

26D14875-A01 Cut Simulator Tool

The Cut Simulator Tool is used to perform testing of Southwest Microwave Inc. manufactured fence Perimeter Intrusion Detection Systems (PIDS). This tool simulates a cut attempt to the fence fabric by providing a mechanical impact to the fence without causing damage to the fence fabric. The impact is the result of an engineering study to create a repeatable signal level when used in a consistent manner. From our internal testing when the tool was developed, we compared the cut simulation tool to actual fence cuts using both an 8" (20cm) and 18" (46cm) bolt cutter monitored with an oscilloscope, a spectrum analyzer and the Site Manager software. The fence fabric was cut at the ground line 10 times with each tool. Then the cut simulation tool was used at the same location on the fence and adjusted to simulate the actual bolt cutters. These tests were performed many times to ensure the repeatability before the tool was released as a product.

The tool is meant to provide uniform testing throughout the perimeter no matter who is performing the test and reduce the variations in testing caused by inconsistent test methods such as hitting the fence with a screw driver, kicking the fence, tapping with some other object, etc. The impact is provided by the tool and is independent upon the size of the person doing the test. The calibration routine in the MicroPoint and MicroPoint II system is designed to reduce variations created by all the remaining variables, such as fence tension, fabric type, cable installation, corner posts, etc. The tool can be used for both functional and performance testing.

With over 15 years of field installations and 10+ million feet of the product installed in the field we found that this tool provides repeatable results on any type of chain link fence, weld mesh or expanded metal fence for our system. One of the reasons is due to the method used to achieve detection and calibration in our product meter by meter. Because of this, the type of fence and construction is taken into account in our initial calibration process. So for practical purposes we found it is not critical what these variables were as this was "leveled out" in the sensitivity results (calibration). In addition since we can adjust sensitivity, if needed, every meter and not just for the entire zone, as was done on older fence technologies, we were able to achieve, with different personal and different fences, repeatable results. Any small areas where we were not getting adequate detection results can be adjusted individually. This allows us to overcome any variations not compensated for in the calibration process. The end result is we can achieve uniform detection along the entire cable.

The Cut Simulator Tool consists of a stainless steel rod that is housed within a stainless steel tube along with a heavy-duty spring. A trigger device is mounted to the rod which has three settings: notch 1 simulates an 18 inch (46cm) bolt cutter, notch 2 simulates an 8 inch (20cm) bolt cutter and notch 3 simulates a gross attack. Locking the trigger into one of the three settings controls the spring tension. When the trigger is released, the spring forces the rod against the stainless steel end cap causing the impact to the fence fabric. The weight of the tool is 0.5 lbs.

For complete operating instructions, refer to the appropriate Testing Procedures available from Southwest Microwave, Inc.

