

## CBL Series Ruggedized Test Cable – Super Flex Testing (AN46-001)

Keywords: CBL Series, Flex Testing

### 1. Introduction:

Mini-Circuits CBL Series Test Cables are specifically designed and manufactured for use in stringent test lab environments where cables are often bent and twisted many times during normal use. This stress can ultimately result in catastrophic failure. It is however the degradation that can occur prior to total failure that is the real danger as this can result in erroneous measurements. To ensure performance in this environment, Mini-Circuits has qualified the CBL Series through extensive Flex Testing – up to 20,000 flex-cycles.

### 2. Qualification Testing – Flex Cycles

#### 2.1 Flex Test Setup

Figures 1 and 2 below show the Flex Test Setup used in assessing the qualification flex test of the CBL Series. This flex testing applies stringent stress in a unique manner, to the strain relief as well as the cable, addressing both points of potential failure.

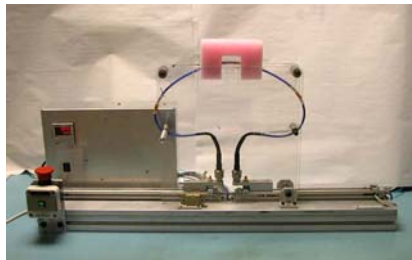


Figure 1 Flex Test Setup-Close

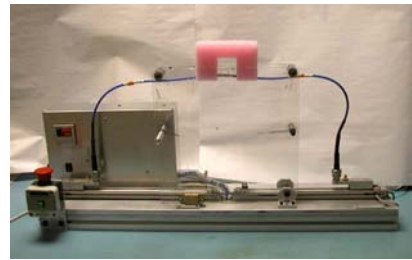


Figure 2 Flex Test Setup-Open

#### 2.2 Mini-Circuits Cable Test Data

Figure 3 below shows insertion loss taken after 1000, 1500, 2000, 3000, 4000, 5000, 7000, 10000, 15000, and 20000 bends and repeatable performance for return loss as shown below in Figures 4 & 5.

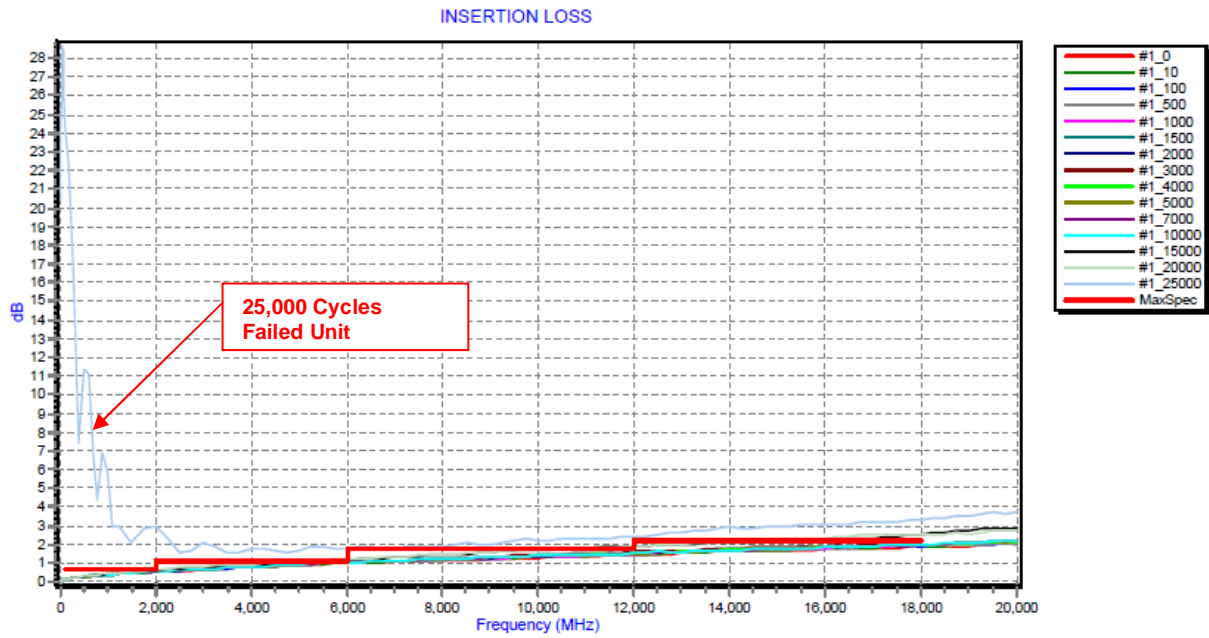


Figure 3 Insertion Loss

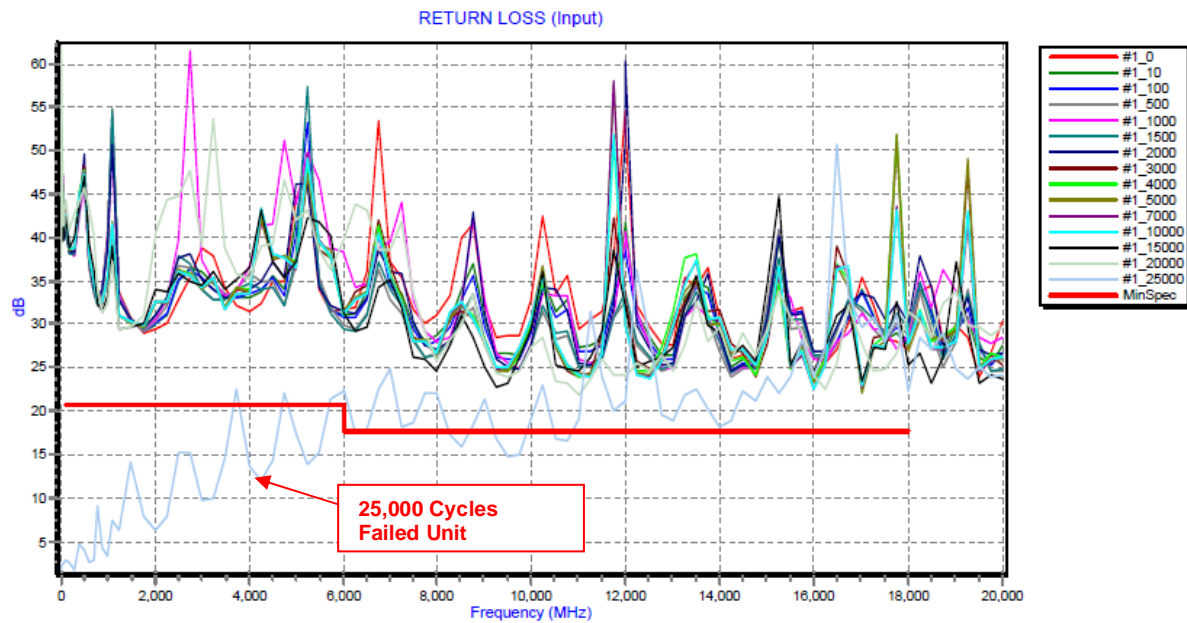


Figure 4 Return Loss-Input

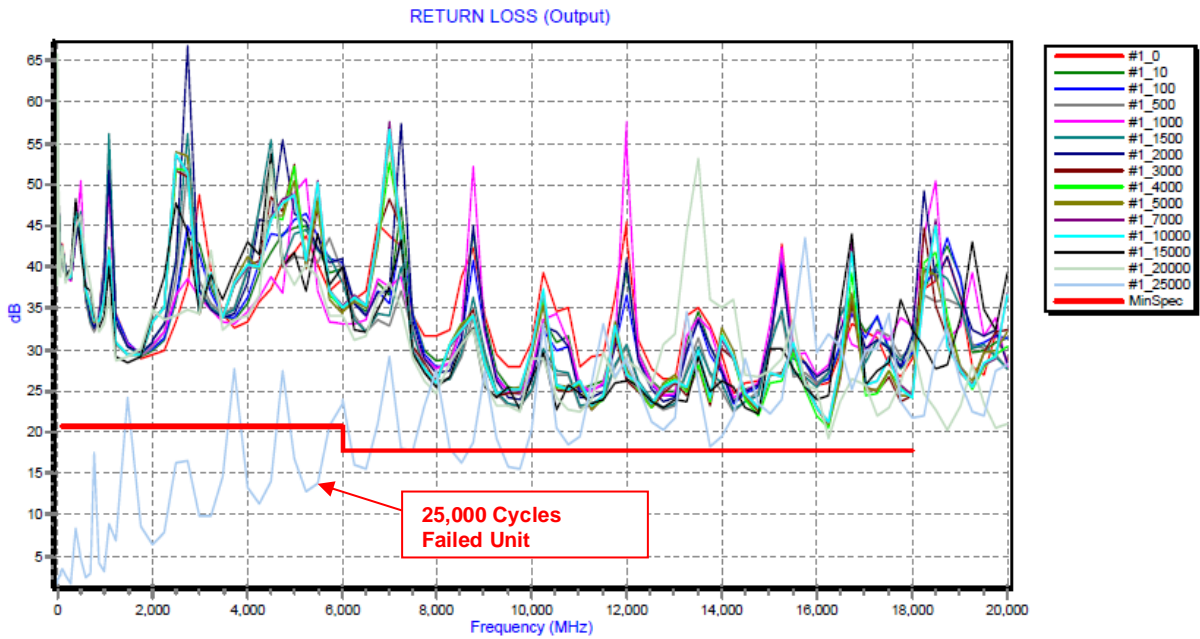


Figure 5 Return Loss-Output