



**"Results You Can Count On"**

## **Model 4901-N17 TR-115 (Issue 1) Noise Module For the 4901 Multi-Output Noise Simulator**

### **Overview**

The Model 4901-N17 TR-115 Noise Module provides all the tests pertaining to noise generation found in Issue 1 of the TR-115 VDSL2 Functionality Test Plan. In addition, micro-interruption tests required in this standard may be controlled through this module.

The easy-to-use interface saves time and increases accuracy by eliminating the need for manual selections and follows the actual test plan as defined by the DSL Forum Test and Interoperability Work Group. The user is not required to interpret the standard as the Noise Module automatically sets up the specific tests needed. In addition, the Model 4901 can communicate with Telebyte's line of local loop simulators where applicable.

- The tests in this library require two 4901-AWGx cards and at least one 4901-D1-Micro Differential Mode Noise Injector for micro-interruptions.



## Model 4901-N17 TR-115 Noise Module List of Tests Included

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Standard Section	Test Case
<b>5.2 Impulse Noise Protection Test</b> (Table 16)	-140 dBm/Hz AWGN at VTU-O and VTU-R ends -110 dBm/Hz AWGN at VTU-O 15 Impulses 1 second apart -110 dBm/Hz AWGN at VTU-R
<b>5.3 Dual Latency Test</b> (Table 17)	-140 dBm/Hz AWGN at VTU-O and VTU-R ends -110 dBm/Hz AWGN at VTU-O 15 Impulses 1 second apart -110 dBm/Hz AWGN at VTU-R
<b>5.4.1 Bitswap Test</b> (Table 18)	-50 dBm/Hz random downstream tone -50 dBm/Hz random upstream tone
<b>5.4.2 Wideband Bitswap Test</b>	Table 20: Noise B-AWGN at VTU-O end Noise B-DS2 at VTU-R end a. BA17a_RA_I_150_150 for European VDSL2 over POTS b. BB17a_RA_I_150_150 for European VDSL2 over ISDN Table 21: Noise B-AWGN at VTU-R end Noise B-US2 at VTU-R end a. BA17a_RA_I_150_150 for European VDSL2 over POTS b. BB17a_RA_I_150_150 for European VDSL2 over ISDN
<b>5.4.3 Seamless Rate Adaptation Test</b> (Table 22)	-120 dBm/Hz AWGN at VTU-O and VTU-R ends
<b>5.4.4 SOS Test</b>	Table 23: -140 dBm/Hz AWGN at VTU-O and VTU-R ends Crosstalk added at VTU-R side for either of the following VDSL2 profile line combinations a. BA17a_RA_I_150_150 with 450 m 0.4mm (European VDSL2 over POTS) b. BB17a_RA_I_150_150 with 450 m of PE 0.4 mm (European VDSL2 over ISDN) Table 24: -140 dBm/Hz AWGN at VTU-O and VTU-R ends Crosstalk added at VTU-R side for either of the following VDSL2 profile line combinations a. BA17a_RA_I_150_150 with 450 m 0.4mm (European VDSL2 over POTS) b. BB17a_RA_I_150_150 with 450 m of PE 0.4 mm (European VDSL2 over ISDN)
<b>5.5 Loop Diagnostic Mode Test</b>	Table 25: -120 dBm/Hz AWGN at VTU-O and VTU-R ends Table 26: -120 dBm/Hz AWGN at VTU-O and VTU-R ends
<b>5.9 Virtual Noise Test</b>	Noise profile corresponds to VDSL2 systems operating using band profile BA8c Table 36: -140 dBm/Hz AWGN at VTU-O and VTU-R ends Table 5-37: -140 dBm/Hz at ATU-C and ATU-R ends
<b>Micro-Interruption Tests*</b>	
<b>6.1 64/65 Octet Encapsulation Far-End PTM-TC PTM-TC Performance Monitoring Test</b> (Table 37)	“micro-interruption” of 3 ms every 10 sec for 2.5 min
<b>7.6 Performance Monitoring Counters for Code Violations and Errored Seconds</b> (Tables 43 & 44)	“micro-interruption” of 3 ms every 10 sec for 2.5 min “micro-interruption” of duration reported in Step (4) of Table 44 every 10 sec for 2.5 min
<b>7.7 Performance Monitoring Counter for SES</b> (Table 45)	“micro-interruption” of 330 ms every 1 sec for 2 sec

\*Requires 4901-D1-Micro