD Mask
 (PSDMASK upstream) “

8 Automode Cold Start Forced

8.1 Addendum Purpose

ITU G.997. 1 ([3]) defines a line level configuration parameter intended for testing the performance of ATU’s supporting automode. This addendum specifies the way TR-090 should include the parameter.

8.2 Addendum Details

The management model specified by TR-090 should support a new “Automode Cold Start Forced” configuration parameter in paragraph §5.1.1 of TR-090.

After the following line:

“ Loop Diagnostics Mode Forced“

Add a new line:

Automode Cold Start Forced

9 Data Path Related Status and Performance Parameters

9.1 Addendum Purpose

Each ADSL channel is associated with one of three optional data path types: ATM, PTM or STM. Currently ITU G.997. 1 ([3]) specifies actual parameters only for the first two data

path types. Anyhow, TR-090 [2] does not refer to any data path related parameters. This addendum specifies the details of those missing parameters.

9.2 Addendum Details

The management model specified by TR-090 should refer to the data path layer related managed objects. Those should appear in various locations in the document.

The following text should be appended to paragraph §5.1.2 of TR-090:

5.1.2.1 Data Path

The ADSL Data Path object represents the format of payload carried over an ADSL bearer channel and its associated parameters and states.

Three types of data path are possible for each ADSL bearer channel: ATM, PTM and STM. This document refers only to ATM and PTM as the parameters associated with STM are for further study.

The following text should be appended to paragraph §5.2.2 of TR-090:

- ▶ ATM Data Path Status (Near-End Failures for channel on ATU-C side / Far-End Failures for channel on ATU-R side) – if data path type is ATM
- ▶ PTM Data Path Status (Near-End Failures for channel on ATU-C side / Far-End Failures for channel on ATU-R side) – if data path type is PTM

The following text should be added after paragraph §5.3.2:

5.3.3 ATU Data Path Performance

The ATU Data Path Performance object represents Data Path performance related data for a particular channel associated with a particular ATU. It is only a superclass that cannot be instantiated. It supports following sub-classes that are instantiated:

- ▶ ATU Data Path Current 15-min Performance
- ▶ ATU Data Path History 15-min Performance
- ▶ ATU Data Path Current 1-day Performance
- ▶ ATU Data Path History 1-day Performance
- ▶ ATU Data Path may be ATM, PTM or STM. This document refers only to ATM and PTM as the attributes associated with STM are for further study

5.3.3.1 ATM Data Path Performance Attributes

Following attributes are supported for ATM based ATU Data Path Performance object:

- ▶ Interval Number (0 for current; 1 ..N/M for previous/history intervals)
- ▶ Interval Status (valid – Data is valid and complete; invalid – Data is invalid or incomplete)
- ▶ HEC violation count – Data Path (HEC-P/HEC-PFE)
- ▶ Delineated total cell count – Data Path (CD-P/CD-PFE)
- ▶ User total cell count – Data Path (CU-P/CU-PFE)
- ▶ Idle Cell Bit Error Count – Data Path (IBE-P/IBE-PFE)

NOTE:

Object instances associated with the ATU-C use the xxx-P version of the parameter while those associated with the ATU-R use xxx-PFE version of the parameter.

5.3.3.2 PTM Data Path Performance Attributes

Following attributes are supported for PTM based ATU Data Path Performance object:

- ▶ Interval Number (0 for current; 1 ..N/M for previous/history intervals)
- ▶ Interval Status (valid – Data is valid and complete; invalid – Data is invalid or incomplete)
- ▶ CRC error count – Data Path (Two parameters: CRC-P/CRC-PFE and CRCP-P/CRCP-PFE)
- ▶ Coding Violations Count – Data Path (Two parameters: CV-P/CV-PFE and CVP-P/CVP-PFE)

NOTE:

Object instances associated with the ATU-C use the xxx-P version of the parameter while those associated with the ATU-R use xxx-PFE version of the parameter.

10 Downstream Power Back-Off Related parameters

10.1 Addendum Purpose

The management model specified by TR-090 does not support the downstream power back-off procedure, as specified by ITU-T G.997.1 ([3]).

This addendum specifies the details of those missing parameters.

10.2 Addendum Details

The management model specified by TR-090 should refer to the downstream power back-off procedure and related managed objects.

The following text should be appended to paragraph §5.1.8 of TR-090:

- “ ▶ Downstream Power Back-Off Shaped (DPBOSHAPED)
- Assumed Exchange PSD mask (DPBOEPSD)
 - E-side Electrical Length (DPBOESEL)
 - E-side Cable Model (DPBOESCM)
 - Minimum Usable Signal (DPBOMUS)
 - DPBO Span Minimum Frequency (DPBOFMIN)
 - DPBO span maximum frequency (DPBOFMAX) “

11 New Channel Status parameters

11.1 Addendum Purpose

The management model specified by TR-090 does not support the actual impulse noise protection, as specified by ITU-T G.997.1 ([3]).

This addendum specifies the details of those missing parameters.

11.2 Addendum Details

The management model specified by TR-090 should refer to the following ATU channel status managed objects.

The following text should be appended to paragraph §5.2.2 of TR-090:

- “ ▶ Actual impulse noise protection (ACTINP) “

12 New Appendixes to TR-090

12.1 Addendum Purpose

The management model specified by TR-090 [2] is applicable for all flavours of ADSL and replaces the framework (specified by TR-005 [1]) used for earlier ADSL technologies. Network operators, who want to start deploying services with next generation DSL technologies (e.g. ADSL2/2+) and have an already installed base with ADSL need to switch to the new DSL

with minimum effort in operation and network management.

The first appendix provides a parameter-mapping table for integration of configuration parameters from object model of TR-005, used in IETF RFC2662 ([4]) and RFC 3440 ([5]), to the next generation object model of TR-090.

The second appendix provides general rules and profile naming conventions, as an implementation guideline for smooth migration from the existing ADSL management model (e.g. as described in TR090, Chapter 2) to the new management model,

12.2 Addendum Details

*The following two appendixes should be appended to TR-090.
 The first appendix is guideline for parameters mapping from earlier ADSL management model (e.g. as described in TR-090, Chapter 2) to the management model specified by TR-090.
 The second appendix is a collection of general rules and profile naming conventions for smooth migration from the existing ADSL management model to the new management model:*

Appendix A: Mapping Managed objects from ADSL to ADSL2 Management Model

The management model specified by this Technical Report is applicable for all flavours of including earlier ADSL technologies replacing the framework specified by Technical Report TR-005 ([7]). Network operators who have an already installed base with ADSL may wish to migrate to management model according to this Technical Report. To do so they may need to translate the configuration profiles specified according to TR-005 to configuration profiles according to this Technical Report.

This appendix provides a mapping between the configuration profiles according to TR-005 to configuration profiles according to this Technical Report.

A.1. Line Service Profile

Mapping A.1.1. General

Mapping Rules

- ❖ If a DSL line utilizes only a single latency path then that latency path (Interleaved or Fast) is mapped to channel number ' in the model according to this Technical Report
- ❖ If the DSL line utilizes both Interleaved and Fast latency paths then the Fast path is mapped to channel number ' and the Interleaved path to channel number 2 according to this Technical Report.

A.1.2 Parameters Mapping

Parameter in next generation model (Parameters from TR-090)	Parameter in current model (Parameters from TR-005 and IETF RFC 2662 / RFC 3440)	Comments
Minimum Data Rate ¹⁾	Desired Minimum Rate	
Minimum Reserved Data Rate ¹⁾²⁾	Not applicable	

Maximum Data Rate ¹⁾	Desired Maximum Rate	
Rate Adaptation Ratio ¹⁾	Rate Adaptation Ratio	In existing model, only Ratio between fast and interleaved channel is defined.
Minimum Data Rate in low power state downstream ²⁾	Not applicable	
Maximum Interleave Delay ¹⁾	Maximum Interleave Delay	Given in [ms]; Value > 16 ms to be used for interleaved path configuration. Special value “1” to be used for fast path configuration.
Minimum Impulse Noise Protection ¹⁾ ²⁾	No parameter defined	
Maximum Bit Error Ratio ¹⁾	No parameter defined (fixed to 1e-7)	
Data Rate Threshold Upshift ¹⁾	Rate Threshold	
Data Rate Threshold Downshift ¹⁾	Rate Threshold	

- 1) This attribute is used in downstream and in upstream direction.
- 2) Parameter should have default value (vendor specific).

A.2. Line Spectrum Profile Mapping

A.2.1 Parameters Mapping

Parameter in next generation model (Parameters from TR-090)	Parameter in current model (Parameters from TR-005 and IETF RFC 2662 / RFC 3440)	Comments
ATU Transmission System Enabling (ATSE)	LineTransAtucConfig	
PMMode ²⁾	Not applicable	
L0-TIME ²⁾	Not applicable	

L2-TIME ²⁾	Not applicable	
L2-ATPR ²⁾	Not applicable	
L2-ATPRT ²⁾	Not applicable	
CARMASK ¹⁾	Not applicable	
RA-MODE ¹⁾	Rate Adaptation Mode	
RA-USNRM ¹⁾	Upshift Noise Margin	
RA-UTIME ¹⁾	Minimum Time Interval for Upshift Rate Adaptation	
RA-DSNRM ¹⁾	Downshift Noise Margin	
RA-DTIME ¹⁾	Minimum Time Interval for Downshift Rate Adaptation	
TARSNRM ¹⁾	Target Noise Margin	
MAXSNRM ¹⁾	Maximum Noise Margin	
MINSNRM ¹⁾	Minimum Noise Margin	
MSGMIN ^{1) 2)}	Not applicable	

- 1) This attribute is used in downstream and in upstream direction.
- 2) Parameter should have default value (vendor specific).

Appendix B: General Rules, Procedures and Naming Conventions for Migrating from ADSL to ADSL2 Management Model

The management model specified by this Technical Report is applicable for all flavours of including earlier ADSL technologies replacing the framework specified by Technical Report TR-005 ([7]). Network operators who have an already installed base with ADSL may wish to migrate to management model according to this Technical Report. To do so they should follow few general rules, procedures and conventions.

Technical Report TR-005 ([7]) and IETF RFC2662 ([10]) / RFC3440 ([11]) is assumed to be the basis for the current model. The next generation model is based on this Technical Report. This appendix serves as an implementation guide for upgrading to new products and services using next generation DSL technologies.

The appendix refers to the following:

- ❖ General Rules, how the mapping process has to work
- ❖ Profile Naming Convention to provide a consistent mapping of existing profiles as defined in RFC2662 into the template structure according to this Technical Report.

B.1. General Rules

- ❖ The mapping process should execute automatically. No additional manual intervention should be needed
- ❖ Two different procedures should be supported:
 1. Migrate all DSL ports
 2. Migrate only ports that are hardware-ready to support next generation DSL
- ❖ Configured parameter values must remain the same after the mapping process

B.2. Profile Naming Convention

The following naming convention for the Line Configuration Template, for the Line Spectrum Profile and for the Line Service Profile should be used.

The profile name length should not exceed 32 ASCII characters. See IETF RFC2662 ([10]) / RFC3440 ([11]) for more details.

B.2.1 Line Configuration Template

Profile name: **nnnLPaaaCH1bbbCH2cccRdddeeeeeee**

nnn	template number (000 – 999)
LP	line service profile
aaa	line service profile number (0-999) with leading zeros
CH1	line spectrum profile for fast channel
bbb	spectrum profile number (1-999) for fast channel with leading zeros (all 0's if unused)
CH2	line spectrum profile for interleaved channel
ccc	profile number (1-999) with leading zeros (all 0's if unused)
R	rate adaptation ratio
ddd	configured rate adaptation ratio in percentage with leading zeros (999 if unused)
eeeeeee	operator specific

B.2.2 Line Service Profile

Profile name: **DlaaaaaHbbbbULccccHdddLDeUfgggDL**

DL	Minimum downstream rate
aaaaa	Configured minimum downstream rate in kbps with leading zeros
H	Maximum downstream rate
bbbb	Configured maximum downstream rate in kbps with leading zeros
UL	Minimum upstream rate
cccc	Configured minimum upstream rate in kbps with leading zeros
H	Maximum upstream rate
dddd	Configured maximum upstream rate in kbps with leading zeros
LD	Latency downstream
e	Latency path used: L=interleaved Low; H=interleaved High; F=fast
U	Latency upstream
f	Latency path used: L=interleaved Low; H=interleaved High; F=fast
ggg	Running profile number (0-999)

B.2.3 Line Spectrum Profile

Profile name: **LCaaaaaaaaMDbbbUcccTDdddUeeefff**

LC	LineTransAtucConfig (refer to IETF RFC3440)
aaaaaaaa	configured mode with leading zeros (refer to IETF RFC3440, only Full rate mode is considered)
MD	Minimum Noise Margin downstream
bbb	Configured Margin Value in 0.1 dB steps, with leading zeros (e.g. 001 means 0.1 dB)
U	Minimum Noise Margin upstream
ccc	Configured Margin Value in 0.1 dB steps, with leading zeros (e.g. 001 means 0.1 dB)
TD	Target Noise Margin downstream
ddd	Configured Margin Value in 0.1 dB steps, with leading zeros (e.g. 001 means 0.1 dB)
U	Target Noise Margin upstream
eee	Configured Margin Value in 0.1 dB steps, with leading zeros (e.g. 001 means 0.1 dB)
fff	Running profile number (1-999)