

TEST PROCEDURE FOR POWERLINE RIPPLE DETECTORS

This is the test procedure to be used when verifying the operation of a Pearson Electronics Powerline Ripple Detector Model PRD-120 or PRD-240. When verifying the correct operation of a Powerline Ripple Detector, we make use of a calibrated HP4195A network/spectrum analyzer or any 3-port network/spectrum analyzer can be used

The transducer factor for all PRDs is tested in both the 'Flat' and 'CS101' mode twice during manufacturing. Connections are made as shown in Figure 1. All cables should be 50 Ω characteristic impedance coaxial cables. The Source/Signal port is connected to either the 'Power Source' or 'EUT' input port using an appropriate cable T-adaptor and banana adapter (newer PRDs can use either shrouded or un-shrouded banana plugs) and the output of the cable T-adaptor should connect to the reference port of the spectrum analyzer. 40 dB of attenuation is typically used to improve the signal strength of the T/R measurement. The 'Power Source/EUT' selector switch should be set to the input being used. The 'EMI Receiver' output of the PRD should connect to the Test port of the spectrum analyzer.

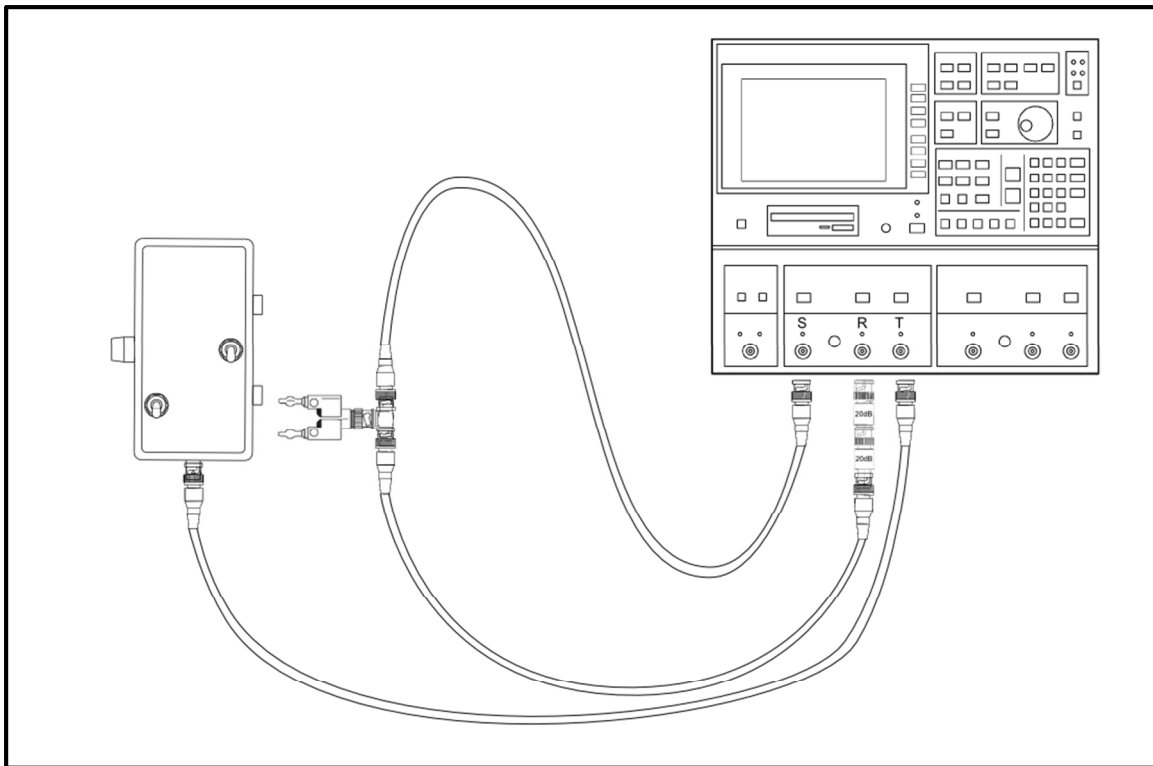


Figure 1 - PRD test configuration.

The Powerline Ripple Detector is designed for operation within the CS101 limits of 30 Hz – 150 kHz. The spectrum analyzer is used to perform a T/R of the PRD and verify the transducer factor of the unit, in both the 'Flat' and 'CS101' modes, throughout this frequency range. If attenuation is used on the spectrum analyzer reference port, the amount of attenuation used should be subtracted from the measured transducer factor to arrive at the correct value. Refer to the manual for the transducer factor and reference curves for a given model. When the 'Frequency Response' switch is in the 'Flat' position the measured response of the PRD should be flat between 30 Hz – 150 kHz. When the switch is in the 'CS101' position, the attenuation should decrease at 20 dB/decade above 5 kHz when viewed on a logarithmic scale.