



To: T10 Technical Committee  
From: Veronica Hernandez and Kevin Marks - Dell, Inc.  
Date: June 21, 2006  
Subject: T10/06-293r0 - SSC-3: Modification of the REPEAT bit behavior in the Tape Diagnostic Data log page

### **Revision History**

Revision 0 (06/21/06) – Initial proposal

### **Related Documents**

SCSI Stream Commands - 3 (T10/1611-D - SSC-3r02a)

[New text to be added to SSC-3](#)

~~Text to be deleted from SSC-3~~

*Editorial Text*

### **Overview**

In implementing the Tape Diagnostic page, it was noticed that the REPEAT bit did not include the MEDIUM ID NUMBER field as part of the basis for the REPEAT bit being set to one. This reduced the ability to differential between bad media and the drive itself, in that if two pieces of bad media were used back to back, the log page could only have one entry with the REPEAT bit set. This proposal adds the MEDIUM ID NUMBER field as part of the fields that must be the same for the REPEAT bit to be set to one.

### **Suggested Changes to SSC-3:**

#### **8.2.5 Tape Diagnostic Data log page**

The Tape Diagnostic Data log page (see table 62) provides for a number of error-event records using the list parameter format. Each error-event record contains diagnostic information for a single error type encountered by the device including data counters associated with the error event, sense data, operation code/service action and medium type with associated media motion hours, etc. The Tape Diagnostic Data log page may be used to aid in field analysis and repair.

The Tape Diagnostic Data log page shall only include parameter entries for commands that terminated with a CHECK CONDITION status having the sense key set to MEDIUM ERROR, HARDWARE ERROR or ABORTED COMMAND.

The parameter code value associated with an error-event indicates the relative time at which a command terminated with a CHECK CONDITION status. A lower parameter code indicates that the command terminated with a CHECK CONDITION status at a more recent time. The parameter code values returned shall be numbered consecutively from 0000h (i.e., the most recent) up to  $n$ , where  $n$  is the number of current parameter entries. The number of supported parameter entries,  $n$ , is vendor-specific.

In each parameter entry (see table [y+163](#)) if the REPEAT bit is set to zero, then the parameter entry represents only one occurrence of the [medium id number](#), sense key and additional sense code indicated in the parameter entry. If the REPEAT bit is set to one, then the parameter entry represents multiple consecutive occurrences of [the medium id number](#), sense key and additional sense code indicated in the parameter entry. If the REPEAT bit is set to one in the parameter entry, then other

fields in the parameter entry shall be set to the values when the first of the consecutive occurrences of the [medium id number](#), sense key and additional sense code occurred.

All parameter codes shall be persistent across I\_T nexus losses, logical unit resets, and power-on. The parameter entries shall not be set to zero or changed with the use of a LOG SELECT command.

### Table 62 - Tape Diagnostic Data log page

<<Insert Table 62>>

See SPC-4 for descriptions of the DU bit, TSD bit, ETC bit, TMC field and FORMAT AND LINKING field. These fields shall be set to the values specified in table 63.

The PARAMETER LENGTH field indicates the number of bytes in the Tape Diagnostic Data log parameter data that follows.

The DENSITY CODE field contains the density code of the medium loaded at the time the command terminated with the CHECK CONDITION status. The DENSITY CODE field is the same value as returned in the general mode parameter block descriptor (see SPC-4). If no medium was loaded at the time the command terminated with the CHECK CONDITION status, then the DENSITY CODE field shall be set to 00h.

The MEDIUM TYPE field contains the type of medium loaded at the time the command terminated with the CHECK CONDITION status. The MEDIUM TYPE field is the same value as returned in the mode parameter header (see SPC-4). If no medium was loaded at the time the command terminated with the CHECK CONDITION status, then the MEDIUM TYPE field shall be set to 00h.

The LIFETIME MEDIA MOTION HOURS field contains the number of media motion (head) hours at the time the command terminated with the CHECK CONDITION status. The LIFETIME MEDIA MOTION HOURS field is equivalent to the value contained in the Device Statistics log page with a parameter code value of 0003h at the time the command terminated with the CHECK CONDITION status.

The REPEAT bit if set to one indicates that the [medium id number](#), sense key and additional sense code were reported two or more times consecutively and only one parameter entry was created for the multiple consecutive error-events. The REPEAT bit if set to zero indicates that the [medium id number](#), sense key and additional sense code at the time the CHECK CONDITION status was reported was different from the previously reported CHECK CONDITION status.

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