TECHNICAL REPORT

TR-115
VDSL2 Functionality Test Plan

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Issue History

Issue Number	Issue Date	Issue Editor	Changes
1 Corrigendum 1	March 2010	Michael Hanrahan, Huawei Technologies	Corrigenda items for TR-115 Issue 1

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Executive Summary

The document contains corrections to TR-115 Issue 1.

1 Purpose

1.1 Purpose

The corrections specified in the following sections apply to TR-115 Issue 1.

2 Correction to Section 2.3/TR-115, *Definitions*

2.1 Change definition for F_{max} as indicated:-

F_{max}	The ~~lower~~ higher of the ~~lowest~~ highest passband frequency in the upstream and downstream directions for the Limit PSD masks selected.

2.2 Add new definition for Ethernet Frame Size

As per Section 5 add the following definition:

Ethernet Frame Size	Size of the Ethernet frame including the CRC Checksum. See Section 3.5/RFC 1242.

3 Correction to Table 5/TR-115

Update **Table 5/TR-115** as follows

Table 5 - Common Line Settings for BA8c_D&UPBO Band Profile

Parameter	Setting	Description
All parameters but those specified below	Value as specified in Table 2	
DPBOEPSD	ADSL2plus Annex A	PSD mask that is assumed to be permitted at the exchange
DPBOESEL	27dB@1MHz	E-side electrical length
DPBOESCMA	0.1719~~0.4218~~	Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (NOTE)
DPBOESCMB	0.644453~~0.8136~~	Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (NOTE)
DPBOESCMC	0.18359~~0.4417~~	Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (NOTE)
DPBOMUS	-101.5 dBm/Hz	Minimum usable receive signal PSD mask
DPBOFMIN	138 kHz	Minimum frequency from which on the DPBO SHALL be applied
DPBOFMAX	2208 kHz	Maximum frequency up to which the DPBO SHALL be applied
UPBOKLF	0	Force CO-MIB electrical loop length (means that kl_0 is estimated during training)
UPBOKL	estimated during training	Upstream electrical loop length (kl_0)
NOTE: the values of DPBOESCMA, B and C are referred to a PE 0.4mm loop @ 1 MHz. Values that are configured according to G.997.1 SHALL be rounded to the nearest scalar value.		

4 Correction to Table 16/TR-115

Reference is made in TR-115 to low and high delay profiles. These are not defined in TR-115.

In Table 16/TR-115, *Capabilities of Impulse Noise Protection,* the high delay profile does not exist.

Update **TC(2)** in **Table 16/TR-115** as follows:

Test Configuration	(1) See Section 4.1 for the test configuration depending on the customer interface of the modem. (2) According to the band-profile to be tested, configure the VTU-O with one of the ~~high-delay~~ profile line combinations using the general line setting I-8/2 or I-16/2 associated to that band profile (see section 4.2.3). If for the specific band-profile, profile-line combination is defined with DPBO and/or UPBO enabled, these SHALL be applied. ~~The initial setting for DS and US INP_min SHALL be 2 symbols.~~ (3) Set up the loop simulator for 2700 ft 26AWG cable or 900 m PE 0.4mm cable, with white noise of -140dBm/Hz injected at both the VTU-O and VTU-R ends.

5 Correction to Table 17/TR-115

Clarify frame size to implicitly include the CRC.

Update **MOP(4)** in **Table 17/TR-115** as follows:

Method of Procedure	(1) Inject -110dBm/Hz white noise disturber at the VTU-O end of the loop. (2) Train the modems using test profiles. (3) Wait for 1 minute after initialization. (4) Run Section 26.2/RFC2544 delay test using traffic analyzer in both channels, use Ethernet frame size of ~~1514~~ 1518 bytes. Record the result; Delay1 for channel_1 and Delay2 for channel_2. (5) Inject 15 impulses of 200us duration， a level of -90dBm/Hz differential mode and interval of 1 second at VTU-O end of the loop. Each impulse SHALL be a “burst of pseudorandom AWGN”. (6) Record the number of errored seconds reported. (7) Test the VTU-R modem by repeating the steps above, injecting the white noise and impulses at the customer end of the loop

6 Correction to Table 18/TR-115

In Table 18/TR-115, *Bitswap Test,* the low and high delay profiles do not exist.

Update **TC(3)** in **Table 18/TR-115** as follows:

Test Configuration	(1) See Section 4.1 for the test configuration. (2) Set up the loop simulator to: a. 1350 ft 26AWG or b. 450 m PE 0.4mm (3) According to the band-profile to be tested, configure the VTU-O with one of the profile line combinations associated to that band-profile (see section 4.2.3). If for the specific band-profile, profile-line combination is defined with DPBO and/or UPBO enabled, these SHALL be applied. The test SHALL be repeated for both the ~~low and high delay~~ F-1/0 and I-8/2 settings. (4) All single frequency tone amplitudes that are applied are referenced in terms of power levels (dBm) at the injection point on the loop, calibrated with the VTU-R and VTU-O modems replaced with calibrated 100 Ohm ±1% resistors. Measurements performed into a 1kHz resolution bandwidth. Note that with a 1kHz resolution bandwidth the power spectral density value (in dBm/Hz) will be 30dB less than the power level (in dBm), limited by the noise floor of the test equipment used for calibration.

7 Correction to Table 34/TR-115

Replace comma at end of **ER(2)** in **Table 34/TR-115** with a period.

Expected Result	(1) LCL ≥38 dB in the frequency band up to 12 MHz. (2) LCL ≥ 38 dB – 20 $\log_{10}(f_{[MHz]}/12)$ for 12 MHz < f < Fmax~~,~~.

8 Correction to Table 45/TR-115

There is a discrepancy between statements in MOP(5) and ER(5) in Table 45/TR-115 (SES test).

The Method of Procedure requires 16 micro-interruption events, while the Expected Result accounts for 15 micro-interruption events. These shall be aligned by modifying the number of micro-interruptions in the Method of Procedure.

Update **MOP(5)** in **Table 45/TR-115** as follows:

Method of Procedure	(1) Connect VTU-R and VTU-O with 0 length loop and no noise injected. (2) Wait 1 minute following synchronization. (3) Note down the initial value of the SES-L, SES-LFE, UAS-L and UAS-LFE performance monitoring counters at the VTU-O and the initial value of the SES-L and UAS-L counters at the VTU-R. (4) Force one 330ms "micro-interruption" every 1s for 2 seconds (a total of 2 micro-interruptions) (5) Repeat previous event ~~15~~ 14 times (~~15~~ 14 x 2 micro-interruption) with 10s between each event. (6) Force performance monitoring counters update and wait 30 seconds for the counters to be read out. (7) Note down the value of the counter SES-L and UAS-L at the VTU-R. Note down the value of the counters SES-L and SES-LFE, and UAS-L and UAS-LFE at the VTU-O. (8) Calculate the increase of these counters between step 6 and step 3.

End of Broadband Forum Technical Report TR-115