

TR-114

VDSL2 Performance Test Plan

Issue: 3 Amendment 1
Issue Date: May 2017

Notice

The Broadband Forum is a non-profit corporation organized to create guidelines for broadband network system development and deployment. This Technical Report has been approved by members of the Forum. This Technical Report is subject to change. This Technical Report is copyrighted by the Broadband Forum, and all rights are reserved. Portions of this Technical Report may be copyrighted by Broadband Forum members.

Intellectual Property

Recipients of this Technical Report are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of this Technical Report, or use of any software code normatively referenced in this Technical Report, and to provide supporting documentation.

Terms of Use

1. License

Broadband Forum hereby grants you the right, without charge, on a perpetual, non-exclusive and worldwide basis, to utilize the Technical Report for the purpose of developing, making, having made, using, marketing, importing, offering to sell or license, and selling or licensing, and to otherwise distribute, products complying with the Technical Report, in all cases subject to the conditions set forth in this notice and any relevant patent and other intellectual property rights of third parties (which may include members of Broadband Forum). This license grant does not include the right to sublicense, modify or create derivative works based upon the Technical Report except to the extent this Technical Report includes text implementable in computer code, in which case your right under this License to create and modify derivative works is limited to modifying and creating derivative works of such code. For the avoidance of doubt, except as qualified by the preceding sentence, products implementing this Technical Report are not deemed to be derivative works of the Technical Report.

2. NO WARRANTIES

THIS TECHNICAL REPORT IS BEING OFFERED WITHOUT ANY WARRANTY WHATSOEVER, AND IN PARTICULAR, ANY WARRANTY OF NONINFRINGEMENT IS EXPRESSLY DISCLAIMED. ANY USE OF THIS TECHNICAL REPORT SHALL BE MADE ENTIRELY AT THE IMPLEMENTER'S OWN RISK, AND NEITHER THE BROADBAND FORUM, NOR ANY OF ITS MEMBERS OR SUBMITTERS, SHALL HAVE ANY LIABILITY WHATSOEVER TO ANY IMPLEMENTER OR THIRD PARTY FOR ANY DAMAGES OF ANY NATURE WHATSOEVER, DIRECTLY OR INDIRECTLY, ARISING FROM THE USE OF THIS TECHNICAL REPORT.

3. THIRD PARTY RIGHTS

Without limiting the generality of Section 2 above, BROADBAND FORUM ASSUMES NO RESPONSIBILITY TO COMPILE, CONFIRM, UPDATE OR MAKE PUBLIC ANY THIRD PARTY ASSERTIONS OF PATENT OR OTHER INTELLECTUAL PROPERTY RIGHTS THAT MIGHT NOW OR IN THE FUTURE BE INFRINGED BY AN IMPLEMENTATION OF THE TECHNICAL REPORT IN ITS CURRENT, OR IN ANY FUTURE FORM. IF ANY SUCH RIGHTS ARE DESCRIBED ON THE TECHNICAL REPORT, BROADBAND FORUM TAKES NO POSITION AS TO THE VALIDITY OR

INVALIDITY OF SUCH ASSERTIONS, OR THAT ALL SUCH ASSERTIONS THAT HAVE OR MAY BE MADE ARE SO LISTED.

The text of this notice must be included in all copies of this Technical Report.

TR Issue History

Issue Number	Approval Date	Publication Date	Issue Editor	Changes
1	November 2009	November 2009	Arlynn Wilson, ADTRAN	Original
2	26 November 2012	17 December 2012	Aleksandra Kozarev, Lantiq	See Executive Summary
3	13 March 2017	1 May 2017	Aleksandra Kozarev, Intel	See Executive Summary
3 Amendment 1	8 May 2017	9 June 2017	Aleksandra Kozarev, Intel	See Executive Summary

Comments or questions about this Broadband Forum Technical Report should be directed to help@broadband-forum.org.

Editor Aleksandra Kozarev Intel

Physical Layer Transmission Work Area Les Brown Huawei Technologies

Project Stream Leaders Lincoln Lavoie UNH-IOL
Aleksandra Kozarev Intel

TABLE OF CONTENTS

EXECUTIVE SUMMARY	6
1 PURPOSE AND SCOPE	7
1.1 PURPOSE	7
1.2 SCOPE	7
2 REFERENCES AND TERMINOLOGY	8
2.1 CONVENTIONS.....	8
2.2 REFERENCES	8
2.3 DEFINITIONS	9
2.4 ABBREVIATIONS.....	9
3 TECHNICAL REPORT IMPACT.....	10
3.1 ENERGY EFFICIENCY.....	10
3.2 SECURITY.....	10
3.3 PRIVACY	10
4 UPDATE TO SECTION B.1.1 PASS/FAIL CRITERIA FOR ANNEX B TESTING	11
5 UPDATE TO SECTION B.15.2 RATE ADAPTIVE PERFORMANCE TESTS FOR BA17ADE WITH DPBO AND UPBO, RETRANSMISSION ENABLED.....	12

List of Figures

No table of figures entries found.

List of Tables

No table of figures entries found.

Executive Summary

See *Executive Summary/TR-114 Issue 3*.

Content of TR-114 Issue 3 Amendment 1 is as follows:

1. Update to SECTION B.1.1 in TR-114 Issue 3
2. Update to SECTION B.15.2 in TR-114 Issue 3

1 Purpose and Scope

1.1 Purpose

See *Purpose/TR-114 Issue 3*.

1.2 Scope

See *Scope/TR-114 Issue 3*.

Performance tests applicable to BA17ade_D&UPBO band profile, retransmission enabled Class 2 implementations.

2 References and Terminology

2.1 Conventions

In this Technical Report, several words are used to signify the requirements of the specification. These words are always capitalized. More information can be found in RFC 2119 [2].

SHALL	This word, or the term “REQUIRED”, means that the definition is an absolute requirement of the specification.
SHALL NOT	This phrase means that the definition is an absolute prohibition of the specification.
SHOULD	This word, or the adjective “RECOMMENDED”, means that there could exist valid reasons in particular circumstances to ignore this item, but the full implications need to be understood and carefully weighed before choosing a different course.
SHOULD NOT	This phrase, or the phrase "NOT RECOMMENDED" means that there could exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications need to be understood and the case carefully weighed before implementing any behavior described with this label.
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 SHALL be prepared to inter-operate with another implementation that does include the option.

2.2 References

The following references are of relevance to this Technical Report. At the time of publication, the editions indicated were valid. All 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 references listed below.

A list of currently valid Broadband Forum Technical Reports is published at

www.broadband-forum.org.

See *References/TR-115i3*.

Document	Title	Source	Year
[1] TR-114 Issue 3	<i>VDSL2 Performance Test Plan</i>	BBF	2017
[2] RFC 2119	<i>Key words for use in RFCs to Indicate Requirement Levels</i>	IETF	1997

2.3 Definitions

See *Definitions/TR-114 Issue 3*.

2.4 Abbreviations

See *Abbreviations/TR-114 Issue 3*.

3 Technical Report Impact

3.1 Energy Efficiency

TR-114 Issue 3 Amendment 1 has no impact on Energy Efficiency.

3.2 Security

TR-114 Issue 3 Amendment 1 has no impact on Security.

3.3 Privacy

Any issues regarding privacy are not affected by TR-114 Issue 3 Amendment 1.

4 UPDATE TO SECTION B.1.1 Pass/fail criteria for Annex B testing

In section B.1.1 in TR-114 Issue 3 modify Table 70 (Data rate pass/fail requirements for rate adaptive testing) as follows:

Table 70: Data rate pass/fail requirements for rate adaptive testing

Section number	Number of test cases	10% limit
B.3	20	2
B.5	20	2
B.6	16	2
B.7	16	2
B.9	16	2
B.15.1	10	1
<u>B.15.2 (Class 2)</u>	<u>10</u>	<u>1</u>
Section number	Number of test cases (per table)	10% limit (per table)
B.4	6	1
B.8	6	1

5 UPDATE TO SECTION B.15.2 Rate adaptive performance tests for BA17ade with DPBO and UPBO, retransmission enabled

Modify section B.15.2 in TR-114 Issue 3 as follows:

B.15.2 Rate adaptive performance tests for BA17ade with DPBO and UPBO, retransmission enabled

The tests with retransmission-enabled profiles are designed to be passed by implementations with a MAXDELAYOCTET-split parameter (MDOSPLIT) set to 80%.

Table 120: Class 1 Performance tests with BA17ade_D&UPBO_RA_R-17/2/41_150_150 is for further study.

Table 121: Class 2 Performance tests with BA17ade_D&UPBO_RA_R-17/2/41_150_150 is for further study.

10 individual tests – 9 SHALL be passed

Table 121: Class 2 Performance tests with BA17ade D&UPBO RA R-17/2/41 150 150

<u>Loop Length (m, TP100 loop)</u>	<u>BA17ade D&UPBO RA R-17/2/41 150 150</u>									
	<u>Downstream</u>					<u>Upstream</u>				
	<u>Actual net data rate (kbps)</u>			<u>Actual data rate (ETR) (kbps)</u>	<u>Noise Margin, Reported (dB)</u>	<u>Actual net data rate (kbps)</u>			<u>Actual data rate (ETR) (kbps)</u>	<u>Noise Margin, Reported (dB)</u>
	<u>Expected</u>	<u>Measured</u>	<u>Pass/Fail</u>			<u>Expected</u>	<u>Measured</u>	<u>Pass/Fail</u>		
<u>150</u>	<u>58700</u>					<u>20200</u>				
<u>450</u>	<u>44700</u>					<u>15400</u>				
<u>1050</u>	<u>25600</u>					<u>6000</u>				
<u>1200</u>	<u>22200</u>					<u>4900</u>				
<u>1500</u>	<u>15000</u>					<u>2500</u>				

End of Broadband Forum Technical Report TR-114