Device Statistics – Freefall

T13 Technical Proposal – e06182r4

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Revision 4, 2008-06-05

[This document is a proposal for the T13 to describe the Device Statistics for the device to report. The device freefall is the information for the device freefall sensor detection history. The statistics supported are optional, and only applicable to the applicable devices.]

A.5 Device Statistics (Log Address TBAh)

A.5.1 Overview

The Device Statistics log contains selected statistics about the device. This log shall be read-only, and shall only be accessed via the GPL feature set. This log is supported if there is a non-zero length for log address TBAh in the General Purpose Log Directory. The format of the data is defined in table TBA. If the Device Statistics log is supported, only the Structure Version field is required. Each statistic is composed of a 1-byte flag field and a value field. If the bit 7 of the flag field is set to one then the value field of that statistic is valid. Each statistic shall be a multiple of 8 bytes long. The number of log pages may be greater than one.

A.5.2 Device Freefall Statistics (Page TBA)

A.5.2.1 Overview

Device Statistics log page TBA contains device freefall information about the device as described in table A.6.

The summary of this usage statistics is as followed:

1. Structure Version
2. Number of Freefall Events Detected by the Device (Lifetime)
3. Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime)

Table TBA – Freefall Statistics

Offset	Type	Content
0-7	QWord	Structure Version
		Bit **Meaning** 63:56 Reserved 55:48 Device Statistics Version Number = 0001h 47:16 Reserved 15:0 TBAh, Page Number
8-15	QWord	Number of Freefall Events Detected by the Device (Lifetime)
		Bit **Meaning** 63 1 = Counter supported, 0 = Counter not supported 62:56 Reserved for flags 55:32 Reserved 31:0 Number of Freefall Events Detected by the Device (Lifetime)
16-23	QWord	Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime)
		Bit **Meaning** 63 1 = Counter supported, 0 = Counter not supported 62:56 Reserved for flags 55:32 Reserved 31:0 Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime)
24-511	Byte	Reserved

A.5.2.2 Structure Version

A.5.2.2.1 Description

Structure Version defines the version of the data structure arrangement for this statistics. The structure is defined by the T13 committee. When a new structure is defined the version number will be assigned.

Bit 56:48 is used for the revision number of the statistics structure. Bit 15:0 is used for the page number of the Log Page for this statistics.

A.5.2.2.2 Update Interval

Update interval is not applicable to the Structure Version field.

A.5.2.2.3 Measurement Unit

Measurement unit is not applicable to the Structure Version field.

A.5.2.2.4 Initialization

Structure Version shall be initialized to the corresponding number at the time of manufacture.

A.5.2.3 Number of Freefall Events Detected by the Device (Lifetime)

A.5.2.3.1 Description

Number of Freefall Events Detected by the Device (Lifetime) is a counter that records the number of freefall event that is detected by the device after the device is manufactured.

A.5.2.3.2 Update Interval

Number of Freefall Events Detected by the Device (Lifetime) is updated on the following events. When the device is operational the counter is updated and stored in a non-volatile location at a minimum interval of one hour.

1. Update on Timer: Yes (= 1 hour)
2. Update on entering Standby state: Yes
3. Update on entering Sleep state: Yes
4. Update on Device Statistics Page Read: Yes

A.5.2.3.3 Measurement Units

Number of Freefall Events Detected by the Device (Lifetime) is incremented by one for each freefall event that is detected.

A.5.2.3.4 Initialization

Number of Freefall Events Detected by the Device (Lifetime) shall be initialized to zero at the time of manufacture.

A.5.2.4 Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime)

A.5.2.4.1 Description

Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime) is a counter that records the number of freefall event that is detected by the device with the magnitude higher than the maximum rating of the device after the device is manufactured.

A.5.2.4.2 Update Interval

Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime) is updated on the following events. When the device is operational the counter is updated and stored in a non-volatile location at a minimum interval of one hour.

1. Update on Timer: Yes (= 1 hour)
2. Update on entering Standby state: Yes
3. Update on entering Sleep state: Yes
4. Update on Device Statistics Page Read: Yes

A.5.2.4.3 Measurement Units

Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime) is decremented by one for each freefall event that is detected with the magnitude higher than the maximum rating of the device.

A.5.2.4.4 Initialization

Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime) shall be initialized to zero at the time of manufacture.

(The following section is copied from previous version for reference.)

e06182r3

Proposal for the Device Statistic Information Additions Device Freefall Statistics Group

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This document shows the list of candidates of device freefall statistic information to be included in the Device Statistic Information Log. Each of the candidates will be reviewed and included in the standard after approval. Supporting of each of the item on the list is optional.

Summary of Device Statistic Information Candidates:

1. Device Statistic Information Header
2. Total Number of Freefall Events Detected by The Device (Lifetime)
3. Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime)

Freefall Event: An acceleration event that causes the device to initiate self-protection.

Device Statistic Information Table

Byte Offset	Bit	4. Description	
0		Device Statistic Information Header	
		Description: Update Criteria: Measurement Units: Initialization:	When T13 decides to make a new revision to this structure When event occurs Number sequence Set to 0001h at the factory
	63:48	Revision number	
	47:0	Reserved	
8		Total Number of Freefall Events Detected by The Device (Lifetime)	
		Description: Update Criteria: Measurement Units: Initialization:	This counter is incremented by one when a Freefall event is detected When event occurs Freefall event Cleared to zero at the factory
	63	1=valid statistic data	
	62:56	Reserved	
	55:32	Reserved	
	31:0	Unsigned DWORD Total Number of Freefall Events Detected by The Device (Lifetime)	
16		Number of Freefall Events Detected Where the Magnitude of the Event Exceeds the Maximum Rating of the Device (Lifetime)	
		Description:	The device internal setting determine the level of the freefall event is in a high level that might cause data

		error to occur Updated Criteria: When event occurs Measurement Units: High freefall event Initialization: Cleared to zero at the factory
	63	1=valid statistic data
	62:56	Reserved
	55:32	Reserved
	31:0	Unsigned DWORD Number of High Freefall Events (Lifetime)