

US Department of Defense in the clearing and sanitizing standard **DoD 5220.22-M** recommends the approach "Overwrite all addressable locations with a character, its complement, then a random character and verify" (see table with comments) for clearing and sanitizing information on a writable media.

**US Department of Defense 5220.22-M Clearing and Sanitization Matrix**

Media	Clear	Sanitize
<b>Magnetic Tape<sup>1</sup></b>		
Type I	a or b	a, b, or m
Type II	a or b	b or m
Type III	a or b	M
<b>Magnetic Disk</b>		
Bernoullis	a, b, or c	M
Floppies	a, b, or c	M
Non-Removable Rigid Disk (Mainframe)	c	a, b, d, or m
Removable Rigid Disk (Hard Drive)	a, b, or c	a, b, d, or m
<b>Optical Disk</b>		
Read Many, Write Many	c	M
Read Only		m, n
Write Once, Read Many (Worm)		m, n
<b>Memory</b>		
Dynamic Random Access memory (DRAM)	c or g	c, g, or m
Electronically Alterable PROM (EAPROM)	i	j or m
Electronically Erasable PROM (EEPROM)	i	h or m
Erasable Programmable (ROM (EPROM)	k	l, then c, or m
Flash EPROM (FEPROM)	i	c then i, or m
Programmable ROM (PROM)	c	M
Magnetic Bubble Memory	c	a, b, c, or m
Magnetic Core Memory	c	a, b, e, or m
Magnetic Plated Wire	c	c and f, or m
Magnetic Resistive Memory	c	M
Nonvolatile RAM (NOVRAM)	c or g	c, g, or m
Read Only Memory ROM		M
Static Random Access Memory (SRAM)	c or g	c and f, g, or m
<b>Equipment</b>		
Cathode Ray Tube (CRT)	g	Q
<b>Printers</b>		
Impact	g	p then g
Laser	g	o then g

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- a. Degauss with a Type I degausser
- b. Degauss with a Type II degausser.
- c. Overwrite all addressable locations with a single character.
- d. Overwrite all addressable locations with a character, its complement, then a random character and verify.
- e. Overwrite all addressable locations with a character, its complement, then a random character.
- f. Each overwrite must reside in memory for a period longer than the classified data resided.
- g. Remove all power to include battery power.
- h. Overwrite all locations with a random pattern, all locations with binary zeros, all locations with binary ones.
- i. Perform a full chip erase as per manufacturer's data sheets.
- j. Perform i above, then c above, a total of three times.
- k. Perform an ultraviolet erase according to manufacturer's recommendation.
- l. Perform k above, but increase time by a factor of three.
- m. Destroy - Disintegrate, incinerate, pulverize, shred, or melt.
- n. Destruction required only if classified information is contained.
- o. Run five pages of unclassified text (font test acceptable).
- p. Ribbons must be destroyed. Platens must be cleaned.
- q. Inspect and/or test screen surface for evidence of burned-in information. If present, the cathode ray tube must be destroyed.