Universal Serial Bus (USB)

HID Point of Sale
Usage Tables

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1 Introduction

Usages.are part of the HID Report descriptor and supply an application developer with information about what a control is actually measuring or reporting. In addition, a Usage tag can be used to indicate the vendor's suggested use for a specific control or a group of controls. While most of the items within a Report descriptor describe the format of the data – for example, thee 8-bit fields—the Usage tags define what should be done with the data – for example, x, y, and z input. This feature allows a vendor to ensure that the user sees consistent function assignments to controls across applications. It is also the key feature within HID Report descriptors that allows system or application software to know the meaning of data items, or collections of data items, so the data items can be correctly interpreted or routed to the system or application software that consumes them.

1.1 Scope

.This document is the most current and complete list of currently defined usages for Point of Sale devices. Refer to the Universal Serial Bus HID Usage Tables document for other usage definitions.

1.2 Purpose

This document defines constants that can be interpreted by an application to identify the purpose and meaning of a data field in a HID report.

1.3 Related Documents

Universal Serial Bus Specification (also referred to as the USB Specification)

Universal Serial Bus Device Class Definition for Human Interface Devices (HID) (also referred to as the HID Specification)

Universal Serial Bus HID Usage Tables

1.4 Terms and Abbreviations

Application — A software program that consumes the data generated by the HID device **Input** reports, or that controls the HID device through **Feature** or **Output** reports. Applications can be games or other programs used by end users or system software components.

Array field — The bit field created by an **Input**, **Output**, or **Feature** main item which is declared as an **Array**. An array field contains the index of a usage, not the usage value.

Control — A control is used to operate or regulate a particular aspect of a device. In this document a control refers broadly to the physical entity on the device that the usage identifies.

Field — The **Input**, **Output**, and **Feature** main items create a bit field in a report. The **Report Size** determines the field's width and the associated usage determines the field's purpose. The offset of a field in a report is determined by the fields that are declared before it.

Pad — If a field is marked as a constant and there is no usage associated with it, the field will be treated as pad bits and ignored by host software.

Note: Fields created by **Main** items that do not have usages attached to them might not be accessible by applications. Whether such access is possible depends on the implementation of the HID device driver.

Usage — Defines the purpose or meaning of an item.

2 POS Usage Pages

The following table lists the currently defined Point Of Sale usage pages and the section in this document or the specification where each page is described.

Table 1: POS Usage Page Summary

Page ID	Page Name	Section or Document
00-8B		*USB HID Usage Tables*
8C	Bar Code Scanner page	3
8D	Weighing Devices page	4
8E	Magnetic Stripe Reader page	5
8F	Reserved Point of Sale page	
90-EFFF		*USB HID Usage Tables*
FF00-FFFF	Vendor-defined	

3 Usage Page Bar Code Scanner (0x8C)

This page is targeted at the key devices that perform the primary task of Bar Code Scanning. Not all bar code scanners support all these features, and some scanners have features that go beyond this list. Any features that are not on this list can be implemented with vendor specific usages.

Table 2: Bar Code Scanner Usage Page

Usage ID	Usage Name	Usage Type	Section
00	Undefined		
01	**Bar Code Badge Reader**	CA	3.1
02	**Bar Code Scanner**	CA	3.1
03	**Dumb Bar Code Scanner**	CA	3.1
04	**Cordless Scanner Base**	CA	3.1
05	**Bar Code Scanner Cradle**	CA	3.1
06-0F	Reserved		
10	**Attribute Report**	CL	3.2
11	**Settings Report**	CL	3.2
12	**Scanned Data Report**	CL	3.2
13	**Raw Scanned Data Report**	CL	3.2
14	**Trigger Report**	CL	3.2
15	**Status Report**	CL	3.2
16	**UPC/EAN Control Report**	CL	3.2
17	**EAN 2/3 Label Control Report**	CL	2.2
18	**Code 39 Control Report**	CL	2.2
19	**Interleaved 2 of 5 Control Report**	CL	2.2
1A	**Standard 2 of 5 Control Report**	CL	2.2
1B	**MSI Plessey Control Report**	CL	2.2
1C	**Codabar Control Report**	CL	2.2
1D	**Code 128 Control Report**	CL	2.2
1E	**Misc 1D Control Report**	CL	3.2
1F	**2D Control Report**	CL	3.2
20-2F	Reserved		
30	Aiming/Pointer Mode	SF	3.3
31	Bar Code Present Sensor	SF	3.3
32	Class 1A Laser	SF	3.3
33	Class 2 Laser	SF	3.3
34	Heater Present	SF	3.3
35	Contact Scanner	SF	3.3
36	Electronic Article Surveillance Notification	SF	3.3

Usage ID	Usage Name	Usage Type	Section
37	Constant Electronic Article Surveillance	SF	2.3
38	Error Indication	SF	3.3
39	Fixed Beeper	SF	3.3
3A	Good Decode Indication	SF	3.3
3B	Hands Free Scanning	SF	3.3
3C	Intrinsically Safe	SF	3.3
3D	Klasse Eins Laser	SF	3.3
3E	Long Range Scanner	SF	3.3
3F	Mirror Speed Control	SF	3.3
40	Not On File Indication	SF	3.3
41	Programmable Beeper	SF	3.3
42	Triggerless	SF	3.3
43	Wand	SF	3.3
44	Water Resistant	SF	3.3
45	Multi-Range Scanner	SF	3.3
46	Proximity Sensor	SF	3.3
47-4C	Reserved		
4D	Fragment Decoding	DF	3.4
4E	Scanner Read Confidence	DV	3.4
4F	**Data Prefix**	NAry	3.5
50	Prefix AIMI	SEL	3.5
51	Prefix None	SEL	3.5
52	Prefix Proprietary	SEL	3.5
53-54	Reserved		
55	Active Time	DV	3.6
56	Aiming Laser Pattern	DF	3.6
57	Bar Code Present	OOC	3.6
58	Beeper State	OOC	3.6
59	Laser On Time	DV	3.6
5A	Laser State	OOC	3.6
5B	Lockout Time	DV	3.6
5C	Motor State	OOC	3.6
5D	Motor Timeout	DV	3.6
5E	Power On Reset Scanner	DF	3.6
5F	Prevent Read of Barcodes	DF	3.6
60	Initiate Barcode Read	DF	3.6
61	Trigger State	OOC	3.6
62	**Trigger Mode**	NAry	3.6.1

Usage ID	Usage Name	Usage Type	Section
63	Trigger Mode Blinking Laser On	SEL	3.6.1
64	Trigger Mode Continuous Laser On	SEL	3.6.1
65	Trigger Mode Laser on while Pulled	SEL	3.6.1
66	Trigger Mode Laser stays on after Trigger release	SEL	3.6.1
67-6C	Reserved		
6D	Commit Parameters to NVM	DF	3.7
6E	Parameter Scanning	DF	3.7
6F	Parameters Changed	OOC	3.7
70	Set parameter default values	DF	3.7
71-74	Reserved		
75	Scanner In Cradle	OOC	3.8
76	Scanner In Range	OOC	3.8
77-79	Reserved		
7A	Aim Duration	DV	3.9
7B	Good Read Lamp Duration	DV	3.9
7C	Good Read Lamp Intensity	DV	3.9
7D	Good Read LED	DF	3.9
7E	Good Read Tone Frequency	DV	3.9
7F	Good Read Tone Length	DV	3.9
80	Good Read Tone Volume	DV	3.9
81	Reserved	DV	3.9
82	No Read Message	DF	3.9
83	Not on File Volume	DV	3.9
84	Powerup Beep	DF	3.9
85	Sound Error Beep	DF	3.9
86	Sound Good Read Beep	DF	3.9
87	Sound Not On File Beep	DF	3.9
88	**Good Read When to Write**	NAry	3.9.1
89	GRWTI After Decode	SEL	3.9.1
8A	GRWTI Beep/Lamp after transmit	SEL	3.9.1
8B	GRWTI No Beep/Lamp use at all	SEL	3.9.1
8C-90	Reserved		
91	Bookland EAN	DF	3.10
92	Convert EAN 8 to 13 Type	DF	3.10
93	Convert UPC A to EAN-13	DF	3.10
94	Convert UPC-E to A	DF	3.10

Usage ID	Usage Name	Usage Type	Section
95	EAN-13	DF	3.10
96	EAN-8	DF	3.10
97	EAN-99 128_Mandatory	DF	3.10
98	EAN-99 P5/128_Optional	DF	3.10
99	Reserved		
9A	UPC/EAN	DF	3.10
9B	UPC/EAN Coupon Code	DF	3.10
9C	UPC/EAN Periodicals	DV	3.10
9D	UPC-A	DF	3.10
9E	UPC-A with 128 Mandatory	DF	3.10
9F	UPC-A with 128 Optional	DF	3.10
A0	UPC-A with P5 Optional	DF	3.10
A1	UPC-E	DF	3.10
A2	UPC-E1	DF	3.10
A2-A8	Reserved		
A9	**Periodical**	NAry	3.10.1
AA	Periodical Auto-Discriminate + 2	SEL	3.10.1
AB	Periodical Only Decode with + 2	SEL	3.10.1
AC	Periodical Ignore + 2	SEL	3.10.1
AD	Periodical Auto-Discriminate + 5	SEL	3.10.1
AE	Periodical Only Decode with + 5	SEL	3.10.1
AF	Periodical Ignore + 5	SEL	3.10.1
B0	**Check**	NAry	3.10.1.1
B1	Check Disable Price	SEL	3.10.1.1
B2	Check Enable 4 digit Price	SEL	3.10.1.1
B3	Check Enable 5 digit Price	SEL	3.10.1.1
B4	Check Enable European 4 digit Price	SEL	3.10.1.1
B5	Check Enable European 5 digit Price	SEL	3.10.1.1
B6	Reserved		
B7	EAN Two Label	DF	2.9.3
B8	EAN Three Label	DF	2.9.3
B9	EAN 8 Flag Digit 1	DV	3.10.2
BA	EAN 8 Flag Digit 2	DV	3.10.2
BB	EAN 8 Flag Digit 3	DV	3.10.2
BC	EAN 13 Flag Digit 1	DV	3.10.2
BD	EAN 13 Flag Digit 2	DV	3.10.2

Usage ID	Usage Name	Usage Type	Section
BE	EAN 13 Flag Digit 3	DV	3.10.2
BF	Add EAN 2/3 Label Definition	DF	2.9.3
C0	Clear all EAN 2/3 Label Definitions	DF	2.9.3
C1	Reserved		
C2	Reserved		
C3	Codabar	DF	0
C4	Code 128	DF	0
C5	Reserved		
C6	Reserved		
C7	Code 39	DF	0
C8	Code 93	DF	0
C9	Full ASCII Conversion	DF	0
CA	Interleaved 2 of 5	DF	0
CB	Italian Pharmacy Code	DF	0
CC	MSI/Plessey	DF	0
CD	Standard 2 of 5 IATA	DF	0
CE	Standard 2 of 5	DF	0
CF	Reserved		
D0	Reserved		
D1	Reserved		
D2	Reserved		
D3	Transmit Start/Stop	DF	0
D4	Tri-Optic	DF	0
D5	UCC/EAN-128	DF	0
D6	**Check Digit**	NAry	3.11.1
D7	Check Digit Disable	SEL	3.11.1
D8	Check Digit Enable Interleaved 2 of 5 OPCC	SEL	3.11.1
D9	Check Digit Enable Interleaved 2 of 5 USS	SEL	3.11.1
DA	Check Digit Enable Standard 2 of 5 OPCC	SEL	3.11.1
DB	Check Digit Enable Standard 2 of 5 USS	SEL	3.11.1
DC	Check Digit Enable One MSI Plessey	SEL	3.11.1
DD	Check Digit Enable Two MSI Plessey	SEL	3.11.1
DE	Check Digit Codabar Enable	SEL	2.10.1
DF	Check Digit Code 39 Enable	SEL	2.10.1
E0-EF	Reserved		

Usage ID	Usage Name	Usage Type	Section
F0	**Transmit Check Digit**	NAry	2.10.2
F1	Disable Check Digit Transmit	SEL	2.10.2
F2	Enable Check Digit Transmit	SEL	2.10.2
F3-FA	Reserved		
FB	Symbology Identifier 1	DV	3.13
FC	Symbology Identifier 2	DV	3.13
FD	Symbology Identifier 3	DV	3.13
FE	Decoded Data	DV	3.13
FF	Decode Data Continued	DF	3.13
100	Bar Space Data	DV	3.13
101	Scanner Data Accuracy	DV	3.13
102	**Raw Data Polarity**	NAry	3.14
103	Polarity Inverted Bar Code	SEL	3.14
104	Polarity Normal Bar Code	SEL	3.14
105	Reserved		
106	Minimum Length to Decode	DV	3.15
107	Maximum Length to Decode	DV	3.15
108	First Discrete Length to Decode	DV	3.15
109	Second Discrete Length to Decode	DV	3.15
10A	**Data Length Method**	NAry	3.15.1
10B	DL Method Read any	SEL	3.15.1
10C	DL Method Check in Range	SEL	3.15.1
10D	DL Method Check for Discrete	SEL	3.15.1
10E-10F	Reserved		
110	Aztec Code	DF	3.12
111	BC412	DF	3.12
112	Channel Code	DF	3.12
113	Code 16	DF	3.12
114	Code 32	DF	3.12
115	Code 49	DF	3.12
116	Code One	DF	3.12
117	Colorcode	DF	3.12
118	Data Matrix	DF	3.12
119	MaxiCode	DF	3.12
11A	MicroPDF	DF	3.12
11B	PDF-417	DF	3.12
11C	PosiCode	DF	3.12
11D	QR Code	DF	3.12

Usage ID	Usage Name	Usage Type	Section
11E	SuperCode	DF	3.12
11F	UltraCode	DF	3.12
120	USD-5 (Slug Code)	DF	3.12
121	VeriCode	DF	3.12
122-FFFF	Reserved		

3.1 Application Usages

The usages in this section are the primary types of scanner configurations that apply to this Bar Code Usage Table. The type of scanner identified by the Bar Code Scanning device can imply to the USB Host certain usages that will not apply. For example, the “Scanner in Range” usage only needs to be watched for Cordless Scanner Base type devices.

Bar Code Badge Reader CA – A Wall Mounted, swipe activated device that reads barcodes on ID badges

Bar Code Scanner CA – A device that reads barcodes and transmits decoded data

Dumb Bar Code Scanner CA – A device that reads barcodes and transmits raw barcode data without decoding the barcode

Cordless Scanner Base CA – A device that communicates with a barcode scanner that is not connected with a cable (includes IR and Radio connections).

Bar Code Scanner Cradle CA – A device that receives stored barcode data when the scanner is placed in a cradle

3.2 Report Usages

The usages in this section are defined to standardize the groupings of reports that are sent between the USB Host and the Bar Code scanner. The Scanned Data Report and the Raw Scanned Data Report usages are used to indicate the type of Decode data being passed to the USB Host. The rest of the Report usages are not required and are provided for clarity sake.

Attribute Report CL – A Feature report that the Bar Code Scanner uses to specify the scanner’s attributes.

Settings Report CL – An Output report that the USB Host uses to set the scanner’s non-symbology related parameters. These settings are typically sent when communications with the Barcode scanner are initiated.

Scanned Data Report CL – An Input report that the Bar Code Scanner uses to transmit decoded barcode data using the ASCII character set to the USB Host. Note: All decoded data should be sent using ASCII characters. BCD and Hexadecimal representation are not recommended.

Raw Scanned Data Report CL – An Input report that a Dumb Bar Code Scanner uses to transmit decoded barcode data to the USB Host.

Trigger Report CL – An Output report that a USB Host uses to trigger events on the Bar Code Scanner.

Status Report CL – An Input report that a Dumb Bar Code Scanner uses to communicate what it is presently doing. This information is especially needed when scan

attempts are controlled by the USB Host.

UPC/EAN Control Report	CL – An Output report that a USB Host uses to configure the UPC/EAN decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
EAN 2/3 Label Control Report	CL – An Output report that a USB Host uses to configure the EAN Two or Three label decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
Code 39 Control Report	CL – An Output report that a USB Host uses to configure the Code 39 decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
Interleaved 2 of 5 Control Report	CL – An Output report that a USB Host uses to configure the Interleaved 2 of 5 decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
Standard 2 of 5 Control Report	CL – An Output report that a USB Host uses to configure the Standard 2 of 5 decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
MSI Plessey Control Report	CL – An Output report that a USB Host uses to configure the MSI Plessey decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
Codabar Control Report	CL – An Output report that a USB Host uses to configure the Codabar decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
Code 128 Control Report	CL – An Output report that a USB Host uses to configure the Code 128 decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
Misc 1D Control Report	CL – An Output report that a USB Host uses to configure decoder software for miscellaneous 1D symbololgies (other than the ones with their own reports) within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated
2D Control Report	CL – An Output report that a USB Host uses to configure the 2D Symbology decoder software within the scanner. These settings are typically sent when communications with the Barcode scanner are initiated

3.3 Scanner Attribute Usages

The usages in this section are all Features that the scanner may implement. They are most useful in cases where a user may have several different scanners, and the USB host system requires a specific type of scanner for optimal use – such as with Intrinsically Safe or Water Resistant scanners.

Aiming/Pointer Mode	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner supports an Aiming/Pointer Mode
Bar Code Present Sensor	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has a Bar Code Present sensor

Class 1A Laser	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner meets the requirements of a Class 1A Laser product.
Class 2 Laser	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner meets the requirements of a Class 2 Laser product.
Heater Present	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner is has a built-in or attached heater that allows the scanner to be used in very cold environments.
Contact Scanner	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner is capable of reading barcodes at contact
Electronic Article Surveillance Notification	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner is capable of providing a signal after a good decode for invalidating EAS tags.
Constant Electronic Article Surveillance	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has an EAS antenna included.
Error Indication	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has an Error Indication
Fixed Beeper	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner does not have a programmable beeper
Good Decode Indication	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has Good Decode Indication
Hands Free Scanning	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has the capability of continuous-on hands free scanning
Intrinsically Safe	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner is safe for use in hazardous environments
Klasse Eins Laser	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner meets the requirements of a Klasse Eins Laser product
Long Range Scanner	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner can read barcodes beyond the arm’s reach of an operator
Mirror Speed Control	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner can control the speed of its mirror
Not On File Indication	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has a visual Not on File indication
Programmable Beeper	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner has a programmable beeper
Triggerless	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner does not have a trigger
Wand	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner reads barcodes with a wand element
Water Resistant	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner is water resistant
Multi-Range Scanner	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner can be used for both short and long range applications

Proximity Sensor	SF – Finding this usage in a Bar Code Scanner descriptor indicates that the scanner contains a sensor that detects an object in the scanner's field ofview

3.4 General Decoder Usages

The usages in this section allow the USB Host to program Code Type independent Decoder parameters.

Fragment Decoding	DF – Absolute, Indicates if the decoder will attempt to combine fragments of barcodes together to get a valid decode.
Scanner Read Confidence	DV – Relative, Selects on a relative scale how much confidence the barcode reader should have in the read data before accepting it as a good decode. (1-10, 1=Least)

3.5 Data Prefix Usages

The usages in this section are used to specify the value of the "Decode Data Prefix" Usage.

Data Prefix	NAry – A logical collection containing Prefix selector usages.
Prefix AIMI	SEL – Decode data will be preceded with a three-character AIM identifier as defined in the standard documents ITS 98-002 or EN796.
Prefix None	SEL – Decode data will be sent as decoded
Prefix Proprietary	SEL – Decode data will have a proprietary prefix

3.6 Laser/Motor Control Usages

The usages in this section are used to control and monitor the performance of the Scan Data acquisition subsystem within a Bar Code scanner.

Active Time	DV – Duration that the triggerless scanner will operate in continuous on mode without any decode attempt before shutting down. (0.1 sec resolution)
Aiming Laser Pattern	DF – Relative, Triggers the display of an Aiming pattern on the barcode scanner
Bar Code Present	OOC – Indicates if a barcode sensor sees a barcode in view
Beeper State	OOC – Indicates if the beeper is presently sounding a beep
Laser On Time	DV – Absolute, The amount of time the laser stays on in a triggered decode attempt if nothing is decoded (0.1 sec resolution)
Laser State	OOC – Indicates if the scanner is presently scanning a barcode.
Lockout Time	DV – Absolute, The amount of time that should elapse before scanning the same barcode again with a continuous on scanner. (0.01 sec resolution)
Motor State	OOC – Indicates if the motor is presently running on the scanner
Motor Timeout	DV – Absolute, The amount of time that the motor on a scanner will continue to operate while there is no decoding of barcode data (0.1 sec resolution)
Power On Reset Scanner	DF – Absolute, Triggers a Power On Reset on the barcode scanning device.
Prevent Read of Barcodes	DF – Absolute, While it has a value of 1, the barcode scanner will not read barcodes

Initiate Barcode Read	DF – Absolute, While it has a value of 1, the barcode scanner should behave as if the mechanical trigger on the scanner was pulled.
Trigger State	OOC – Indicates if the mechanical trigger on the scanner is pulled

3.6.1 Trigger Mode Usages

The usages in this section are used to specify how the scanning of a barcode is triggered

Trigger Mode	NAry – A logical collection containing Trigger Mode selector usages.
Trigger Mode Blinking Laser On	SEL – Laser should blink while barcode data is not present and stay on continuously while barcode data is present.
Trigger Mode Continuous Laser On	SEL – Laser should stay on all the time
Trigger Mode Laser on while Pulled	SEL – Laser should be on only while the trigger is pulled and the barcode reader has not yet read a barcode, or the laser on time is reached
Trigger Mode Laser stays on after release	SEL – Laser should go on when the trigger is pulled and should stay on until a barcode is read or the laser on time is reached

3.7 Configuration Usages

The usages in this section are used to perform special operations with the Scanner's Non-Volatile memory based parameters.

Commit Parameters to NVM	DF – Relative, Triggers the writing of the barcode scanner's internal parameters into NVM memory
Parameter Scanning	DF – Absolute, Indicates if the barcode reader's parameters can be changed by barcode menus
Parameters Changed	OOC – Indicates if any of the scanner's parameters were changed by the user.
Set parameter default values	DF – Relative, Triggers the setting of the barcode scanner's internal parameters to their default settings

3.8 Connectivity Usages

The usages in this section are used to monitor the presence of the scanner in cases when the scanner is not connected to the USB Host by a wire, but by through a base device.

Scanner In Cradle	OOC – Indicates if the scanner is presently on the cradle
Scanner In Range	OOC – Indicates if a cordless scanner is presently within range for communicating

3.9 User Interface Usages

The usages in this section are used to configure the "User Interface" settings of the scanner. For a scanner the user interface is largely the trigger, the LED's and the Beeper.

Aim Duration	DV – Duration that the scanner will remain in AIM mode before turning off (0.1 sec resolution)
Good Read Lamp Duration	DV – Absolute, Amount of time the Good Read lamp should stay illuminated after a good read (0.01 sec resolution)

Good Read Lamp Intensity	DV – Relative, Sets the brightness of the Good Read lamp (0 = disable)
Good Read LED	DF – Absolute, Turns the Good Read LED on or off
Good Read Tone Frequency	DV – Relative, Frequency of the Good Read Tone
Good Read Tone Length	DV – Absolute, Length of Good Read Tone (0.01 sec resolution)
Good Read Tone Volume	DV – Relative, Volume of Good Read Tone
No Read Message	DF – Absolute, Indicates if a message should be sent to indicate an unsuccessful attempt to scan a barcode.
Not on File Volume	DV – Relative, The volume of the Not on File beep
Power-Up Beep	DF – Absolute, Indicates if the barcode reader should beep when powering up (or after a POR)
Sound Error Beep	DF – Relative, Triggers the sounding of an Error Beep
Sound Good Read Beep	DF – Relative, Triggers the sounding of a Good Read Beep
Sound Not On File Beep	DF – Relative, Triggers the sounding of a Not on File Beep

3.9.1 Good Read When to Indicate Usages

The usages in this section are used to specify when to indicate a “Good Read”.

Good Read When to Indicate	NAry – A logical collection containing GRWTI selector usages.
GRWTI After Decode	SEL – Beep/Lamp only after decode
GRWTI Beep/Lamp after transmit	SEL – Beep/Lamp after transmit completes
GRWTI No Beep/Lamp use at all	SEL – No Beep/Lamp after decode or transmit

3.10 UPC/EAN Usages

The usages in this section are used to configure the UPC/EAN software within the Barcode Scanner

Bookland EAN	DF – Absolute, Indicates if EAN barcodes with Bookland data format should be decoded
Convert EAN 8 to 13 Type	DF – Absolute, Indicates if EAN-8 decoded barcodes should be converted to be a comparable EAN-13 barcode
Convert UPC A to EAN-13	DF – Absolute, Indicates if UPC-A decoded barcodes should be converted to be a comparable EAN-13 barcode
Convert UPC-E to A	DF – Absolute, Indicates if UPC-E decoded barcodes should be converted to be a comparable UPC-A barcode
EAN-13	DF – Absolute, Indicates if EAN-13 barcodes should be decoded

EAN-8	DF – Absolute, Indicates if EAN-8 barcodes should be decoded
EAN-99 128_Mandatory	DF – Absolute, Indicates if EAN-99 barcodes with 128 Mandatory format should be decoded
EAN-99 P5/128_Optional	DF – Absolute, Indicates if EAN-99 barcodes with five-digit periodical or 128 optional format should be decoded
Enable EAN Two Label	DF – Absolute, Indicates if EAN Two Label barcodes should be decoded
UPC/EAN	DF – Absolute, Indicates if UPC/EAN barcodes should be decoded
UPC/EAN Coupon Code	DF – Absolute, Indicates if UPC/EAN Coupon Code barcodes should be decode
UPC-A	DF – Absolute, Indicates if UPC A barcodes should be decoded
UPC-A with 128 Mandatory	DF – Absolute, Indicates if UPC-A barcodes with 128 Mandatory format should be decoded
UPC-A with 128 Optional	DF – Absolute, Indicates if UPC-A barcodes with 128 Optional format should be decoded
UPC-A with P5 Optional	DF – Absolute, Indicates if UPC-A barcodes with five-digit Periodical data format should be decoded
UPC-E	DF – Absolute, Indicates if UPC E barcodes should be decoded
UPC-E1	DF – Absolute, Indicates if UPC E1 barcodes should be decoded

3.10.1 UPC/EAN Periodical Usages

The usages in this section are used to specify how UPC/EAN symbols with periodicals should be read

Periodical	NAry – A logical collection containing Periodical selector usages.
Periodical Auto-Discriminate +2	SEL – Read UPC/EAN barcodes with or without periodical data
Periodical Only Decode with +2	SEL – Only read UPC/EAN barcodes with periodicals
Periodical Ignore +2	SEL – Ignore UPC/EAN periodical data within barcode
Periodical Auto-Discriminate +5	SEL – Read UPC/EAN barcodes with or without periodical data
Periodical Only Decode with +5	SEL – Only read UPC/EAN barcodes with periodicals
Periodical Ignore +5	SEL – Ignore UPC/EAN periodical data within barcode

3.10.1.1 Price/Weight Check Usages

The usages in this section are used to specify how a “Price/Weight Check” should be processed.

Check	NAry – A logical collection containing Check selector usages.
Check Disable Price	SEL – Do not perform a price/weight check
Check Enable 4 digit Price	SEL – Enable four-digit price/weight check

Check Enable 5 digit Price	SEL – Enable five-digit price/weight check
Check Enable European 4 digit Price	SEL – Enable European four-digit price/weight check
Check Enable European 5 digit Price	SEL – Enable European five-digit price/weight check

3.10.2 EAN Two or Three Label Usages

The usages in this section are used to specify how EAN Two Label and Three Label barcodes should be read (if at all). The bar code scanner may store one or more records of data that indicates the combination of flag digits that must be contained within the barcodes to successfully decode as an EAN Two or Three label barcode.

EAN Two Label	DF – Absolute, Indicates if two EAN barcodes should be decoded as one providing that the flag digits match the pre-specified values .
EAN Three Label	DF – Absolute, Indicates if three EAN barcodes should be decoded as one providing that the flag digits match the pre-specified values .
EAN 8 Flag Digit 1	DV – Absolute, The value of a Flag Digit that should be present in an EAN 8 barcode to be decoded as an EAN Two or Three label barcode (as specified in an EAN 2/3 Label Control Report).
EAN 8 Flag Digit 2	DV – Absolute, The value of a Flag Digit that should be present in an EAN 8 barcode to be decoded as an EAN Two or Three label barcode (as specified in an EAN 2/3 Label Control Report).
EAN 8 Flag Digit 3	DV – Absolute, The value of a Flag Digit that should be present in an EAN 8 barcode to be decoded as an EAN Two or Three label barcode (as specified in an EAN 2/3 Label Control Report).
EAN 13 Flag Digit 1	DV – Absolute, The value of a Flag Digit that should be present in an EAN 13 barcode to be decoded as an EAN Two or Three label barcode (as specified in an EAN 2/3 Label Control Report).
EAN 13 Flag Digit 2	DV – Absolute, The value of a Flag Digit that should be present in an EAN 13 barcode to be decoded as an EAN Two or Three label barcode (as specified in an EAN 2/3 Label Control Report).
EAN 13 Flag Digit 3	DV – Absolute, The value of a Flag Digit that should be present in an EAN 13 barcode to be decoded as an EAN Two or Three label barcode (as specified in an EAN 2/3 Label Control Report).
Add EAN 2/3 Label Definition	DF – Absolute, Indicates that the EAN 2/3 Label Control Report contains a definition of a new group of Flag Digits for the decoding of an EAN Two Label or Three Label barcode.
Clear all EAN 2/3 Label Definitions	DF – Absolute, Indicates that the all EAN 2/3 Label definitions stored in the bar code reader should be erased.

3.11 Other 1D Symbology Usages

The usages in this section are used to configure the Decoder software within the Scanner for 1D symbologies other than UPC/EAN.

BC412	DF – Absolute, Indicates if BC 412 barcodes should be decoded
Codabar	DF – Absolute, Indicates if Codabar barcodes should be decoded
Code 128	DF – Absolute, Indicates if Code 128 barcodes should be decoded
Code 39	DF – Absolute, Indicates if Code 39 barcodes should be decoded
Code 93	DF – Absolute, Indicates if Code 93 barcodes should be decoded
Full ASCII Conversion	DF – Absolute, Indicates if Code 39 Full ASCII conversion should be done
Interleaved 2 of 5	DF – Absolute, Indicates if Interleaved 2 of 5 barcodes should be decoded
Italian Pharmacy Code	DF – Absolute, Indicates if Italian Pharmacy formatted Code 39 barcodes should be decoded
MSI/Plessey	DF – Absolute, Indicates if MSI/Plessey barcodes should be decoded
Standard 2 of 5 IATA	DF – Absolute, Indicates if Standard 2 of 5 barcodes with IATA spacing should be decoded
Standard 2 of 5	DF – Absolute, Indicates if Standard 2 of 5 barcodes should be decoded
Transmit Codabar Start/Stop	DF – Absolute, Indicates if Codabar start/stop characters should be transmitted
Tri-Optic	DF – Absolute, Indicates if Tri-Optic Code 39 barcodes should be decoded
UCC/EAN-128	DF – Absolute, Indicates if UCC/EAN-128 barcodes should be decoded and output using standard label identifiers. This option overrides the none or proprietary selection for the Data Prefix selection for Code 128 labels which are not UCC/EAN-128 bar codes. Note: The scanner will decode the UCC/EAN-128 tag, but if UCC/EAN-128 is not selected any Function 1 characters in the data stream will not be output as Group Seperator characters per USS-128

3.11.1 Check Digit Usages

The usages in this section are used to specify how the decoder should process Check Digits for the specified code types. Each 1D code type with a check digit should have its own logical collection. The presence of these usages in the collection makes them applicable to the logical collection's code type.

Check Digit	NAry – A logical collection containing Check Digit selector usages.
Check Digit Disable	SEL – Do not verify check digit for code type
Check Digit Enable Interleaved 2 of 5 OPCC	SEL – Verify OPCC format check digits for Interleaved 2 of 5 barcodes
Check Digit Enable Interleaved 2 of 5 USS	SEL – Verify USS format check digits for Interleaved 2 of 5barcodes
Check Digit Enable Standard 2 of 5 OPCC	SEL – Verify OPCC format check digits for Standard 2 of 5 barcodes

Check Digit Enable Standard 2 of 5 USS	SEL – Verify USS format check digits for Standard 2 of 5 barcodes
Check Digit Enable One MSI Plessey Check	SEL - Check for one MSI/Plessey check digit
Check Digit Enable Two MSI Plessey	SEL – Check for two MSI/Plessey check digits
Check Digit Enable Two MSI Plessey	SEL – Check for two MSI/Plessey check digits
Check Digit Enable Codabar	SEL – Verify check digits for Codabar barcodes
Check Digit Enable Code 39	SEL – Verify check digits for Code 39 barcodes

3.11.2 Transmit Check Digit Usages

The usages in this section are used to specify how the decoder should transmit Check Digits. Each 1D code type with a check digit should have its own logical collection. The presence of these usages in the collection makes them applicable to the logical collection's code type. These usages only apply to 1D code types with check digits.

Transmit Check Digit	NAry – A logical collection containing Check Digit selector usages.
Disable Check Digit Transmit	SEL – Do not transmit check digit for the code type.
Enable Check Digit Transmit	SEL – Transmit the check digits for the code type.

3.12 2D Symbology Usages

The usages in this section are used to configure the Decoder software within the Scanner for 2D symbologies.

Aztec Code	DF – Absolute, Indicates if Aztec barcodes should be decoded
Channel Code	DF – Absolute, Indicates if Channel Code barcodes should be decoded
Code 16	DF – Absolute, Indicates if Code 16 barcodes should be decoded
Code 32	DF – Absolute, Indicates if Code 32 barcodes should be decoded
Code 49	DF – Absolute, Indicates if Code 49 barcodes should be decoded
Code One	DF – Absolute, Indicates if Code One barcodes should be decoded
Colorcode	DF – Absolute, Indicates if Colorcode barcodes should be decoded
Data Matrix	DF – Absolute, Indicates if Data Matrix barcodes should be decoded
MaxiCode	DF – Absolute, Indicates if Maxi Code barcodes should be decoded
MicroPDF	DF – Absolute, Indicates if Micro PDF barcodes should be decoded
PDF-417	DF – Absolute, Indicates if PDF-417 barcodes should be decoded
PosiCode	DF – Absolute, Indicates if PosiCode barcodes should be decoded
QR Code	DF – Absolute, Indicates if QR Code barcodes should be decoded

SuperCode	DF – Absolute, Indicates if Super Code barcodes should be decoded
UltraCode	DF – Absolute, Indicates if Ultra Code barcodes should be decoded
USD-5 (Slug Code)	DF – Absolute, Indicates if USD-5 (Slug Code) barcodes should be decoded
VeriCode	DF – Absolute, Indicates if VeriCode barcodes should be decoded

3.13 Decode Data Usages

The usages in this section are used to by the Scanner to send decoded or read barcode data to the USB Host.

Decoded Data	DV – Contains the ASCII data that was just decoded. Very long barcodes can be sent to the USB host in chunks (see "Decode Data Continued").
Symbology Identifier 1	DF – Contains the first character of the Symbology Identifier for the Barcode that was just decoded. If the scanner does not provide this data, then it can omit this usage from its report.
Symbology Identifier 2	DF – Contains the second Symbology Identifier (see Symbology Identifier 1)
Symbology Identifier 3	DF – Contains the third Symbology Identifier (see Symbology Identifier 1)
Decode Data Continued	DF – When set, this bit indicates that the Decode data is continued with the next report. This usage is needed for scanners that process 2D symbology barcodes and "Dumb Scanners". These barcodes can contain anywhere from 1 to 1024 bytes of data or more. The use of this continue bit enables the Bar Code scanner to declare an output buffer in the size that it can handle given available resources.
Bar Space Data	DV – Contains barcode data that was read by a "Dumb Scanner". The bar code is represented as a stream of values with each value indicating the relative length of a bar or a space (with the maximum allowed value indicating an overflow). In most cases the units can be microseconds. But in the case of slower devices such as wands, the data may need to be scaled down to fit within the allocated size of the value. This type of scan data can be useful for systems that evaluate the quality of barcodes or barcode scanner systems. This type of data can also be useful in cases where the scanner is reading a new code type that is not yet supported in the scanner (providing that the appropriate decode software resides on the USB Host..
Scanner Data Accuracy	DV – Contains the smallest unit of time that is reported by the Bar Code scanner.

3.14 Raw Data Polarity Usages

The usages in this section are used to by the Scanner to specify the polarity of the first raw data value.

Raw Data Polarity	NAry – A logical collection containing Polarity selector usages.
Polarity Inverted Bar Code	SEL – A barcode was read with a Non-White margin. The first timing value in the Bar Space Data (the margin) is of a dark element.
Polarity Normal Bar Code	SEL – A barcode was read with a White margin. The first timing value in the Bar Space Data (the margin) is of a White element.

3.15 Decode Data Length Usages

The usages in this section can be placed in a logical collection for one or more linear code types (Code 39, Standard 2 of 5 and Interleaved 2 of 5 for example) to specify the size of the barcodes that are to be decoded. These length usages will be specified by the USB Host and honored (where supported) by the Scanning device. These usages can not be used to specify an overall min/max length for the scanner.

Minimum Length to Decode	DV – Contains the smallest length that may be decoded for a given code type. 0 = No Minimum
Maximum Length to Decode	DV – Contains the largest length that may be decoded for a given code type. 0 = No Maximum
Discrete Length to Decode 1	DV – Contains a length that may be decoded for a given code type. 0 = Not Specified.
Discrete Length to Decode 2	DV – Contains a length that may be decoded for a given code type. 0 = Not Specified

3.15.1 Data Length Method Usages

The usages in this section are used to specify how lengths should be checked by the Scanner for a specific code type. These usages are only needed when the Scanner allows the user to select either a range of lengths or one or more discrete lengths. If these usages are not defined, then discrete length definitions will take precedence over defined length ranges.

Data Length Method	NAry – A logical collection containing DL Method selector usages.
DL Method Read any	SEL – Bar Codes of any length should be read for the code type
DL Method Check in Range	SEL – Bar Codes should only be read within the specified range
DL Method Check for Discrete	SEL – Bar Codes should only be read for the one or more specified lengths

4 Weighing Devices (0x8D)

This section provides descriptions of the usages employed by weighing devices. Any features not listed may be implemented by vendor specific usages.

Table 3: Scale Usage Page

Usage ID	Usage Name	Usage Type	Section
00	Undefined		
01	**Weighing Device**	CA	0
01-1F	Reserved		
20	**Scale Device**	CL	4.2
21	Scale Class I Metric	CL	4.2
22	Scale Class I Metric	SEL	4.2
23	Scale Class II Metric	SEL	4.2
24	Scale Class III Metric	SEL	4.2
25	Scale Class IIIL Metric	SEL	4.2
26	Scale Class IV Metric	SEL	4.2
27	Scale Class III English	SEL	4.2
28	Scale Class IIIL English	SEL	4.2
29	Scale Class IV English	SEL	4.2
2A	Scale Class Generic	SEL	4.2
2B-2F	Reserved		
30	**Scale Attribute Report**	CL	4.3
31	**Scale Control Report**	CL	4.3
32	**Scale Data Report**	CL	4.3
33	**Scale Status Report**	CL	4.3
34	**Scale Weight Limit Report**	CL	4.3
35	**Scale Statistics Report**	CL	4.3
36-3F	Reserved		
40	Data Weight	DV	4.4
41	Data Scaling	CV	4.4
42-4F	Reserved		
50	**Weight Unit**	CL	4.4.1
51	Weight Unit Milligram	SEL	4.4.1
52	Weight Unit Gram	SEL	4.4.1
53	Weight Unit Kilogram	SEL	4.4.1
54	Weight Unit Carats	SEL	4.4.1
55	Weight Unit Taels	SEL	4.4.1
56	Weight Unit Grains	SEL	4.4.1
57	Weight Unit Pennyweights	SEL	4.4.1
58	Weight Unit Metric Ton	SEL	4.4.1

Usage ID	Usage Name	Usage Type	Section
59	Weight Unit Avoir Ton	SEL	4.4.1
5A	Weight Unit Troy Ounce	SEL	4.4.1
5B	Weight Unit Ounce	SEL	4.4.1
5C	Weight Unit Pound	SEL	4.4.1
5D-5F	Reserved		
60	Calibration Count	DV	4.4.2
61	Re-Zero Count	DV	4.4.2
62-6F	Reserved		
70	**Scale Status**	CL	4.5
71	Scale Status Fault	SEL	4.5
72	Scale Status Stable at Center of Zero	SEL	4.5
73	Scale Status In Motion	SEL	4.5
74	Scale Status Weight Stable	SEL	4.5
75	Scale Status Under Zero	SEL	4.5
76	Scale Status Over Weight Limit	SEL	4.5
77	Scale Status Requires Calibration	SEL	4.5
78	Scale Status Requires Re-zeroing	SEL	4.5
79-7F	Reserved		
80	Zero Scale	OOC	4.6
81	Enforced Zero Return	OOC	4.6
82-FFFF	Reserved		

4.1 Application Usages

Configurations that apply to the Scale Usage Table.

Scale CA – General weighing device collection

4.2 Class Usages

The usages in this section are the primary types of scales. Scale classifications are those recognized by the National Institute of Standards and Technology (NIST). A generic classification has been provided for scales that fall outside the NIST classification.

Set the Constant flag of the associated main item if the host cannot modify the Scale Class.

Weighing Device CL – This collection can contain one or more weighting device or Scale related usages.

Scale Class CL – This collection contains Scale Class selectors.

Scale Class I Metric SEL – Precision laboratory weighing device. Measurement units are typically in milligrams.

Scale Class II Metric	SEL – Laboratory weighing device; precious metals and gem weighing, grain test scales. Measurement units are typically in milligrams.
Scale Class III Metric	SEL – All retail weighing not otherwise specified; grain test scales, retail precious metals and semi-precious gem weighing, animal scales, postal scales, scales used to determine laundry charges and vehicle on-board weighing systems. Measurement units are typically in grams.
Scale Class IIIL Metric	SEL – Vehicle, axle-load, livestock, railway track scales, crane, hopper scales, and vehicle on-board weighing systems. Measurement units are in typically kilograms.
Scale Class IV Metric	SEL – Wheel load weighers and portable axle load weighers used for highway weight enforcement. Measurement units are typically in grams.
Scale Class III English	SEL – All retail weighing not otherwise specified; grain test scales, retail precious metals and semi-precious gem weighing, animal scales, postal scales, scales used to determine laundry charges and vehicle on-board weighing systems. Measurement units are typically in fractions of pounds.
Scale Class IIIL English	SEL – Vehicle, axle-load, livestock, railway track scales, crane, hopper scales, and vehicle on-board weighing systems. Measurement units are typically in pounds.
Scale Class IV English	SEL – Wheel load weighers and portable axle load weighers used for highway weight enforcement. Measurement units are typically in fractions of pounds.
Scale Class Generic	SEL – scales not falling under previous classifications

4.3 Report Usages

The usages in this section are defined to standardize the groupings of reports that are sent between the USB Host and the scale.

Scale Attribute Report	CL – A Feature report that the scale uses to specify its static attributes.
Scale Control Report	CL – A Feature report that a USB Host uses to control the operation of the scale, namely to get or set the state of the Enforced Zero Return control.
Scale Data Report	CL – Input report that the Scale uses to transmit the current status and weight data to the USB Host. This collection typically contains the Scale Unit, Data Scaling and Data Weight usages.
Scale Status Report	CL – Input report that the Scale uses to transmit changes in device status to the USB Host.
Scale Weight Limit Report	CL – A Feature report that the host uses to identify the maximum weight limit of the scale. This collection typically contains the Scale Unit, Data Scaling and Data Weight usages.
Scale Statistics Report	CL – A Feature report that the host uses to query the current operational statistics of the scale. These statistics include the number of times the scale has been re-zeroed or calibrated.

Note: A usage can be found in more than one report. The report collections are used to distinguish their purpose.

4.4 Data Usages

The usages in this section are used to transmit scale related data to the USB Host. When a Data usage is used to identify the Weight Limit, the device should set the Constant flag of the associated main item(s) if the host cannot modify the Weight Limit.

Data Weight	DV – Contains a binary value representing the weight present on the scale.
Data Scaling	DV – A numeric value representing the scaling applied to the data as a base ten exponent. Range is from 127 to –127.

4.4.1 Weight Units

These are usage selections that describe the units of the data being reported. Set the Constant flag of the associated main item if the host cannot modify the Weight Unit.

Weight Unit	CL – This collection contains Scale Unit selectors.
Weight Unit Milligram	SEL – data units are in milligrams
Weight Unit Gram	SEL – data units are in grams
Weight Unit Kilogram	SEL – data units are in kilograms
Weight Unit Carats	SEL – data units are in Carats
Weight Unit Taels	SEL – data units are in Taels
Weight Unit Grains	SEL – data units are in Grains
Weight Unit Pennyweights	SEL – data units are in Pennyweights
Weight Unit Metric Ton	SEL – data units are in metric ton
Weight Unit Avoir Ton	SEL – data units are in avoir ton
Weight Unit Troy Ounce	SEL – data units are in troy ounces
Weight Unit Ounce	SEL – data units are in ounces
Weight Unit Pound	SEL – data units are in pounds

4.4.2 Statistics Data

These usages describe the various statistical information that may be reported by the scale.

Calibration Count	DV – number of times that the scale has been calibrated since manufacture
Re-zero Count	DV – number of times the scale has been zeroed since power on

4.5 Scale Status Usages

The usages in this section are used by the scale to transmit device status to the USB Host.

Scale Status	CL – This collection contains Scale Status selectors
Scale Status Fault	SEL – some internal scale fault has occurred.
Scale Status Stable at Center of Zero	SEL – the weight is stable and at zero.
Scale Status In Motion	SEL – the scale is not stable; i.e. moving.

Scale Status Weight Stable	SEL – weight on scale is stable and valid.
Scale Status Under Zero	SEL –weight is stable but is measured at less than zero.
Scale Status Over Weight Limit	SEL –weight is stable but exceed the capacity of the scale.
Scale Status Requires Calibration	SEL -the scale must be calibrated before data is available.
Scale Status Requires Re-zeroing	SEL -the scale must be zeroed before data is available.

4.6 Device Control Usages

The usages in this section are used by the USB Host to control the operation of the scale.

Zero Scale	OOC – When enabled, the scale will attempt to set the current weight on the scale as the zero weigh point.
Enforced Zero Return	OOC – When enabled, the scale will require that the weight on the scale must return to zero between weight requests

5 Usage Page for Magnetic Stripe Reader (MSR) (0x8E)

This page provides usage definitions that may be used in conjunction with Magnetic Stripe Reading devices, whether or not such devices conform fully to external standards.

Table 4: Magnetic Stripe Reader (MSR) Usage Page

Usage ID	Usage Name	Usage Type	Section
00	Undefined		
01	MSR Device Read-Only	CA	5.1
02 to 0x10	Reserved		
0x11	Track 1 Length	SF, DF, SEL	5.2.1
0x12	Track 2 Length	SF, DF, SEL	5.2.1
0x13	Track 3 Length	SF, DF, SEL	5.2.1
0x14	Track JIS Length	SF, DF, SEL	5.2.1
0x15 to 0x1F	Reserved		
0x20	Track Data	SF, DF, SEL	5.2.1
0x21	Track 1 Data	SF, DF, SEL	5.2.1
0x22	Track 2 Data	SF, DF, SEL	5.2.1
0x23	Track 3 Data	SF, DF, SEL	5.2.1
0x24	Track JIS Data	SF, DF, SEL	5.2.1
0x25 to 0xFFFF	Reserved		

5.1 Application Usages

MSR Read only	CA-The device is a reader of MSR cards

5.2 Other Usages

5.2.1 Track information usages.

Track 1 Data	SF, DF- Used in feature reports to indicate this device can read track 1from the card, or to enable/disable the reading of track 1 data. DV-Used in reports to indicate the source of the associated data[1]
Track 1 Length	DV – Used in reports to indicate the length of track data
Track 2 Data Track 2 Length	Analogous to Track 1 above, applies to track 2
Track 3 Data Track 3 Length	Analogous to Track 1 above, applies to track 3
Track JIS Data Track JIS Length	Analogous to Track 1 above, applies to JIS track
Track Data	DV – Used to indicate data from all tracks, when track data is not separated by reader, but is packed. Individual tracks are then normally located using the "Track n Length" fields, and appear in the same order as the track length fields. This allows a device to implement several different reports and choose the shortest one that accommodates all data read from the magnetic stripe, rather than always sending a report large enough to accommodate the largest possible report.

[1] The data is a number of octets that contain the full bit stream extracted from the magnetic stripe. The first bit read from the track will be delivered as the LSB of the first octet of "Track # Data". The eighth bit read from the track will be the MSB of the first octet. The ninth bit from the track will be the LSB of the second octet. And so forth.

6 Appendix

6.1 Barcode Device Examples

This section provides examples of common implementations of controls. Pseudocode is used to describe the **Main**, **Global** and **Local** items.

There are a number of cases where **Usage Minimum** or **Usage Maximum** could have been used in these examples, but they were omitted for clarity.

6.1.1 Settings Report

```
USAGE (Settings Report)
  COLLECTION (Logical)
    REPORT_ID (1)
    USAGE (Data Prefix)
    COLLECTION (Logical)
      LOGICAL_MINIMUM (0)
      LOGICAL_MAXIMUM (4)
      REPORT_SIZE (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (AIM Prefix)
      USAGE_MAXIMUM (Proprietary Prefix)
      OUTPUT (Data,Ary,Abs)
    END_COLLECTION
    LOGICAL_MAXIMUM (15)
    REPORT_SIZE (4)
    USAGE (Scanner Read Confidence)
    OUTPUT (Data,Var,Abs)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    USAGE (Fragment Decoding)
    OUTPUT (Data,Var,Abs)
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (8)
    USAGE (Active Time)
    USAGE (Laser On Time)
    USAGE (Lockout Time)
    USAGE (Motor Timeout)
    USAGE (Aim Duration)
    USAGE (Good Read Lamp Duration)
    USAGE (Good Read Tone Length)
    USAGE (Not on File Volume)
    OUTPUT (Data,Var,Abs)
    LOGICAL_MAXIMUM (15)
    REPORT_SIZE (4)
    REPORT_COUNT (3)
    USAGE (Good Read Tone Volume)
    USAGE (Good Read Tone Frequency)
    USAGE (Good Read Lamp Intensity)
    OUTPUT (Data,Var,Abs)
    USAGE (Good Read When to Write)
    COLLECTION (Logical)
```

```
    LOGICAL_MAXIMUM (3)
    REPORT_SIZE (2)
    USAGE_MINIMUM (After Decode)
    USAGE_MAXIMUM (No Beep/Lamp use at all)
    OUTPUT (Data,Ary,Abs)
  END_COLLECTION
  LOGICAL_MAXIMUM (1)
  REPORT_SIZE (1)
  REPORT_COUNT (5)
  USAGE (Aiming Laser Pattern)
  USAGE (Parameter Scanning)
  USAGE (Good Read LED)
  USAGE (No Read Message)
  USAGE (Powerup Beep )
  OUTPUT (Data,Var,Abs)
  LOGICAL_MAXIMUM (4)
  REPORT_SIZE (3)
  USAGE_MINIMUM (Blinking Laser On)
  USAGE_MAXIMUM (Laser stays on after Trigger release)
END_COLLECTION
```

Figure 1: Example Settings Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 1							
1	Fragment Decoding	Scanner Read Confidence				Data Prefix (AIM Prefix, Proprietary Prefix)		
2	Active Time							
3	Laser On Time							
4	Lockout Time							
5	Motor Lockout							
6	Aim Duration							
7	Good Read Lamp Duration							
8	Good Read Tone Length							
9	Not on File Volume							
10	Good Read Tone Frequency				Good Read Tone Volume			
11	Good Read When to Indicate (RGWTI After Decode - RGWTI No Beep/Lamp use at all)				Good Read Lamp Intensity			
12	Trigger Mode (Blinking Laser On – Laser stays on after Trigger Release)			Powerup Beep	No Read Message	Good Read LED	Para-meter Scanning	Aiming Laser Pattern

6.1.2 Scanned Data Report

```
USAGE (Scanned Data Report)
  COLLECTION (Logical)
    REPORT_ID (2)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (3)
    USAGE (Symbology Identifier 1)
    USAGE (Symbology Identifier 2)
    USAGE (Symbology Identifier 3)
    INPUT (Data,Var,Abs)
    REPORT_COUNT (50)
    USAGE (Decoded Data)
    INPUT (Data,Var,Abs,Buf)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (8)
    USAGE (Decode Data Continued)
    INPUT (Data,Var,Abs)
  END_COLLECTION
```

Figure 2: Example Scanned Data Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 2							
1	Symbology Identifier 1							
2	Symbology Identifier 2							
3	Symbology Identifier 3							
4-53	Decoded Data [1-50]							
54	Padding							Decode Data Continued

6.1.3 Raw Scanned Data Report

```
USAGE (Raw Scanned Data Report)
  COLLECTION (Logical)
    REPORT_ID (3)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (50)
    USAGE (Bar Space Data)
    INPUT (Data,Var,Abs)
    REPORT_COUNT (1)
    USAGE (Scanner Data Accuracy)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Decode Data Continued)
    INPUT (Data,Var,Abs)
    USAGE (Raw Data Polarity)
    COLLECTION (Logical)
      REPORT_SIZE (2)
      USAGE_MINIMUM (Inverted Bar Code)
      USAGE_MAXIMUM (Normal Bar Code)
      INPUT (Data,Ary,Abs)
    END_COLLECTION
    REPORT_COUNT (5)
    REPORT_SIZE (1)
    INPUT (Cnst,Val,Abs)
END_COLLECTION
```

Figure 3: Example Raw Scanned Data Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 3							
1-50	Bar Space Data [1-50]							
51	Scanner Data Accuracy							
52	Padding					Raw Data Polarity*		Decode Data Continued

*(Inverted Bar Code Data-Normal Bar Code Data)

6.1.4 Trigger Report

```
USAGE (Trigger Report)
  COLLECTION (Logical)
    REPORT_ID (4)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (8)
    USAGE (Power On Reset Scanner)
    USAGE (Prevent Read of Barcodes)
    USAGE (Initiate Barcode Read)
    USAGE (Commit Parameters to NVM)
    USAGE (Set parameter default values)
    USAGE (Sound Error Beep)
    USAGE (Sound Good Read Beep)
    USAGE (Sound Not On File Beep)
    OUTPUT (Data,Var,Rel,Vol)
  END_COLLECTION
```

Figure 4: Example Trigger Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 4							
1	Sound Not on File Beep	Sound Good Read Beep	Sound Error Beep	Set Para-meter Default Values	Commit Param-eters to NVM	Initiate Barcode Read	Prevent Read of Barcodes	Power on Reset Scanner

6.1.5 Status Report

```
USAGE (Status Report)
  COLLECTION (Logical)
    REPORT_ID (5)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (8)
    USAGE (Bar Code Present)
    USAGE (Beeper State)
    USAGE (Laser State)
    USAGE (Motor State)
    USAGE (Trigger State)
    USAGE (Scanner In Cradle)
    USAGE (Scanner In Range)
    USAGE (Parameters Changed)
    INPUT (Data,Var,Rel,Vol)
  END_COLLECTION
```

Figure 5: Example Status Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 5							
1	Para-meters Changed	Scanner in Range	Scanner in Cradle	Trigger State	Motor State	Laser State	Beeper State	Bar Code Present

6.1.6 UPC/EAN Control Report

```
USAGE (UPC/EAN Control Report)
  COLLECTION (Logical)
    REPORT_ID (6)
    REPORT_SIZE(4)
    USAGE (Check)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (5)
      USAGE_MINIMUM (Check Disable Price)
      USAGE_MAXIMUM (Check Enable European 5 digit Price)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Periodical)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (3)
      REPORT_SIZE (4)
      USAGE_MINIMUM (Periodical Auto-Discriminate +2)
      USAGE_MAXIMUM (Periodical Ignore +2)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Periodical)
    COLLECTION (Logical)
      USAGE_MINIMUM (Periodical Auto-Discriminate +5)
```

```
    USAGE_MAXIMUM (Periodical Ignore +5)
    OUTPUT (Data,Ary,Abs)
  COLLECTION_END
  LOGICAL_MINIMUM (0)
  LOGICAL_MAXIMUM (1)
  REPORT_SIZE (1)
  REPORT_COUNT (24)
  USAGE (Bookland EAN)
  USAGE (Convert EAN 8 to 13 Type)
  USAGE (Convert UPC A to EAN-13)
  USAGE (Convert UPC-E to A)
  USAGE (EAN-13)
  USAGE (EAN-8)
  USAGE (EAN-99 128_Mandatory)
  USAGE (EAN-99 P5/128_Optional)
  USAGE (Enable EAN Two Label)
  USAGE (UPC/EAN)
  USAGE (UPC/EAN Coupon Code )
  USAGE (UPC-A)
  USAGE (UPC-A with 128 Mandatory)
  USAGE (UPC-A with 128 Optional)
  USAGE (UPC-A with P5 Optional)
  USAGE (UPC-E)
  USAGE (UPC-E1)
  OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 6: Example UPC/EAN Control Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 6							
1	UPC/EAN + 2 Periodicals (Auto-Discriminate +2 Periodicals - Ignore +2 Periodicals)				Price/Weight Check (Disable Price Check - Enable European 5 digit Price Check)			
2	EAN-8	EAN-13	Convert UPC-E to A	Convert UPC A to EAN-13	Convert EAN 8 to 13 Type	Book-land EAN	UPC/EAN + 5 Periodicals (Auto-Discriminate +5 Periodicals - Ignore +5 Periodicals)	
3	UPC-A with 128 Optional	UPC-A with 128 Manda-tory	UPC-A	UPC/ EAN Coupon Code	UPC/ EAN	Enable EAN Two Label	EAN-99 P5/128 Optional	EAN-99 128-Manda-tory
4	Padding					UPC-E1	UPC-E	UPC-A with P5 Optional

6.1.7 EAN 2/3 Label Control Report

The following Examples show the intended uses of the EAN Two and Three label usages. A bar code reader that supports EAN Two or Three label decoding can receive one or more Two/Three label definitions and store them. To change one of the stored definitions, all of the definitions need to be cleared out first and then the changed definitions can be sent to the bar code reader.

Figure 7: Example EAN 2/3 Label Control Report: Add Two Label Definition EAN8+EAN8

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Two Label
2	EAN 8 Flag Digit 1							
3	EAN 8 Flag Digit 2							

Figure 8: Example EAN 2/3 Label Control Report: Add Two Label Definition EAN8+EAN13

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Two Label
2	EAN 8 Flag Digit 1							
3	EAN 13 Flag Digit 2							

Figure 9: Example EAN 2/3 Label Control Report: Add Two Label Definition EAN13+EAN13

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Two Label
2	EAN 13 Flag Digit 1							
3	EAN 13 Flag Digit 2							

Figure 10: Example EAN 2/3 Label Control Report: Add Three Label Definition All EAN8

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Three Label
2	EAN 8 Flag Digit 1							
3	EAN 8 Flag Digit 2							
4	EAN 8 Flag Digit 3							

Figure 11: Example EAN 2/3 Label Control Report: Add Three Label Definition EAN8+EAN8+EAN13

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Three Label
2	EAN 8 Flag Digit 1							
3	EAN 8 Flag Digit 2							
4	EAN 13 Flag Digit 3							

Figure 12: Example EAN 2/3 Label Control Report: Add Three Label Definition EAN8+EAN13+EAN13

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Three Label
2	EAN 8 Flag Digit 1							
3	EAN 13 Flag Digit 2							
4	EAN 13 Flag Digit 3							

Figure 13: Example EAN 2/3 Label Control Report: Add Three Label Definition All EAN 13

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Add EAN 2/3 Label Definition	EAN Three Label
2	EAN 13 Flag Digit 1							
3	EAN 13 Flag Digit 2							
4	EAN 13 Flag Digit 3							

Figure 14: Example EAN 2/3 Label Control Report: Clear all Two Label Definitions

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Clear all EAN 2/3 Label Defin-itions	EAN Two Label

Figure 15: Example EAN 2/3 Label Control Report: Clear all Three Label Definitions

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 7							
1	Padding						Clear all EAN 2/3 Label Defin-itions	EAN Three Label

6.1.8 Code 39 Control Report

```
USAGE (Code 39 Control Report)
  COLLECTION (Logical)
    REPORT_ID (7)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Code 39)
    OUTPUT (Data,Var,Abs)
    USAGE (Data Length Method)
    COLLECTION (Logical)
      REPORT_SIZE (2)
      LOGICAL_MAXIMUM (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Read any Length)
      USAGE_MAXIMUM (Check for Discrete Lengths)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Transmit Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (1)
      REPORT_SIZE (1)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Disable Check Digit Transmit)
      USAGE_MAXIMUM (Enable Check Digit Transmit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (9)
      REPORT_SIZE (4)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Check Digit Disable)
      USAGE_MAXIMUM (Enable Code 39 Check Digit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (4)
    USAGE (Minimum Length to Decode)
    USAGE (Maximum Length to Decode)
    USAGE (First Discrete Length to Decode)
    USAGE (Second Discrete Length to Decode)
    OUTPUT (Data,Var,Abs)
    REPORT_SIZE (1)
    REPORT_COUNT (2)
    LOGICAL_MAXIMUM (1)
    USAGE (Full ASCII Conversion)
    USAGE (Tri-Optic )
    OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 16: Example Code 39 Control Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 8							
1	Code 39 Check Digit (Check Digit Disable – Check Digit Code 39 Enable)				Transmit Code 39 Check Digit	Code 39 Length Type (Read Any Length – Check for Discrete Lengths)		Code 39
2	Code 39 Minimum Length							
3	Code 39 Maximum Length							
4	Code 39 Discrete Length 1							
5	Code 39 Discrete Length 2							
6	Padding						Tri-Optic Code 39	Code 39 Full ASCII

6.1.9 Interleaved 2 of 5 Control Report

```
USAGE (Interleaved 2 of 5 Control Report)
  COLLECTION (Logical)
    REPORT_ID (8)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Interleaved 2 of 5)
    OUTPUT (Data,Var,Abs)
    USAGE (Data Length Method)
    COLLECTION (Logical)
      REPORT_SIZE (2)
      LOGICAL_MAXIMUM (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Read any Length)
      USAGE_MAXIMUM (Check for Discrete Lengths)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Transmit Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (1)
      REPORT_SIZE (1)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Disable Check Digit Transmit)
      USAGE_MAXIMUM (Enable Check Digit Transmit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (9)
      REPORT_SIZE (4)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Check Digit Disable)
      USAGE_MAXIMUM (Enable Code 39 Check Digit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (4)
    USAGE (Minimum Length to Decode)
    USAGE (Maximum Length to Decode)
    USAGE (First Discrete Length to Decode)
    USAGE (Second Discrete Length to Decode)
    OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 17: Example Interleaved 2 of 5 Control Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 9							
1	I 2 of 5 Check Digit (Check Digit Disable – Check Digit Code 39 Enable)				Transmit I 2 of 5 Check Digit	I 2 of 5 Length Type (Read Any Length – Check for Discrete Lengths)		Inter-leaved 2 of 5
2	I 2 of 5 Minimum Length							
3	I 2 of 5 Maximum Length							
4	I 2 of 5 Discrete Length 1							
5	I 2 of 5 Discrete Length 2							

6.1.10 Standard 2 of 5 Control Report

```
USAGE (Standard 2 of 5 Control Report)
  COLLECTION (Logical)
    REPORT_ID (9)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Standard 2 of 5)
    OUTPUT (Data,Var,Abs)
    USAGE (Data Length Method)
    COLLECTION (Logical)
      REPORT_SIZE (2)
      LOGICAL_MAXIMUM (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Read any Length)
      USAGE_MAXIMUM (Check for Discrete Lengths)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Transmit Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (1)
      REPORT_SIZE (1)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Disable Check Digit Transmit)
      USAGE_MAXIMUM (Enable Check Digit Transmit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (9)
      REPORT_SIZE (4)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Check Digit Disable)
      USAGE_MAXIMUM (Enable Code 39 Check Digit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (4)
    USAGE (Minimum Length to Decode)
    USAGE (Maximum Length to Decode)
    USAGE (First Discrete Length to Decode)
    USAGE (Second Discrete Length to Decode)
    OUTPUT (Data,Var,Abs)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Standard 2 of 5 IATA)
    OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 18: Example Standard 2 of 5 Control Report

Byte	7	6	5	4	3	2	1	0
0	Report ID = 10							
1	S 2 of 5 Check Digit (Check Digit Disable – Check Digit Code 39 Enable)				Transmit S 2 of 5 Check Digit	S 2 of 5 Length Type (Read Any Length – Check for Discrete Lengths)		Standard 2 of 5
2	S 2 of 5 Minimum Length							
3	S 2 of 5 Maximum Length							
4	S 2 of 5 Discrete Length 1							
5	S 2 of 5 Discrete Length 2							
6	Padding							Standard 2 of 5 IATA

6.1.11 MSI Plessey Control Report

```
USAGE (MSI Plessey Control Report)
  COLLECTION (Logical)
    REPORT_ID (10)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE  (MSI/Plessey)
    OUTPUT (Data,Var,Abs)
    USAGE (Data Length Method)
    COLLECTION (Logical)
      REPORT_SIZE (2)
      LOGICAL_MAXIMUM (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Read any Length)
      USAGE_MAXIMUM (Check for Discrete Lengths)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Transmit Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (1)
      REPORT_SIZE (1)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Disable Check Digit Transmit)
      USAGE_MAXIMUM (Enable Check Digit Transmit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (9)
      REPORT_SIZE (4)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Check Digit Disable)
      USAGE_MAXIMUM (Enable Code 39 Check Digit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (4)
    USAGE (Minimum Length to Decode)
    USAGE (Maximum Length to Decode)
    USAGE (First Discrete Length to Decode)
    USAGE (Second Discrete Length to Decode)
    OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 19: Example MSI Plessey Control Report

Byte	7	6	5	4	3	2	1	0
0	Report ID = 11							
1	MSI/Plessey Check Digit (Check Digit Disable – Check Digit Code 39 Enable)				Transmit MSI/Plessey Check Digit	MSI/Plessey Length Type (Read Any Length – Check for Discrete Lengths)		MSI/ Plessey
2	MSI/Plessey Minimum Length							
3	MSI/Plessey Maximum Length							
4	MSI/Plessey Discrete Length 1							
5	MSI/Plessey Discrete Length 2							

6.1.12 Codabar Control Report

```
USAGE (Codabar Control Report)
  COLLECTION (Logical)
    REPORT_ID (11)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Codabar)
    OUTPUT (Data,Var,Abs)
    USAGE (Data Length Method)
    COLLECTION (Logical)
      REPORT_SIZE (2)
      LOGICAL_MAXIMUM (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Read any Length)
      USAGE_MAXIMUM (Check for Discrete Lengths)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Transmit Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (1)
      REPORT_SIZE (1)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Disable Check Digit Transmit)
      USAGE_MAXIMUM (Enable Check Digit Transmit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    USAGE (Check Digit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (9)
      REPORT_SIZE (4)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Check Digit Disable)
      USAGE_MAXIMUM (Enable Code 39 Check Digit)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
    LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (4)
    USAGE (Minimum Length to Decode)
    USAGE (Maximum Length to Decode)
    USAGE (First Discrete Length to Decode)
    USAGE (Second Discrete Length to Decode)
    OUTPUT (Data,Var,Abs)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Transmit Start/Stop)
    OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 20: Example Codabar Control Report

Byte	7	6	5	4	3	2	1	0
0	Report ID = 12							
1	Codabar Check Digit (Check Digit Disable – Check Digit Code 39 Enable)				Transmit Codabar Check Digit	Codabar Length Type (Read Any Length – Check for Discrete Lengths)		Codabar
2	Codabar Minimum Length							
3	Codabar Maximum Length							
4	Codabar Discrete Length 1							
5	Codabar Discrete Length 2							
6	Padding							Transmit Codabar Start/ Stop

6.1.13 Code 128 Control Report

```
USAGE (Code 128 Control Report)
  COLLECTION (Logical)
    REPORT_ID (11)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (Code 128)
    OUTPUT (Data,Var,Abs)
    USAGE (Data Length Method)
    COLLECTION (Logical)
      REPORT_SIZE (7)
      LOGICAL_MAXIMUM (3)
      REPORT_COUNT (1)
      USAGE_MINIMUM (Read any Length)
      USAGE_MAXIMUM (Check for Discrete Lengths)
      OUTPUT (Data,Ary,Abs)
    COLLECTION_END
LOGICAL_MAXIMUM (255)
    REPORT_SIZE (8)
    REPORT_COUNT (4)
    USAGE (Minimum Length to Decode)
    USAGE (Maximum Length to Decode)
    USAGE (First Discrete Length to Decode)
    USAGE (Second Discrete Length to Decode)
    OUTPUT (Data,Var,Abs)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (1)
    USAGE (UCC/EAN-128)
    OUTPUT (Data,Var,Abs)
END_COLLECTION
```

Figure 21: Example Code128 Control Report

Byte	7	6	5	4	3	2	1	0
0	Report ID = 13							
1	Padding					Code 128 Length Type (Read Any Length – Check for Discrete Lengths)		Code 128
2	Code 128 Minimum Length (in elements)							
3	Code 128 Maximum Length (in elements)							
4	Code 128 Discrete Length 1 (in elements)							
5	Code 128 Discrete Length 2 (in elements)							
6	Padding							UCC/ EAN-128

6.1.14 Misc 1D Control Report

```
USAGE (Misc 1D Control Report)
    COLLECTION (Logical)
      REPORT_ID (13)
      REPORT_SIZE (1)
      REPORT_COUNT (6)
      USAGE (Code 93)
      USAGE (BC412)
      USAGE (Italian Pharmacy Code)
      OUTPUT (Data,Var,Abs)
    END_COLLECTION
```

Figure 22: Example Misc 1D Control Report

Byte	7	6	5	4	3	2	1	0
0	Report ID = 14							
18	Padding					Italian Pharm-acy Code	BC412	Code 93

6.1.15 2D Control Report

```
USAGE (2D Control Report)
  COLLECTION (Logical)
    REPORT_ID (14)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (24)
    USAGE (Aztec Code)
    USAGE (Channel Code)
    USAGE (Code 16)
    USAGE (Code 32)
    USAGE (Code 49)
    USAGE (Code One)
    USAGE (Colorcode)
    USAGE (Data Matrix)
    USAGE (MaxiCode)
    USAGE (MicroPDF )
    USAGE (PDF-417)
    USAGE (PosiCode)
    USAGE (QR Code)
    USAGE (SuperCode)
    USAGE (UltraCode)
    USAGE (USD-5 (Slug Code))
    USAGE (VeriCode)
    OUTPUT (Data,Var,Abs)
  END_COLLECTION
```

Figure 23: Example 2D Control Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 15							
1	Data Matrix	Color Code	Code One	Code 49	Code 32	Code 16	Channel Code	Aztec Code
2	USD-5 (Slug Code)	Ultra-Code	Super-Code	QR-Code	Posi-Code	PDF-417	Micro-PDF	Maxi-Code
3	Padding							Veri-Code

6.1.16 Attribute Report

```
USAGE (Attribute Report)
  COLLECTION (Logical)
    REPORT_ID (15)
    LOGICAL_MINIMUM (0)
    LOGICAL_MAXIMUM (1)
    REPORT_SIZE (1)
    REPORT_COUNT (24)
    USAGE (Aiming/Pointer Mode)
    USAGE (Bar Code Present Sensor)
    USAGE (Class 1A Laser)
    USAGE (Class 2 Laser)
    USAGE (Heater Present)
    USAGE (Contact Scanner)
    USAGE (Electronic Article Surveillance)
    USAGE (Error Indication LED)
    USAGE (Fixed Beeper)
    USAGE (Good Decode Indication LED)
    USAGE (Hands Free Scanning)
    USAGE (Intrinsically Safe)
    USAGE (Klasse Eins Laser)
    USAGE (Long Range Scanner)
    USAGE (Mirror Speed Control )
    USAGE (Not On File LED)
    USAGE (Programmable Beeper)
    USAGE (Triggerless)
    USAGE (Wand)
    USAGE (Water Resistant)
    USAGE (Multi-Range Scanner)
    USAGE (Proximity Sensor)
    FEATURE (Data,Var,Abs)
  END_COLLECTION
```

Figure 24: Example Attribute Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 16							
1	Error Indication LED	Electronic Article Surveillance	Contact Scanner	Heater Present	Class 2 Laser	Class 1A Laser	Bar Code Present Sensor	Aiming/ Pointer Mode
2	Not on File LED	Mirror Speed Control	Long Range Scanner	Klasse Eins Laser	Intrinsically Safe	Hands Free Scanning	Good Decode Indication LED	Fixed Beeper
3	Padding		Proximity Sensor	Multi-Range Scanner	Water Resistant	Wand	Triggerless	Programmable Beeper

6.2 Scale Usage Examples

6.2.1 Report Descriptor

An example report descriptor for a scale is displayed below.

```
USAGE_PAGE (Weighing Devices)
USAGE (Scale Device)
COLLECTION (Application)

; Note: The Constant flags indicate that the Scale Class
; cannot be modified by the host, making it a read-only field.
USAGE (Scale Attributes Report)
COLLECTION (Logical)
  REPORT_ID (1)
  REPORT_SIZE (8)
  REPORT_COUNT (1)
  LOGICAL_MINIMUM (1)
  USAGE (Scale Class)
  COLLECTION (Logical)
    LOGICAL_MAXIMUM (10)
    USAGE_MINIMUM (Scale Class I Metric)
    USAGE_MAXIMUM (Scale Class Generic)
    FEATURE (Constant,Ary,Abs)
  END_COLLECTION()

  USAGE (Weight Unit)
  COLLECTION (Logical)
    LOGICAL_MAXIMUM (5)
    USAGE_MINIMUM (Weight Unit Milligram)
    USAGE_MAXIMUM (Weight Unit Pound)
    FEATURE (Data,Ary,Abs)
  END_COLLECTION()
END_COLLECTION()

USAGE (Scale Control Report)
COLLECTION (Logical)
  REPORT_ID (2)
  REPORT_SIZE (1)
  LOGICAL_MINIMUM (0)
  LOGICAL_MAXIMUM (1)
  USAGE (Enforced Zero Return)
  USAGE (Zero Scale)
  FEATURE (Data,Var,Abs)

  REPORT_SIZE (6)
  FEATURE (Constant,Var,Abs) ; declare pad
END_COLLECTION()

USAGE (Scale Data Report )
COLLECTION (Logical)
  REPORT_ID (3)
  REPORT_SIZE (8)
```

```
    LOGICAL_MINIMUM (1)
    USAGE (Scale Status)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (8)
      USAGE_MINIMUM (Scale Status Fault)
      USAGE_MAXIMUM (Scale Status Requires Re-zeroing)
      INPUT (Data,Ary,Abs)
    END_COLLECTION()

    USAGE (Weight Unit)
    COLLECTION (Logical)
      LOGICAL_MAXIMUM (5)
      USAGE_MINIMUM (Milligram Units)
      USAGE_MAXIMUM (Pound Units)
      INPUT (Data,Ary,Abs)
    END_COLLECTION()

    LOGICAL_MINIMUM (-127)
    LOGICAL_MAXIMUM (127)
    USAGE (Data Scaling)
    INPUT (Data,Var,Abs)

    REPORT_SIZE(16)
    LOGICAL_MINIMUM(0)
    LOGICAL_MAXIMUM(65536)
    USAGE(Data Weight)
    INPUT (Data,Var,Abs)
  END_COLLECTION()

  USAGE (Scale Status Report)
  COLLECTION (Logical)
    REPORT_ID (4)
    REPORT_SIZE (8)
    USAGE (Scale Status)
    COLLECTION (Logical)
      LOGICAL_MINIMUM (1)
      LOGICAL_MAXIMUM (8)
      USAGE_MINIMUM (Scale Status Fault)
      USAGE_MAXIMUM (Scale Status Requires Re-zeroing)
      INPUT (Data,Ary,Abs)
    END_COLLECTION()
  END_COLLECTION()

  ; Note: The Constant flags indicate that the weight limit fields
  ; cannot be modified by the host, making them read-only fields.
  USAGE (Scale Weight Limit Report)
  COLLECTION (Logical)
    REPORT_ID (5)
    USAGE (Weight Unit)
    COLLECTION (Logical)
      LOGICAL_MINIMUM(1)
      LOGICAL_MAXIMUM (5)
      USAGE_MINIMUM (Milligram Units)
      USAGE_MAXIMUM (Pound Units)
      FEATURE (Constant,Ary,Abs)
    END_COLLECTION()
```

```
      LOGICAL_MINIMUM (-127)
      LOGICAL_MAXIMUM (127)
      USAGE (Data Scaling)
      FEATURE (Constant,Var,Abs)

      REPORT_SIZE(16)
      LOGICAL_MINIMUM(0)
      LOGICAL_MAXIMUM(65536)
      USAGE(Data Weight)
      FEATURE (Constant,Var,Abs)
    END_COLLECTION()

    USAGE ( Scale Statistics Report )
    COLLECTION (Logical)
      REPORT_ID (6)
      REPORT_SIZE(16)
      REPORT_COUNT(2)
      LOGICAL_MINIMUM(0)
      LOGICAL_MAXIMUM(65536)
      USAGE(Calibration Statistic)
      USAGE(ZeroStatistic)
      FEATURE (Constant,Var,Abs)
    END_COLLECTION()
END COLLECTION()
```

6.2.2 Scale Attributes Report

Figure 25: Example Scale Attributes Feature Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 1							
1	Scale Class							
2	Weight Units							

Scale Class – Scale classification

Weight Units – units that weight will typically be reported

6.2.3 Scale Control Report

Figure 26: Example Scale Control Feature Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 2							
1	Padding						ZS	EZR

EZR – Enforced Zero Return - A 1 enables the Enforced Zero Return operation and a 0 disables it.

ZS – Zero Scale – A 1 requests the zero scale operation.

6.2.4 Scale Data Report

Figure 27: Example Scale Data Input Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 3							
1	Scale Status							
2	Weight Unit							
3	Data Scaling							
4	Data Weight LSB							
5	Data Weight MSB							

Scale Status – device status selector usage

Weight Unit – weight units selector usage

Data Scaling – data scaling usage

Data Weight MSB – Most Significant Byte of weight data usage

Data Weight LSB – Least Significant Byte of weight data usage

6.2.5 Scale Status Report

Figure 28: Example Scale Status Input Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 4							
1	Scale Status							

Scale Status – device status selector usage

6.2.6 Scale Weight Limit Report

Figure 29: Example Scale Weight Limit Feature Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 5							
1	Units							

2	Scaling
3	Data Weight LSB
4	Data Weight MSB

Units – unit selector usage

Scaling – data scaling usage

Data Weight MSB – Most Significant Byte of weight limit (weight data usage)

Data Weight LSB – Least Significant Byte of weight limit (weight data usage)

6.2.7 Scale Statistics Report

Figure 30: Example Scale Statistics Feature Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 6							
1	Calibration Count LSB							
2	Calibration Count MSB							
3	Re-zero Count LSB							
4	Re-zero Count MSB							

Calibration Count – number of calibrations since manufacture or last power on

Re-Zero Count – number of re-zeroing activities since manufacture or last power on

6.3 MSR Report Example

The following examples assume an MSR device that can read three data tracks.

6.3.1 3-Track ISO Example

```
UsagePage(MSR),
Usage(MSR Device Read-Only),            ; this is a read-only MSR device
Collection(Application),                ; Start the MSR collection
    Usage(MSR Device Read-Only),
    Collection(Physical)
    LogicalMinimum(0),
    LogicalMaximum(255),
    ReportSize(8),
    Usage(ISO Track 1 Length),
    Usage(ISO Track 2 Length),
    Usage(ISO Track 3 Length),
    ReportCount(3),
    Input(Data,Var,Abs),
```

```
    Usage(ISO Track 1 Data),
    ReportCount(93),[2]
    Input(Data,Var,Abs,Buf),
    Usage(ISO Track 2 Data),
    ReportCount(33),
    Input(Data,Var,Abs,Buf),
    Usage(ISO Track 3 Data),
    ReportCount(93),
    Input(Data,Var,Abs,Buf),
    End Collection(),
End Collection()
```

Figure 1: Example MSR Report

	Bit							
Byte	7	6	5	4	3	2	1	0
0	ISO Track 1 length							
1	ISO Track 2 length							
2	ISO Track 3 length							
3 to 95	ISO Track 1 Data							
96 to 128	ISO Track 2 Data							
129 to 221	ISO Track 3 Data							

[2] The track lengths in this example are chosen as the maximum length of data tracks, when recorded at 210, 75, and 210 bpi (+4%) for a length of 3.375 inches. Although these numbers were not chosen purely at random, there is no requirement in this specification that any particular device conform to these values.

7 Usage Index

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