

Can you perceive any reliability issues simply due to the CF cards age?

The 2005 (3005 series) SiliconSystems datasheet specs only “MTBF(@25C) > 4,000,000 Hours” (457 years), “1 Non-Recoverable Error in 10¹⁴ Bits Read” (125TB), and “Endurance >2,000,000 write/erase cycles” as hints of lifespan.

The 2008 (3500 series) SiliconSystems datasheet then adds “Data Retention 10 years”

The 2011 (3500 series) WD SiliconDrive CF datasheet revises reliability specs to:

Operational Lifespan	
Read	Unlimited
Write (service life @ GB/day)	-
16 GB capacity	-
8 GB capacity	324.3 Years @ 135.2
4 GB capacity	162.2 Years @ 135.2
2 GB capacity	81.1 Years @ 135.2
1 GB capacity	40.5 Years @ 135.2
512 MB capacity	20.3 Years @ 135.2
256 MB capacity	10.1 Years @ 135.2
128 MB capacity	5.1 Years @ 135.2
Reliability/Data Integrity	
MTBF (hours)	4,000,000
Non-recoverable read errors per bits read	<1 in 10 ¹⁴
Latency (Command to DRQ)	2 ms
Limited warranty ³	5 years

The 2011 (4500 series) datasheet replaces the “Data Retention 10 years” spec with “Service Life 10 years” and adds the following table and references a LifeEST white paper:

Operational Lifespan = LifeEST™	
Service Life	10 years
Write (Maximum GB written per day)	-
16 GB capacity	-
8 GB capacity	-
4 GB capacity	107
2 GB capacity	53
1 GB capacity	27
512 MB capacity	14
256 MB capacity	7
128 MB capacity	3
Reliability/Data Integrity	
MTBF (hours)	> 4,000,000
Non-recoverable read errors per bits read	<1 in 10 ¹⁴
Limited warranty ³	5 years

That 10 year “Service Life” is the limit I would try to adhere to with any card for critical missions.

Do you have a recommended test program that we should use on memory cards?

The best we can offer is the built-in PicoDOS “CHKDSK /C” which will read each and every sector looking for failures, and offering you the option of reformatting individual defective failures. Finding none is ideal and the norm. Finding one you might excuse, accept the fix offer, and explicitly reformat the card. Finding more should make you think about retiring the card. You should not use “FORMAT /E” unless needed for your own reasons. It adds wear and does nothing to make the card more fit.