

**Summary of Changes to the Proposed ANSI/AIIM MS59
Standard and Reserved Code Requirements for SCSI-3
Implementations**

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Submitted by

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Summary of Changes to the Proposed ANSI/AIIM MS59 Standard and Reserved Code Requirements for SCSI-3 Implementations

1. Introduction

The following sections describe the changes that AIIM Committee C21, MS59 Ad-Hoc, is making to MS59. MS59 includes an application of some of the SCSI commands. This application requires the use of some of the SCSI-2 and SCSI-3 codes.

The suggested codes for SCSI-2 implementations of MS59 are in the vendor unique ranges. These codes will be checked with the optical disk industry to avoid, as much as possible, conflicts with the use of these codes. C21 will try to the extent possible to use specific codes that are not been used.

For SCSI-3 implementations, MS59 requires the use of some codes from the reserved ranges. This document explains the intended use of these codes.

In addition, this document explains the changes introduced to MS59 in relation to using SCSI commands for the intended application.

2. Use of the Word "Threshold".

In the previous ANSI/AIIM MS59 version, the word "threshold" was used to define optical disk media error levels. In the new version, we use the register's name for the Read-Write Error Recovery Page, and the register's name with the word "verify" for the Verify Error Recovery Page (see Section 4).

3. Summary of Changes to MS59 and Proposed SCSI Code Use.

Table 1 shows the changes in the new version of the MS-59 standard.

Table 2 shows the codes required in the new MS59 Version

Table 1 - Summary of the Changes in MS-59

	Previous MS 59 Version	New Version
To retrieve the current Verify Media Error Levels	Inquiry Command	Mode Sense Command & Verify Error Recovery Page
To set the Verify Media Error levels	Mode Select Command	Mode Select Command & Verify Error Recovery Page
To retrieve the current Media Error Levels	Inquiry Command	Mode Sense Command & Read-Write Error Recovery Page
To set the Media Error Levels	Mode Select Command	Mode Select Command & Read-Write Error Recovery Page
To retrieve the Media Error Log (MEL)	Inquiry Command	Log Sense Command & Log Page
To clear the MEL	Mode Select Command	Log Select Command with the following alternatives: (a): Log Select and the clear MEL page (clears the MEL page only) (b): Log Select with PCR=1, parameter list length=0 (set the MEL page and all other log parameters to their default values) (c): Log Select with PC=11b, parameter list length=0 and no page (set the MEL page and all other cumulative parameters to their default values)

Table 2 - Codes Required in the New MS59 Version

	New MS59 Version	Vendor-specific (SCSI-2) Reserved codes (SCSI-3)
To retrieve the current Verify Media Error Levels	Mode Sense Command & Verify Error Recovery Page	no code required
To set the Verify Media Error levels	Mode Select Command & Verify Error Recovery Page	no code required
To retrieve the current Media Error Levels	Mode Sense Command & Read-Write Error Recovery Page	no code required
To set the Media Error Levels	Mode Select Command & Read-Write Error Recovery Page	no code required
To retrieve the Media Error Log (MEL)	Log Sense Command & Log Page	XXh vendor-specific code for SCSI-2 devices or YYh reserved code for SCSI-3 devices
To clear the MEL	Log Select Command & Log Page	(a): ZZh vendor-specific code for SCSI-2 devices or UUh reserved code for SCSI-3 devices (b): no code required (c): no code required

4. The Read-Write Error Recovery Page and the Verify Error Recovery Page

The MS-59 proposed standard requires the optical disk drive to implement the MODE SELECT command, the MODE SENSE command, the Read-Write Error Recovery Page and the Verify Error Recovery Page.

Media error levels are critical error levels above which either the target has to alert the initiator about having reached these levels or the target has to reallocate the sector (if reallocation is ON). MS 59 allows for user-selectable media error levels.

These levels are defined in the Read-Write Error Recovery Page and the Verify Error Recovery Page.

4.1 The Read-Write Error Recovery Page

The MS59 Read-Write Error Recovery Page (table 4 of this document) specifies four new levels:

- number of bytes in error per codeword
- number of bytes in error per sector
- number of bad IDs
- number of missing resync

This is a redefined R/W Error Recovery Page for optical disk devices (not including CD-ROM devices).

When one of these levels is reached or exceeded during any command that performs a read or write operation to the medium, the defective sector(s) shall be reallocated, provided that the AWRE bit is set to 1 or that the ARRE bit is set to 1.

The optical disk drive shall return a CHECK CONDITION status with the sense-key RECOVERED ERROR (1h) if the reallocation is ON (AWRE or ARRE bit ON) and the drive was able to reassign the sector. If the drive was unable to reallocate the sector or the reallocation was OFF, the sense-key shall be MEDIUM ERROR (3h).

The user shall use the REQUEST SENSE command to retrieve more information. The ASCs and ASCQs are described in tables 4, 5 and 6 of this document.

Sixteen byte length vendor-specific registers were included in the Read-Write Error Recovery Page to leave the opportunity to the vendor to add other media error levels not specified in the MS-59 standard.

Table 3 - MS59 Read - Write Error Recovery Page for Optical Disk Devices

Bit Byte	7	6	5	4	3	2	1	0
0	PS	Reserved	Page Code (01h)					
1	Page Length							
2	AWRE	ARRE	TB	RC	EER	PER	DTE	DCR
3	Read Retry Count							
4	Correction Span							
5	Head Offset Count							
6	Data Strobe Offset Count							
7	Reserved							
8	Write Retry Count							
9	Reserved							
10 11	(MSB)	Recovery Time Limit						(LSB)
12 - 17	Number of Bytes in Error per Codeword							
18 - 23	Number of Bytes in Error per Sector							
24 - 29	Number of Bad IDs							
30 - 35	Number of Missing Resync							
36 - 51	Vendor Specific							
	Vendor Specific							
n-15 - n	Vendor Specific							

Table 4 - Sense Codes When Reallocation is ON and the Drive is Able to Reassign the Defective Sector

	Sense Key	ASC	ASCQ	Description
Bytes in error per codeword / per sector when writing	1	03	00	Peripheral Device Write Fault
when reading	1	18	00	Recovered Data with Error Correction Applied
ID	1	10h	00h	ID CRC or ECC Error
Resync	1	11h	07h	Data Resynchronization Error

Table 5 - Sense Codes When Reallocation is ON and the Drive is Unable to Reassign the Defective Sector

	Sense Key	ASC	ASCQ	Description
Bytes in error per codeword / per sector when writing	3	0C	02	Write Error - Auto Reallocation Failed
when reading	3	11	04	Unrecovered Read Error - Auto Reallocate Failed
ID	3	10h	00h	ID CRC or ECC Error
Resync	3	11h	07h	Data Resynchronization Error

Table 6 - Sense Codes When the Reallocation is OFF

	Sense Key	ASC	ASCQ	Description
Bytes in error per codeword / per sector when writing	3	03	00	Peripheral Device Write Fault
when reading	3	11	00	Unrecovered Read Error
ID	3	10h	00h	ID CRC or ECC Error
Resync	3	11h	07h	Data Resynchronization Error

4.2 The Verify Error Recovery Page

The MS-59 proposed standard requires the optical disk drive to implement the VERIFY and the WRITE & VERIFY commands. The MS59 Verify Error Recovery Page (Table 7) specifies four new levels:

- verify number of bytes in error per codeword
- verify number of bytes in error per sector
- verify number of bad IDs
- verify number of missing resync

Table 7 - Verify Error Recovery Page

Bit Byte	7	6	5	4	3	2	1	0
0	PS	Reserved	Page Code (07h)					
1	Parameter Length							
2	Reserved				EER	PER	DTE	DCR
3	Verify Retry Count							
4	Verify Correction Span							
5	Reserved							
6	Reserved							
7	Reserved							
8	Reserved							
9	Reserved							
10	(MSB) Verify Recovery Time Limit (LSB)							
11								
12 - 17	Verify Number of Bytes in Error per Codeword							
18 - 23	Verify Number of Bytes in Error per Sector							
24 - 29	Verify Number of Bad IDs							
30 - 35	Verify Number of Missing Resync							
36 - 51	Vendor Specific							
..	Vendor Specific							
n-15 - n	Vendor Specific							

This is a redefined Verify Error Recovery Page for Optical Disk Devices.

When one of these levels is reached or exceeded during the VERIFY command or the verify operation of the WRITE & VERIFY command, the optical disk drive shall return a CHECK CONDITION status with the sense key MEDIUM ERROR (3h). The user shall use the REQUEST SENSE command to retrieve sense information. The ASCs and ASCQs are defined in table 8.

Sixteen byte length vendor-specific registers were included in the MS59 Verify Error Recovery Page to leave the opportunity to the vendor to add other verify media error levels not specified in the MS-59 standard.

Table 8 - Sense Codes

	Sense Key	ASC	ASCQ	Description
Bytes in error per codeword / per sector	3	11	00	Unrecovered Read Error
ID	3	10h	00h	ID CRC or ECC Error
Resync	3	11h	07h	Data Resynchronization Error

5. The Media Error Log Page

The MS-59 proposed standard requires the optical disk drive to implement the LOG SELECT command, the LOG SENSE command and a Media Error Log (MEL).

The MEL page provides cumulative media error information. The MEL page is a Log page that including 26 data counters (Table 9) to be retrieved with the LOG SENSE command.

For SCSI-2 compliant devices the Page Code shall be vendor-specific. For SCSI-3, two reserved codes are requested from the range 08h to 2fh (see table 10): one for the MEL page and the other for the Clear MEL page.

Log parameters are data counters. Table 11 shows the proposed parameter codes (from 0000h to 0019h). MS59 does not set the values of the bits in the parameter control byte, except that LP shall be set to 0 (defining data counters for the MEL).

Table 9 - Log Page to Retrieve the Media Error Log (MEL)

Byte	Bit	7	6	5	4	3	2	1	0
0		Reserved		Page Code - XXh for SCSI-2 devices or YYh for SCSI-3 devices (see Table 2 and 10)					
1		Reserved							
2	(MSB)	Page Length							
3									
4	(MSB)	Parameter Code							
5									
6		DU	DS	TSD	ETC	TMC		Reserved	LP
7		Parameter Length							
8 - 13		Number of Read Retries							
14	(MSB)	Parameter Code							
15									
16		DU	DS	TSD	ETC	TMC		Reserved	LP
17		Parameter Length							
18 - 23		Number of Write Retries							
24	(MSB)	Parameter Code							
25									
26		DU	DS	TSD	ETC	TMC		Reserved	LP
27		Parameter Length							
28 - 33		Number of Total Bytes Corrected							
34	(MSB)	Parameter Code							
35									
36		DU	DS	TSD	ETC	TMC		Reserved	LP
37		Parameter Length							
38 - 43		Number of Sectors Read							

Bit Byte	7	6	5	4	3	2	1	0
44	(MSB) Parameter Code							
45	(LSB)							
46	DU	DS	TSD	ETC	TMC		Reserved	LP
47	Parameter Length							
48 - 53	Number of Sectors Uncorrectable by the ECC							
54	(MSB) Parameter Code							
55	(LSB)							
56	DU	DS	TSD	ETC	TMC		Reserved	LP
57	Parameter Length							
58 - 63	Number of Sectors that Have Codewords with More than 8 Bytes in Error							
64	(MSB) Parameter Code							
65	(LSB)							
66	DU	DS	TSD	ETC	TMC		Reserved	LP
67	Parameter Length							
68 - 73	Number of Sectors that Have Codewords with 6, 7 or 8 Bytes in Error							
74	(MSB) Parameter Code							
75	(LSB)							
76	DU	DS	TSD	ETC	TMC		Reserved	LP
77	Parameter Length							
78 - 83	Number of Sectors that Have Codewords with 4 or 5 Bytes in Error							
84	(MSB) Parameter Code							
85	(LSB)							
86	DU	DS	TSD	ETC	TMC		Reserved	LP
87	Parameter Length							
88 - 93	Number of Sectors that Have Codewords with 1, 2 or 3 Bytes in Error							
94	(MSB) Parameter Code							
95	(LSB)							
96	DU	DS	TSD	ETC	TMC		Reserved	LP

Bit Byte	7	6	5	4	3	2	1	0
97	Parameter Length							
98 - 103	Total Number of Bytes in Error							
104	(MSB) Parameter Code							
105	(LSB)							
106	DU	DS	TSD	ETC	TMC	Reserved	LP	
107	Parameter Length							
108-113	Number of Sectors with Over Maximum Number of Bytes in Error							
114	(MSB) Parameter Code							
115	(LSB)							
116	DU	DS	TSD	ETC	TMC	Reserved	LP	
117	Parameter Length							
118-123	Number of Sectors with $[(6 * \text{Maximum}) / 8 \text{ to } ((7 * \text{Maximum}) / 8 - 1)]$ Bytes in Error							
124	(MSB) Parameter Code							
125	(LSB)							
126	DU	DS	TSD	ETC	TMC	Reserved	LP	
127	Parameter Length							
128-133	Number of Sectors with $[(5 * \text{Maximum}) / 8 \text{ to } ((6 * \text{Maximum}) / 8 - 1)]$ Bytes in Error							
134	(MSB) Parameter Code							
135	(LSB)							
136	DU	DS	TSD	ETC	TMC	Reserved	LP	
137	Parameter Length							
138-143	Number of Sectors with $[(4 * \text{Maximum}) / 8 \text{ to } ((5 * \text{Maximum}) / 8 - 1)]$ Bytes in Error							
144	(MSB) Parameter Code							
145	(LSB)							
146	DU	DS	TSD	ETC	TMC	Reserved	LP	
147	Parameter Length							
148-153	Number of Sectors with $[(3 * \text{Maximum} / 8 \text{ to } ((4 * \text{Maximum}) / 8 - 1)]$ Bytes in Error							

Bit Byte	7	6	5	4	3	2	1	0
154	(MSB) Parameter Code (LSB)							
155								
156	DU	DS	TSD	ETC	TMC		Reserved	LP
157	Parameter Length							
158-163	Number of Sectors with $[(2 * \text{Maximum})/8 \text{ to } ((3 * \text{Maximum})/8 - 1)]$ Bytes in Error							
164	(MSB) Parameter Code (LSB)							
165								
166	DU	DS	TSD	ETC	TMC		Reserved	LP
167	Parameter Length							
168-173	Number of Sectors with $[\text{Maximum} / 8 \text{ to } ((2 * \text{Maximum})/8 - 1)]$ Bytes in Error							
174	(MSB) Parameter Code (LSB)							
175								
176	DU	DS	TSD	ETC	TMC		Reserved	LP
177	Parameter Length							
178-183	Number of Sectors with $[0 \text{ to } (\text{Maximum}/8 - 1)]$ Bytes in Error							
184	(MSB) Parameter Code (LSB)							
185								
186	DU	DS	TSD	ETC	TMC		Reserved	LP
187	Parameter Length							
188-193	Number of Sectors with 3 Sector IDs in Error							
194	(MSB) Parameter Code (LSB)							
195								
196	DU	DS	TSD	ETC	TMC		Reserved	LP
197	Parameter Length							
198-203	Number of Sectors with 2 Sector IDs in Error							
204	(MSB) Parameter Code (LSB)							
205								
206	DU	DS	TSD	ETC	TMC		Reserved	LP

Bit Byte	7	6	5	4	3	2	1	0
207	Parameter Length							
208-213	Number of Sectors with 1 Sector ID in Error							
214	(MSB)							
215	Parameter Code							
	(LSB)							
216	DU	DS	TSD	ETC	TMC	Reserved	LP	
217	Parameter Length							
218-223	Number of Sectors with 0 Sector ID in Error							
224	(MSB)							
225	Parameter Code							
	(LSB)							
226	DU	DS	TSD	ETC	TMC	Reserved	LP	
227	Parameter Length							
228-233	Number of Sectors with Errors in the Sector Mark - Sectors Readable							
234	(MSB)							
235	Parameter Code							
	(LSB)							
236	DU	DS	TSD	ETC	TMC	Reserved	LP	
237	Parameter Length							
238-243	Number of Sectors with Errors in the Data Sync - Sectors Readable							
244	(MSB)							
245	Parameter Code							
	(LSB)							
246	DU	DS	TSD	ETC	TMC	Reserved	LP	
247	Parameter Length							
248-253	Number of Sectors with Missing ReSync Marks - Sectors Readable							
254	(MSB)							
255	Parameter Code							
	(LSB)							

Table 10 - Log Page Code Usage for Optical Memory Devices

Page Code	Description	Comments
01h	Buffer over-run/under-run page	
03h	Error counter page (read) page	
05h	Error counter page (verify) page	
02h	Error counter page (write) page	
07h	Last n error events page	
00h	List of supported parameters page	
06h	Non-media error page	
04h	Reserved	
08h - 2Fh	Reserved	We are requesting two of these codes for SCSI-3 compliant devices: one for the Media Error Log Page and the other for the Clear MEL Log Page
30h - 3Eh	Vendor Specific pages	We will check with industry about the two codes for SCSI-2 compliant devices: one for the Media Error Log Page and the other for the Clear MEL Log Page
3Fh	Reserved	

Table 11 - Proposed Parameter Codes for Media Error Log Page

Parameter Code	Description
0000h	Number of Read Retries
0001h	Number of Write Retries
0002h	Number of Total Bytes Corrected
0003h	Number of Sectors Read
0004h	Number of Sectors Uncorrectable by the ECC
0005h	Number of Sectors that Have Codewords with More than 8 Bytes in Error
0006h	Number of Sectors that Have Codewords with 6, 7 or 8 Bytes in Error
0007h	Number of Sectors that Have Codewords with 4 or 5 Bytes in Error

0008h	Number of Sectors that Have Codewords with 1, 2 or 3 Bytes in Error
0009h	Total Number of Bytes in Error
000Ah	Number of Sectors with Over Maximum Number of Bytes in Error
000Bh	Number of Sectors with $[(6 * \text{Maximum})/8 \text{ to } ((7 * \text{Maximum})/8 - 1)]$ Bytes in Error
000Ch	Number of Sectors with $[(5 * \text{Maximum})/8 \text{ to } ((6 * \text{Maximum})/8 - 1)]$ Bytes in Error
000Dh	Number of Sectors with $[(4 * \text{Maximum})/8 \text{ to } ((5 * \text{Maximum})/8 - 1)]$ Bytes in Error
000Eh	Number of Sectors with $[(3 * \text{Maximum})/8 \text{ to } ((4 * \text{Maximum})/8 - 1)]$ Bytes in Error
000Fh	Number of Sectors with $[(2 * \text{Maximum})/8 \text{ to } ((3 * \text{Maximum})/8 - 1)]$ Bytes in Error
0010h	Number of Sectors with $[\text{Maximum} / 8 \text{ to } ((2 * \text{Maximum})/8 - 1)]$ Bytes in Error
0011h	Number of Sectors with $\{0 \text{ to } (\text{Maximum}/8 - 1)\}$ Bytes in Error
0012h	Number of Sectors Requiring no Correction with ECC
0013h	Number of Sectors with 3 Sector IDs in Error
0014h	Number of Sectors with 2 Sector IDs in Error
0015h	Number of Sectors with 1 Sector IDs in Error
0016h	Number of Sectors with 0 Sector IDs in Error
0017h	Number of Sectors with Errors in the Sector Mark - Sectors Readable
0018h	Number of Sectors with Errors in the Data Sync - Sectors Readable
0019h	Number of Sectors with Missing ReSync Marks - Sectors Readable

5.1 Clearing the MEL Page

MS 59 defines three different approaches to clear the MEL (see Table 1):

- a) Use of the LOG SELECT command and a Log Page (Table 12). The code for this page (see table 10) shall be vendor-specific for SCSI-2 compliant devices (a code from the reserved Log Page Codes is requested for SCSI-3 devices). The Log page is defined with no log parameters. When the target receives this page it shall clear the MEL.

- b) Use of the LOG SELECT command with the Parameter Code Reset (PCR) bit of one and the parameter list length of zero. No page is sent to the target. All implemented parameters of the target are set to their default values.
- c) Use of the LOG SELECT command with the Page Code (PC) set to 11b and the parameter list length of zero. No page is sent to the target. All the cumulative parameters are set to their default values.

Table 12 - Clear MEL Log Page

Bit	7	6	5	4	3	2	1	0
Byte	Reserved		Page Code - ZZh for SCSI-2 devices or UUh for SCSI-3 devices (see Table 2 and 10)					
0	Reserved							
1	Reserved							
2	(MSB)							
3	Page Length = 0							
	(LSB)							

6. Uncorrected or Corrected Content of a Sector

The MS-59 proposed standard requires the optical disk drive to implement the READ LONG command.

The READ LONG command is used to retrieve the uncorrected or the corrected content of a sector. The target shall transfer the user data bytes, the ECC bytes, and any other bytes that can be corrected by the ECC (e.g. data synchronization mark within the area covered by ECC).

7. Information About Bad Sectors and Sectors That Have Been Reallocated

The MS-59 proposed standard requires the optical disk drive to implement the READ DEFECT DATA command.

The READ DEFECT DATA command is used to retrieve the primary list of defects (PDL) and the secondary defect list (SDL) if they exist on the medium. The optical disk drive shall transfer the PDL with the Defect Descriptor 0 (see table 13) the SDL with the Defect Descriptor 1 (see table 14). For WORM media, a third list may exist: the WDL, which shall be sent through the READ DEFECT DATA command using the Defect Descriptor 2 (see table 15).

For optical digital data disks that do not specify defect lists (such as PDL, SDL and WDL) but use spare areas and Defect Management Pointers (DMP) only or other type of defect management such as sector maps, the information on defective sectors shall be provided as defined in table 16.

Table 13 - Defect Descriptor 0 Format (PDL)

Byte	Description
0	(00)
1	(01) (Defect List Identifier)
2	Number of entries MSB (each entry is 4 bytes long)
3	Number of entries LSB
4	Address of the first defective sector (track number MSB)
5	Address of the first defective sector (track number)
6	Address of the first defective sector (track number LSB)
7	Address of the first defective sector (track number)
.	.
.	.
4n-3	Address of the nth defective sector (track number MSB)
4n-2	Address of the nth defective sector (track number)
4n-1	Address of the nth defective sector (track number LSB)
4n	Address of the nth defective sector (track number)

Table 14 - Defect Descriptor 1 Format (SDL)

Byte	Description
0	(00)
1	(01) (Defect List Identifier)
2	(00)
3	(01)
4	MSB of the list length specified in number of bytes from byte 6 to byte x-1
5	LSB for the list length
6	(02) (SDL)
7	(01)
8	MSB of the list length specified in number of bytes from byte 6 to byte x-1
9	LSB for the list length
10	Address of the first defective sector (track number MSB)
11	Address of the first defective sector (track number)
12	Address of the first defective sector (track number LSB)
13	Address of the first defective sector (sector number)
14	Address of the first replacement sector (track number MSB)
15	Address of the first replacement sector (track number)
16	Address of the first replacement sector (track number LSB)
17	Address of the first replacement sector (sector number)
.	.
.	.
.	.
x-8	Address of the last defective sector (track number MSB)
x-7	Address of the last defective sector (track number)
x-6	Address of the last defective sector (track number LSB)
x-5	Address of the last defective sector (sector number)
x-4	Address of the last replacement sector (track number MSB)
x-3	Address of the last replacement sector (track number)
x-2	Address of the last replacement sector (track number LSB)
x-1	Address of the last replacement sector (sector number)

Table 15 - Defect Descriptor 2 Format (SDL)

Byte	Description
0	(00)
1	(03) (Defect List Identifier)
2	(00)
3	(00), indicating that the WDL has no sublist
4	The list length specified in number of bytes from byte 6 to byte x(*) (MSB)
5	The list length specified in number of bytes from byte 6 to byte x(*) (LSB)
6	(00)
7	The page number of the WDL
8	(FF)
9	(FF)
10	Address of the first defective sector (track number MSB)
11	Address of the first defective sector (track number)
12	Address of the first defective sector (track number LSB)
13	Address of the first defective sector (sector number)
14	Address of the first replacement sector (track number MSB)
15	Address of the first replacement sector (track number)
16	Address of the first replacement sector (track number LSB)
17	Address of the first replacement sector (sector number)
.	.
.	(each unit shall correspond to byte 10 to 17)
.	.
y	.
y+1	This byte shall be set to (FFh)
.	.
.	.
.	.
z(*)	This byte shall be set to (FFh)

(*) Notes: x is the last byte which has the newest link information of the replacement, z is usually equal to 1023 for a 1024 byte sector and is 511 for a 512 byte sector.

Table 16 - Defect Data List

Byte No.	Description
1	Number of Entries in the List (MSB)
2	Number of Entries in the List (LSB)
3	Defective Sector Track number (MSB)
4	Defective Sector Track number
5	Defective Sector Track number LSB)
6	Defective Sector number
.	.
.	.
.	.
n-3	Defective Sector Track number (MSB)
n-2	Defective Sector Track number
n-1	Defective Sector Track number (LSB)
n	Defective Sector number