

20 March 1991
Westboro, MA

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Dear John,

There are several questions pertaining to tape drives that have arisen out of our review of Revision 10c of the SCSI-2 spec. We have spoken with several vendors in respect to some of these items, and it appears that several different interpretations may lead to inconsistencies in dealing with their devices. Although we realize that changes to SCSI-2 are not feasible at this point in time, we would appreciate any clarifications X3T9.2 may be able to give us in regards to these areas.

The first item pertains to Table 9-22 (page 9-41), the Sequential-Access Density Codes. We believe that the last entry in the table (corresponding to a Code Value field of 14h) has an incorrect bpi number. We believe the correct bpi figure for 8mm tapes is 43200 bpi, not 54000 bpi as indicated in the Table. The number 54000 seems to correspond to the number of flux recordings per inch, not the number of bits per inch.

A second group of questions all relate to the READ command. The first is the question dealing with the "residue" after a fixed length read in which an incorrect length block is encountered. The spec reads (page 9-18):

"If the fixed bit is one, the information field shall be set to the requested transfer length minus the actual number of blocks read (not including the incorrect length block)".

Some confusion over the wording "not including the correct length block" exists. We have normally found this to mean that if 5 blocks are requested, and the first one is of incorrect length, some data will be returned to the initiator and the command will terminate with an ILI and a residue of 5. However, this is not explicitly stated, and since the logical position of the tape has changed, an argument for a residue of 4 can also be made.

Also in relation to the above ILI example; does a target have to transfer data in such a case, or may it terminate the command with an ILI status immediately, as long as it logically positions itself after the incorrect length block?

The next item relates to the status from a tape device after a READ which completes with retries or error correction. The spec defines a sense key of "Recovered Error" as meaning the command "completed successfully with some recovery action" (page 7-50). We have taken this to mean that in the case when a target returns "Recovered Error" status, the residue must be zero, since any non-zero value would mean the command was not truly completed and all requested data was not transferred. This has not been found to be the case with all drives. Is a target required to report a residue (set the Address Valid bit) on Recovered Error check conditions? If so, is this residue required to be zero?

The final issue deals with the Sense Code returned by a device while it is loading or repositioning its media, usually after a power-on or a bus reset. Normally, devices that are in such a state will report "Busy". This is fine since the recommended action by the initiator is to try the command again at a later time (page 6-9). However, under SCSI-2, a status of "Check Condition" with a Sense Key of "Not Ready" and an Additional Sense Code of "Logical Unit is in the Process of Becoming Ready" is being returned by some vendors. We believe that this may be an incorrect response, since a "Check Condition" status to the initiator should only be returned when initiator intervention is required to make the unit ready. This is stated in regards to the Test Unit Ready command (page 7-59) but is not explicitly pointed out in regards to this particular condition.

Again, we would like to thank you and X3T9.2 for any clarifications you may be able to provide us with in regards to these issues.

Thank you,



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