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o: X3T9.2 Working Group
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Subject: Providing Initiators with Zoning (or Notched Drive) Information

Currently constant linear density recording for DASD, referred to as "notched" or "zoned" drives, is a technology that yields a substantial gain in capacity at little cost. Although not a fatal difficulty, the fact that this technology requires a variable number of sectors per track (constant within a given zone) forces the drive to lie to the Initiator. Some way should be specified to allow the Initiator to determine the precise geometry of the drive.

An obvious way is to use either the READ CAPACITY command, the MODE SENSE/SELECT command, or the INQUIRY command.

With READ CAPACITY a new option bit would be defined in the CDB. It would only be operable if the PMI bit were 0. In this case it would return the data required (probably the first LBA and last LBA for the zone containing the CDB LBA, along with the number of sectors per track for that zone). This returned data differs in format from the usual and may not provide all the information required.

With MODE SELECT/SENSE a sense command for page 3 (format parameters) will return the data for the defect management zone in the recording zone specified by either the reserved bytes in the CDB or via the status of a new page. The former is the cleanest, but uses up a lot of the reserved bits in the CDB. The later requires a previous MODE SELECT to the new page, selecting the zone desired, and resulting in an implicit change on page 3. This is undesirable since it implicitly changes data on another page. Note that this proposal allows reporting of all of the data that may change (track and cylinder skew, interleave, tracks per zone, etc...), not just sectors per track.

Finally, using INQUIRY would allow us to alter the paging structure to allow for explicit storing of all of the format parameter data in a straightforward manner. Specifically, a two byte page length would allow us to specify all of the data on mode page 3 for each of 3000 zones - far more than is currently contemplated for implementation. Although these parameters would not be alterable, in practice it is very difficult to allow the Initiator to alter the notching of the device anyway, since successful operation depends upon the read channel electronics, which cannot typically be adjusted on the fly easily.