

Certificate of Volatility

Manufacturer: Xerox

Equipment Name: Work Centre PE220

Model: PE220

Configuration: This item is NOT networked

General description: This printer is NOT connected to a network.

Purpose: Personal Class Device, direct Print, Copy, Fax, and direct Scan.

1. Type of memory:

Volatile memory: What is the amount? What period of time does the unit need to be powered off to completely erase this memory?

System buffer Volatile memory:

SDRAM: 1.5 MB (No user image data stored.)

Print Image buffer Volatile memory:

SDRAM: 10.5 MB (User image data stored. Data lost at power off.)

Scan buffer Volatile memory:

SDRAM: 1.8 MB (User scan data stored. Data lost at power off.)

Non-Volatile Memory:

Type: What type(s) of non-volatile memory are included, EPROM, EEPROM, Flash memory, NVRAM, and battery backed, etc. (fill in)

FAX file & Rx data Volatile memory:

Battery backed SDRAM: 2.2 MB (User fax image data stored. Data lost max 72 hours after power off (when battery fully charged))

System program code Non-Volatile memory:

Flash ROM: 2 MB (Boot & system code. No user image data stored.)

Machine configuration setup data Non-Volatile memory:

EEPROM: 0.5 KB (System set up data. user configuration data stored.)

2. **Accessibility:** Is it accessible by accidental/intentional keystroke, or software malfunction?
No. However, the login system administrator or service technician (via diagnostic operation) may adjust certain machine operational parameters. User data is never accessible.

3. If "YES, it **is** accessible, describe location and purpose.

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Purpose: typical uses for non-volatile memory location are system identification number and system configuration, boot, and initialization parameters, for example (battery-backed NVRAM on SUNs); put in for future design needs, internal depot repair, clock circuit, "nice" to have, or to flag unauthorized software, etc.

If "NO", it is not accessible, ___X___ (Check here).

4. *Required memory:* Is device needed for normal operation, i.e. required for this processing period?

All memory listed is required for normal operation.

5. *Removal consequences:* If device memory chip is erased, what impact will this have on operation and normal function of device?

Flash ROM: The system will not boot.

SDRAM: The system will not boot.

EEPROM: The system Initializing will not finish.

6. *Method of access:* How is it accessed? Is non-volatile memory location theoretically accessible with any system code, not just via the operating system or low level booting firmware?

Machine configuration setup data Non-Volatile memory is used for storing system data and is accessible by application level code. There is no user access to the memory devices, except as provided programmatically to control device behaviors.

Remember: Modifying internal programming to access is not the same thing as unknowingly accessing from an accidental keyboard stroke.

7. *Warranty:* Does chip removal or EEPROM erasure void the warranty?

Yes, memory removal or erasure will void the warranty.

8. *Size:* How much memory is contained? Number of bytes, etc.

See section 1, "Type of Memory"

9. *Spacing:* Is the memory fully utilized or does it have available memory space for additional information to be placed?

The non-volatile memory devices are sized to contain the necessary amount of data required for system operation. Usually there are some unused memory addresses where additional information could be theoretically stored. Without access to the software developers' memory maps, determining the location of this unused memory would require reverse engineering the software.

10. Can this non-volatile memory be addressed to ensure that only authorized information is resident? If yes, how?

At boot-up, the system computes a checksum for each non-volatile memory device. (Note: The computed checksum is compared against a value stored in the device itself. This is sufficient to detect hardware failures, but not necessarily intentional corruption.)