



# U.S. DEPARTMENT OF DEFENSE LONGEVITY TEST SUMMARY

## Background

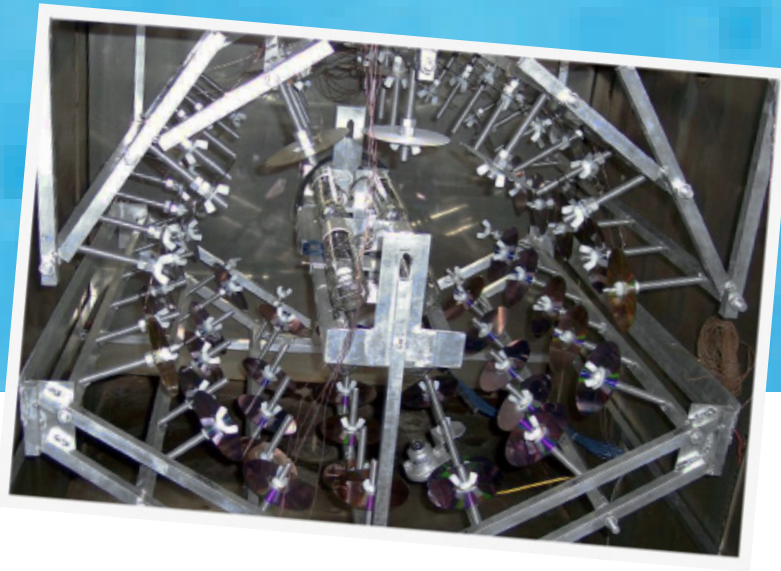
The U.S. Department of Defense Naval Air Warfare Weapon's Division facility at China Lake, California, showed interest in digitizing, permanently storing, and providing access to irreplaceable information so they looked into M-DISC™ technology. Because the M-DISC™ offers permanent data storage technology with Blu-ray and DVD compatibility, researchers liked the idea that their permanently archived information could be accessed easily without the cost and hassle of tightly controlled storage conditions. So, they decided to put it to the test. 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, gold dye-based recordable DVD discs and the M-DISC™ DVD.

## About Naval Air Warfare Center

China Lake is one of the eight Naval Air System Command sites and part of the Naval Aviation Enterprise who deliver the right force with the right readiness at the right time with a reduced cost—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 and Evaluation Squadrons NINE 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.

## Conclusion

"None of the M-DISC™ DVD 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"



## Testing

All optical media was 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 M-DISC™ DVD, 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 M-DISCs™ DVD were burned using an M-DISC READY™ drive.

There was great variation in quality with some brands of dye-based discs, even within the same batch. For two brands in particular, it took more than 50 discs each to get the required 25 for the test (Table 3-2, pg. 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: 85°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.

## Millenniata

Millenniata, Inc. is a permanent archival technology company based in American Fork, Utah. The company's patented Write Once, Read Forever™ technology is the world's first stable digital archival solution that consists of the M-DISC™ Blu-ray and DVD. The M-DISC™ is the first backward-compatible non dye-based optical technology constructed of inorganic materials that are known to last centuries. The M-DISC™ allows for information to be written™ once and read forever, and offers the best archival data storage solution in the industry. For more information on the only permanent storage solution designed to last up to 1,000 years, visit [mdisc.com](http://mdisc.com).

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