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To: SCSI-2 Optical Working Group
       and Accredited Standards Committee X3T9.2

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Subject: ERASE COMMAND
          Proposed command for Optical Device Types

Introduction

The introduction of an erase command is necessary with the advent
of devices which cannot do direct overwrite of data such as
magneto-optic optical disk drives. Depending upon the choice of
modulation code and logical sector format, there can be functional
differences between an all zeros write in a block or a format of
a block and a erase of a block. If a self-clocking code such as
2,7 is used, an all zeros write would still leave clock
transitions written in the block which will interfere with data
when information is written into that block.

In a magneto-optic drive, erase will completely eliminate all
transitions from the sector but the preformatted sector headers
and preamble will not be affected. If a read is done to that
sector, it is the responsibility of the drive to cope with a
condition in which no clocks exist.

ERASE COMMAND

Peripheral Device Type: Optical Devices
Operation Type Code: Optional
Operation Code: Group 1, Op Code 2Ch

Command Descriptor Block:

BIT BYTE	7	6	5	4	3	2	1	0
0	Operation Code (2Ch)							
1	Logical Unit Number			Reserved		ERA		RelAdr
2	(MSB) Beginning Logical Block Address							
3								
4								
5	Beginning Logical Block Address (LSB)							
6	Reserved							
7	(MSB) Number of Blocks to Erase							
8	Number of Blocks to Erase (LSB)							
9	Vendor Unique	Reserved					Flag	Link

The Erase command will allow part or all of the remaining medium
to be erased beginning with the logical block specified. The use
of "erased" means either the medium shall be erased, or a pattern
shall be written on the medium that will appear to the target as
no data present, or as a blank area.

The Erase All (ERA) bits both set to one will indicate that all
the remainder blocks of the medium will be erased. If either of
the bits is one while the other is zero, then the command will be
terminated with a status of CHECK CONDITION and a Sense Key of
ILLEGAL REQUEST. If both bits are zero then the command will
erase the specified Number of Blocks.

The Logical Block Address specifies the logical block at which the
erase operation shall begin.

The Number of Blocks to Erase specifies the number of contiguous
logical blocks that shall be erased. A Number of Blocks to
Erase of zero indicates that no blocks of data will be erased.
This condition shall not be considered as an error and no data
shall be erased. Any other value indicates the number of logical
blocks that shall be erased.

If the Erase command is sent to any portion of the medium that is defined as non-eraseable, the command will be terminated with a status of CHECK CONDITION and the Sense Key set to ILLEGAL REQUEST.

If any reservation access conflict exists, this command shall be terminated with a status of RESERVATION CONFLICT and no data shall be erased.

Implementor's Notes: This command allows the user the flexibility for increasing through-put during a write operation that would otherwise require a two pass write (the first pass being the erase pass and the second pass being the write). With the addition of this command, the latency time is reduced by doing the complete erase operation separately and then only writing the data during the Write command.

In addition to the Erase command, there is a requirement that an additional bit be added to the ten byte Write Command. This bit, set to one, shall allow the target to skip the "erase pass" on a Write command. The 10-byte write command can be issued at any time without a previous erase command, so only the host has any knowledge of the prior state of the medium. When this bit is set to zero, the device will default to the normal write operation ("normal" as defined by vendor specification). The default for a two pass write device is to erase on the first pass then write data on the second pass. See the Write command for further definition.

WRITE COMMAND

Peripheral Device Type: Optical Devices
Operation Type Code: Mandatory
Operation Code: Group 1, Op Code 2Ah

Command Descriptor Block:

BIT BYTE	7	6	5	4	3	2	1	0
0	Operation Code (2Ah)							
1	Logical Unit Number			Reserved			EBP	RelAdr
2	(MSB)	Beginning Logical Block Address						
3								
4								
5	Beginning Logical Block Address							(LSB)
6	Reserved							
7	(MSB)	Transfer Length						
8								(LSB)
9	Vendor Unique	Reserved					Flag	Link

The Erase By-Pass (EBP) bit set to zero indicates that the device will default to the normal write operation ("normal" as defined by the vendor specification). For a two pass write this indicates an erase on the first pass then write data on the second pass. This bit set to a one, indicates the medium has been erased, and the target may by-pass the erase operation before writing.

When the portion of the medium requested is non-eraseable and the bit is set to one, the operation will be completed as normal. This condition is not to be considered as an error.