

# ACCELERATED LIFE CYCLE COMPARISON OF M-DISC™ ARCHIVAL DVD

## Background

The U.S. Department of Defense Naval Air Warfare Center Weapons Division (NAWCWD) facility at China Lake, California is interested in digitizing, permanently storing, and providing access to irreplaceable information. The goal is to make content easily accessible to researchers and permanently archive the information without the need to store it in environmentally controlled conditions. Millenniata's technology was of great interest because of the use of non-reactive data layers and backward compatibility to provide a stable, accessible, permanent storage solution.

The reported tests were run to ensure that the media would hold-up under the harshest environments over long periods of time. NAWCWD tested five different brands of archival-quality, dye-based recordable DVD discs and the Millenniata™ discs.

## Conclusions

"None of the Millenniata media suffered any data degradation at all. Every other brand tested showed large increases in data errors after the stress period. Many of the discs were so damaged that they could not be recognized as DVDs by the disc analyzer" (p.i)

### Millenniata

Millenniata, Inc. is a permanent storage technology company based in the USA. The company's patented Write Once, Read Forever™ technology is the world's first stable digital archival solution presently composed of the M-DISC™ and licensed M-Ready drives. The M-DISC™ is the first backward-compatible non-dye based DVD that is constructed of inorganic materials

that are known to last centuries. The M-Ready drives are high-quality optical drives that are specifically designed to laser-etch digital information onto the M-DISC™. This combination allows information to be written once and read forever, and offers the only permanent storage solution in the industry. For further information, go to [www.millenniata.com](http://www.millenniata.com).

## The Test

All optical media were required to meet certain performance criteria before testing (Section 2.2, p.6-8). A total of 25 discs from each of six brands, including Millenniata, were tested for a total of 150 test discs. Drive and disc performance was analyzed to determine which drive/disc combination provided the best write quality for each brand of media (Table 2-5, p.7).

The Millenniata discs were burned using the M-WRITER™ drive. There was great variation in quality with some brands of dye-based discs, even within the same batch of discs. For two brands in particular, it took more than 50 discs each to get the 25 discs required for the test (Table 3-2 p.27).

The discs were stressed in a combined temperature, humidity, and light cycle (Section 1.2.2, p.3). The discs were subject to the following test conditions in the environmental chamber: 850 C, 85% relative humidity (conditions specified in ECMA-379) and full spectrum light (per MIL Std. 810G) (Figure 1-1, p.3). The test was repeated three times with identical results.

## Naval Air Warfare Center

China Lake is one of the eight Naval Air System Command sites and part of the Naval Aviation Enterprise, delivering the force, with the right readiness, at the right cost, at the right time today, and in the future. China Lake, home to the Naval Air Warfare Center Weapons Division, provides efficient deployment of new weapon systems through a unique combination of its co-located laboratories, ranges, weapons test squadrons and the Navy's Air Test Evaluation Squadrons NNE and THREE-ONE. The site supports fleet training and tactics development, including major exercises on the Land Range, Superior Valley Tactical Training Range and Electronic Combat Range.

