broadband forum

TECHNICAL REPORT

# TR-114
## VDSL2 Performance Test Plan

**Issue: 1 Corrigendum 1**
**Issue Date: March 2010**

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**Issue History**

| Issue Number | Issue Date | Issue Editor | Changes |
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| 1 Corrigendum 1 | March 2010 | Aleksandra Kozarev, Lantiq | Corrigenda items for TR-114 Issue 1 |

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| | | |
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**Table of Contents**



  

**Executive Summary**

The document contains corrections to TR-114 Issue 1.

# 1 Purpose

## 1.1 Purpose

The corrections specified in the following sections apply to TR-114 Issue 1.

## 2 Correction to Section 8 Physical Layer Test Cases

Delete Section 8.4 Verification of downstream fine gains.

# 3 Corrections to DPBO Configuration Parameters for BA8c

Downstream power back-off configuration parameters E-side electrical length (DPBOESEL) and E-side cable model (DPBOESCMA, DPBOESCMB and DPBOESCMC) for BA8c_D&UPBO band-profile REIN testing, SHINE testing and combined threat testing shall be referenced at 1 MHz instead of 300 kHz.

## 3.1 Corrections to Table 95

Update Table 95 as follows:

**Table 95: Common Line Settings for BA8c_D&UPBO Band Profile REIN Testing**

| Parameter | Setting | Description |
|---|---|---|
| All parameters but those specified below | Value as specified in Table 11 | |
| DPBOEPSD | ADSL2plus Annex A | PSD mask that is assumed to be permitted at the exchange |
| DPBOESEL | 27dB@1MHz | E-side electrical length |
| ~~DPBOESCMA~~ | ~~0.421875~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (f^0) - G.997.1 form = 364~~ |
| ~~DPBOESCMB~~ | ~~0.8125~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (f^0.5) - G.997.1 form = 464~~ |
| ~~DPBOESCMC~~ | ~~0.441406~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (f) - G.997.1 form = 369~~ |
| ~~DPBOMUS~~ | ~~-101.5 dBm/Hz~~ | ~~Minimum usable receive PSD mask~~ |
| DPBOESCMA | ~~0.4218~~0.1719 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (f^0) |
| DPBOESCMB | ~~0.8136~~0.644453 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (f^0.5) |
| DPBOESCMC | ~~0.4417~~0.18359 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (f) |
| DPBOMUS | -101.5 dBm/Hz | Minimum usable receive signal PSD |
| 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 ($kl_0$) |
| UPBOA US0 | 40.00 | A and B values US band 0 (these values imply no UPBO) |
| UPBOB US0 | 0 | |
| UPBOA US1 | 60 | A value US band 1 |
| UPBOB US1 | 17 | B value US band 1 |

NOTE: the values of DPBOESCMA, B and C are referred to a PE 0.4mm loop @ ~~300kHz~~1 MHz. Values that are configured according to G.997.1 SHALL be rounded to the nearest scalar value.

### 3.2 Corrections to Table 104

Update Table 104 as follows:

**Table 104: Common line settings for BA8c_D&UPBO band-profile SHINE testing**

| Parameter | Setting | Description |
|---|---|---|
| All parameters but those specified below | Value as specified in Table 11 | |
| DPBOEPSD | ADSL2plus Annex A | PSD mask that is assumed to be permitted at the exchange |
| DPBOESEL | 27dB@1MHz | E-side electrical length |
| ~~DPBOESCMA~~ | ~~0.421875~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (f^0) - G.997.1 form = 364~~ |
| ~~DPBOESCMB~~ | ~~0.8125~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (f^0.5) - G.997.1 form = 464~~ |
| ~~DPBOESCMC~~ | ~~0.441406~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (f) - G.997.1 form = 369~~ |
| ~~DPBOMUS~~ | ~~-101.5 dBm/Hz~~ | ~~Minimum usable receive PSD mask~~ |
| DPBOESCMA | ~~0.4218~~0.1719 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (f^0) |
| DPBOESCMB | ~~0.8136~~0.644453 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (f^0.5) |
| DPBOESCMC | ~~0.4417~~0.18359 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (f) |
| DPBOMUS | -101.5 dBm/Hz | Minimum usable receive signal PSD |
| 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 ($kl_0$) |
| UPBOA US0 | 40.00 | A and B values US band 0 (these values imply no UPBO) |
| UPBOB US0 | 0 | |
| UPBOA US1 | 60 | A value US band 1 |
| UPBOB US1 | 17 | B value US band 1 |
| NOTE: the values of DPBOESCMA, B and C are referred to a PE 0.4mm loop @ ~~300kHz~~1 MHz. Values that are configured according to G.997.1 SHALL be rounded to the nearest scalar value. | | |

### 3.3 Corrections to Table 113

Update Table 113 as follows:

**Table 113: Common line setting for BA8c_D&UPBO band-profile combined threat testing**

| Parameter | Setting | Description |
|---|---|---|
| All parameters but those specified below | Value as specified in Table 11 | |
| DPBOEPSD | ADSL2plus Annex A | PSD mask that is assumed to be permitted at the exchange |
| DPBOESEL | ~~24dB@300kHz~~ 42dB@1MHz | E-side electrical length |
| ~~DPBOESCMA~~ | ~~0.421875~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (f^0) - G.997.1 form = 364~~ |
| ~~DPBOESCMB~~ | ~~0.8125~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (f^0.5) - G.997.1 form = 464~~ |
| ~~DPBOESCMC~~ | ~~0.441406~~ | ~~Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (f) - G.997.1 form = 369~~ |
| ~~DPBOMUS~~ | ~~-101.5 dBm/Hz~~ | ~~Minimum usable receive PSD mask~~ |
| DPBOESCMA | ~~0.4218~~0.1719 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMA (f^0) |
| DPBOESCMB | ~~0.8136~~0.644453 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMB (f^0.5) |
| DPBOESCMC | ~~0.4417~~0.18359 | Model of the frequency dependent loss of E-side cable: scalars DPBOESCMC (f) |
| DPBOMUS | -101.5 dBm/Hz | Minimum usable receive signal PSD |
| 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 ($kl_0$) |
| UPBOA US0 | 40.00 | A and B values US band 0 (these values imply no UPBO) |
| UPBOB US0 | 0 | |
| UPBOA US1 | 60 | A value US band 1 |
| UPBOB US1 | 17 | B value US band 1 |
| NOTE: the values of DPBOESCMA, B and C are referred to a PE 0.4mm loop @ ~~300kHz~~1 MHz. Values that are configured according to G.997.1 SHALL be rounded to the nearest scalar value. | | |

# 4 Correction to Table 50 (REIN test for AA8d)

In the Expected Test Result in Table 50, the pass/fail criteria shall be based on the reported number of downstream errored seconds (ES) recorded in the Method of Procedure, step 4.

Update Table 50 as follows:

**Table 50: REIN testing for AA8d**

| | |
|---|---|
| **Test Configuration** | 1. Configure the SUT in AA8d_RA_I_096_056 profile-line combination, with the UPBO settings from Table 36.<br>2. The DSLAM and CPE are connected in turn through 26 AWG straight loops: 1200ft and 4000ft.<br>3. The crosstalk noise impairment as defined for the rate adaptive tests (Table 46) shall be applied at both DSLAM and CPE.<br>4. The REIN noise impairment shall be applied at the CPE in addition to the crosstalk noise.<br>5. Additional test conditions: optional OLR functionality (SRA, SOS) SHALL NOT be used |
| **Method of Procedure** | For each INP_min setting, do the following steps:<br>1. Inject the crosstalk impairment and let the system train.<br>2. Wait for 3 minutes for bitswaps to settle.<br>3. Record the net data rate and reported noise margin.<br>4. Apply the REIN impairment for 2 minutes and record the number of ES.<br>5. Record the net data rate and reported noise margin. |
| **Expected Test Result** | For each loop distance the :<br>~~1. R~~reported number of downstream ~~code violations~~ES SHALL be ≤ 2 per minute |

# 5 Corrections to the Margin Verification Tables 89, 92 and 94

Anticipated net data rates in table 89, 92 and 94 shall be aligned with the performance objectives for the following profile-line combinations:

- BA8b_RA_F_150_150 (Table 57)
- BA12a_RA_F_ 150_150 (Table 59)
- BA17a_D&UPBO_RA_F_150_150 (Table 73)

## 5.1 Corrections to Table 89

Update Table 89 as follows:

**Table 89**: **Downstream Margin verification for VDSL2oPOTS (0.4mm PE)**

| Profile-line combination | Length (m) | Crosstalk | DS net data rate (kbps) | | Test Time (minutes) | SES Count | CRC Count | Estimated BER | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | | Anticipated | Achieved (test start) (test end) | | | | | |
| BA8b_RA_F_150_150 | 300 | n_BA8b | ≥ 40712 | | 5 | | | | |
| | 1200 | | ≥ ~~1788~~017328 | | 5 | | | | |
| | 1800 | | ≥ 8380 | | 5 | | | | |
| BA8b_RA_I_150_150 | 300 | n_BA8b | ≥ 37928 | | 5 | | | | |
| | 1200 | | ≥ 16828 | | 5 | | | | |
| | 1800 | | ≥ 7792 | | 10 | | | | |
| BA12a_RA_F_150_150 | 150 | n_BA12a | ≥ 44728 | | 5 | | | | |
| | 1050 | | ≥ 20172 | | 5 | | | | |
| | 1500 | | ≥ ~~1355~~213096 | | 5 | | | | |
| BA12a_RA_I_150_150 | 150 | n_BA12a | ≥ 42696 | | 5 | | | | |
| | 1050 | | ≥ 19956 | | 5 | | | | |
| | 1500 | | ≥ 12584 | | 10 | | | | |
| BA17a_RA_F_150_150 | 150 | n_BA17a | ≥ 54892 | | 5 | | | | |
| | 450 | | ≥ 38712 | | 5 | | | | |
| | 900 | | ≥ 23960 | | 5 | | | | |
| BA17a_RA_I_150_150 | 150 | n_BA17a | ≥ 53256 | | 5 | | | | |
| | 450 | | ≥ 39144 | | 5 | | | | |
| | 900 | | ≥ 23360 | | 5 | | | | |
| BA17a_D&UPBO_RA_F_150_150 | 150 | n_BA17a_D&UPBO | ≥ 51336 | | 5 | | | | |
| | 450 | | ≥ ~~3934~~837744 | | 5 | | | | |
| | 900 | | ≥ 19700 | | 5 | | | | |
| BA17a_D&UPBO_RA_I_150_150 | 150 | n_BA17a_D&UPBO | ≥ 51728 | | 5 | | | | |
| | 450 | | ≥ 37924 | | 5 | | | | |
| | 900 | | ≥ 18828 | | 5 | | | | |

## 5.2 Correction to Table 92

Update Table 92 as follows:

**Table 92: Upstream margin verification for VDSL2oPOTS (0.4mm PE)**

| Profile-line combination | Length (m) | Crosstalk | US net data rate (kbps) | | Test Time (minutes) | SES Count | CRC Count | Estimated BER | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | | Anticipated | Achieved (test start) (test end) | | | | | |
| BA8b_RA_F_150_150 | 300 | n_BA8b | ≥ 8292 | | 5 | | | | |
| | 750 | | ≥ 5760 | | 5 | | | | |
| | 1200 | | ≥ 328 | | 40 (note 3) | | | | |
| BA8b_RA_I_150_150 | 300 | n_BA8b | ≥ 7888 | | 10 | | | | |
| | 750 | | ≥ 5792 | | 15 | | | | |
| | 1200 | | ≥ 368 | | 55 (note 2) | | | | |
| BA12a_RA_F_150_150 | 150 | n_BA12a | ≥ 23056 | | 5 | | | | |
| | 1050 | | ≥ ~~2412~~2184 | | 15 | | | | |
| | 1500 | | ≥ 640 | | 40 | | | | |
| BA12a_RA_I_150_150 | 150 | n_BA12a | ≥ 21112 | | 5 | | | | |
| | 1050 | | ≥ 2216 | | 35 | | | | |
| | 1500 | | ≥ 632 | | 55 (note 3) | | | | |
| BA17a_RA_F_150_150 | 150 | n_BA17a | ≥ 28728 | | 5 | | | | |
| | 450 | | ≥ 19536 | | 5 | | | | |
| | 900 | | ≥ 3560 | | 10 | | | | |
| BA17a_RA_I_150_150 | 150 | n_BA17a | ≥ 26724 | | 5 | | | | |
| | 450 | | ≥ 19020 | | 5 | | | | |
| | 900 | | ≥ 3688 | | 20 | | | | |
| BA17a_D&UPBO_RA_F_150_150 | 150 | n_BA17a_D&UPBO | ≥ 19596 | | 5 | | | | |
| | 450 | | ≥ 16172 | | 5 | | | | |
| | 900 | | ≥ 3968 | | 10 | | | | |
| BA17a_D&UPBO_RA_I_150_150 | 150 | n_BA17a_D&UPBO | ≥ 20080 | | 5 | | | | |
| | 450 | | ≥ 15748 | | 5 | | | | |
| | 900 | | ≥ 4184 | | 20 | | | | |

### 5.3 Corrections to Table 94

Update Table 94 as follows:

**Table 94: Upstream Margin Verification for VDSL2oISDN (0.4mm PE)**

| Profile-line combination | Length (m) | Crosstalk | US net data rate (kbps) | | Test Time (minutes) | SES Count | CRC Count | Estimated BER | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|
| | | | Anticipated | Achieved (test start) (test end) | | | | | |
| BB8b_RA_F_150_150 | 300 | n_BB8b | ≥ ~~8832~~8616 | | 5 | | | | |
| | 750 | | ≥ 6208 | | 5 | | | | |
| | 1200 | | ≥ 616 | | 45 | | | | |
| BB8b_RA_I_150_150 | 300 | n_BB8b | ≥ 8284 | | 10 | | | | |
| | 750 | | ≥ 6128 | | 15 | | | | |
| | 1200 | | ≥ 600 | | 60 (note 5) | | | | |
| BB12a_RA_F_150_150 | 450 | n_BB12a | ≥ 15804 | | 5 | | | | |
| | 1050 | | ≥ ~~2320~~2088 | | 15 | | | | |
| | 1500 | | ≥ 652 | | 40 | | | | |
| BB12a_RA_I_150_150 | 450 | n_BB12a | ≥ 15316 | | 5 | | | | |
| | 1050 | | ≥ 2600 | | 30 | | | | |
| | 1500 | | ≥ 680 | | 50 (note 5) | | | | |
| BB17a_RA_F_150_150 | 450 | n_BB17a | ≥ 14644 | | 5 | | | | |
| | 1050 | | ≥ ~~2264~~2056 | | 15 | | | | |
| | 1500 | | ≥ 648 | | 40 | | | | |
| BB17a_RA_I_150_150 | 450 | n_BB17a | ≥ 14228 | | 5 | | | | |
| | 1050 | | ≥ 2536 | | 30 | | | | |
| | 1500 | | ≥ 684 | | 50 (note 5) | | | | |
| BB17a_D&UPBO_RA_F_150_150 | 150 | n_BB17a_D&UPBO | ≥ 16668 | | 5 | | | | |
| | 1050 | | ≥ ~~2800~~2584 | | 10 | | | | |
| | 1500 | | ≥ 772 | | 35 | | | | |
| BB17a_D&UPBO_RA_I_150_150 | 150 | n_BB17a_D&UPBO | ≥ 16152 | | 5 | | | | |
| | 1050 | | ≥ 3016 | | 25 | | | | |
| | 1500 | | ≥ 756 | | 45 (note 5) | | | | |

# 6 Corrections to Table 116 and 118

Target margin values in tables 116 and 118 in section B.16/TR-114 are not captured correctly.

## 6.1 Corrections to Table 116

Update Table 116 as follows:

**Table 116: Combined noise impairment 1, rate adaptive profile**

| Test profile BA8c_D&UPBO RA_HI_150_150 with INPmin 16, max delay = 32ms | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Measured | | | | | |
| loop length (m, TP100) | Target Margin D~~/~~S (dB) | Target Margin US (dB) | Modem trained and did not lose sync? (Y/N) | Expected DS sync rate | Expected US sync rate | DS sync rate (kbps) | Initial DS Noise Margin, (dB) | DS Errored Seconds | US sync rate (kbps) | Initial US Noise Margin, (dB) | Pass / Fail |
| 500 | ~~9~~6 | 6 | | 11000 | 4000 | | | | | | |
| 900 | 9 | 6 | | 6000 | 3500 | | | | | | |

## 6.2 Corrections to Table 118

Update Table 118 as follows:

**Table 118: Combined noise impairment 2, rate adaptive profile**

| Test profile BA8c_D&UPBO RA_HI_150_150 with INPmin 16, max delay = 32ms | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| loop length (m, TP100) | | | | | | Measured | | | | | | |
| | Target Margin DS (dB) | Target MarginUS (dB) | Modem trained and did not lose sync? (Y/N) | Expected DS sync rate | Expected US sync rate | DS sync rate (kbps) | Initial DS Noise Margin, (dB) | DS Errored Seconds | US sync rate (kbps) | Initial US Noise Margin, (dB) | Pass / Fail |
| 500 | 6 | 6 | | 11500 | 3500 | | | | | | |
| 900 | 6 | 6 | | 12000 | 3000 | | | | | | |

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