



LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

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Advanced LIGO

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Test Procedure for the N-N Balun Isolation Transformer

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1 Overview

A balun isolation transformer blocks DC signals in an RF transmission line, [D1101077-v1](#). It is typically used to break ground loops between two remote rack locations. The test consists of measuring the transfer function of the DUT and verifying that the insertion loss is below a certain level.

2 Test Equipment

- Agilent network analyzer 4395A
- Power splitter, e.g., Mini-Circuits
- Coaxial cables

3 Testing

Measure a reference transfer function by using a barrel instead of the balun. Save both magnitude and phase.

Measure the transfer function of the balun and save both magnitude and phase.

Take the ratio between the two traces and determine the insertion loss and delay. Verify that

Test	Pass/Fail
Insertion loss between 200kHz and 100MHz is below 3dB	
Phase is $0^\circ \pm 5^\circ$ between 200kHz and 100MHz	