MGE USB Devices HID Description for NUT

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USB/HID UPS Devices

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1. Introduction

This document defines the communication of various MGE UPS Power Device (**UPS**) within the Universal Serial Bus (**USB**) protocol as a Human Interface Device (**HID**). It provides information to guide OS, BIOS and Power management software designers in using the MGE UPS implementation of logical structures for Power Devices Class. It is assumed that the reader is familiar with the USB and HID Specification and HID Usage Tables and HID Power Device Class usages and reports (See **Related Documents** table).

??   Section 2, presents an overview of MGE UPS USB enabled ranges.

??   Section 3 to 8 presents models, collection trees and HID Report descriptors of the various ranges of UPS

??   Section 9 , presents common on/off sequences for various UPS ranges

Related Documents

Title	Location	Description
Universal Serial Bus HID Usage Tables for Power devices. Version 1.0	Also referred to as the **Power Device Class**; posted at www.usb.org	This document defines the communication and Usage Tables of HID Power Devices.
Universal Serial Bus Device Class Definition for Human Interface Devices (HID) Version 1.1	Also referred to as **the HID Class Specification**; posted at www.usb.org	This document describes the Human Interface Device (HID) class for use with Universal Serial Bus (USB).
Universal Serial Bus HID Usage Tables, Revision 1.1	Also referred to as the **HID Usage Tables Document** ; posted at www.usb.org	Many usages are defined within the USB Specification. This document is the most current and complete list of defined usages.
Universal Serial Bus Revision 2.0 Specification	Also referred to as **the USB Specification**; posted at www.usb.org	This document defines an industry standard Universal Serial Bus.

Terms and Abbreviations

AC	Alternating Current.
DC	Direct Current.
HID	Human Interface Device. For definitions of the following HID terms, see the HID Specification and HID Usage Tables : **COLLECTION, FEATURE, HID DESCRIPTOR, INPUT, ITEM, LOGICAL MAXIMUM, LOGICAL MINIMUM, OUTPUT, REPORT COUNT, REPORT, REPORTSIZE, UNIT, UNITEXPONENT, USAGE PAGE, USAGE**
MGE	MGE UPS SYSTEMS
UPS	Uninterruptible Power Supply.
USB	Universal Serial Bus. For definitions of the following USB terms, see the USB Specification. **DEVICE DESCRIPTOR**

2. USB Enabled Range Overview

2.1 Generic UPS

The generic UPS model implemented for **MGE** Devices is compliant with **Power Device Class**. In particular, collections hierarchy and usages trees, engineering physical units implementation, semantic of usage follow the recommendations defined in this specification. The following figure presents an example of a generic and complete model of UPS
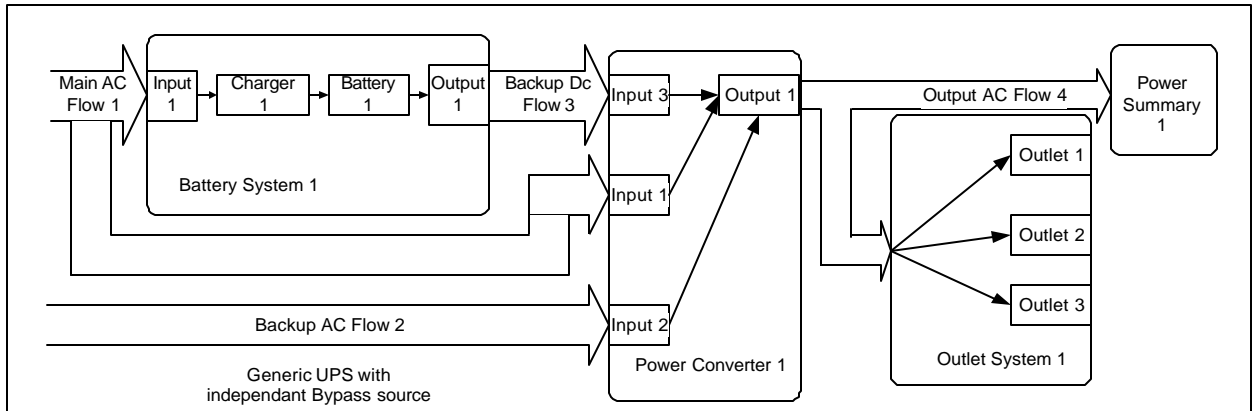
Figure 1: Generic UPS

Actual implementation of Power Device Class populates collection and items depending availability of hardware and software function and availability of data in the control part of the UPS. For instance, an UPS may or may not includes Outlet System, it may or may not includes a Bypass (Backup AC). In addition, small legacy UPS have few memory and processor resources, so few collections and items are made available trough USB communication. In any case mandatory collections and items according to the Power Device Class specification are present

To identify multiple instances of some collections (like Input, Output, Flow, Outlet ..), each collection is indexed by an ID. To facilitate UPS management application, MGE assign common values to ID's.

For Flows :   FlowId = 1   Mains AC

                                         FlowId = 2   Backup AC (for manual bypass)

                                         FlowId = 3   Backup DC emergency power supply.

                                         FlowId = 4   Main AC output.

For Power Converter :   InputId = 1   Mains AC input.

                                         InputId = 2   AC Input for automatic transfer

                                         InputId = 3   DC input.

                                         InputId = 4   AC input for manual bypass

For Outlet : OutletID corresponds to identification drawn near the corresponding outlet (a gang or an individual)

For all modules and parts that appears only a time, the 1 value will be used. (E.G. BatterySystemID = 1, BatteryID = 1, PowerConverterID = 1, PowerConverter output : OutputID =1).

To facilitate recognition of collections some collection are Vendor defined [e.g. 0xa1, 0x81,   //   COLLECTION (VendorDefined)]. The second byte of the code [i.e. 0x81] gives ID value [i.e. 1].

2.2 UPS Range Identification

For all products in standard USB Device Descriptor **: IdVendor = 0x0463**

For "Pulsar Ellipse Premium", "Pulsar Evolution", "Pulsar Extreme C" and "Pulsar Esprit" ranges :

iManufacturer = index to string : **"MGE UPS SYSTEMS** "

Each range is identify by IDProduct and iProduct

For each model in a range (except Pulsar Ellipse) is identify by a MGE vendor specific item (iModel) located inside the PowerSummary collection.

For "Pulsar Ellipse" :

iManufacturer string is **"MGE"**

iModel item is not present, then model in the Range is identified in Flow(4)/ConfigApparentPower item

Name	IDProduct	iProduct index to string:	iModel index to string	Range Description
Pulsar Ellipse	0xFFFF	"ELLIPSE"	Not Present	300, 500 and 800 VA UPS for Home/Office PC and workstation protection
Pulsar Ellipse Premium	0xFFFF	"ellipse"	"PR500","PR650" "PR800","PR1200"	500, 650, 800, 1200 VA UPS for workstation and small server protection
Pulsar Evolution 500/800/1100	0x0001	"Evolution"	"500","800","1100"	500, 800, 1100 VA UPS for PC Server and storage protection
Pulsar Evolution 1500/2200/3000	0xFFFF	"Evolution"	"1500","2200","3000"	1500, 2200, 3000 VA UPS for PC Server and storage protection
Pulsar Extreme C	0xFFFF	"EXTREME"	"1500","2000" "2500", "3000"	1500, 2000, 2500, 3000 VA UPS for Unix Server & Storage Protection
Pulsar Esprit	0xFFFF	"ESPRIT"	"1.4","3.1","4.5","6","9"	1.4 / 3.1 / 4.5 / 6 / 9 kVA UPS for WEB Server Protection

Complete information about Pulsar ranges is posted at : **www.mgeups.com**

On Product area : Product and Application descriptions

On Download area : Documentation (Data Sheet, Quick Start and User Manual)

On Download area : Free Power Management Software packages

Pulsar Extreme, Comet Extreme, Galaxy 3000 and Galaxy PW with USBI option card are USB enabled. Their HID descriptors will be available in a later version of the present document.

3. Pulsar Ellipse

Intended for PC and Mac users, **Pulsar *Ellipse*** protects home and office configurations ranging from stand-alone PCs to workgroup servers. (USB or RS232 port, local outlets, Stand by)
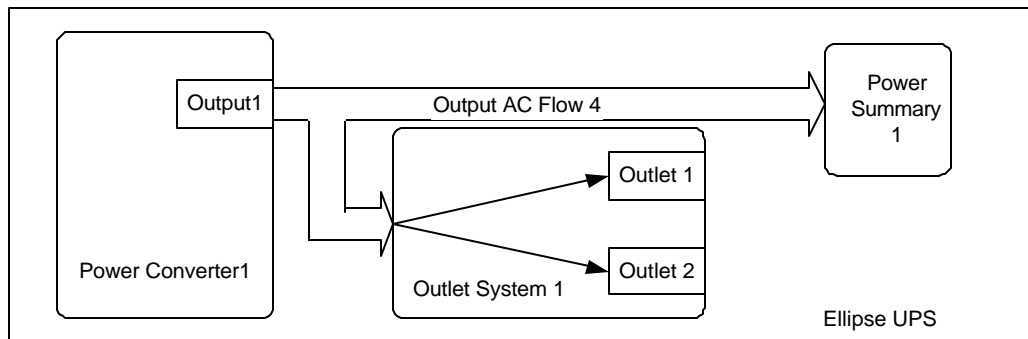
Figure 2: Pulsar Ellipse UPS

3.1 The Ellipse Collection tree

Collection UPS

    Collection PowerConverter

        Collection Output

    Collection Flow (4:AC Output)

    Collection PowerSummary

    Collection OutletSystem

        Collection Outlet (1:Non Switchable)

        Collection Outlet (2:Switchable)

3.2 The Ellipse HID report descriptor

```
char ReportDescriptor[532] = {
    0x05, 0x84,                       // USAGE_PAGE (Power Device)
    0x09, 0x04,                       // USAGE (UPS)
    0xa1, 0x00,                       // COLLECTION (Physical)
    0x09, 0x16,                       //   USAGE (PowerConverter)
    0xa1, 0x00,                       //   COLLECTION (Physical)
    0x09, 0x17,                       //     USAGE (PowerConverterID)
    0x85, 0x0b,                       //     REPORT_ID (11)
    0x75, 0x08,                       //     REPORT_SIZE (8)
    0x95, 0x01,                       //     REPORT_COUNT (1)
    0x15, 0x00,                       //     LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,                 //     LOGICAL_MAXIMUM (255)
    0x65, 0x00,                       //     UNIT (None)
    0xb1, 0x03,                       //     FEATURE (Cnst,Var,Abs)
    0x09, 0x1c,                       //     USAGE (Output)
    0xa1, 0x00,                       //     COLLECTION (Physical)
    0x09, 0x1d,                       //       USAGE (OutputID)
    0xb1, 0x03,                       //       FEATURE (Cnst,Var,Abs)
    0x09, 0x30,                       //       USAGE (Voltage)
    0x85, 0x0e,                       //       REPORT_ID (14)
    0x67, 0x21, 0xd1, 0xf0, 0x00,     //       UNIT (SI Lin:Volts)
    0x55, 0x07,                       //       UNIT_EXPONENT (7)
    0xb1, 0x83,                       //       FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x53,                       //       USAGE (LowVoltageTransfer)
    0x85, 0x13,                       //       REPORT_ID (19)
    0xb1, 0x82,                       //       FEATURE (Data,Var,Abs,Vol)
    0x09, 0x54,                       //       USAGE (HighVoltageTransfer)
    0x75, 0x10,                       //       REPORT_SIZE (16)
    0x26, 0xff, 0x7f,                 //       LOGICAL_MAXIMUM (32767)
    0xb1, 0x82,                       //       FEATURE (Data,Var,Abs,Vol)
    0xc0,                             //     END_COLLECTION
    0xc0,                             //   END_COLLECTION
    0x09, 0x1e,                       //   USAGE (Flow)
    0xa1, 0x84,                       //   COLLECTION (VendorDefined)
    0x09, 0x1f,                       //     USAGE (FlowID)
    0x85, 0x0b,                       //     REPORT_ID (11)
    0x75, 0x08,                       //     REPORT_SIZE (8)
    0x95, 0x01,                       //     REPORT_COUNT (1)
    0x65, 0x00,                       //     UNIT (None)
    0x55, 0x00,                       //     UNIT_EXPONENT (0)
    0x26, 0xff, 0x00,                 //     LOGICAL_MAXIMUM (255)
    0xb1, 0x03,                       //     FEATURE (Cnst,Var,Abs)
    0x09, 0x40,                       //     USAGE (ConfigVoltage)
    0x85, 0x12,                       //     REPORT_ID (18)
    0x67, 0x21, 0xd1, 0xf0, 0x00,     //     UNIT (SI Lin:Volts)
    0x55, 0x07,                       //     UNIT_EXPONENT (7)
    0xb1, 0x82,                       //     FEATURE (Data,Var,Abs,Vol)
    0x09, 0x42,                       //     USAGE (ConfigFrequency)
    0x85, 0x0d,                       //     REPORT_ID (13)
    0x66, 0x01, 0xf0,                 //     UNIT (SI Lin:Hertz)
    0x55, 0x00,                       //     UNIT_EXPONENT (0)
    0xb1, 0x83,                       //     FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x43,                       //     USAGE (ConfigApparentPower)
    0x75, 0x10,                       //     REPORT_SIZE (16)
    0x26, 0xff, 0x7f,                 //     LOGICAL_MAXIMUM (32767)
    0x66, 0x21, 0xd1,                 //     UNIT (SI Lin:Power)
    0x55, 0x07,                       //     UNIT_EXPONENT (7)
    0xb1, 0x83,                       //     FEATURE (Cnst,Var,Abs,Vol)
    0xc0,                             //   END_COLLECTION
    0x09, 0x24,                       //   USAGE (PowerSummary)
```

```
0xa1, 0x00,                    //   COLLECTION (Physical)
0x09, 0x25,                    //     USAGE (PowerSummaryID)
0x09, 0x1f,                    //     USAGE (FlowID)
0x85, 0x0b,                    //     REPORT_ID (11)
0x75, 0x08,                    //     REPORT_SIZE (8)
0x95, 0x02,                    //     REPORT_COUNT (2)
0x26, 0xff, 0x00,              //     LOGICAL_MAXIMUM (255)
0x65, 0x00,                    //     UNIT (None)
0x55, 0x00,                    //     UNIT_EXPONENT (0)
0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
0x05, 0x85,                    //     USAGE_PAGE (Battery System)
0x09, 0x2c,                    //     USAGE (CapacityMode)
0x85, 0x0c,                    //     REPORT_ID (12)
0x75, 0x08,                    //     REPORT_SIZE (8)
0x95, 0x01,                    //     REPORT_COUNT (1)
0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
0x09, 0x29,                    //     USAGE (RemainingCapacityLimit)
0x09, 0x8d,                    //     USAGE (CapacityGranularity1)
0x95, 0x02,                    //     REPORT_COUNT (2)
0x25, 0x64,                    //     LOGICAL_MAXIMUM (100)
0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
0x09, 0x89,                    //     USAGE (iDeviceChemistery)
0x26, 0xff, 0x00,              //     LOGICAL_MAXIMUM (255)
0x85, 0x10,                    //     REPORT_ID (16)
0x95, 0x01,                    //     REPORT_COUNT (1)
0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
0x05, 0x84,                    //     USAGE_PAGE (Power Device)
0x09, 0xfd,                    //     USAGE (iManufacturer)
0x09, 0xfe,                    //     USAGE (iProduct)
0x09, 0xff,                    //     USAGE (iSerialNumber)
0x95, 0x03,                    //     REPORT_COUNT (3)
0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
0x09, 0x35,                    //     USAGE (PercentLoad)
0x85, 0x0e,                    //     REPORT_ID (14)
0x95, 0x01,                    //     REPORT_COUNT (1)
0x65, 0x00,                    //     UNIT (None)
0x55, 0x00,                    //     UNIT_EXPONENT (0)
0xb1, 0x83,                    //     FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x85,                    //     USAGE_PAGE (Battery System)
0x09, 0x83,                    //     USAGE (DesignCapacity)
0x09, 0x67,                    //     USAGE (FullChargeCapacity)
0x85, 0x0c,                    //     REPORT_ID (12)
0x95, 0x02,                    //     REPORT_COUNT (2)
0x75, 0x08,                    //     REPORT_SIZE (8)
0x25, 0x64,                    //     LOGICAL_MAXIMUM (100)
0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
0x09, 0x66,                    //     USAGE (RemainingCapacity)
0x85, 0x16,                    //     REPORT_ID (22)
0x95, 0x01,                    //     REPORT_COUNT (1)
0xb1, 0x83,                    //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x66,                    //     USAGE (RemainingCapacity)
0x81, 0x83,                    //     INPUT (Cnst,Var,Abs,Vol)
0x09, 0x68,                    //     USAGE (RunTimeToEmpty)
0x66, 0x01, 0x10,              //     UNIT (SI Lin:Time)
0x75, 0x10,                    //     REPORT_SIZE (16)
0x26, 0x08, 0x07,              //     LOGICAL_MAXIMUM (1800)
0xb1, 0x83,                    //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x68,                    //     USAGE (RunTimeToEmpty)
0x81, 0x83,                    //     INPUT (Cnst,Var,Abs,Vol)
0x05, 0x84,                    //     USAGE_PAGE (Power Device)
0x09, 0x02,                    //     USAGE (PresentStatus)
0xa1, 0x02,                    //     COLLECTION (Logical)
0x09, 0x73,                    //       USAGE (CommunicationLost)
0x85, 0x01,                    //       REPORT_ID (1)
```

```
0x95, 0x01,                    //      REPORT_COUNT (1)
0x75, 0x01,                    //      REPORT_SIZE (1)
0x65, 0x00,                    //      UNIT (None)
0x25, 0x01,                    //      LOGICAL_MAXIMUM (1)
0x45, 0x00,                    //      PHYSICAL_MAXIMUM (0)
0x81, 0x83,                    //      INPUT (Cnst,Var,Abs,Vol)
0x09, 0x73,                    //      USAGE (CommunicationLost)
0xb1, 0x83,                    //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                    //      USAGE (Undefined)
0x75, 0x07,                    //      REPORT_SIZE (7)
0x81, 0x03,                    //      INPUT (Cnst,Var,Abs)
0x09, 0x00,                    //      USAGE (Undefined)
0xb1, 0x03,                    //      FEATURE (Cnst,Var,Abs)
0x05, 0x85,                    //      USAGE_PAGE (Battery System)
0x09, 0xd0,                    //      USAGE (ACPresent)
0x09, 0x44,                    //      USAGE (Charging)
0x09, 0x45,                    //      USAGE (Discharging)
0x09, 0x42,                    //      USAGE (BelowRemainingCapacityLimit)
0x09, 0x4b,                    //      USAGE (NeedReplacement)
0x0b, 0x61, 0x00, 0x84, 0x00,  //      USAGE (Power Device:Good)
0x0b, 0x69, 0x00, 0x84, 0x00,  //      USAGE (Power Device:ShutdownImminent)
0x0b, 0x65, 0x00, 0x84, 0x00,  //      USAGE (Power Device:Overload)
0x0b, 0x62, 0x00, 0x84, 0x00,  //      USAGE (Power Device:InternalFailure)
0x85, 0x02,                    //      REPORT_ID (2)
0x75, 0x01,                    //      REPORT_SIZE (1)
0x95, 0x09,                    //      REPORT_COUNT (9)
0x25, 0x01,                    //      LOGICAL_MAXIMUM (1)
0x81, 0x83,                    //      INPUT (Cnst,Var,Abs,Vol)
0x09, 0x00,                    //      USAGE (Undefined)
0x75, 0x07,                    //      REPORT_SIZE (7)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x81, 0x03,                    //      INPUT (Cnst,Var,Abs)
0x09, 0xd0,                    //      USAGE (ACPresent)
0x09, 0x44,                    //      USAGE (Charging)
0x09, 0x45,                    //      USAGE (Discharging)
0x09, 0x42,                    //      USAGE (BelowRemainingCapacityLimit)
0x09, 0x4b,                    //      USAGE (NeedReplacement)
0x0b, 0x61, 0x00, 0x84, 0x00,  //      USAGE (Power Device:Good)
0x0b, 0x69, 0x00, 0x84, 0x00,  //      USAGE (Power Device:ShutdownImminent)
0x0b, 0x65, 0x00, 0x84, 0x00,  //      USAGE (Power Device:Overload)
0x0b, 0x62, 0x00, 0x84, 0x00,  //      USAGE (Power Device:InternalFailure)
0x95, 0x09,                    //      REPORT_COUNT (9)
0x75, 0x01,                    //      REPORT_SIZE (1)
0xb1, 0x83,                    //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                    //      USAGE (Undefined)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x75, 0x07,                    //      REPORT_SIZE (7)
0xb1, 0x03,                    //      FEATURE (Cnst,Var,Abs)
0xc0,                          //    END_COLLECTION
0x05, 0x84,                    //    USAGE_PAGE (Power Device)
0x09, 0x57,                    //    USAGE (DelayBeforeShutdown)
0x85, 0x0f,                    //    REPORT_ID (15)
0x75, 0x18,                    //    REPORT_SIZE (24)
0x95, 0x01,                    //    REPORT_COUNT (1)
0x66, 0x01, 0x10,              //    UNIT (SI Lin:Time)
0x15, 0xff,                    //    LOGICAL_MINIMUM (-1)
0x27, 0xfe, 0xff, 0x00, 0x00,  //    LOGICAL_MAXIMUM (65534)
0xb1, 0x82,                    //    FEATURE (Data,Var,Abs,Vol)
0x09, 0x56,                    //    USAGE (DelayBeforeStartup)
0x85, 0x11,                    //    REPORT_ID (17)
0x55, 0x01,                    //    UNIT_EXPONENT (1)
0xb1, 0x82,                    //    FEATURE (Data,Var,Abs,Vol)
0xc0,                          //    END_COLLECTION
0x09, 0x18,                    //    USAGE (OutletSystem)
```

```
0xa1, 0x00,                      //   COLLECTION (Physical)
0x09, 0x19,                      //     USAGE (OutletSystemID)
0x85, 0x0b,                      //     REPORT_ID (11)
0x75, 0x08,                      //     REPORT_SIZE (8)
0x95, 0x01,                      //     REPORT_COUNT (1)
0x65, 0x00,                      //     UNIT (None)
0x55, 0x00,                      //     UNIT_EXPONENT (0)
0x15, 0x00,                      //     LOGICAL_MINIMUM (0)
0x26, 0xff, 0x00,                //     LOGICAL_MAXIMUM (255)
0xb1, 0x03,                      //     FEATURE (Cnst,Var,Abs)
0x09, 0x20,                      //     USAGE (Outlet)
0xa1, 0x81,                      //     COLLECTION (VendorDefined)
0x09, 0x21,                      //       USAGE (OutletID)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                      //       USAGE (FlowID)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x09, 0x02,                      //       USAGE (PresentStatus)
0xa1, 0x02,                      //       COLLECTION (Logical)
0x09, 0x6c,                      //         USAGE (Switchable)
0x85, 0x0c,                      //         REPORT_ID (12)
0x25, 0x01,                      //         LOGICAL_MAXIMUM (1)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0xc0,                            //       END_COLLECTION
0xc0,                            //     END_COLLECTION
0x09, 0x20,                      //     USAGE (Outlet)
0xa1, 0x82,                      //     COLLECTION (VendorDefined)
0x09, 0x21,                      //       USAGE (OutletID)
0x85, 0x0b,                      //       REPORT_ID (11)
0x26, 0xff, 0x00,                //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                      //       USAGE (FlowID)
0x85, 0x0d,                      //       REPORT_ID (13)
0xb1, 0x83,                      //       FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                      //       USAGE (PresentStatus)
0xa1, 0x02,                      //       COLLECTION (Logical)
0x09, 0x6c,                      //         USAGE (Switchable)
0x25, 0x01,                      //         LOGICAL_MAXIMUM (1)
0xb1, 0x83,                      //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6b,                      //         USAGE (SwitchOn/Off)
0x85, 0x03,                      //         REPORT_ID (3)
0x75, 0x01,                      //         REPORT_SIZE (1)
0x81, 0x83,                      //         INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                      //         USAGE (SwitchOn/Off)
0xb1, 0x83,                      //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                      //         USAGE (Undefined)
0x75, 0x07,                      //         REPORT_SIZE (7)
0x81, 0x03,                      //         INPUT (Cnst,Var,Abs)
0x09, 0x00,                      //         USAGE (Undefined)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0xc0,                            //       END_COLLECTION
0x0b, 0x29, 0x00, 0x85, 0x00,    //       USAGE (Battery
System:RemainingCapacityLimit)
0x85, 0x14,                      //       REPORT_ID (20)
0x75, 0x08,                      //       REPORT_SIZE (8)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x65, 0x00,                      //       UNIT (None)
0x25, 0x64,                      //       LOGICAL_MAXIMUM (100)
0xb1, 0x82,                      //       FEATURE (Data,Var,Abs,Vol)
0xc0,                            //     END_COLLECTION
0xc0,                            //   END_COLLECTION
0xc0                             // END_COLLECTION
};
```

4. Pulsar Ellipse Premium

Pulsar *ellipse premium* is the UPS is intend to maximize the availability of PCs, workstations and small servers used by home office users and small/medium businesses. (Line Interactive, USB or Serial port, Local outlets, Programmable outlets)
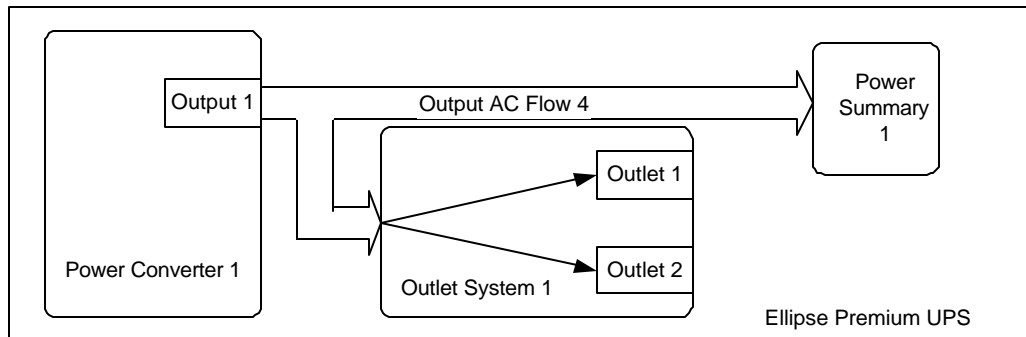
Figure 3: Pulsar Ellipse Premium UPS

4.1 The Ellipse Premium Collection tree

Collection UPS

> **Collection PowerConverter**

> > **Collection Output**

> **Collection Flow (4:AC Output)**

> **Collection PowerSummary**

> **Collection OutletSystem**

> > **Collection Outlet (1:Non Switchable)**

> > **Collection Outlet (2:Switchable)**

4.2 The Ellipse Premium HID report descriptor

```
char ReportDescriptor[568] = {
    0x05, 0x84,                     // USAGE_PAGE (Power Device)
    0x09, 0x04,                     // USAGE (UPS)
    0xa1, 0x00,                     // COLLECTION (Physical)
    0x09, 0x16,                     //   USAGE (PowerConverter)
    0xa1, 0x00,                     //   COLLECTION (Physical)
    0x09, 0x17,                     //     USAGE (PowerConverterID)
    0x85, 0x0b,                     //     REPORT_ID (11)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x15, 0x00,                     //     LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,               //     LOGICAL_MAXIMUM (255)
    0x65, 0x00,                     //     UNIT (None)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x09, 0x1a,                     //     USAGE (Input)
    0xa1, 0x81,                     //     COLLECTION (VendorDefined)
    0x09, 0x02,                     //       USAGE (PresentStatus)
    0xa1, 0x02,                     //       COLLECTION (Logical)
    0x09, 0x6e,                     //         USAGE (Boost)
    0x85, 0x04,                     //         REPORT_ID (4)
    0x25, 0x01,                     //         LOGICAL_MAXIMUM (1)
    0xb1, 0x83,                     //         FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x6e,                     //         USAGE (Boost)
    0x81, 0x83,                     //         INPUT (Cnst,Var,Abs,Vol)
    0xc0,                           //       END_COLLECTION
    0xc0,                           //     END_COLLECTION
    0x09, 0x1c,                     //     USAGE (Output)
    0xa1, 0x00,                     //     COLLECTION (Physical)
    0x09, 0x1d,                     //       USAGE (OutputID)
    0x85, 0x0b,                     //       REPORT_ID (11)
    0x26, 0xff, 0x00,               //       LOGICAL_MAXIMUM (255)
    0xb1, 0x03,                     //       FEATURE (Cnst,Var,Abs)
    0x09, 0x30,                     //       USAGE (Voltage)
    0x85, 0x0e,                     //       REPORT_ID (14)
    0x67, 0x21, 0xd1, 0xf0, 0x00,   //       UNIT (SI Lin:Volts)
    0x55, 0x07,                     //       UNIT_EXPONENT (7)
    0xb1, 0x83,                     //       FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x53,                     //       USAGE (LowVoltageTransfer)
    0x85, 0x13,                     //       REPORT_ID (19)
    0xb1, 0x82,                     //       FEATURE (Data,Var,Abs,Vol)
    0x09, 0x54,                     //       USAGE (HighVoltageTransfer)
    0x75, 0x10,                     //       REPORT_SIZE (16)
    0x26, 0xff, 0x7f,               //       LOGICAL_MAXIMUM (32767)
    0xb1, 0x82,                     //       FEATURE (Data,Var,Abs,Vol)
    0xc0,                           //     END_COLLECTION
    0xc0,                           //   END_COLLECTION
    0x09, 0x1e,                     //   USAGE (Flow)
    0xa1, 0x84,                     //   COLLECTION (VendorDefined)
    0x09, 0x1f,                     //     USAGE (FlowID)
    0x85, 0x0b,                     //     REPORT_ID (11)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x65, 0x00,                     //     UNIT (None)
    0x55, 0x00,                     //     UNIT_EXPONENT (0)
    0x26, 0xff, 0x00,               //     LOGICAL_MAXIMUM (255)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x09, 0x40,                     //     USAGE (ConfigVoltage)
    0x85, 0x12,                     //     REPORT_ID (18)
    0x67, 0x21, 0xd1, 0xf0, 0x00,   //     UNIT (SI Lin:Volts)
    0x55, 0x07,                     //     UNIT_EXPONENT (7)
```

```
0xb1, 0x82,                     //      FEATURE (Data,Var,Abs,Vol)
0x09, 0x42,                     //      USAGE (ConfigFrequency)
0x85, 0x0d,                     //      REPORT_ID (13)
0x66, 0x01, 0xf0,               //      UNIT (SI Lin:Hertz)
0x55, 0x00,                     //      UNIT_EXPONENT (0)
0xb1, 0x83,                     //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x43,                     //      USAGE (ConfigApparentPower)
0x75, 0x10,                     //      REPORT_SIZE (16)
0x26, 0xff, 0x7f,               //      LOGICAL_MAXIMUM (32767)
0x66, 0x21, 0xd1,               //      UNIT (SI Lin:Power)
0x55, 0x07,                     //      UNIT_EXPONENT (7)
0xb1, 0x83,                     //      FEATURE (Cnst,Var,Abs,Vol)
0xc0,                           //    END_COLLECTION
0x09, 0x24,                     //    USAGE (PowerSummary)
0xa1, 0x00,                     //    COLLECTION (Physical)
0x09, 0x25,                     //      USAGE (PoweSummaryID)
0x09, 0x1f,                     //      USAGE (FlowID)
0x85, 0x0b,                     //      REPORT_ID (11)
0x75, 0x08,                     //      REPORT_SIZE (8)
0x95, 0x02,                     //      REPORT_COUNT (2)
0x26, 0xff, 0x00,               //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                     //      UNIT (None)
0x55, 0x00,                     //      UNIT_EXPONENT (0)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x05, 0x85,                     //      USAGE_PAGE (Battery System)
0x09, 0x2c,                     //      USAGE (CapacityMode)
0x85, 0x0c,                     //      REPORT_ID (12)
0x75, 0x08,                     //      REPORT_SIZE (8)
0x95, 0x01,                     //      REPORT_COUNT (1)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x09, 0x29,                     //      USAGE (RemainingCapacityLimit)
0x09, 0x8d,                     //      USAGE (CapacityGranularity1)
0x95, 0x02,                     //      REPORT_COUNT (2)
0x25, 0x64,                     //      LOGICAL_MAXIMUM (100)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x09, 0x89,                     //      USAGE (iDeviceChemistery)
0x26, 0xff, 0x00,               //      LOGICAL_MAXIMUM (255)
0x85, 0x10,                     //      REPORT_ID (16)
0x95, 0x01,                     //      REPORT_COUNT (1)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x05, 0x84,                     //      USAGE_PAGE (Power Device)
0x09, 0xfd,                     //      USAGE (Undefined)
0x09, 0xfe,                     //      USAGE (Undefined)
0x09, 0xff,                     //      USAGE (Undefined)
0x95, 0x03,                     //      REPORT_COUNT (3)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x06, 0xff, 0xff,               //      USAGE_PAGE (Vendor defined MGE 1)
0x09, 0xf0,                     //      USAGE (iModel)
0x95, 0x01,                     //      REPORT_COUNT (1)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x05, 0x84,                     //      USAGE_PAGE (Power Device)
0x09, 0x35,                     //      USAGE (PercentLoad)
0x85, 0x0e,                     //      REPORT_ID (14)
0x65, 0x00,                     //      UNIT (None)
0x55, 0x00,                     //      UNIT_EXPONENT (0)
0xb1, 0x83,                     //      FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x85,                     //      USAGE_PAGE (Battery System)
0x09, 0x83,                     //      USAGE (DesignCapacity)
0x09, 0x67,                     //      USAGE (FullChargeCapacity)
0x85, 0x0c,                     //      REPORT_ID (12)
0x95, 0x02,                     //      REPORT_COUNT (2)
0x75, 0x08,                     //      REPORT_SIZE (8)
0x25, 0x64,                     //      LOGICAL_MAXIMUM (100)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
```

```
0x09, 0x66,                      //     USAGE (RemainingCapacity)
0x85, 0x16,                      //     REPORT_ID (22)
0x95, 0x01,                      //     REPORT_COUNT (1)
0xb1, 0x83,                      //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x66,                      //     USAGE (RemainingCapacity)
0x81, 0x83,                      //     INPUT (Cnst,Var,Abs,Vol)
0x09, 0x68,                      //     USAGE (RunTimeToEmpty)
0x66, 0x01, 0x10,                //     UNIT (SI Lin:Time)
0x75, 0x10,                      //     REPORT_SIZE (16)
0x26, 0x08, 0x07,                //     LOGICAL_MAXIMUM (1800)
0xb1, 0x83,                      //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x68,                      //     USAGE (RunTimeToEmpty)
0x81, 0x83,                      //     INPUT (Cnst,Var,Abs,Vol)
0x05, 0x84,                      //     USAGE_PAGE (Power Device)
0x09, 0x02,                      //     USAGE (PresentStatus)
0xa1, 0x02,                      //     COLLECTION (Logical)
0x09, 0x73,                      //       USAGE (Undefined)
0x85, 0x01,                      //       REPORT_ID (1)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x75, 0x01,                      //       REPORT_SIZE (1)
0x65, 0x00,                      //       UNIT (None)
0x25, 0x01,                      //       LOGICAL_MAXIMUM (1)
0x45, 0x00,                      //       PHYSICAL_MAXIMUM (0)
0x81, 0x83,                      //       INPUT (Cnst,Var,Abs,Vol)
0x09, 0x73,                      //       USAGE (Undefined)
0xb1, 0x83,                      //       FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                      //       USAGE (Undefined)
0x75, 0x07,                      //       REPORT_SIZE (7)
0x81, 0x03,                      //       INPUT (Cnst,Var,Abs)
0x09, 0x00,                      //       USAGE (Undefined)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x05, 0x85,                      //       USAGE_PAGE (Battery System)
0x09, 0xd0,                      //       USAGE (ACPresent)
0x09, 0x44,                      //       USAGE (Charging)
0x09, 0x45,                      //       USAGE (Discharging)
0x09, 0x42,                      //       USAGE (BelowRemainingCapacityLimit)
0x09, 0x4b,                      //       USAGE (NeedReplacement)
0x0b, 0x61, 0x00, 0x84, 0x00,    //       USAGE (Power Device:Good)
0x0b, 0x69, 0x00, 0x84, 0x00,    //       USAGE (Power Device:ShutdownImminent)
0x0b, 0x65, 0x00, 0x84, 0x00,    //       USAGE (Power Device:Overload)
0x0b, 0x62, 0x00, 0x84, 0x00,    //       USAGE (Power Device:InternalFailure)
0x85, 0x02,                      //       REPORT_ID (2)
0x75, 0x01,                      //       REPORT_SIZE (1)
0x95, 0x09,                      //       REPORT_COUNT (9)
0x25, 0x01,                      //       LOGICAL_MAXIMUM (1)
0x81, 0x83,                      //       INPUT (Cnst,Var,Abs,Vol)
0x09, 0x00,                      //       USAGE (Undefined)
0x75, 0x07,                      //       REPORT_SIZE (7)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x81, 0x03,                      //       INPUT (Cnst,Var,Abs)
0x09, 0xd0,                      //       USAGE (ACPresent)
0x09, 0x44,                      //       USAGE (Charging)
0x09, 0x45,                      //       USAGE (Discharging)
0x09, 0x42,                      //       USAGE (BelowRemainingCapacityLimit)
0x09, 0x4b,                      //       USAGE (NeedReplacement)
0x0b, 0x61, 0x00, 0x84, 0x00,    //       USAGE (Power Device:Good)
0x0b, 0x69, 0x00, 0x84, 0x00,    //       USAGE (Power Device:ShutdownImminent)
0x0b, 0x65, 0x00, 0x84, 0x00,    //       USAGE (Power Device:Overload)
0x0b, 0x62, 0x00, 0x84, 0x00,    //       USAGE (Power Device:InternalFailure)
0x95, 0x09,                      //       REPORT_COUNT (9)
0x75, 0x01,                      //       REPORT_SIZE (1)
0xb1, 0x83,                      //       FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                      //       USAGE (Undefined)
0x95, 0x01,                      //       REPORT_COUNT (1)
```

```
0x75, 0x07,                      //      REPORT_SIZE (7)
0xb1, 0x03,                      //      FEATURE (Cnst,Var,Abs)
0xc0,                            //     END_COLLECTION
0x05, 0x84,                      //     USAGE_PAGE (Power Device)
0x09, 0x57,                      //     USAGE (DelayBeforeShutdown)
0x85, 0x0f,                      //     REPORT_ID (15)
0x75, 0x18,                      //     REPORT_SIZE (24)
0x95, 0x01,                      //     REPORT_COUNT (1)
0x66, 0x01, 0x10,                //     UNIT (SI Lin:Time)
0x15, 0xff,                      //     LOGICAL_MINIMUM (-1)
0x27, 0xfe, 0xff, 0x00, 0x00,    //     LOGICAL_MAXIMUM (65534)
0xb1, 0x82,                      //     FEATURE (Data,Var,Abs,Vol)
0x09, 0x56,                      //     USAGE (DelayBeforeStartup)
0x85, 0x11,                      //     REPORT_ID (17)
0x55, 0x01,                      //     UNIT_EXPONENT (1)
0xb1, 0x82,                      //     FEATURE (Data,Var,Abs,Vol)
0xc0,                            //     END_COLLECTION
0x09, 0x18,                      //     USAGE (OutletSystem)
0xa1, 0x00,                      //     COLLECTION (Physical)
0x09, 0x19,                      //       USAGE (OutletSystemID)
0x85, 0x0b,                      //       REPORT_ID (11)
0x75, 0x08,                      //       REPORT_SIZE (8)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x65, 0x00,                      //       UNIT (None)
0x55, 0x00,                      //       UNIT_EXPONENT (0)
0x15, 0x00,                      //       LOGICAL_MINIMUM (0)
0x26, 0xff, 0x00,                //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x09, 0x20,                      //       USAGE (Outlet)
0xa1, 0x81,                      //       COLLECTION (VendorDefined)
0x09, 0x21,                      //         USAGE (OutletID)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                      //         USAGE (FlowID)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0x09, 0x02,                      //         USAGE (PresentStatus)
0xa1, 0x02,                      //         COLLECTION (Logical)
0x09, 0x6c,                      //           USAGE (Switchable)
0x85, 0x0c,                      //           REPORT_ID (12)
0x25, 0x01,                      //           LOGICAL_MAXIMUM (1)
0xb1, 0x03,                      //           FEATURE (Cnst,Var,Abs)
0xc0,                            //         END_COLLECTION
0xc0,                            //       END_COLLECTION
0x09, 0x20,                      //       USAGE (Outlet)
0xa1, 0x82,                      //       COLLECTION (VendorDefined)
0x09, 0x21,                      //         USAGE (OutletID)
0x85, 0x0b,                      //         REPORT_ID (11)
0x26, 0xff, 0x00,                //         LOGICAL_MAXIMUM (255)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                      //         USAGE (FlowID)
0x85, 0x0d,                      //         REPORT_ID (13)
0xb1, 0x83,                      //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                      //         USAGE (PresentStatus)
0xa1, 0x02,                      //         COLLECTION (Logical)
0x09, 0x6c,                      //           USAGE (Switchable)
0x25, 0x01,                      //           LOGICAL_MAXIMUM (1)
0xb1, 0x83,                      //           FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6b,                      //           USAGE (SwitchOn/Off)
0x85, 0x03,                      //           REPORT_ID (3)
0x75, 0x01,                      //           REPORT_SIZE (1)
0x81, 0x83,                      //           INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                      //           USAGE (SwitchOn/Off)
0xb1, 0x83,                      //           FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                      //           USAGE (Undefined)
0x75, 0x07,                      //           REPORT_SIZE (7)
```

```
    0x81, 0x03,                    //          INPUT (Cnst,Var,Abs)
    0x09, 0x00,                    //          USAGE (Undefined)
    0xb1, 0x03,                    //          FEATURE (Cnst,Var,Abs)
    0xc0,                          //        END_COLLECTION
    0x0b, 0x29, 0x00, 0x85, 0x00,  //        USAGE (Battery
System:RemainingCapacityLimit)
    0x85, 0x14,                    //        REPORT_ID (20)
    0x75, 0x08,                    //        REPORT_SIZE (8)
    0x95, 0x01,                    //        REPORT_COUNT (1)
    0x65, 0x00,                    //        UNIT (None)
    0x25, 0x64,                    //        LOGICAL_MAXIMUM (100)
    0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
    0xc0,                          //      END_COLLECTION
    0xc0,                          //    END_COLLECTION
    0xc0                           //  END_COLLECTION
};
```

5. Pulsar Evolution 500/800/1100 Range

Pulsar *Evolution* is intended for networking equipment, rack-optimized servers, traditional rack and tower servers and network storage systems. (Line Interactive, 2 Switchable Outlets, USB and RS232 ports)
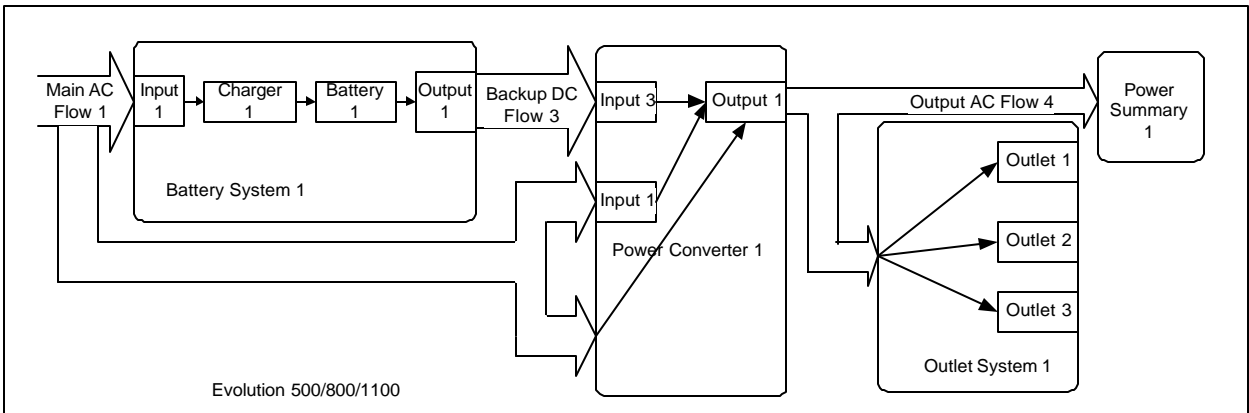
Figure 4: Pulsar Evolution 500/800/1100 UPS

5.1 The Evolution 500/800/1100 Collection tree

Collection UPS

    Collection PowerSummary

    Collection BatterySystem

        Collection Input

        Collection Battery

        Collection Charger

        Collection Output

    Collection Flow (1:Main AC)

    Collection Flow (3:Backup DC)

    Collection Flow (4:AC Output)

    Collection PowerConverter

        Collection Input (1)

        Collection Input (3)

        Collection Output

    Collection OutletSystem

        Collection Outlet (1:Non Switchable)

        Collection Outlet (2:Switchable)

        Collection Outlet (3:Switchable)

5.2 The Evolution 500/800/1100 HID report descriptor

```
char ReportDescriptor[1300] = {
    0x05, 0x84,                     // USAGE_PAGE (Power Device)
    0x09, 0x04,                     // USAGE (UPS)
    0xa1, 0x00,                     // COLLECTION (Physical)
    0x09, 0x24,                     //   USAGE (PowerSummary)
    0xa1, 0x00,                     //   COLLECTION (Physical)
    0x09, 0x25,                     //     USAGE (PowerSummaryID)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x85, 0x26,                     //     REPORT_ID (38)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x15, 0x00,                     //     LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,               //     LOGICAL_MAXIMUM (255)
    0x65, 0x00,                     //     UNIT (None)
    0x55, 0x00,                     //     UNIT_EXPONENT (0)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x09, 0x1f,                     //     USAGE (FlowID)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x09, 0x5a,                     //     USAGE (Undefined)
    0x85, 0x0a,                     //     REPORT_ID (10)
    0xb1, 0x82,                     //     FEATURE (Data,Var,Abs,Vol)
    0x09, 0x5a,                     //     USAGE (Undefined)
    0x81, 0x82,                     //     INPUT (Data,Var,Abs,Vol)
    0x05, 0x85,                     //     USAGE_PAGE (Battery System)
    0x09, 0x8d,                     //     USAGE (CapacityGranularity1)
    0x85, 0x26,                     //     REPORT_ID (38)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x09, 0x2c,                     //     USAGE (CapacityMode)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x05, 0x84,                     //     USAGE_PAGE (Power Device)
    0x09, 0x40,                     //     USAGE (ConfigVoltage)
    0x75, 0x10,                     //     REPORT_SIZE (16)
    0x85, 0x27,                     //     REPORT_ID (39)
    0x67, 0x21, 0xd1, 0xf0, 0x00,   //     UNIT (SI Lin:Volts)
    0x55, 0x07,                     //     UNIT_EXPONENT (7)
    0x26, 0xff, 0x7f,               //     LOGICAL_MAXIMUM (32767)
    0xb1, 0x83,                     //     FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x57,                     //     USAGE (DelayBeforeShutdown)
    0x75, 0x18,                     //     REPORT_SIZE (24)
    0x85, 0x28,                     //     REPORT_ID (40)
    0x66, 0x01, 0x10,               //     UNIT (SI Lin:Time)
    0x55, 0x00,                     //     UNIT_EXPONENT (0)
    0x15, 0xff,                     //     LOGICAL_MINIMUM (-1)
    0x27, 0xff, 0xff, 0x00, 0x00,   //     LOGICAL_MAXIMUM (65535)
    0xb1, 0x82,                     //     FEATURE (Data,Var,Abs,Vol)
    0x09, 0x56,                     //     USAGE (DelayBeforeStartup)
    0x85, 0x29,                     //     REPORT_ID (41)
    0x55, 0x01,                     //     UNIT_EXPONENT (1)
    0xb1, 0x82,                     //     FEATURE (Data,Var,Abs,Vol)
    0x05, 0x85,                     //     USAGE_PAGE (Battery System)
    0x09, 0x83,                     //     USAGE (DesignCapacity)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x85, 0x26,                     //     REPORT_ID (38)
    0x65, 0x00,                     //     UNIT (None)
    0x55, 0x00,                     //     UNIT_EXPONENT (0)
    0x15, 0x00,                     //     LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,               //     LOGICAL_MAXIMUM (255)
    0xb1, 0x83,                     //     FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x89,                     //     USAGE (iDeviceChemistery)
    0x85, 0x2a,                     //     REPORT_ID (42)
    0xb1, 0x83,                     //     FEATURE (Cnst,Var,Abs,Vol)
```

```
0x09, 0x8f,                        //      USAGE (Undefined)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x8b,                        //      USAGE (Rechargeable)
0x85, 0x26,                        //      REPORT_ID (38)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x66,                        //      USAGE (RemainingCapacity)
0x85, 0x09,                        //      REPORT_ID (9)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x66,                        //      USAGE (RemainingCapacity)
0x81, 0x83,                        //      INPUT (Cnst,Var,Abs,Vol)
0x09, 0x29,                        //      USAGE (RemainingCapacityLimit)
0x85, 0x2b,                        //      REPORT_ID (43)
0xb1, 0x03,                        //      FEATURE (Cnst,Var,Abs)
0x09, 0x68,                        //      USAGE (RunTimeToEmpty)
0x75, 0x10,                        //      REPORT_SIZE (16)
0x85, 0x09,                        //      REPORT_ID (9)
0x66, 0x01, 0x10,                  //      UNIT (SI Lin:Time)
0x27, 0xff, 0xff, 0x00, 0x00,      //      LOGICAL_MAXIMUM (65535)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x68,                        //      USAGE (RunTimeToEmpty)
0x81, 0x83,                        //      INPUT (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,                  //      USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x4d,                        //      USAGE (ox4d)
0x75, 0x08,                        //      REPORT_SIZE (8)
0x65, 0x00,                        //      UNIT (None)
0x26, 0xff, 0x00,                  //      LOGICAL_MAXIMUM (255)
0x85, 0x2c,                        //      REPORT_ID (44)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x09, 0x5f,                        //      USAGE (0x5f)
0x85, 0x2d,                        //      REPORT_ID (45)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x09, 0x48,                        //      USAGE (0x48)
0x85, 0x2e,                        //      REPORT_ID (46)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x09, 0xf0,                        //      USAGE (iModel)
0x85, 0x2a,                        //      REPORT_ID (42)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x84,                        //      USAGE_PAGE (Power Device)
0x09, 0xfd,                        //      USAGE (Undefined)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0xfe,                        //      USAGE (Undefined)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0xff,                        //      USAGE (Undefined)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x35,                        //      USAGE (PercentLoad)
0x85, 0x2b,                        //      REPORT_ID (43)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x30,                        //      USAGE (Voltage)
0x75, 0x10,                        //      REPORT_SIZE (16)
0x67, 0x21, 0xd1, 0xf0, 0x00,      //      UNIT (SI Lin:Volts)
0x55, 0x07,                        //      UNIT_EXPONENT (7)
0x26, 0xff, 0x7f,                  //      LOGICAL_MAXIMUM (32767)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                        //      USAGE (PresentStatus)
0xa1, 0x00,                        //      COLLECTION (Physical)
0x09, 0x61,                        //        USAGE (Good)
0x75, 0x08,                        //        REPORT_SIZE (8)
0x65, 0x00,                        //        UNIT (None)
0x55, 0x00,                        //        UNIT_EXPONENT (0)
0x25, 0x01,                        //        LOGICAL_MAXIMUM (1)
0x85, 0x06,                        //        REPORT_ID (6)
0xb1, 0x83,                        //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x61,                        //        USAGE (Good)
0x81, 0x83,                        //        INPUT (Cnst,Var,Abs,Vol)
```

```
0x09, 0x62,                      //          USAGE (InternalFailure)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x62,                      //          USAGE (InternalFailure)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x65,                      //          USAGE (Overload)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x65,                      //          USAGE (Overload)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x67,                      //          USAGE (OverTemperature)
0x85, 0x0b,                      //          REPORT_ID (11)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x67,                      //          USAGE (OverTemperature)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x73,                      //          USAGE (Undefined)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x73,                      //          USAGE (Undefined)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x69,                      //          USAGE (ShutdownImminent)
0x85, 0x06,                      //          REPORT_ID (6)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x69,                      //          USAGE (ShutdownImminent)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x05, 0x85,                      //          USAGE_PAGE (Battery System)
0x09, 0xd0,                      //          USAGE (ACPresent)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0xd0,                      //          USAGE (ACPresent)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x42,                      //          USAGE (BelowRemainingCapacityLimit)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x42,                      //          USAGE (BelowRemainingCapacityLimit)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x44,                      //          USAGE (Charging)
0x85, 0x0b,                      //          REPORT_ID (11)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x44,                      //          USAGE (Charging)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x45,                      //          USAGE (Discharging)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x45,                      //          USAGE (Discharging)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x4b,                      //          USAGE (NeedReplacement)
0x85, 0x0b,                      //          REPORT_ID (11)
0xb1, 0x83,                      //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x4b,                      //          USAGE (NeedReplacement)
0x81, 0x83,                      //          INPUT (Cnst,Var,Abs,Vol)
0x05, 0x84,                      //          USAGE_PAGE (Power Device)
0x09, 0x6c,                      //          USAGE (Switchable)
0x85, 0x3a,                      //          REPORT_ID (58)
0xb1, 0x82,                      //          FEATURE (Data,Var,Abs,Vol)
0xc0,                            //        END_COLLECTION
0xc0,                            //      END_COLLECTION
0x09, 0x10,                      //      USAGE (BatterySystem)
0xa1, 0x00,                      //      COLLECTION (Physical)
0x09, 0x11,                      //        USAGE (BatterySystemID)
0x85, 0x11,                      //        REPORT_ID (17)
0x26, 0xff, 0x00,                //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                      //        FEATURE (Cnst,Var,Abs)
0x09, 0x12,                      //        USAGE (Battery)
0xa1, 0x00,                      //        COLLECTION (Physical)
0x09, 0x13,                      //          USAGE (BatteryID)
0xb1, 0x03,                      //          FEATURE (Cnst,Var,Abs)
0x05, 0x85,                      //          USAGE_PAGE (Battery System)
0x09, 0x6a,                      //          USAGE (AverageTimeToFull)
0x75, 0x10,                      //          REPORT_SIZE (16)
```

```
0x27, 0xff, 0xff, 0x00, 0x00,  //          LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,              //          UNIT (SI Lin:Time)
0xb1, 0x83,                    //          FEATURE (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,              //          USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x90,                    //          USAGE (0c90)
0x75, 0x08,                    //          REPORT_SIZE (8)
0x26, 0xff, 0x00,              //          LOGICAL_MAXIMUM (255)
0x65, 0x00,                    //          UNIT (None)
0xb1, 0x83,                    //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x49,                    //          USAGE (0x49)
0x25, 0x01,                    //          LOGICAL_MAXIMUM (1)
0x85, 0x3c,                    //          REPORT_ID (60)
0xb1, 0x82,                    //          FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                    //          USAGE_PAGE (Power Device)
0x09, 0x58,                    //          USAGE (Test)
0x26, 0xff, 0x00,              //          LOGICAL_MAXIMUM (255)
0x85, 0x12,                    //          REPORT_ID (18)
0xb1, 0x82,                    //          FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,              //          USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x45,                    //          USAGE (0x45)
0x75, 0x10,                    //          REPORT_SIZE (16)
0x85, 0x3d,                    //          REPORT_ID (61)
0x27, 0xff, 0xff, 0x00, 0x00,  //          LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,              //          UNIT (SI Lin:Time)
0x55, 0x02,                    //          UNIT_EXPONENT (2)
0xb1, 0x82,                    //          FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                    //          USAGE_PAGE (Power Device)
0x09, 0x02,                    //          USAGE (PresentStatus)
0xa1, 0x00,                    //          COLLECTION (Physical)
0x09, 0x61,                    //            USAGE (Good)
0x75, 0x08,                    //            REPORT_SIZE (8)
0x85, 0x01,                    //            REPORT_ID (1)
0x65, 0x00,                    //            UNIT (None)
0x55, 0x00,                    //            UNIT_EXPONENT (0)
0x25, 0x01,                    //            LOGICAL_MAXIMUM (1)
0xb1, 0x83,                    //            FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x61,                    //            USAGE (Good)
0x81, 0x83,                    //            INPUT (Cnst,Var,Abs,Vol)
0x09, 0x60,                    //            USAGE (Present)
0xb1, 0x83,                    //            FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x60,                    //            USAGE (Present)
0x81, 0x83,                    //            INPUT (Cnst,Var,Abs,Vol)
0xc0,                          //          END_COLLECTION
0xc0,                          //        END_COLLECTION
0x09, 0x14,                    //        USAGE (Charger)
0xa1, 0x00,                    //        COLLECTION (Physical)
0x09, 0x15,                    //          USAGE (ChargerID)
0x85, 0x11,                    //          REPORT_ID (17)
0x26, 0xff, 0x00,              //          LOGICAL_MAXIMUM (255)
0xb1, 0x03,                    //          FEATURE (Cnst,Var,Abs)
0x09, 0x02,                    //          USAGE (PresentStatus)
0xa1, 0x00,                    //          COLLECTION (Physical)
0x09, 0x61,                    //            USAGE (Good)
0x85, 0x01,                    //            REPORT_ID (1)
0x25, 0x01,                    //            LOGICAL_MAXIMUM (1)
0xb1, 0x83,                    //            FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x61,                    //            USAGE (Good)
0x81, 0x83,                    //            INPUT (Cnst,Var,Abs,Vol)
0x09, 0x62,                    //            USAGE (InternalFailure)
0xb1, 0x83,                    //            FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x62,                    //            USAGE (InternalFailure)
0x81, 0x83,                    //            INPUT (Cnst,Var,Abs,Vol)
0xc0,                          //          END_COLLECTION
0xc0,                          //        END_COLLECTION
```

```
0x09, 0x1a,                        //     USAGE (Input)
0xa1, 0x00,                        //     COLLECTION (Physical)
0x09, 0x1b,                        //       USAGE (InputID)
0x85, 0x11,                        //       REPORT_ID (17)
0x26, 0xff, 0x00,                  //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                        //       USAGE (FlowID)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0xc0,                              //     END_COLLECTION
0x09, 0x1c,                        //     USAGE (Output)
0xa1, 0x00,                        //     COLLECTION (Physical)
0x09, 0x1d,                        //       USAGE (OutputID)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                        //       USAGE (FlowID)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0xc0,                              //     END_COLLECTION
0xc0,                              //   END_COLLECTION
0x09, 0x1e,                        //   USAGE (Flow)
0xa1, 0x81,                        //   COLLECTION (VendorDefined)
0x09, 0x1f,                        //     USAGE (FlowID)
0x85, 0x13,                        //     REPORT_ID (19)
0xb1, 0x03,                        //     FEATURE (Cnst,Var,Abs)
0x09, 0x42,                        //     USAGE (ConfigFrequency)
0x66, 0x01, 0xf0,                  //     UNIT (SI Lin:Hertz)
0xb1, 0x83,                        //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x40,                        //     USAGE (ConfigVoltage)
0x75, 0x10,                        //     REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,      //     LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,      //     UNIT (SI Lin:Volts)
0x55, 0x07,                        //     UNIT_EXPONENT (7)
0xb1, 0x83,                        //     FEATURE (Cnst,Var,Abs,Vol)
0xc0,                              //   END_COLLECTION
0x09, 0x1e,                        //   USAGE (Flow)
0xa1, 0x83,                        //   COLLECTION (VendorDefined)
0x09, 0x1f,                        //     USAGE (FlowID)
0x85, 0x13,                        //     REPORT_ID (19)
0x75, 0x08,                        //     REPORT_SIZE (8)
0x26, 0xff, 0x00,                  //     LOGICAL_MAXIMUM (255)
0x65, 0x00,                        //     UNIT (None)
0x55, 0x00,                        //     UNIT_EXPONENT (0)
0xb1, 0x03,                        //     FEATURE (Cnst,Var,Abs)
0xc0,                              //   END_COLLECTION
0x09, 0x1e,                        //   USAGE (Flow)
0xa1, 0x84,                        //   COLLECTION (VendorDefined)
0x09, 0x1f,                        //     USAGE (FlowID)
0x85, 0x14,                        //     REPORT_ID (20)
0xb1, 0x03,                        //     FEATURE (Cnst,Var,Abs)
0x09, 0x42,                        //     USAGE (ConfigFrequency)
0x66, 0x01, 0xf0,                  //     UNIT (SI Lin:Hertz)
0x55, 0x00,                        //     UNIT_EXPONENT (0)
0xb1, 0x83,                        //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x44,                        //     USAGE (ConfigActivePower)
0x75, 0x10,                        //     REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,      //     LOGICAL_MAXIMUM (65535)
0x66, 0x21, 0xd1,                  //     UNIT (SI Lin:Power)
0x55, 0x07,                        //     UNIT_EXPONENT (7)
0xb1, 0x83,                        //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x43,                        //     USAGE (ConfigApparentPower)
0xb1, 0x83,                        //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x41,                        //     USAGE (ConfigCurrent)
0x67, 0x01, 0x00, 0x10, 0x00,      //     UNIT (SI Lin:Amps)
0x55, 0x0e,                        //     UNIT_EXPONENT (-2)
0xb1, 0x83,                        //     FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x40,                        //     USAGE (ConfigVoltage)
```

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0x85, 0x15,                          //     REPORT_ID (21)
0x67, 0x21, 0xd1, 0xf0, 0x00,   //     UNIT (SI Lin:Volts)
0x55, 0x07,                          //     UNIT_EXPONENT (7)
0xb1, 0x82,                          //     FEATURE (Data,Var,Abs,Vol)
0xc0,                                //   END_COLLECTION
0x09, 0x16,                          //   USAGE (PowerConverter)
0xa1, 0x00,                          //   COLLECTION (Physical)
0x09, 0x17,                          //     USAGE (PowerConverterID)
0x85, 0x17,                          //     REPORT_ID (23)
0x75, 0x08,                          //     REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //     LOGICAL_MAXIMUM (255)
0x65, 0x00,                          //     UNIT (None)
0x55, 0x00,                          //     UNIT_EXPONENT (0)
0xb1, 0x03,                          //     FEATURE (Cnst,Var,Abs)
0x06, 0xff, 0xff,                    //     USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x41,                          //     USAGE (0x41)
0xb1, 0x03,                          //     FEATURE (Cnst,Var,Abs)
0x05, 0x84,                          //     USAGE_PAGE (Power Device)
0x09, 0x1a,                          //     USAGE (Input)
0xa1, 0x81,                          //     COLLECTION (VendorDefined)
0x09, 0x1b,                          //       USAGE (InputID)
0x85, 0x19,                          //       REPORT_ID (25)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                          //       USAGE (FlowID)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
0x09, 0x32,                          //       USAGE (Frequency)
0x66, 0x01, 0xf0,                    //       UNIT (SI Lin:Hertz)
0xb1, 0x83,                          //       FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x30,                          //       USAGE (Voltage)
0x75, 0x10,                          //       REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,   //       LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,   //       UNIT (SI Lin:Volts)
0x55, 0x07,                          //       UNIT_EXPONENT (7)
0xb1, 0x83,                          //       FEATURE (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,                    //       USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x43,                          //       USAGE (0x43)
0x85, 0x18,                          //       REPORT_ID (24)
0x75, 0x08,                          //       REPORT_SIZE (8)
0x25, 0x01,                          //       LOGICAL_MAXIMUM (1)
0x65, 0x00,                          //       UNIT (None)
0x55, 0x00,                          //       UNIT_EXPONENT (0)
0xb1, 0x82,                          //       FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                          //       USAGE_PAGE (Power Device)
0x09, 0x02,                          //       USAGE (PresentStatus)
0xa1, 0x00,                          //       COLLECTION (Physical)
0x09, 0x6e,                          //         USAGE (Boost)
0x85, 0x03,                          //         REPORT_ID (3)
0xb1, 0x83,                          //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6e,                          //         USAGE (Boost)
0x81, 0x83,                          //         INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6f,                          //         USAGE (Buck)
0xb1, 0x83,                          //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6f,                          //         USAGE (Buck)
0x81, 0x83,                          //         INPUT (Cnst,Var,Abs,Vol)
0xc0,                                //       END_COLLECTION
0xc0,                                //     END_COLLECTION
0x09, 0x1a,                          //     USAGE (Input)
0xa1, 0x83,                          //     COLLECTION (VendorDefined)
0x09, 0x1b,                          //       USAGE (InputID)
0x85, 0x1a,                          //       REPORT_ID (26)
0x26, 0xff, 0x00,                    //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                          //       USAGE (FlowID)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
```

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0x06, 0xff, 0xff,                // USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x46,                      // USAGE (0x46)
0x25, 0x01,                      // LOGICAL_MAXIMUM (1)
0x85, 0x3b,                      // REPORT_ID (59)
0xb1, 0x82,                      // FEATURE (Data,Var,Abs,Vol)
0x09, 0x47,                      // USAGE (0x47)
0x85, 0x1b,                      // REPORT_ID (27)
0xb1, 0x82,                      // FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                      // USAGE_PAGE (Power Device)
0x09, 0x02,                      // USAGE (PresentStatus)
0xa1, 0x00,                      // COLLECTION (Physical)
0x09, 0x61,                      //    USAGE (Good)
0x85, 0x04,                      //    REPORT_ID (4)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x61,                      //    USAGE (Good)
0x81, 0x83,                      //    INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6d,                      //    USAGE (Used)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6d,                      //    USAGE (Used)
0x81, 0x83,                      //    INPUT (Cnst,Var,Abs,Vol)
0xc0,                            //    END_COLLECTION
0xc0,                            // END_COLLECTION
0x09, 0x1c,                      // USAGE (Output)
0xa1, 0x00,                      // COLLECTION (Physical)
0x09, 0x1d,                      //    USAGE (OutputID)
0x85, 0x1c,                      //    REPORT_ID (28)
0x26, 0xff, 0x00,                //    LOGICAL_MAXIMUM (255)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x1f,                      //    USAGE (FlowID)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x33,                      //    USAGE (ApparentPower)
0x75, 0x10,                      //    REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,    //    LOGICAL_MAXIMUM (65535)
0x66, 0x21, 0xd1,                //    UNIT (SI Lin:Power)
0x55, 0x07,                      //    UNIT_EXPONENT (7)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x31,                      //    USAGE (Current)
0x67, 0x01, 0x00, 0x10, 0x00,    //    UNIT (SI Lin:Amps)
0x55, 0x0e,                      //    UNIT_EXPONENT (-2)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x30,                      //    USAGE (Voltage)
0x67, 0x21, 0xd1, 0xf0, 0x00,    //    UNIT (SI Lin:Volts)
0x55, 0x07,                      //    UNIT_EXPONENT (7)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x32,                      //    USAGE (Frequency)
0x75, 0x08,                      //    REPORT_SIZE (8)
0x26, 0xff, 0x00,                //    LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                //    UNIT (SI Lin:Hertz)
0x55, 0x00,                      //    UNIT_EXPONENT (0)
0xb1, 0x83,                      //    FEATURE (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,                //    USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x4e,                      //    USAGE (0x4e)
0x85, 0x1d,                      //    REPORT_ID (29)
0x25, 0x01,                      //    LOGICAL_MAXIMUM (1)
0x65, 0x00,                      //    UNIT (None)
0xb1, 0x82,                      //    FEATURE (Data,Var,Abs,Vol)
0x09, 0x4b,                      //    USAGE (0x4b)
0x85, 0x1e,                      //    REPORT_ID (30)
0xb1, 0x82,                      //    FEATURE (Data,Var,Abs,Vol)
0x09, 0x44,                      //    USAGE (0x44)
0x85, 0x1f,                      //    REPORT_ID (31)
0xb1, 0x82,                      //    FEATURE (Data,Var,Abs,Vol)
0x09, 0x53,                      //    USAGE (0x53)
0x85, 0x20,                      //    REPORT_ID (32)
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0x75, 0x10,                          //          REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,        //          LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,        //          UNIT (SI Lin:Volts)
0x55, 0x07,                          //          UNIT_EXPONENT (7)
0xb1, 0x82,                          //          FEATURE (Data,Var,Abs,Vol)
0x09, 0x50,                          //          USAGE (0x50)
0x85, 0x22,                          //          REPORT_ID (34)
0xb1, 0x82,                          //          FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                          //          USAGE_PAGE (Power Device)
0x09, 0x54,                          //          USAGE (HighVoltageTransfer)
0x85, 0x21,                          //          REPORT_ID (33)
0xb1, 0x82,                          //          FEATURE (Data,Var,Abs,Vol)
0x09, 0x53,                          //          USAGE (LowVoltageTransfer)
0x85, 0x23,                          //          REPORT_ID (35)
0xb1, 0x82,                          //          FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,                    //          USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x4c,                          //          USAGE (0x4c)
0x85, 0x24,                          //          REPORT_ID (36)
0x75, 0x08,                          //          REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //          LOGICAL_MAXIMUM (255)
0x65, 0x00,                          //          UNIT (None)
0x55, 0x00,                          //          UNIT_EXPONENT (0)
0xb1, 0x82,                          //          FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                          //          USAGE_PAGE (Power Device)
0x09, 0x02,                          //          USAGE (PresentStatus)
0xa1, 0x00,                          //          COLLECTION (Physical)
0x09, 0x65,                          //            USAGE (Overload)
0x85, 0x05,                          //            REPORT_ID (5)
0x25, 0x01,                          //            LOGICAL_MAXIMUM (1)
0xb1, 0x83,                          //            FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x65,                          //            USAGE (Overload)
0x81, 0x83,                          //            INPUT (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,                    //            USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x4a,                          //            USAGE (0x4a)
0xb1, 0x83,                          //            FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x4a,                          //            USAGE (0x4a)
0x81, 0x83,                          //            INPUT (Cnst,Var,Abs,Vol)
0xc0,                                //          END_COLLECTION
0xc0,                                //        END_COLLECTION
0xc0,                                //      END_COLLECTION
0x05, 0x84,                          //      USAGE_PAGE (Power Device)
0x09, 0x18,                          //      USAGE (OutletSystem)
0xa1, 0x00,                          //      COLLECTION (Physical)
0x09, 0x19,                          //        USAGE (OutletSystemID)
0x85, 0x16,                          //        REPORT_ID (22)
0x26, 0xff, 0x00,                    //        LOGICAL_MAXIMUM (255)
0xb1, 0x83,                          //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x20,                          //        USAGE (Outlet)
0xa1, 0x81,                          //        COLLECTION (VendorDefined)
0x09, 0x21,                          //          USAGE (OutletID)
0xb1, 0x83,                          //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x1f,                          //          USAGE (FlowID)
0xb1, 0x83,                          //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                          //          USAGE (PresentStatus)
0xa1, 0x00,                          //          COLLECTION (Physical)
0x09, 0x6c,                          //            USAGE (Switchable)
0x85, 0x02,                          //            REPORT_ID (2)
0x25, 0x01,                          //            LOGICAL_MAXIMUM (1)
0xb1, 0x03,                          //            FEATURE (Cnst,Var,Abs)
0xc0,                                //          END_COLLECTION
0xc0,                                //        END_COLLECTION
0x09, 0x20,                          //        USAGE (Outlet)
0xa1, 0x82,                          //        COLLECTION (VendorDefined)
0x09, 0x21,                          //          USAGE (OutletID)
```

```
0x85, 0x31,                        //       REPORT_ID (49)
0x26, 0xff, 0x00,                  //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                        //       USAGE (FlowID)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x57,                        //       USAGE (DelayBeforeShutdown)
0x85, 0x2f,                        //       REPORT_ID (47)
0x75, 0x18,                        //       REPORT_SIZE (24)
0x15, 0xff,                        //       LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,      //       LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                  //       UNIT (SI Lin:Time)
0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
0x09, 0x56,                        //       USAGE (DelayBeforeStartup)
0x85, 0x30,                        //       REPORT_ID (48)
0x55, 0x00,                        //       UNIT_EXPONENT (0)
0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,                  //       USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x5d,                        //       USAGE (0x5d)
0x85, 0x33,                        //       REPORT_ID (51)
0x75, 0x10,                        //       REPORT_SIZE (16)
0x15, 0x00,                        //       LOGICAL_MINIMUM (0)
0x27, 0xff, 0xff, 0x00, 0x00,      //       LOGICAL_MAXIMUM (65535)
0x55, 0x00,                        //       UNIT_EXPONENT (0)
0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
0x09, 0x5e,                        //       USAGE (0x5e)
0x85, 0x34,                        //       REPORT_ID (52)
0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
0x05, 0x85,                        //       USAGE_PAGE (Battery System)
0x09, 0x29,                        //       USAGE (RemainingCapacityLimit)
0x85, 0x32,                        //       REPORT_ID (50)
0x75, 0x08,                        //       REPORT_SIZE (8)
0x26, 0xff, 0x00,                  //       LOGICAL_MAXIMUM (255)
0x65, 0x00,                        //       UNIT (None)
0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                        //       USAGE_PAGE (Power Device)
0x09, 0x02,                        //       USAGE (PresentStatus)
0xa1, 0x00,                        //       COLLECTION (Physical)
0x09, 0x6c,                        //         USAGE (Switchable)
0x85, 0x07,                        //         REPORT_ID (7)
0x25, 0x01,                        //         LOGICAL_MAXIMUM (1)
0xb1, 0x83,                        //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6c,                        //         USAGE (Switchable)
0x81, 0x83,                        //         INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                        //         USAGE (SwitchOn/Off)
0xb1, 0x83,                        //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6b,                        //         USAGE (SwitchOn/Off)
0x81, 0x83,                        //         INPUT (Cnst,Var,Abs,Vol)
0xc0,                              //       END_COLLECTION
0xc0,                              //     END_COLLECTION
0x09, 0x20,                        //     USAGE (Outlet)
0xa1, 0x83,                        //     COLLECTION (VendorDefined)
0x09, 0x21,                        //       USAGE (OutletID)
0x85, 0x31,                        //       REPORT_ID (49)
0x26, 0xff, 0x00,                  //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x1f,                        //       USAGE (FlowID)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x57,                        //       USAGE (DelayBeforeShutdown)
0x85, 0x35,                        //       REPORT_ID (53)
0x75, 0x18,                        //       REPORT_SIZE (24)
0x15, 0xff,                        //       LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,      //       LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                  //       UNIT (SI Lin:Time)
0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
```

```
0x09, 0x56,                    //        USAGE (DelayBeforeStartup)
0x85, 0x36,                    //        REPORT_ID (54)
0x55, 0x00,                    //        UNIT_EXPONENT (0)
0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,              //        USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x5d,                    //        USAGE (0x5d)
0x85, 0x38,                    //        REPORT_ID (56)
0x75, 0x10,                    //        REPORT_SIZE (16)
0x15, 0x00,                    //        LOGICAL_MINIMUM (0)
0x55, 0x00,                    //        UNIT_EXPONENT (0)
0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
0x09, 0x5e,                    //        USAGE (0x5e)
0x85, 0x39,                    //        REPORT_ID (57)
0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
0x05, 0x85,                    //        USAGE_PAGE (Battery System)
0x09, 0x29,                    //        USAGE (RemainingCapacityLimit)
0x85, 0x37,                    //        REPORT_ID (55)
0x75, 0x08,                    //        REPORT_SIZE (8)
0x26, 0xff, 0x00,              //        LOGICAL_MAXIMUM (255)
0x65, 0x00,                    //        UNIT (None)
0x55, 0x00,                    //        UNIT_EXPONENT (0)
0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                    //        USAGE_PAGE (Power Device)
0x09, 0x02,                    //        USAGE (PresentStatus)
0xa1, 0x00,                    //        COLLECTION (Physical)
0x09, 0x6c,                    //          USAGE (Switchable)
0x85, 0x08,                    //          REPORT_ID (8)
0x25, 0x01,                    //          LOGICAL_MAXIMUM (1)
0xb1, 0x83,                    //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6c,                    //          USAGE (Switchable)
0x81, 0x83,                    //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                    //          USAGE (SwitchOn/Off)
0xb1, 0x83,                    //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x6b,                    //          USAGE (SwitchOn/Off)
0x81, 0x83,                    //          INPUT (Cnst,Var,Abs,Vol)
0xc0,                          //        END_COLLECTION
0xc0,                          //      END_COLLECTION
0xc0,                          //    END_COLLECTION
0xc0                           // END_COLLECTION
};
```

6. Pulsar Evolution 1500/2200/3000 Range

Pulsar *Evolution* is intended for networking equipment, rack-optimized servers, traditional rack and tower servers and network storage systems. (Line Interactive, 1U rack only @ 1,500VA, 2 Switchable Outlets, USB and RS232 ports)
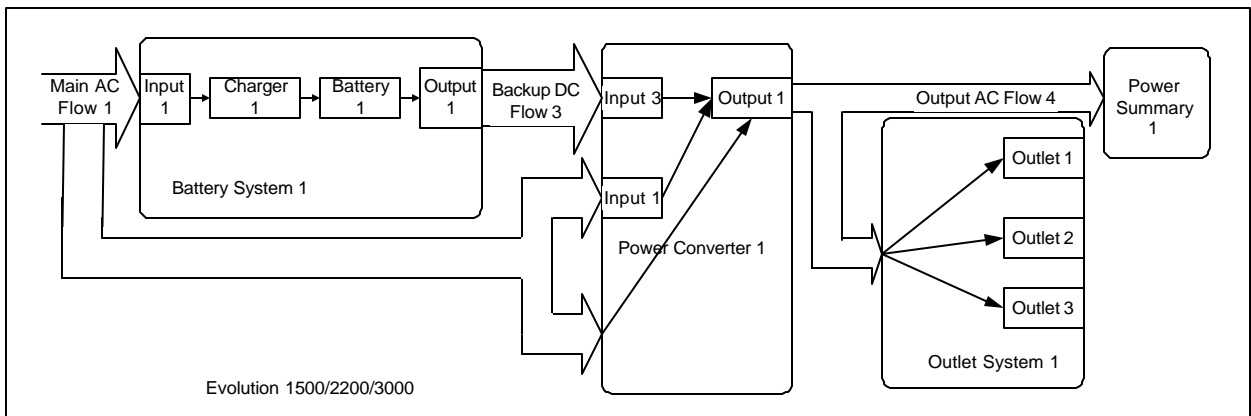
Figure 5: Pulsar Evolution 500/800/1100 UPS

6.1 The Evolution 1500/2200/3000 Collection tree

Collection UPS

    Collection BatterySystem

        Collection Battery

        Collection Charger

        Collection Input

        Collection Output

    Collection Flow (1:Main AC)

    Collection Flow (3:Backup DC)

    Collection Flow (4:AC Output)

    Collection PowerConverter

        Collection Input (1)

        Collection Input (3)

        Collection Output

    Collection OutletSystem

        Collection Outlet (1:Non Switchable)

        Collection Outlet (2:Switchable)

        Collection Outlet (3:Switchable)

    Collection PowerSummary

6.2 The Evolution 1500/2200/3000 HID report descriptor

```
char ReportDescriptor[1620] = {
    0x05, 0x84,                        // USAGE_PAGE (Power Device)
    0x09, 0x04,                        // USAGE (UPS)
    0xa1, 0x01,                        // COLLECTION (Application)
    0x09, 0x10,                        //   USAGE (BatterySystem)
    0xa1, 0x00,                        //   COLLECTION (Physical)
    0x85, 0x01,                        //     REPORT_ID (1)
    0x09, 0x11,                        //     USAGE (BatterySystemID)
    0x75, 0x08,                        //     REPORT_SIZE (8)
    0x95, 0x01,                        //     REPORT_COUNT (1)
    0x15, 0x00,                        //     LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,                  //     LOGICAL_MAXIMUM (255)
    0x65, 0x00,                        //     UNIT (None)
    0xb1, 0x03,                        //     FEATURE (Cnst,Var,Abs)
    0x09, 0x12,                        //     USAGE (Battery)
    0xa1, 0x00,                        //     COLLECTION (Physical)
    0x09, 0x13,                        //       USAGE (BatteryID)
    0x95, 0x01,                        //       REPORT_COUNT (1)
    0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
    0x85, 0x10,                        //       REPORT_ID (16)
    0x0b, 0x6a, 0x00, 0x85, 0x00,      //       USAGE (Battery System:AverageTimeToFull)
    0x75, 0x10,                        //       REPORT_SIZE (16)
    0x95, 0x01,                        //       REPORT_COUNT (1)
    0x27, 0xff, 0xff, 0x00, 0x00,      //       LOGICAL_MAXIMUM (65535)
    0x66, 0x01, 0x10,                  //       UNIT (SI Lin:Time)
    0xb1, 0x83,                        //       FEATURE (Cnst,Var,Abs,Vol)
    0x85, 0x14,                        //       REPORT_ID (20)
    0x0b, 0x90, 0x00, 0xff, 0xff,      //       USAGE (Vendor defined MGE 1:0x90)
    0x75, 0x08,                        //       REPORT_SIZE (8)
    0x95, 0x01,                        //       REPORT_COUNT (1)
    0x26, 0xff, 0x00,                  //       LOGICAL_MAXIMUM (255)
    0x65, 0x00,                        //       UNIT (None)
    0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
    0x09, 0x02,                        //       USAGE (PresentStatus)
    0xa1, 0x02,                        //       COLLECTION (Logical)
    0x85, 0x0b,                        //         REPORT_ID (11)
    0x09, 0x61,                        //         USAGE (Good)
    0x09, 0x60,                        //         USAGE (Present)
    0x75, 0x01,                        //         REPORT_SIZE (1)
    0x95, 0x02,                        //         REPORT_COUNT (2)
    0x25, 0x01,                        //         LOGICAL_MAXIMUM (1)
    0x81, 0x83,                        //         INPUT (Cnst,Var,Abs,Vol)
    0x09, 0x61,                        //         USAGE (Good)
    0x09, 0x60,                        //         USAGE (Present)
    0x95, 0x02,                        //         REPORT_COUNT (2)
    0xb1, 0x83,                        //         FEATURE (Cnst,Var,Abs,Vol)
    0xc0,                              //       END_COLLECTION
    0x85, 0x15,                        //       REPORT_ID (21)
    0x0b, 0x49, 0x00, 0xff, 0xff,      //       USAGE (Vendor defined MGE 1:0x49)
    0x95, 0x01,                        //       REPORT_COUNT (1)
    0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
    0x95, 0x07,                        //       REPORT_COUNT (7)
    0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
    0x85, 0x16,                        //       REPORT_ID (22)
    0x09, 0x58,                        //       USAGE (Test)
    0x75, 0x08,                        //       REPORT_SIZE (8)
    0x95, 0x01,                        //       REPORT_COUNT (1)
    0x26, 0xff, 0x00,                  //       LOGICAL_MAXIMUM (255)
    0xb1, 0x82,                        //       FEATURE (Data,Var,Abs,Vol)
    0x85, 0x17,                        //       REPORT_ID (23)
    0x0b, 0x45, 0x00, 0xff, 0xff,      //       USAGE (Vendor defined MGE 1:0x45)
    0x75, 0x18,                        //       REPORT_SIZE (24)
```

```
0x95, 0x01,                       //          REPORT_COUNT (1)
0x27, 0xff, 0xff, 0xff, 0x00,     //          LOGICAL_MAXIMUM (16777215)
0x66, 0x01, 0x10,                 //          UNIT (SI Lin:Time)
0xb1, 0x82,                       //          FEATURE (Data,Var,Abs,Vol)
0xc0,                             //        END_COLLECTION
0x09, 0x14,                       //        USAGE (Charger)
0xa1, 0x00,                       //        COLLECTION (Physical)
0x85, 0x01,                       //          REPORT_ID (1)
0x09, 0x15,                       //          USAGE (ChargerID)
0x75, 0x08,                       //          REPORT_SIZE (8)
0x95, 0x01,                       //          REPORT_COUNT (1)
0x26, 0xff, 0x00,                 //          LOGICAL_MAXIMUM (255)
0x65, 0x00,                       //          UNIT (None)
0xb1, 0x03,                       //          FEATURE (Cnst,Var,Abs)
0x09, 0x02,                       //          USAGE (PresentStatus)
0xa1, 0x02,                       //          COLLECTION (Logical)
0x85, 0x0b,                       //            REPORT_ID (11)
0x09, 0x61,                       //            USAGE (Good)
0x09, 0x62,                       //            USAGE (InternalFailure)
0x75, 0x01,                       //            REPORT_SIZE (1)
0x95, 0x02,                       //            REPORT_COUNT (2)
0x25, 0x01,                       //            LOGICAL_MAXIMUM (1)
0x81, 0x83,                       //            INPUT (Cnst,Var,Abs,Vol)
0x09, 0x61,                       //            USAGE (Good)
0x09, 0x62,                       //            USAGE (InternalFailure)
0x95, 0x02,                       //            REPORT_COUNT (2)
0xb1, 0x83,                       //            FEATURE (Cnst,Var,Abs,Vol)
0xc0,                             //          END_COLLECTION
0xc0,                             //        END_COLLECTION
0x09, 0x1a,                       //        USAGE (Input)
0xa1, 0x00,                       //        COLLECTION (Physical)
0x85, 0x01,                       //          REPORT_ID (1)
0x09, 0x1f,                       //          USAGE (FlowID)
0x09, 0x1b,                       //          USAGE (InputID)
0x75, 0x08,                       //          REPORT_SIZE (8)
0x95, 0x02,                       //          REPORT_COUNT (2)
0x26, 0xff, 0x00,                 //          LOGICAL_MAXIMUM (255)
0xb1, 0x03,                       //          FEATURE (Cnst,Var,Abs)
0xc0,                             //        END_COLLECTION
0x09, 0x1c,                       //        USAGE (Output)
0xa1, 0x00,                       //        COLLECTION (Physical)
0x09, 0x1f,                       //          USAGE (FlowID)
0x09, 0x1d,                       //          USAGE (OutputID)
0x95, 0x02,                       //          REPORT_COUNT (2)
0xb1, 0x03,                       //          FEATURE (Cnst,Var,Abs)
0xc0,                             //        END_COLLECTION
0xc0,                             //      END_COLLECTION
0x09, 0x1e,                       //      USAGE (Flow)
0xa1, 0x81,                       //      COLLECTION (VendorDefined)
0x85, 0x02,                       //        REPORT_ID (2)
0x09, 0x1f,                       //        USAGE (FlowID)
0x95, 0x01,                       //        REPORT_COUNT (1)
0xb1, 0x03,                       //        FEATURE (Cnst,Var,Abs)
0x85, 0x18,                       //        REPORT_ID (24)
0x09, 0x42,                       //        USAGE (ConfigFrequency)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x26, 0xff, 0x00,                 //        LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                 //        UNIT (SI Lin:Hertz)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x19,                       //        REPORT_ID (25)
0x09, 0x40,                       //        USAGE (ConfigVoltage)
0x75, 0x10,                       //        REPORT_SIZE (16)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,     //        LOGICAL_MAXIMUM (65535)
```

```
0x67, 0x21, 0xd1, 0xf0, 0x00,  //      UNIT (SI Lin:Volts)
0x55, 0x07,                    //      UNIT_EXPONENT (7)
0xb1, 0x82,                    //      FEATURE (Data,Var,Abs,Vol)
0xc0,                          //      END_COLLECTION
0x09, 0x1e,                    //    USAGE (Flow)
0xa1, 0x83,                    //    COLLECTION (VendorDefined)
0x85, 0x02,                    //      REPORT_ID (2)
0x09, 0x1f,                    //      USAGE (FlowID)
0x75, 0x08,                    //      REPORT_SIZE (8)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x26, 0xff, 0x00,              //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                    //      UNIT (None)
0x55, 0x00,                    //      UNIT_EXPONENT (0)
0xb1, 0x03,                    //      FEATURE (Cnst,Var,Abs)
0xc0,                          //    END_COLLECTION
0x09, 0x1e,                    //    USAGE (Flow)
0xa1, 0x84,                    //    COLLECTION (VendorDefined)
0x09, 0x1f,                    //      USAGE (FlowID)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x26, 0xff, 0x00,              //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                    //      UNIT (None)
0xb1, 0x03,                    //      FEATURE (Cnst,Var,Abs)
0x85, 0x1a,                    //      REPORT_ID (26)
0x09, 0x44,                    //      USAGE (ConfigActivePower)
0x75, 0x10,                    //      REPORT_SIZE (16)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,  //      LOGICAL_MAXIMUM (65535)
0x66, 0x21, 0xd1,              //      UNIT (SI Lin:Power)
0x55, 0x07,                    //      UNIT_EXPONENT (7)
0xb1, 0x82,                    //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x1b,                    //      REPORT_ID (27)
0x09, 0x43,                    //      USAGE (ConfigApparentPower)
0x95, 0x01,                    //      REPORT_COUNT (1)
0xb1, 0x82,                    //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x1c,                    //      REPORT_ID (28)
0x09, 0x41,                    //      USAGE (ConfigCurrent)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,  //      LOGICAL_MAXIMUM (65535)
0x67, 0x01, 0x00, 0x10, 0x00,  //      UNIT (SI Lin:Amps)
0x55, 0x0e,                    //      UNIT_EXPONENT (-2)
0xb1, 0x82,                    //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x1d,                    //      REPORT_ID (29)
0x09, 0x42,                    //      USAGE (ConfigFrequency)
0x75, 0x08,                    //      REPORT_SIZE (8)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x26, 0xff, 0x00,              //      LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,              //      UNIT (SI Lin:Hertz)
0x55, 0x00,                    //      UNIT_EXPONENT (0)
0xb1, 0x82,                    //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x1e,                    //      REPORT_ID (30)
0x09, 0x40,                    //      USAGE (ConfigVoltage)
0x75, 0x10,                    //      REPORT_SIZE (16)
0x95, 0x01,                    //      REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,  //      LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,  //      UNIT (SI Lin:Volts)
0x55, 0x07,                    //      UNIT_EXPONENT (7)
0xb1, 0x82,                    //      FEATURE (Data,Var,Abs,Vol)
0xc0,                          //    END_COLLECTION
0x09, 0x18,                    //    USAGE (OutletSystem)
0xa1, 0x00,                    //    COLLECTION (Physical)
0x85, 0x03,                    //      REPORT_ID (3)
0x09, 0x19,                    //      USAGE (OutletSystemID)
0x75, 0x08,                    //      REPORT_SIZE (8)
0x95, 0x01,                    //      REPORT_COUNT (1)
```

```
0x26, 0xff, 0x00,               //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                     //      UNIT (None)
0x55, 0x00,                     //      UNIT_EXPONENT (0)
0xb1, 0x03,                     //      FEATURE (Cnst,Var,Abs)
0x09, 0x20,                     //      USAGE (Outlet)
0xa1, 0x81,                     //      COLLECTION (VendorDefined)
0x09, 0x1f,                     //        USAGE (FlowID)
0x09, 0x21,                     //        USAGE (OutletID)
0x95, 0x02,                     //        REPORT_COUNT (2)
0x26, 0xff, 0x00,               //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                     //        FEATURE (Cnst,Var,Abs)
0x09, 0x02,                     //        USAGE (PresentStatus)
0xa1, 0x02,                     //        COLLECTION (Logical)
0x85, 0x04,                     //          REPORT_ID (4)
0x09, 0x6c,                     //          USAGE (Switchable)
0x75, 0x01,                     //          REPORT_SIZE (1)
0x95, 0x01,                     //          REPORT_COUNT (1)
0x25, 0x01,                     //          LOGICAL_MAXIMUM (1)
0xb1, 0x03,                     //          FEATURE (Cnst,Var,Abs)
0x95, 0x07,                     //          REPORT_COUNT (7)
0xb1, 0x03,                     //          FEATURE (Cnst,Var,Abs)
0xc0,                           //        END_COLLECTION
0xc0,                           //      END_COLLECTION
0x09, 0x20,                     //      USAGE (Outlet)
0xa1, 0x82,                     //      COLLECTION (VendorDefined)
0x85, 0x03,                     //        REPORT_ID (3)
0x09, 0x1f,                     //        USAGE (FlowID)
0x09, 0x21,                     //        USAGE (OutletID)
0x75, 0x08,                     //        REPORT_SIZE (8)
0x95, 0x02,                     //        REPORT_COUNT (2)
0x26, 0xff, 0x00,               //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                     //        FEATURE (Cnst,Var,Abs)
0x85, 0x1f,                     //        REPORT_ID (31)
0x0b, 0x29, 0x00, 0x85, 0x00,   //        USAGE (Battery
System:RemainingCapacityLimit)
0x95, 0x01,                     //        REPORT_COUNT (1)
0x25, 0x64,                     //        LOGICAL_MAXIMUM (100)
0xb1, 0x82,                     //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x20,                     //        REPORT_ID (32)
0x09, 0x57,                     //        USAGE (DelayBeforeShutdown)
0x75, 0x18,                     //        REPORT_SIZE (24)
0x95, 0x01,                     //        REPORT_COUNT (1)
0x15, 0xff,                     //        LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,   //        LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,               //        UNIT (SI Lin:Time)
0xb1, 0x82,                     //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x21,                     //        REPORT_ID (33)
0x09, 0x56,                     //        USAGE (DelayBeforeStartup)
0x95, 0x01,                     //        REPORT_COUNT (1)
0x55, 0x01,                     //        UNIT_EXPONENT (1)
0xb1, 0x82,                     //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x22,                     //        REPORT_ID (34)
0x0b, 0x5d, 0x00, 0xff, 0xff,   //        USAGE (Vendor defined MGE 1:0x5d)
0x75, 0x10,                     //        REPORT_SIZE (16)
0x95, 0x01,                     //        REPORT_COUNT (1)
0x15, 0x00,                     //        LOGICAL_MINIMUM (0)
0x27, 0xff, 0xff, 0x00, 0x00,   //        LOGICAL_MAXIMUM (65535)
0x55, 0x00,                     //        UNIT_EXPONENT (0)
0xb1, 0x82,                     //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x23,                     //        REPORT_ID (35)
0x0b, 0x5e, 0x00, 0xff, 0xff,   //        USAGE (Vendor defined MGE 1:0x5e)
0x95, 0x01,                     //        REPORT_COUNT (1)
0xb1, 0x82,                     //        FEATURE (Data,Var,Abs,Vol)
0x09, 0x02,                     //        USAGE (PresentStatus)
```

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0xa1, 0x02,                       //        COLLECTION (Logical)
0x85, 0x04,                       //          REPORT_ID (4)
0x09, 0x6c,                       //          USAGE (Switchable)
0x75, 0x01,                       //          REPORT_SIZE (1)
0x95, 0x01,                       //          REPORT_COUNT (1)
0x25, 0x01,                       //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                       //          UNIT (None)
0xb1, 0x03,                       //          FEATURE (Cnst,Var,Abs)
0x95, 0x07,                       //          REPORT_COUNT (7)
0xb1, 0x03,                       //          FEATURE (Cnst,Var,Abs)
0x85, 0x0b,                       //          REPORT_ID (11)
0x09, 0x6b,                       //          USAGE (SwitchOn/Off)
0x95, 0x01,                       //          REPORT_COUNT (1)
0x81, 0x83,                       //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                       //          USAGE (SwitchOn/Off)
0x95, 0x01,                       //          REPORT_COUNT (1)
0xb1, 0x83,                       //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                             //        END_COLLECTION
0xc0,                             //      END_COLLECTION
0x09, 0x20,                       //      USAGE (Outlet)
0xa1, 0x83,                       //      COLLECTION (VendorDefined)
0x85, 0x03,                       //        REPORT_ID (3)
0x09, 0x1f,                       //        USAGE (FlowID)
0x09, 0x21,                       //        USAGE (OutletID)
0x75, 0x08,                       //        REPORT_SIZE (8)
0x95, 0x02,                       //        REPORT_COUNT (2)
0x26, 0xff, 0x00,                 //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                       //        FEATURE (Cnst,Var,Abs)
0x85, 0x24,                       //        REPORT_ID (36)
0x0b, 0x29, 0x00, 0x85, 0x00,     //        USAGE (Battery
System:RemainingCapacityLimit)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x25, 0x64,                       //        LOGICAL_MAXIMUM (100)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x25,                       //        REPORT_ID (37)
0x09, 0x57,                       //        USAGE (DelayBeforeShutdown)
0x75, 0x18,                       //        REPORT_SIZE (24)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x15, 0xff,                       //        LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,     //        LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                 //        UNIT (SI Lin:Time)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x26,                       //        REPORT_ID (38)
0x09, 0x56,                       //        USAGE (DelayBeforeStartup)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x55, 0x01,                       //        UNIT_EXPONENT (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x27,                       //        REPORT_ID (39)
0x0b, 0x5d, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x5d)
0x75, 0x10,                       //        REPORT_SIZE (16)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x15, 0x00,                       //        LOGICAL_MINIMUM (0)
0x55, 0x00,                       //        UNIT_EXPONENT (0)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x28,                       //        REPORT_ID (40)
0x0b, 0x5e, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x5e)
0x95, 0x01,                       //        REPORT_COUNT (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x09, 0x02,                       //        USAGE (PresentStatus)
0xa1, 0x02,                       //        COLLECTION (Logical)
0x85, 0x04,                       //          REPORT_ID (4)
0x09, 0x6c,                       //          USAGE (Switchable)
0x75, 0x01,                       //          REPORT_SIZE (1)
0x95, 0x01,                       //          REPORT_COUNT (1)
```

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0x25, 0x01,                         //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                         //          UNIT (None)
0xb1, 0x03,                         //          FEATURE (Cnst,Var,Abs)
0x95, 0x07,                         //          REPORT_COUNT (7)
0xb1, 0x03,                         //          FEATURE (Cnst,Var,Abs)
0x85, 0x0b,                         //          REPORT_ID (11)
0x09, 0x6b,                         //          USAGE (SwitchOn/Off)
0x95, 0x01,                         //          REPORT_COUNT (1)
0x81, 0x83,                         //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                         //          USAGE (SwitchOn/Off)
0x95, 0x01,                         //          REPORT_COUNT (1)
0xb1, 0x83,                         //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                               //        END_COLLECTION
0xc0,                               //      END_COLLECTION
0xc0,                               //    END_COLLECTION
0x09, 0x16,                         //    USAGE (PowerConverter)
0xa1, 0x00,                         //    COLLECTION (Physical)
0x85, 0x04,                         //      REPORT_ID (4)
0x0b, 0x41, 0x00, 0xff, 0xff,       //      USAGE (Vendor defined MGE 1:0x41)
0x75, 0x08,                         //      REPORT_SIZE (8)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x26, 0xff, 0x00,                   //      LOGICAL_MAXIMUM (255)
0xb1, 0x03,                         //      FEATURE (Cnst,Var,Abs)
0x85, 0x05,                         //      REPORT_ID (5)
0x09, 0x17,                         //      USAGE (PowerConverterID)
0x95, 0x01,                         //      REPORT_COUNT (1)
0xb1, 0x03,                         //      FEATURE (Cnst,Var,Abs)
0x09, 0x1a,                         //      USAGE (Input)
0xa1, 0x81,                         //      COLLECTION (VendorDefined)
0x85, 0x05,                         //        REPORT_ID (5)
0x09, 0x1f,                         //        USAGE (FlowID)
0x09, 0x1b,                         //        USAGE (InputID)
0x95, 0x02,                         //        REPORT_COUNT (2)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0x85, 0x29,                         //        REPORT_ID (41)
0x0b, 0x43, 0x00, 0xff, 0xff,       //        USAGE (Vendor defined MGE 1:0x43)
0x75, 0x01,                         //        REPORT_SIZE (1)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x25, 0x01,                         //        LOGICAL_MAXIMUM (1)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x95, 0x07,                         //        REPORT_COUNT (7)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0x85, 0x11,                         //        REPORT_ID (17)
0x09, 0x30,                         //        USAGE (Voltage)
0x75, 0x10,                         //        REPORT_SIZE (16)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,       //        LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,       //        UNIT (SI Lin:Volts)
0x55, 0x07,                         //        UNIT_EXPONENT (7)
0xb1, 0x83,                         //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x32,                         //        USAGE (Frequency)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x26, 0xff, 0x00,                   //        LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                   //        UNIT (SI Lin:Hertz)
0x55, 0x00,                         //        UNIT_EXPONENT (0)
0xb1, 0x83,                         //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                         //        USAGE (PresentStatus)
0xa1, 0x02,                         //        COLLECTION (Logical)
0x85, 0x0b,                         //          REPORT_ID (11)
0x09, 0x6e,                         //          USAGE (Boost)
0x09, 0x6f,                         //          USAGE (Buck)
0x09, 0x61,                         //          USAGE (Good)
0x09, 0x62,                         //          USAGE (InternalFailure)
```

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0x75, 0x01,                    //        REPORT_SIZE (1)
0x95, 0x04,                    //        REPORT_COUNT (4)
0x25, 0x01,                    //        LOGICAL_MAXIMUM (1)
0x65, 0x00,                    //        UNIT (None)
0x81, 0x83,                    //        INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6e,                    //        USAGE (Boost)
0x09, 0x6f,                    //        USAGE (Buck)
0x09, 0x61,                    //        USAGE (Good)
0x09, 0x62,                    //        USAGE (InternalFailure)
0x95, 0x04,                    //        REPORT_COUNT (4)
0xb1, 0x83,                    //        FEATURE (Cnst,Var,Abs,Vol)
0xc0,                          //        END_COLLECTION
0xc0,                          //      END_COLLECTION
0x09, 0x1a,                    //      USAGE (Input)
0xa1, 0x83,                    //      COLLECTION (VendorDefined)
0x85, 0x05,                    //        REPORT_ID (5)
0x09, 0x1f,                    //        USAGE (FlowID)
0x09, 0x1b,                    //        USAGE (InputID)
0x75, 0x08,                    //        REPORT_SIZE (8)
0x95, 0x02,                    //        REPORT_COUNT (2)
0x26, 0xff, 0x00,              //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                    //        FEATURE (Cnst,Var,Abs)
0x85, 0x2a,                    //        REPORT_ID (42)
0x0b, 0x46, 0x00, 0xff, 0xff,  //        USAGE (Vendor defined MGE 1:0x46)
0x75, 0x01,                    //        REPORT_SIZE (1)
0x95, 0x01,                    //        REPORT_COUNT (1)
0x25, 0x01,                    //        LOGICAL_MAXIMUM (1)
0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
0x95, 0x07,                    //        REPORT_COUNT (7)
0xb1, 0x03,                    //        FEATURE (Cnst,Var,Abs)
0x85, 0x2b,                    //        REPORT_ID (43)
0x0b, 0x47, 0x00, 0xff, 0xff,  //        USAGE (Vendor defined MGE 1:0x47)
0x95, 0x01,                    //        REPORT_COUNT (1)
0xb1, 0x82,                    //        FEATURE (Data,Var,Abs,Vol)
0x95, 0x07,                    //        REPORT_COUNT (7)
0xb1, 0x03,                    //        FEATURE (Cnst,Var,Abs)
0x09, 0x02,                    //        USAGE (PresentStatus)
0xa1, 0x02,                    //        COLLECTION (Logical)
0x85, 0x0b,                    //          REPORT_ID (11)
0x09, 0x61,                    //          USAGE (Good)
0x09, 0x6d,                    //          USAGE (Used)
0x95, 0x02,                    //          REPORT_COUNT (2)
0x81, 0x83,                    //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x61,                    //          USAGE (Good)
0x09, 0x6d,                    //          USAGE (Used)
0x95, 0x02,                    //          REPORT_COUNT (2)
0xb1, 0x83,                    //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                          //        END_COLLECTION
0xc0,                          //      END_COLLECTION
0x09, 0x1c,                    //      USAGE (Output)
0xa1, 0x00,                    //      COLLECTION (Physical)
0x85, 0x05,                    //        REPORT_ID (5)
0x09, 0x1f,                    //        USAGE (FlowID)
0x09, 0x1d,                    //        USAGE (OutputID)
0x75, 0x08,                    //        REPORT_SIZE (8)
0x95, 0x02,                    //        REPORT_COUNT (2)
0x26, 0xff, 0x00,              //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                    //        FEATURE (Cnst,Var,Abs)
0x85, 0x12,                    //        REPORT_ID (18)
0x09, 0x33,                    //        USAGE (ApparentPower)
0x75, 0x10,                    //        REPORT_SIZE (16)
0x95, 0x01,                    //        REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,  //        LOGICAL_MAXIMUM (65535)
0x66, 0x21, 0xd1,              //        UNIT (SI Lin:Power)
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0x55, 0x07,                       //        UNIT_EXPONENT (7)
0xb1, 0x83,                       //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x31,                       //        USAGE (Current)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x67, 0x01, 0x00, 0x10, 0x00,     //        UNIT (SI Lin:Amps)
0x55, 0x0e,                       //        UNIT_EXPONENT (-2)
0xb1, 0x83,                       //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x32,                       //        USAGE (Frequency)
0x75, 0x08,                       //        REPORT_SIZE (8)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x26, 0xff, 0x00,                 //        LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                 //        UNIT (SI Lin:Hertz)
0x55, 0x00,                       //        UNIT_EXPONENT (0)
0xb1, 0x83,                       //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x30,                       //        USAGE (Voltage)
0x75, 0x10,                       //        REPORT_SIZE (16)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,     //        LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,     //        UNIT (SI Lin:Volts)
0x55, 0x07,                       //        UNIT_EXPONENT (7)
0xb1, 0x83,                       //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                       //        USAGE (PresentStatus)
0xa1, 0x02,                       //        COLLECTION (Logical)
0x85, 0x0b,                       //          REPORT_ID (11)
0x09, 0x61,                       //          USAGE (Good)
0x09, 0x65,                       //          USAGE (Overload)
0x0b, 0x4a, 0x00, 0xff, 0xff,     //          USAGE (Vendor defined MGE 1:0x4a)
0x75, 0x01,                       //          REPORT_SIZE (1)
0x95, 0x03,                       //          REPORT_COUNT (3)
0x25, 0x01,                       //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                       //          UNIT (None)
0x55, 0x00,                       //          UNIT_EXPONENT (0)
0x81, 0x83,                       //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x61,                       //          USAGE (Good)
0x09, 0x65,                       //          USAGE (Overload)
0x0b, 0x4a, 0x00, 0xff, 0xff,     //          USAGE (Vendor defined MGE 1:0x4a)
0x95, 0x03,                       //          REPORT_COUNT (3)
0xb1, 0x83,                       //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                             //        END_COLLECTION
0x85, 0x3a,                       //        REPORT_ID (58)
0x0b, 0x4b, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x4b)
0x75, 0x08,                       //        REPORT_SIZE (8)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x26, 0xff, 0x00,                 //        LOGICAL_MAXIMUM (255)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x3b,                       //        REPORT_ID (59)
0x0b, 0x4e, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x4e)
0x95, 0x01,                       //        REPORT_COUNT (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x2d,                       //        REPORT_ID (45)
0x0b, 0x44, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x44)
0x75, 0x01,                       //        REPORT_SIZE (1)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x25, 0x01,                       //        LOGICAL_MAXIMUM (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x95, 0x07,                       //        REPORT_COUNT (7)
0xb1, 0x03,                       //        FEATURE (Cnst,Var,Abs)
0x85, 0x2e,                       //        REPORT_ID (46)
0x0b, 0x53, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x53)
0x75, 0x10,                       //        REPORT_SIZE (16)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,     //        LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,     //        UNIT (SI Lin:Volts)
0x55, 0x07,                       //        UNIT_EXPONENT (7)
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0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x2f,                       //        REPORT_ID (47)
0x09, 0x54,                       //        USAGE (HighVoltageTransfer)
0x95, 0x01,                       //        REPORT_COUNT (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x30,                       //        REPORT_ID (48)
0x0b, 0x50, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x50)
0x95, 0x01,                       //        REPORT_COUNT (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x31,                       //        REPORT_ID (49)
0x09, 0x53,                       //        USAGE (LowVoltageTransfer)
0x95, 0x01,                       //        REPORT_COUNT (1)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x32,                       //        REPORT_ID (50)
0x0b, 0x4c, 0x00, 0xff, 0xff,     //        USAGE (Vendor defined MGE 1:0x4c)
0x75, 0x08,                       //        REPORT_SIZE (8)
0x95, 0x01,                       //        REPORT_COUNT (1)
0x26, 0xff, 0x00,                 //        LOGICAL_MAXIMUM (255)
0x65, 0x00,                       //        UNIT (None)
0x55, 0x00,                       //        UNIT_EXPONENT (0)
0xb1, 0x82,                       //        FEATURE (Data,Var,Abs,Vol)
0xc0,                             //      END_COLLECTION
0xc0,                             //     END_COLLECTION
0x09, 0x24,                       //     USAGE (PowerSummary)
0xa1, 0x00,                       //     COLLECTION (Physical)
0x85, 0x06,                       //      REPORT_ID (6)
0x09, 0x1f,                       //      USAGE (FlowID)
0x09, 0x25,                       //      USAGE (PowerSummaryID)
0x75, 0x08,                       //      REPORT_SIZE (8)
0x95, 0x02,                       //      REPORT_COUNT (2)
0x26, 0xff, 0x00,                 //      LOGICAL_MAXIMUM (255)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
0x0b, 0x8d, 0x00, 0x85, 0x00,     //      USAGE (Battery System:CapacityGranularity1)
0x95, 0x01,                       //      REPORT_COUNT (1)
0x25, 0x64,                       //      LOGICAL_MAXIMUM (100)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
0x0b, 0x2c, 0x00, 0x85, 0x00,     //      USAGE (Battery System:CapacityMode)
0x95, 0x01,                       //      REPORT_COUNT (1)
0x26, 0xff, 0x00,                 //      LOGICAL_MAXIMUM (255)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
0x0b, 0x83, 0x00, 0x85, 0x00,     //      USAGE (Battery System:DesignCapacity)
0x95, 0x01,                       //      REPORT_COUNT (1)
0x25, 0x64,                       //      LOGICAL_MAXIMUM (100)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
0x0b, 0x8b, 0x00, 0x85, 0x00,     //      USAGE (Battery System:Rechargeable)
0x95, 0x01,                       //      REPORT_COUNT (1)
0x25, 0x03,                       //      LOGICAL_MAXIMUM (3)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
0x85, 0x07,                       //      REPORT_ID (7)
0x0b, 0x89, 0x00, 0x85, 0x00,     //      USAGE (Battery System:iDeviceChemistery)
0x0b, 0xf0, 0x00, 0xff, 0xff,     //      USAGE (Vendor defined MGE 1:iModel)
0x0b, 0x8f, 0x00, 0x85, 0x00,     //      USAGE (Battery System:Undefined)
0x09, 0xfe,                       //      USAGE (Undefined)
0x09, 0xff,                       //      USAGE (Undefined)
0x09, 0xfd,                       //      USAGE (Undefined)
0x95, 0x06,                       //      REPORT_COUNT (6)
0x26, 0xff, 0x00,                 //      LOGICAL_MAXIMUM (255)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
0x85, 0x08,                       //      REPORT_ID (8)
0x09, 0x40,                       //      USAGE (ConfigVoltage)
0x95, 0x01,                       //      REPORT_COUNT (1)
0x67, 0x21, 0xd1, 0xf0, 0x00,     //      UNIT (SI Lin:Volts)
0x55, 0x07,                       //      UNIT_EXPONENT (7)
0xb1, 0x03,                       //      FEATURE (Cnst,Var,Abs)
```

```
    0x85, 0x13,                          //      REPORT_ID (19)
    0x09, 0x35,                          //      USAGE (PercentLoad)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0x65, 0x00,                          //      UNIT (None)
    0x55, 0x00,                          //      UNIT_EXPONENT (0)
    0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
    0x0b, 0x29, 0x00, 0x85, 0x00,        //      USAGE (Battery
System:RemainingCapacityLimit)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0x25, 0x64,                          //      LOGICAL_MAXIMUM (100)
    0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x30,                          //      USAGE (Voltage)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0x67, 0x21, 0xd1, 0xf0, 0x00,        //      UNIT (SI Lin:Volts)
    0x55, 0x07,                          //      UNIT_EXPONENT (7)
    0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
    0x85, 0x0c,                          //      REPORT_ID (12)
    0x0b, 0x66, 0x00, 0x85, 0x00,        //      USAGE (Battery System:RemainingCapacity)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0x25, 0x64,                          //      LOGICAL_MAXIMUM (100)
    0x65, 0x00,                          //      UNIT (None)
    0x55, 0x00,                          //      UNIT_EXPONENT (0)
    0x81, 0x83,                          //      INPUT (Cnst,Var,Abs,Vol)
    0x0b, 0x66, 0x00, 0x85, 0x00,        //      USAGE (Battery System:RemainingCapacity)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
    0x0b, 0x68, 0x00, 0x85, 0x00,        //      USAGE (Battery System:RunTimeToEmpty)
    0x75, 0x18,                          //      REPORT_SIZE (24)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0x27, 0xff, 0xff, 0xff, 0x00,        //      LOGICAL_MAXIMUM (16777215)
    0x66, 0x01, 0x10,                    //      UNIT (SI Lin:Time)
    0x81, 0x83,                          //      INPUT (Cnst,Var,Abs,Vol)
    0x0b, 0x68, 0x00, 0x85, 0x00,        //      USAGE (Battery System:RunTimeToEmpty)
    0x95, 0x01,                          //      REPORT_COUNT (1)
    0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
    0x09, 0x02,                          //      USAGE (PresentStatus)
    0xa1, 0x02,                          //      COLLECTION (Logical)
    0x85, 0x0b,                          //        REPORT_ID (11)
    0x0b, 0xd0, 0x00, 0x85, 0x00,        //        USAGE (Battery System:ACPresent)
    0x0b, 0x42, 0x00, 0x85, 0x00,        //        USAGE (Battery
System:BelowRemainingCapacityLimit)
    0x0b, 0x44, 0x00, 0x85, 0x00,        //        USAGE (Battery System:Charging)
    0x09, 0x73,                          //        USAGE (Undefined)
    0x0b, 0x45, 0x00, 0x85, 0x00,        //        USAGE (Battery System:Discharging)
    0x09, 0x61,                          //        USAGE (Good)
    0x09, 0x62,                          //        USAGE (InternalFailure)
    0x0b, 0x4b, 0x00, 0x85, 0x00,        //        USAGE (Battery System:NeedReplacement)
    0x09, 0x65,                          //        USAGE (Overload)
    0x09, 0x67,                          //        USAGE (OverTemperature)
    0x09, 0x69,                          //        USAGE (ShutdownImminent)
    0x75, 0x01,                          //        REPORT_SIZE (1)
    0x95, 0x0b,                          //        REPORT_COUNT (11)
    0x25, 0x01,                          //        LOGICAL_MAXIMUM (1)
    0x65, 0x00,                          //        UNIT (None)
    0x81, 0x83,                          //        INPUT (Cnst,Var,Abs,Vol)
    0x95, 0x06,                          //        REPORT_COUNT (6)
    0x81, 0x03,                          //        INPUT (Cnst,Var,Abs)
    0x0b, 0xd0, 0x00, 0x85, 0x00,        //        USAGE (Battery System:ACPresent)
    0x0b, 0x42, 0x00, 0x85, 0x00,        //        USAGE (Battery
System:BelowRemainingCapacityLimit)
    0x0b, 0x44, 0x00, 0x85, 0x00,        //        USAGE (Battery System:Charging)
    0x09, 0x73,                          //        USAGE (Undefined)
    0x0b, 0x45, 0x00, 0x85, 0x00,        //        USAGE (Battery System:Discharging)
    0x09, 0x61,                          //        USAGE (Good)
```

```
0x09, 0x62,                         //      USAGE (InternalFailure)
0x0b, 0x4b, 0x00, 0x85, 0x00,       //      USAGE (Battery System:NeedReplacement)
0x09, 0x65,                         //      USAGE (Overload)
0x09, 0x67,                         //      USAGE (OverTemperature)
0x09, 0x69,                         //      USAGE (ShutdownImminent)
0x95, 0x0b,                         //      REPORT_COUNT (11)
0xb1, 0x83,                         //      FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x06,                         //      REPORT_COUNT (6)
0xb1, 0x03,                         //      FEATURE (Cnst,Var,Abs)
0x85, 0x33,                         //      REPORT_ID (51)
0x09, 0x6c,                         //      USAGE (Switchable)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x81, 0x82,                         //      INPUT (Data,Var,Abs,Vol)
0x95, 0x07,                         //      REPORT_COUNT (7)
0x81, 0x03,                         //      INPUT (Cnst,Var,Abs)
0x09, 0x6c,                         //      USAGE (Switchable)
0x95, 0x01,                         //      REPORT_COUNT (1)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x95, 0x07,                         //      REPORT_COUNT (7)
0xb1, 0x03,                         //      FEATURE (Cnst,Var,Abs)
0xc0,                               //      END_COLLECTION
0x85, 0x34,                         //      REPORT_ID (52)
0x09, 0x5a,                         //      USAGE (Undefined)
0x75, 0x08,                         //      REPORT_SIZE (8)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x15, 0x01,                         //      LOGICAL_MINIMUM (1)
0x26, 0xff, 0x00,                   //      LOGICAL_MAXIMUM (255)
0x81, 0x82,                         //      INPUT (Data,Var,Abs,Vol)
0x09, 0x5a,                         //      USAGE (Undefined)
0x95, 0x01,                         //      REPORT_COUNT (1)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x35,                         //      REPORT_ID (53)
0x09, 0x57,                         //      USAGE (DelayBeforeShutdown)
0x75, 0x18,                         //      REPORT_SIZE (24)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x15, 0xff,                         //      LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,       //      LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                   //      UNIT (SI Lin:Time)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x36,                         //      REPORT_ID (54)
0x09, 0x56,                         //      USAGE (DelayBeforeStartup)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x55, 0x01,                         //      UNIT_EXPONENT (1)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x37,                         //      REPORT_ID (55)
0x0b, 0x4d, 0x00, 0xff, 0xff,       //      USAGE (Vendor defined MGE 1:0x4d)
0x75, 0x08,                         //      REPORT_SIZE (8)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x15, 0x00,                         //      LOGICAL_MINIMUM (0)
0x25, 0x64,                         //      LOGICAL_MAXIMUM (100)
0x55, 0x00,                         //      UNIT_EXPONENT (0)
0x65, 0x00,                         //      UNIT (None)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x38,                         //      REPORT_ID (56)
0x0b, 0x5f, 0x00, 0xff, 0xff,       //      USAGE (Vendor defined MGE 1:0x5f)
0x95, 0x01,                         //      REPORT_COUNT (1)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x39,                         //      REPORT_ID (57)
0x0b, 0x48, 0x00, 0xff, 0xff,       //      USAGE (Vendor defined MGE 1:0x48)
0x75, 0x01,                         //      REPORT_SIZE (1)
0x95, 0x01,                         //      REPORT_COUNT (1)
0x25, 0x01,                         //      LOGICAL_MAXIMUM (1)
0xb1, 0x82,                         //      FEATURE (Data,Var,Abs,Vol)
0x95, 0x07,                         //      REPORT_COUNT (7)
```

```
    0xb1, 0x03,                    //      FEATURE (Cnst,Var,Abs)
    0xc0,                          //    END_COLLECTION
    0xc0                           // END_COLLECTION
};
```

7. Pulsar Extreme C Range

Intended for Unix Server and storage protection users, **Pulsar *Extreme C*** protects information systems, industry, telecommunication and medical configurations (True On Line, Hot Swappable batteries, 2 Switchable Outlets, USB and RS232 ports)
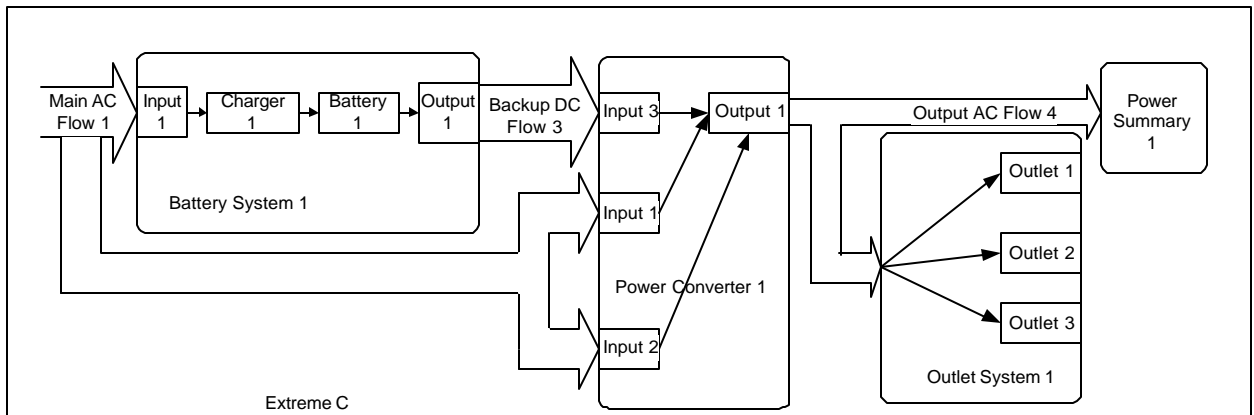
Figure 6: Pulsar Extreme C UPS

7.1 The Extreme C Collection tree

Collection UPS

    Collection PowerSummary

    Collection PowerConverter

        Collection Input (1)

        Collection Input (3)

        Collection Output

    Collection BatterySystem

        Collection Input

        Collection Charger

        Collection Output

        Collection Battery

    Collection Flow (1:Main AC)

    Collection Flow (3:Backup DC)

    Collection Flow (4:AC Output)

    Collection OutletSystem

        Collection Outlet (1:Non Switchable)

        Collection Outlet (2:Switchable)

        Collection Outlet (3:Switchable)

7.2 The Extreme C HID report descriptor

```
char ReportDescriptor[1535] = {
    0x05, 0x84,                    // USAGE_PAGE (Power Device)
    0x09, 0x04,                    // USAGE (UPS)
    0xa1, 0x01,                    // COLLECTION (Application)
    0x09, 0x24,                    //   USAGE (PowerSummary)
    0xa1, 0x00,                    //   COLLECTION (Physical)
    0x85, 0x01,                    //     REPORT_ID (1)
    0x09, 0x25,                    //     USAGE (PowerSummaryID)
    0x09, 0x1f,                    //     USAGE (FlowID)
    0x75, 0x08,                    //     REPORT_SIZE (8)
    0x95, 0x02,                    //     REPORT_COUNT (2)
    0x15, 0x00,                    //     LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,              //     LOGICAL_MAXIMUM (255)
    0x65, 0x00,                    //     UNIT (None)
    0x55, 0x00,                    //     UNIT_EXPONENT (0)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x06, 0xff, 0xff,              //     USAGE_PAGE (Vendor defined MGE 1)
    0x09, 0x4d,                    //     USAGE (0x4d)
    0x85, 0x34,                    //     REPORT_ID (52)
    0x25, 0x64,                    //     LOGICAL_MAXIMUM (100)
    0x95, 0x01,                    //     REPORT_COUNT (1)
    0xb1, 0x82,                    //     FEATURE (Data,Var,Abs,Vol)
    0x05, 0x85,                    //     USAGE_PAGE (Battery System)
    0x85, 0x05,                    //     REPORT_ID (5)
    0x09, 0x8b,                    //     USAGE (Rechargeable)
    0x09, 0x2c,                    //     USAGE (CapacityMode)
    0x95, 0x02,                    //     REPORT_COUNT (2)
    0x26, 0xff, 0x00,              //     LOGICAL_MAXIMUM (255)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x09, 0x83,                    //     USAGE (DesignCapacity)
    0x95, 0x01,                    //     REPORT_COUNT (1)
    0x25, 0x64,                    //     LOGICAL_MAXIMUM (100)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x85, 0x15,                    //     REPORT_ID (21)
    0x09, 0x29,                    //     USAGE (RemainingCapacityLimit)
    0xb1, 0x83,                    //     FEATURE (Cnst,Var,Abs,Vol)
    0x85, 0x05,                    //     REPORT_ID (5)
    0x09, 0x8d,                    //     USAGE (CapacityGranularity1)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x05, 0x84,                    //     USAGE_PAGE (Power Device)
    0x09, 0xfe,                    //     USAGE (Undefined)
    0x26, 0xff, 0x00,              //     LOGICAL_MAXIMUM (255)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x05, 0x85,                    //     USAGE_PAGE (Battery System)
    0x09, 0x89,                    //     USAGE (iDeviceChemistery)
    0x09, 0x8f,                    //     USAGE (Undefined)
    0x95, 0x02,                    //     REPORT_COUNT (2)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x06, 0xff, 0xff,              //     USAGE_PAGE (Vendor defined MGE 1)
    0x85, 0x06,                    //     REPORT_ID (6)
    0x09, 0xf0,                    //     USAGE (iModel)
    0x95, 0x01,                    //     REPORT_COUNT (1)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x05, 0x84,                    //     USAGE_PAGE (Power Device)
    0x85, 0x09,                    //     REPORT_ID (9)
    0x09, 0xff,                    //     USAGE (Undefined)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x09, 0xfd,                    //     USAGE (Undefined)
    0xb1, 0x03,                    //     FEATURE (Cnst,Var,Abs)
    0x05, 0x85,                    //     USAGE_PAGE (Battery System)
    0x85, 0x0c,                    //     REPORT_ID (12)
```

```
0x09, 0x66,                        //      USAGE (RemainingCapacity)
0x25, 0x64,                        //      LOGICAL_MAXIMUM (100)
0x81, 0x83,                        //      INPUT (Cnst,Var,Abs,Vol)
0x09, 0x66,                        //      USAGE (RemainingCapacity)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x68,                        //      USAGE (RunTimeToEmpty)
0x75, 0x18,                        //      REPORT_SIZE (24)
0x66, 0x01, 0x10,                  //      UNIT (SI Lin:Time)
0x27, 0xff, 0xff, 0xff, 0x00,      //      LOGICAL_MAXIMUM (16777215)
0x81, 0x83,                        //      INPUT (Cnst,Var,Abs,Vol)
0x09, 0x68,                        //      USAGE (RunTimeToEmpty)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x84,                        //      USAGE_PAGE (Power Device)
0x85, 0x0d,                        //      REPORT_ID (13)
0x09, 0x35,                        //      USAGE (PercentLoad)
0x75, 0x08,                        //      REPORT_SIZE (8)
0x26, 0xff, 0x00,                  //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                        //      UNIT (None)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,                  //      USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x0e,                        //      REPORT_ID (14)
0x09, 0x5f,                        //      USAGE (0x5f)
0x25, 0x64,                        //      LOGICAL_MAXIMUM (100)
0x65, 0x00,                        //      UNIT (None)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x23,                        //      REPORT_ID (35)
0x09, 0x48,                        //      USAGE (0x48)
0x25, 0x01,                        //      LOGICAL_MAXIMUM (1)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                        //      USAGE_PAGE (Power Device)
0x85, 0x0a,                        //      REPORT_ID (10)
0x09, 0x30,                        //      USAGE (Voltage)
0x26, 0xff, 0x00,                  //      LOGICAL_MAXIMUM (255)
0x67, 0x21, 0xd1, 0xf0, 0x00,      //      UNIT (SI Lin:Volts)
0x55, 0x07,                        //      UNIT_EXPONENT (7)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x40,                        //      USAGE (ConfigVoltage)
0xb1, 0x03,                        //      FEATURE (Cnst,Var,Abs)
0x85, 0x16,                        //      REPORT_ID (22)
0x09, 0x57,                        //      USAGE (DelayBeforeShutdown)
0x75, 0x18,                        //      REPORT_SIZE (24)
0x66, 0x01, 0x10,                  //      UNIT (SI Lin:Time)
0x55, 0x00,                        //      UNIT_EXPONENT (0)
0x15, 0xff,                        //      LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,      //      LOGICAL_MAXIMUM (65535)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x17,                        //      REPORT_ID (23)
0x09, 0x56,                        //      USAGE (DelayBeforeStartup)
0x55, 0x01,                        //      UNIT_EXPONENT (1)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x18,                        //      REPORT_ID (24)
0x09, 0x5a,                        //      USAGE (Undefined)
0x75, 0x08,                        //      REPORT_SIZE (8)
0x15, 0x01,                        //      LOGICAL_MINIMUM (1)
0x26, 0xff, 0x00,                  //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                        //      UNIT (None)
0x55, 0x00,                        //      UNIT_EXPONENT (0)
0x81, 0x82,                        //      INPUT (Data,Var,Abs,Vol)
0x09, 0x5a,                        //      USAGE (Undefined)
0xb1, 0x82,                        //      FEATURE (Data,Var,Abs,Vol)
0x09, 0x02,                        //      USAGE (PresentStatus)
0xa1, 0x02,                        //      COLLECTION (Logical)
0x85, 0x0f,                        //        REPORT_ID (15)
0x05, 0x85,                        //        USAGE_PAGE (Battery System)
```

```
0x09, 0xd0,                    //       USAGE (ACPresent)
0x09, 0x44,                    //       USAGE (Charging)
0x09, 0x45,                    //       USAGE (Discharging)
0x09, 0x42,                    //       USAGE (BelowRemainingCapacityLimit)
0x75, 0x01,                    //       REPORT_SIZE (1)
0x95, 0x04,                    //       REPORT_COUNT (4)
0x15, 0x00,                    //       LOGICAL_MINIMUM (0)
0x25, 0x01,                    //       LOGICAL_MAXIMUM (1)
0x81, 0x83,                    //       INPUT (Cnst,Var,Abs,Vol)
0x05, 0x84,                    //       USAGE_PAGE (Power Device)
0x09, 0x73,                    //       USAGE (Undefined)
0x95, 0x01,                    //       REPORT_COUNT (1)
0x81, 0x83,                    //       INPUT (Cnst,Var,Abs,Vol)
0x05, 0x85,                    //       USAGE_PAGE (Battery System)
0x09, 0x4b,                    //       USAGE (NeedReplacement)
0x81, 0x83,                    //       INPUT (Cnst,Var,Abs,Vol)
0x05, 0x84,                    //       USAGE_PAGE (Power Device)
0x09, 0x61,                    //       USAGE (Good)
0x09, 0x69,                    //       USAGE (ShutdownImminent)
0x09, 0x65,                    //       USAGE (Overload)
0x09, 0x67,                    //       USAGE (OverTemperature)
0x09, 0x62,                    //       USAGE (InternalFailure)
0x95, 0x05,                    //       REPORT_COUNT (5)
0x81, 0x83,                    //       INPUT (Cnst,Var,Abs,Vol)
0x09, 0x00,                    //       USAGE (Undefined)
0x95, 0x01,                    //       REPORT_COUNT (1)
0x75, 0x05,                    //       REPORT_SIZE (5)
0x81, 0x03,                    //       INPUT (Cnst,Var,Abs)
0x85, 0x0f,                    //       REPORT_ID (15)
0x05, 0x85,                    //       USAGE_PAGE (Battery System)
0x09, 0xd0,                    //       USAGE (ACPresent)
0x09, 0x44,                    //       USAGE (Charging)
0x09, 0x45,                    //       USAGE (Discharging)
0x09, 0x42,                    //       USAGE (BelowRemainingCapacityLimit)
0x75, 0x01,                    //       REPORT_SIZE (1)
0x95, 0x04,                    //       REPORT_COUNT (4)
0xb1, 0x83,                    //       FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x84,                    //       USAGE_PAGE (Power Device)
0x09, 0x73,                    //       USAGE (Undefined)
0x95, 0x01,                    //       REPORT_COUNT (1)
0xb1, 0x83,                    //       FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x85,                    //       USAGE_PAGE (Battery System)
0x09, 0x4b,                    //       USAGE (NeedReplacement)
0xb1, 0x83,                    //       FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x84,                    //       USAGE_PAGE (Power Device)
0x09, 0x61,                    //       USAGE (Good)
0x09, 0x69,                    //       USAGE (ShutdownImminent)
0x09, 0x65,                    //       USAGE (Overload)
0x09, 0x67,                    //       USAGE (OverTemperature)
0x09, 0x62,                    //       USAGE (InternalFailure)
0x95, 0x05,                    //       REPORT_COUNT (5)
0xb1, 0x83,                    //       FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                    //       USAGE (Undefined)
0x95, 0x01,                    //       REPORT_COUNT (1)
0x75, 0x05,                    //       REPORT_SIZE (5)
0xb1, 0x03,                    //       FEATURE (Cnst,Var,Abs)
0x85, 0x0b,                    //       REPORT_ID (11)
0x75, 0x01,                    //       REPORT_SIZE (1)
0x09, 0x6c,                    //       USAGE (Switchable)
0x81, 0x03,                    //       INPUT (Cnst,Var,Abs)
0x09, 0x6c,                    //       USAGE (Switchable)
0xb1, 0x03,                    //       FEATURE (Cnst,Var,Abs)
0x09, 0x00,                    //       USAGE (Undefined)
0x75, 0x07,                    //       REPORT_SIZE (7)
```

```
0x81, 0x03,                          //          INPUT (Cnst,Var,Abs)
0x09, 0x00,                          //          USAGE (Undefined)
0xb1, 0x03,                          //          FEATURE (Cnst,Var,Abs)
0xc0,                                //        END_COLLECTION
0xc0,                                //      END_COLLECTION
0x09, 0x16,                          //      USAGE (PowerConverter)
0xa1, 0x00,                          //      COLLECTION (Physical)
0x85, 0x01,                          //        REPORT_ID (1)
0x09, 0x17,                          //        USAGE (PowerConverterID)
0x75, 0x08,                          //        REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                          //        FEATURE (Cnst,Var,Abs)
0x06, 0xff, 0xff,                    //        USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x19,                          //        REPORT_ID (25)
0x09, 0x42,                          //        USAGE (0x42)
0x81, 0x83,                          //        INPUT (Cnst,Var,Abs,Vol)
0x09, 0x42,                          //        USAGE (0x42)
0xb1, 0x83,                          //        FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x09,                          //        REPORT_ID (9)
0x09, 0x41,                          //        USAGE (0x41)
0xb1, 0x03,                          //        FEATURE (Cnst,Var,Abs)
0x05, 0x84,                          //        USAGE_PAGE (Power Device)
0x09, 0x1a,                          //        USAGE (Input)
0xa1, 0x81,                          //        COLLECTION (VendorDefined)
0x85, 0x01,                          //          REPORT_ID (1)
0x09, 0x1b,                          //          USAGE (InputID)
0x09, 0x1f,                          //          USAGE (FlowID)
0x75, 0x08,                          //          REPORT_SIZE (8)
0x95, 0x02,                          //          REPORT_COUNT (2)
0xb1, 0x03,                          //          FEATURE (Cnst,Var,Abs)
0x85, 0x06,                          //          REPORT_ID (6)
0x09, 0x30,                          //          USAGE (Voltage)
0x75, 0x10,                          //          REPORT_SIZE (16)
0x95, 0x01,                          //          REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,        //          LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,        //          UNIT (SI Lin:Volts)
0x55, 0x07,                          //          UNIT_EXPONENT (7)
0xb1, 0x83,                          //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x32,                          //          USAGE (Frequency)
0x75, 0x08,                          //          REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //          LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                    //          UNIT (SI Lin:Hertz)
0x55, 0x00,                          //          UNIT_EXPONENT (0)
0xb1, 0x83,                          //          FEATURE (Cnst,Var,Abs,Vol)
0x06, 0xff, 0xff,                    //          USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x1a,                          //          REPORT_ID (26)
0x09, 0x43,                          //          USAGE (0x43)
0x75, 0x01,                          //          REPORT_SIZE (1)
0x25, 0x01,                          //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                          //          UNIT (None)
0xb1, 0x82,                          //          FEATURE (Data,Var,Abs,Vol)
0x09, 0x00,                          //          USAGE (Undefined)
0x75, 0x07,                          //          REPORT_SIZE (7)
0xb1, 0x03,                          //          FEATURE (Cnst,Var,Abs)
0x05, 0x84,                          //          USAGE_PAGE (Power Device)
0x09, 0x02,                          //          USAGE (PresentStatus)
0xa1, 0x02,                          //          COLLECTION (Logical)
0x85, 0x10,                          //            REPORT_ID (16)
0x09, 0x6d,                          //            USAGE (Used)
0x09, 0x61,                          //            USAGE (Good)
0x09, 0x62,                          //            USAGE (InternalFailure)
0x75, 0x01,                          //            REPORT_SIZE (1)
0x95, 0x03,                          //            REPORT_COUNT (3)
0x25, 0x01,                          //            LOGICAL_MAXIMUM (1)
```

```
0x81, 0x83,                         //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6d,                         //          USAGE (Used)
0x09, 0x61,                         //          USAGE (Good)
0x09, 0x62,                         //          USAGE (InternalFailure)
0xb1, 0x83,                         //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                               //        END_COLLECTION
0xc0,                               //      END_COLLECTION
0x09, 0x1a,                         //      USAGE (Input)
0xa1, 0x82,                         //      COLLECTION (VendorDefined)
0x85, 0x01,                         //        REPORT_ID (1)
0x09, 0x1b,                         //        USAGE (InputID)
0x09, 0x1f,                         //        USAGE (FlowID)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x95, 0x02,                         //        REPORT_COUNT (2)
0x26, 0xff, 0x00,                   //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0x85, 0x06,                         //        REPORT_ID (6)
0x09, 0x30,                         //        USAGE (Voltage)
0x75, 0x10,                         //        REPORT_SIZE (16)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,       //        LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,       //        UNIT (SI Lin:Volts)
0x55, 0x07,                         //        UNIT_EXPONENT (7)
0xb1, 0x83,                         //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x32,                         //        USAGE (Frequency)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x26, 0xff, 0x00,                   //        LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                   //        UNIT (SI Lin:Hertz)
0x55, 0x00,                         //        UNIT_EXPONENT (0)
0xb1, 0x83,                         //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                         //        USAGE (PresentStatus)
0xa1, 0x02,                         //        COLLECTION (Logical)
0x85, 0x10,                         //          REPORT_ID (16)
0x09, 0x6d,                         //          USAGE (Used)
0x09, 0x61,                         //          USAGE (Good)
0x09, 0x65,                         //          USAGE (Overload)
0x75, 0x01,                         //          REPORT_SIZE (1)
0x95, 0x03,                         //          REPORT_COUNT (3)
0x25, 0x01,                         //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                         //          UNIT (None)
0x81, 0x83,                         //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6d,                         //          USAGE (Used)
0x09, 0x61,                         //          USAGE (Good)
0x09, 0x65,                         //          USAGE (Overload)
0xb1, 0x83,                         //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                               //        END_COLLECTION
0x06, 0xff, 0xff,                   //        USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x1c,                         //        REPORT_ID (28)
0x09, 0x54,                         //        USAGE (0x54)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x25, 0x01,                         //        LOGICAL_MAXIMUM (1)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x1d,                         //        REPORT_ID (29)
0x09, 0x55,                         //        USAGE (0x55)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0xc0,                               //        END_COLLECTION
0x05, 0x84,                         //        USAGE_PAGE (Power Device)
0x09, 0x1a,                         //        USAGE (Input)
0xa1, 0x83,                         //        COLLECTION (VendorDefined)
0x85, 0x02,                         //          REPORT_ID (2)
0x09, 0x1b,                         //          USAGE (InputID)
0x09, 0x1f,                         //          USAGE (FlowID)
0x95, 0x02,                         //          REPORT_COUNT (2)
```

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0x26, 0xff, 0x00,                  //          LOGICAL_MAXIMUM (255)
0xb1, 0x03,                        //          FEATURE (Cnst,Var,Abs)
0x06, 0xff, 0xff,                  //          USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x1b,                        //          REPORT_ID (27)
0x09, 0x46,                        //          USAGE (0x46)
0x75, 0x01,                        //          REPORT_SIZE (1)
0x95, 0x01,                        //          REPORT_COUNT (1)
0x25, 0x01,                        //          LOGICAL_MAXIMUM (1)
0xb1, 0x82,                        //          FEATURE (Data,Var,Abs,Vol)
0x09, 0x00,                        //          USAGE (Undefined)
0x75, 0x07,                        //          REPORT_SIZE (7)
0xb1, 0x03,                        //          FEATURE (Cnst,Var,Abs)
0x85, 0x1e,                        //          REPORT_ID (30)
0x09, 0x47,                        //          USAGE (0x47)
0x75, 0x01,                        //          REPORT_SIZE (1)
0xb1, 0x82,                        //          FEATURE (Data,Var,Abs,Vol)
0x09, 0x00,                        //          USAGE (Undefined)
0x75, 0x07,                        //          REPORT_SIZE (7)
0xb1, 0x03,                        //          FEATURE (Cnst,Var,Abs)
0x05, 0x84,                        //          USAGE_PAGE (Power Device)
0x09, 0x02,                        //          USAGE (PresentStatus)
0xa1, 0x02,                        //          COLLECTION (Logical)
0x85, 0x10,                        //            REPORT_ID (16)
0x09, 0x6d,                        //            USAGE (Used)
0x09, 0x61,                        //            USAGE (Good)
0x75, 0x01,                        //            REPORT_SIZE (1)
0x95, 0x02,                        //            REPORT_COUNT (2)
0x81, 0x83,                        //            INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6d,                        //            USAGE (Used)
0x09, 0x61,                        //            USAGE (Good)
0xb1, 0x83,                        //            FEATURE (Cnst,Var,Abs,Vol)
0xc0,                              //          END_COLLECTION
0xc0,                              //        END_COLLECTION
0x09, 0x1c,                        //        USAGE (Output)
0xa1, 0x00,                        //        COLLECTION (Physical)
0x85, 0x02,                        //          REPORT_ID (2)
0x09, 0x1d,                        //          USAGE (OutputID)
0x09, 0x1f,                        //          USAGE (FlowID)
0x75, 0x08,                        //          REPORT_SIZE (8)
0x95, 0x02,                        //          REPORT_COUNT (2)
0x26, 0xff, 0x00,                  //          LOGICAL_MAXIMUM (255)
0xb1, 0x03,                        //          FEATURE (Cnst,Var,Abs)
0x85, 0x07,                        //          REPORT_ID (7)
0x09, 0x30,                        //          USAGE (Voltage)
0x75, 0x10,                        //          REPORT_SIZE (16)
0x95, 0x01,                        //          REPORT_COUNT (1)
0x27, 0xff, 0xff, 0x00, 0x00,      //          LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,      //          UNIT (SI Lin:Volts)
0x55, 0x07,                        //          UNIT_EXPONENT (7)
0xb1, 0x83,                        //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x32,                        //          USAGE (Frequency)
0x75, 0x08,                        //          REPORT_SIZE (8)
0x26, 0xff, 0x00,                  //          LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                  //          UNIT (SI Lin:Hertz)
0x55, 0x00,                        //          UNIT_EXPONENT (0)
0xb1, 0x83,                        //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x33,                        //          USAGE (ApparentPower)
0x75, 0x10,                        //          REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,      //          LOGICAL_MAXIMUM (65535)
0x66, 0x21, 0xd1,                  //          UNIT (SI Lin:Power)
0x55, 0x07,                        //          UNIT_EXPONENT (7)
0xb1, 0x83,                        //          FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x31,                        //          USAGE (Current)
0x67, 0x01, 0x00, 0x10, 0x00,      //          UNIT (SI Lin:Amps)
```

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0x55, 0x0e,                      //       UNIT_EXPONENT (-2)
0xb1, 0x83,                      //       FEATURE (Cnst,Var,Abs,Vol)
0x05, 0x84,                      //       USAGE_PAGE (Power Device)
0x09, 0x02,                      //       USAGE (PresentStatus)
0xa1, 0x02,                      //       COLLECTION (Logical)
0x85, 0x08,                      //         REPORT_ID (8)
0x09, 0x61,                      //         USAGE (Good)
0x09, 0x65,                      //         USAGE (Overload)
0x75, 0x01,                      //         REPORT_SIZE (1)
0x95, 0x02,                      //         REPORT_COUNT (2)
0x25, 0x01,                      //         LOGICAL_MAXIMUM (1)
0x65, 0x00,                      //         UNIT (None)
0x55, 0x00,                      //         UNIT_EXPONENT (0)
0x81, 0x83,                      //         INPUT (Cnst,Var,Abs,Vol)
0x09, 0x61,                      //         USAGE (Good)
0x09, 0x65,                      //         USAGE (Overload)
0xb1, 0x83,                      //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                      //         USAGE (Undefined)
0x95, 0x01,                      //         REPORT_COUNT (1)
0x75, 0x06,                      //         REPORT_SIZE (6)
0x81, 0x03,                      //         INPUT (Cnst,Var,Abs)
0x09, 0x00,                      //         USAGE (Undefined)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0xc0,                            //       END_COLLECTION
0x06, 0xff, 0xff,                //       USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x1f,                      //       REPORT_ID (31)
0x09, 0x44,                      //       USAGE (0x44)
0x75, 0x01,                      //       REPORT_SIZE (1)
0x25, 0x01,                      //       LOGICAL_MAXIMUM (1)
0xb1, 0x82,                      //       FEATURE (Data,Var,Abs,Vol)
0x09, 0x00,                      //       USAGE (Undefined)
0x75, 0x07,                      //       REPORT_SIZE (7)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0xc0,                            //      END_COLLECTION
0xc0,                            //     END_COLLECTION
0x05, 0x84,                      //     USAGE_PAGE (Power Device)
0x09, 0x10,                      //     USAGE (BatterySystem)
0xa1, 0x00,                      //     COLLECTION (Physical)
0x85, 0x02,                      //       REPORT_ID (2)
0x09, 0x11,                      //       USAGE (BatterySystemID)
0x75, 0x08,                      //       REPORT_SIZE (8)
0x26, 0xff, 0x00,                //       LOGICAL_MAXIMUM (255)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x09, 0x1a,                      //       USAGE (Input)
0xa1, 0x00,                      //       COLLECTION (Physical)
0x09, 0x1b,                      //         USAGE (InputID)
0x09, 0x1f,                      //         USAGE (FlowID)
0x95, 0x02,                      //         REPORT_COUNT (2)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0xc0,                            //       END_COLLECTION
0x09, 0x14,                      //       USAGE (Charger)
0xa1, 0x00,                      //       COLLECTION (Physical)
0x85, 0x03,                      //         REPORT_ID (3)
0x09, 0x15,                      //         USAGE (ChargerID)
0x95, 0x01,                      //         REPORT_COUNT (1)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0x09, 0x02,                      //         USAGE (PresentStatus)
0xa1, 0x02,                      //         COLLECTION (Logical)
0x85, 0x11,                      //           REPORT_ID (17)
0x09, 0x61,                      //           USAGE (Good)
0x09, 0x62,                      //           USAGE (InternalFailure)
0x75, 0x01,                      //           REPORT_SIZE (1)
0x95, 0x02,                      //           REPORT_COUNT (2)
0x25, 0x01,                      //           LOGICAL_MAXIMUM (1)
```

```
0x81, 0x83,                         //           INPUT (Cnst,Var,Abs,Vol)
0x09, 0x61,                         //           USAGE (Good)
0x09, 0x62,                         //           USAGE (InternalFailure)
0xb1, 0x83,                         //           FEATURE (Cnst,Var,Abs,Vol)
0xc0,                               //          END_COLLECTION
0xc0,                               //         END_COLLECTION
0x09, 0x1c,                         //         USAGE (Output)
0xa1, 0x00,                         //         COLLECTION (Physical)
0x85, 0x03,                         //           REPORT_ID (3)
0x09, 0x1d,                         //           USAGE (OutputID)
0x09, 0x1f,                         //           USAGE (FlowID)
0x75, 0x08,                         //           REPORT_SIZE (8)
0x95, 0x02,                         //           REPORT_COUNT (2)
0x26, 0xff, 0x00,                   //           LOGICAL_MAXIMUM (255)
0xb1, 0x03,                         //           FEATURE (Cnst,Var,Abs)
0xc0,                               //         END_COLLECTION
0x09, 0x12,                         //         USAGE (Battery)
0xa1, 0x00,                         //         COLLECTION (Physical)
0x09, 0x13,                         //           USAGE (BatteryID)
0x95, 0x01,                         //           REPORT_COUNT (1)
0xb1, 0x03,                         //           FEATURE (Cnst,Var,Abs)
0x85, 0x20,                         //           REPORT_ID (32)
0x09, 0x58,                         //           USAGE (Test)
0xb1, 0x82,                         //           FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,                   //           USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x22,                         //           REPORT_ID (34)
0x09, 0x90,                         //           USAGE (0x90)
0xb1, 0x83,                         //           FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x21,                         //           REPORT_ID (33)
0x09, 0x45,                         //           USAGE (0x45)
0x75, 0x18,                         //           REPORT_SIZE (24)
0x27, 0xff, 0xff, 0xff, 0x00,       //           LOGICAL_MAXIMUM (16777215)
0x66, 0x01, 0x10,                   //           UNIT (SI Lin:Time)
0xb1, 0x82,                         //           FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                         //           USAGE_PAGE (Power Device)
0x09, 0x02,                         //           USAGE (PresentStatus)
0xa1, 0x02,                         //           COLLECTION (Logical)
0x85, 0x11,                         //             REPORT_ID (17)
0x09, 0x60,                         //             USAGE (Present)
0x09, 0x61,                         //             USAGE (Good)
0x75, 0x01,                         //             REPORT_SIZE (1)
0x95, 0x02,                         //             REPORT_COUNT (2)
0x25, 0x01,                         //             LOGICAL_MAXIMUM (1)
0x65, 0x00,                         //             UNIT (None)
0x81, 0x83,                         //             INPUT (Cnst,Var,Abs,Vol)
0x09, 0x60,                         //             USAGE (Present)
0x09, 0x61,                         //             USAGE (Good)
0xb1, 0x83,                         //             FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                         //             USAGE (Undefined)
0x95, 0x01,                         //             REPORT_COUNT (1)
0x75, 0x04,                         //             REPORT_SIZE (4)
0x81, 0x03,                         //             INPUT (Cnst,Var,Abs)
0x09, 0x00,                         //             USAGE (Undefined)
0xb1, 0x03,                         //             FEATURE (Cnst,Var,Abs)
0xc0,                               //           END_COLLECTION
0xc0,                               //         END_COLLECTION
0xc0,                               //       END_COLLECTION
0x09, 0x1e,                         //       USAGE (Flow)
0xa1, 0x81,                         //       COLLECTION (VendorDefined)
0x85, 0x29,                         //         REPORT_ID (41)
0x09, 0x40,                         //         USAGE (ConfigVoltage)
0x75, 0x10,                         //         REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,       //         LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,       //         UNIT (SI Lin:Volts)
```

```
0x55, 0x07,                          //      UNIT_EXPONENT (7)
0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x2a,                          //      REPORT_ID (42)
0x09, 0x42,                          //      USAGE (ConfigFrequency)
0x75, 0x08,                          //      REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //      LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                    //      UNIT (SI Lin:Hertz)
0x55, 0x00,                          //      UNIT_EXPONENT (0)
0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x03,                          //      REPORT_ID (3)
0x09, 0x1f,                          //      USAGE (FlowID)
0x75, 0x08,                          //      REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //      LOGICAL_MAXIMUM (255)
0x65, 0x00,                          //      UNIT (None)
0xb1, 0x03,                          //      FEATURE (Cnst,Var,Abs)
0xc0,                                //     END_COLLECTION
0x09, 0x1e,                          //     USAGE (Flow)
0xa1, 0x83,                          //     COLLECTION (VendorDefined)
0x85, 0x03,                          //       REPORT_ID (3)
0x09, 0x1f,                          //       USAGE (FlowID)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
0xc0,                                //     END_COLLECTION
0x09, 0x1e,                          //     USAGE (Flow)
0xa1, 0x84,                          //     COLLECTION (VendorDefined)
0x85, 0x03,                          //       REPORT_ID (3)
0x09, 0x1f,                          //       USAGE (FlowID)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
0x85, 0x2c,                          //       REPORT_ID (44)
0x09, 0x40,                          //       USAGE (ConfigVoltage)
0x75, 0x10,                          //       REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,        //       LOGICAL_MAXIMUM (65535)
0x67, 0x21, 0xd1, 0xf0, 0x00,        //       UNIT (SI Lin:Volts)
0x55, 0x07,                          //       UNIT_EXPONENT (7)
0xb1, 0x82,                          //       FEATURE (Data,Var,Abs,Vol)
0x85, 0x2d,                          //       REPORT_ID (45)
0x09, 0x42,                          //       USAGE (ConfigFrequency)
0x75, 0x08,                          //       REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //       LOGICAL_MAXIMUM (255)
0x66, 0x01, 0xf0,                    //       UNIT (SI Lin:Hertz)
0x55, 0x00,                          //       UNIT_EXPONENT (0)
0xb1, 0x82,                          //       FEATURE (Data,Var,Abs,Vol)
0x85, 0x2e,                          //       REPORT_ID (46)
0x09, 0x41,                          //       USAGE (ConfigCurrent)
0x75, 0x10,                          //       REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,        //       LOGICAL_MAXIMUM (65535)
0x67, 0x01, 0x00, 0x10, 0x00,        //       UNIT (SI Lin:Amps)
0x55, 0x0e,                          //       UNIT_EXPONENT (-2)
0xb1, 0x83,                          //       FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x2f,                          //       REPORT_ID (47)
0x09, 0x43,                          //       USAGE (ConfigApparentPower)
0x66, 0x21, 0xd1,                    //       UNIT (SI Lin:Power)
0x55, 0x07,                          //       UNIT_EXPONENT (7)
0xb1, 0x83,                          //       FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x30,                          //       REPORT_ID (48)
0x09, 0x44,                          //       USAGE (ConfigActivePower)
0x66, 0x21, 0xd1,                    //       UNIT (SI Lin:Power)
0xb1, 0x83,                          //       FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x31,                          //       REPORT_ID (49)
0x09, 0x45,                          //       USAGE (ConfigPercentLoad)
0x75, 0x08,                          //       REPORT_SIZE (8)
0x26, 0xff, 0x00,                    //       LOGICAL_MAXIMUM (255)
0x65, 0x00,                          //       UNIT (None)
0x55, 0x00,                          //       UNIT_EXPONENT (0)
0xb1, 0x82,                          //       FEATURE (Data,Var,Abs,Vol)
```

```
0xc0,                                // END_COLLECTION
0x09, 0x18,                          // USAGE (OutletSystem)
0xa1, 0x00,                          // COLLECTION (Physical)
0x85, 0x04,                          //   REPORT_ID (4)
0x09, 0x19,                          //   USAGE (OutletSystemID)
0x75, 0x08,                          //   REPORT_SIZE (8)
0xb1, 0x03,                          //   FEATURE (Cnst,Var,Abs)
0x09, 0x20,                          //   USAGE (Outlet)
0xa1, 0x81,                          //   COLLECTION (VendorDefined)
0x09, 0x1f,                          //     USAGE (FlowID)
0x09, 0x21,                          //     USAGE (OutletID)
0x95, 0x02,                          //     REPORT_COUNT (2)
0x26, 0xff, 0x00,                    //     LOGICAL_MAXIMUM (255)
0xb1, 0x03,                          //     FEATURE (Cnst,Var,Abs)
0x05, 0x84,                          //     USAGE_PAGE (Power Device)
0x09, 0x02,                          //     USAGE (PresentStatus)
0xa1, 0x02,                          //     COLLECTION (Logical)
0x85, 0x12,                          //       REPORT_ID (18)
0x09, 0x6c,                          //       USAGE (Switchable)
0x75, 0x01,                          //       REPORT_SIZE (1)
0x95, 0x01,                          //       REPORT_COUNT (1)
0x15, 0x00,                          //       LOGICAL_MINIMUM (0)
0x25, 0x01,                          //       LOGICAL_MAXIMUM (1)
0x65, 0x00,                          //       UNIT (None)
0x55, 0x00,                          //       UNIT_EXPONENT (0)
0xb1, 0x03,                          //       FEATURE (Cnst,Var,Abs)
0xc0,                                //     END_COLLECTION
0xc0,                                //   END_COLLECTION
0x09, 0x20,                          //   USAGE (Outlet)
0xa1, 0x82,                          //   COLLECTION (VendorDefined)
0x85, 0x04,                          //     REPORT_ID (4)
0x09, 0x1f,                          //     USAGE (FlowID)
0x09, 0x21,                          //     USAGE (OutletID)
0x75, 0x08,                          //     REPORT_SIZE (8)
0x95, 0x02,                          //     REPORT_COUNT (2)
0x26, 0xff, 0x00,                    //     LOGICAL_MAXIMUM (255)
0xb1, 0x03,                          //     FEATURE (Cnst,Var,Abs)
0x85, 0x37,                          //     REPORT_ID (55)
0x09, 0x57,                          //     USAGE (DelayBeforeShutdown)
0x75, 0x18,                          //     REPORT_SIZE (24)
0x95, 0x01,                          //     REPORT_COUNT (1)
0x15, 0xff,                          //     LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,        //     LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                    //     UNIT (SI Lin:Time)
0xb1, 0x82,                          //     FEATURE (Data,Var,Abs,Vol)
0x85, 0x38,                          //     REPORT_ID (56)
0x09, 0x56,                          //     USAGE (DelayBeforeStartup)
0x55, 0x01,                          //     UNIT_EXPONENT (1)
0xb1, 0x82,                          //     FEATURE (Data,Var,Abs,Vol)
0x05, 0x85,                          //     USAGE_PAGE (Battery System)
0x85, 0x39,                          //     REPORT_ID (57)
0x09, 0x29,                          //     USAGE (RemainingCapacityLimit)
0x75, 0x08,                          //     REPORT_SIZE (8)
0x15, 0x00,                          //     LOGICAL_MINIMUM (0)
0x25, 0x64,                          //     LOGICAL_MAXIMUM (100)
0x65, 0x00,                          //     UNIT (None)
0x55, 0x00,                          //     UNIT_EXPONENT (0)
0xb1, 0x82,                          //     FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,                    //     USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x3a,                          //     REPORT_ID (58)
0x09, 0x5d,                          //     USAGE (0x5d)
0x75, 0x10,                          //     REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,        //     LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                    //     UNIT (SI Lin:Time)
```

```
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x3b,                         //        REPORT_ID (59)
0x09, 0x5e,                         //        USAGE (0x5e)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                         //        USAGE_PAGE (Power Device)
0x09, 0x02,                         //        USAGE (PresentStatus)
0xa1, 0x00,                         //        COLLECTION (Physical)
0x85, 0x12,                         //          REPORT_ID (18)
0x09, 0x6c,                         //          USAGE (Switchable)
0x75, 0x01,                         //          REPORT_SIZE (1)
0x15, 0x00,                         //          LOGICAL_MINIMUM (0)
0x25, 0x01,                         //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                         //          UNIT (None)
0x55, 0x00,                         //          UNIT_EXPONENT (0)
0xb1, 0x03,                         //          FEATURE (Cnst,Var,Abs)
0x85, 0x13,                         //          REPORT_ID (19)
0x09, 0x6b,                         //          USAGE (SwitchOn/Off)
0x81, 0x83,                         //          INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                         //          USAGE (SwitchOn/Off)
0xb1, 0x83,                         //          FEATURE (Cnst,Var,Abs,Vol)
0xc0,                               //        END_COLLECTION
0xc0,                               //      END_COLLECTION
0x09, 0x20,                         //      USAGE (Outlet)
0xa1, 0x83,                         //      COLLECTION (VendorDefined)
0x85, 0x04,                         //        REPORT_ID (4)
0x09, 0x1f,                         //        USAGE (FlowID)
0x09, 0x21,                         //        USAGE (OutletID)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x95, 0x02,                         //        REPORT_COUNT (2)
0x26, 0xff, 0x00,                   //        LOGICAL_MAXIMUM (255)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0x85, 0x3c,                         //        REPORT_ID (60)
0x09, 0x57,                         //        USAGE (DelayBeforeShutdown)
0x75, 0x18,                         //        REPORT_SIZE (24)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x15, 0xff,                         //        LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x00, 0x00,       //        LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                   //        UNIT (SI Lin:Time)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x3d,                         //        REPORT_ID (61)
0x09, 0x56,                         //        USAGE (DelayBeforeStartup)
0x55, 0x01,                         //        UNIT_EXPONENT (1)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x05, 0x85,                         //        USAGE_PAGE (Battery System)
0x85, 0x3e,                         //        REPORT_ID (62)
0x09, 0x29,                         //        USAGE (RemainingCapacityLimit)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x15, 0x00,                         //        LOGICAL_MINIMUM (0)
0x25, 0x64,                         //        LOGICAL_MAXIMUM (100)
0x65, 0x00,                         //        UNIT (None)
0x55, 0x00,                         //        UNIT_EXPONENT (0)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x06, 0xff, 0xff,                   //        USAGE_PAGE (Vendor defined MGE 1)
0x85, 0x3f,                         //        REPORT_ID (63)
0x09, 0x5d,                         //        USAGE (0x5d)
0x75, 0x10,                         //        REPORT_SIZE (16)
0x27, 0xff, 0xff, 0x00, 0x00,       //        LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                   //        UNIT (SI Lin:Time)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x85, 0x40,                         //        REPORT_ID (64)
0x09, 0x5e,                         //        USAGE (0x5e)
0xb1, 0x82,                         //        FEATURE (Data,Var,Abs,Vol)
0x05, 0x84,                         //        USAGE_PAGE (Power Device)
0x09, 0x02,                         //        USAGE (PresentStatus)
```

```
0xa1, 0x02,                    //       COLLECTION (Logical)
0x85, 0x12,                    //         REPORT_ID (18)
0x09, 0x6c,                    //         USAGE (Switchable)
0x75, 0x01,                    //         REPORT_SIZE (1)
0x25, 0x01,                    //         LOGICAL_MAXIMUM (1)
0x65, 0x00,                    //         UNIT (None)
0xb1, 0x03,                    //         FEATURE (Cnst,Var,Abs)
0x09, 0x00,                    //         USAGE (Undefined)
0x75, 0x05,                    //         REPORT_SIZE (5)
0xb1, 0x03,                    //         FEATURE (Cnst,Var,Abs)
0x85, 0x13,                    //         REPORT_ID (19)
0x09, 0x6b,                    //         USAGE (SwitchOn/Off)
0x75, 0x01,                    //         REPORT_SIZE (1)
0x81, 0x83,                    //         INPUT (Cnst,Var,Abs,Vol)
0x09, 0x6b,                    //         USAGE (SwitchOn/Off)
0xb1, 0x83,                    //         FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x00,                    //         USAGE (Undefined)
0x75, 0x06,                    //         REPORT_SIZE (6)
0x81, 0x03,                    //         INPUT (Cnst,Var,Abs)
0x09, 0x00,                    //         USAGE (Undefined)
0xb1, 0x03,                    //         FEATURE (Cnst,Var,Abs)
0xc0,                          //       END_COLLECTION
0xc0,                          //      END_COLLECTION
0xc0,                          //    END_COLLECTION
0xc0                           // END_COLLECTION
};
```

8. Pulsar Esprit Range

Pulsar *Esprit* is a standby technology UPS intended for very long back-up time (up to 16 hours) for computer & Industrial equipment protection. (USB and RS232 ports)
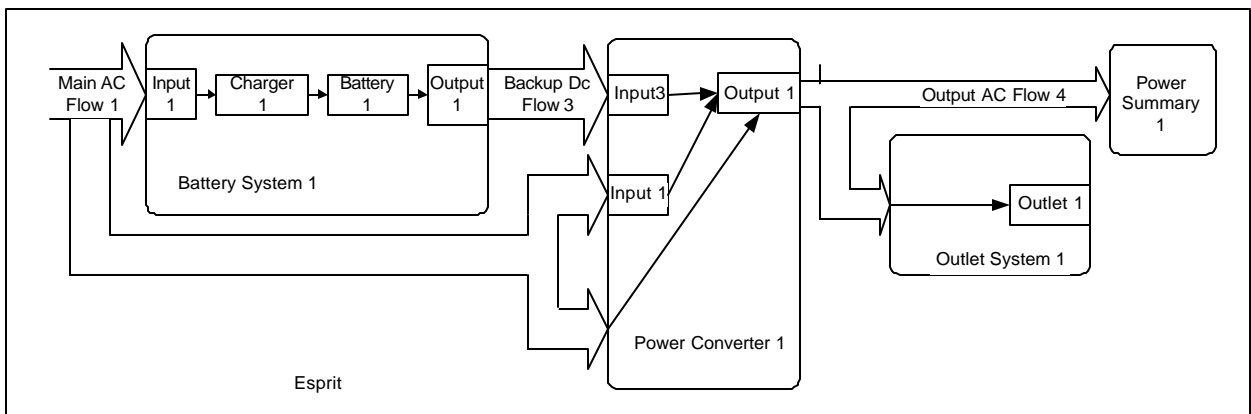
Figure 7: Pulsar Esprit UPS

8.1 The Esprit Collection tree

Collection UPS

    Collection Flow (1:Main AC)

    Collection Flow (3:Backup DC)

    Collection Flow (4:AC Output)

    Collection BatterySystem

        Collection Input

        Collection Charger

        Collection Output

        Collection Battery

    Collection PowerConverter

        Collection Input (1)

        Collection Input (3)

        Collection Output

    Collection OutletSystem

        Collection Outlet (1:Switchable)

    Collection PowerSummary

8.2 The Esprit HID report descriptor

```
char ReportDescriptor[1340] = {
    0x05, 0x84,                     // USAGE_PAGE (Power Device)
    0x09, 0x04,                     // USAGE (UPS)
    0xa1, 0x01,                     // COLLECTION (Application)
    0x09, 0x1e,                     //   USAGE (Flow)
    0xa1, 0x81,                     //   COLLECTION (VendorDefined)
    0x85, 0x01,                     //     REPORT_ID (1)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x15, 0x00,                     //     LOGICAL_MINIMUM (0)
    0x25, 0x7f,                     //     LOGICAL_MAXIMUM (127)
    0x65, 0x00,                     //     UNIT (None)
    0x55, 0x00,                     //     UNIT_EXPONENT (0)
    0x09, 0x1f,                     //     USAGE (FlowID)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x85, 0x02,                     //     REPORT_ID (2)
    0x75, 0x10,                     //     REPORT_SIZE (16)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x26, 0xf4, 0x01,               //     LOGICAL_MAXIMUM (500)
    0x67, 0x21, 0xd1, 0xf0, 0x00,   //     UNIT (SI Lin:Volts)
    0x55, 0x07,                     //     UNIT_EXPONENT (7)
    0x09, 0x40,                     //     USAGE (ConfigVoltage)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x85, 0x03,                     //     REPORT_ID (3)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x15, 0x2d,                     //     LOGICAL_MINIMUM (45)
    0x25, 0x41,                     //     LOGICAL_MAXIMUM (65)
    0x66, 0x01, 0xf0,               //     UNIT (SI Lin:Hertz)
    0x55, 0x00,                     //     UNIT_EXPONENT (0)
    0x09, 0x42,                     //     USAGE (ConfigFrequency)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0xc0,                           //   END_COLLECTION
    0x09, 0x1e,                     //   USAGE (Flow)
    0xa1, 0x83,                     //   COLLECTION (VendorDefined)
    0x85, 0x04,                     //     REPORT_ID (4)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x15, 0x00,                     //     LOGICAL_MINIMUM (0)
    0x25, 0x7f,                     //     LOGICAL_MAXIMUM (127)
    0x65, 0x00,                     //     UNIT (None)
    0x09, 0x1f,                     //     USAGE (FlowID)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0x85, 0x05,                     //     REPORT_ID (5)
    0x75, 0x10,                     //     REPORT_SIZE (16)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x26, 0xf4, 0x01,               //     LOGICAL_MAXIMUM (500)
    0x67, 0x21, 0xd1, 0xf0, 0x00,   //     UNIT (SI Lin:Volts)
    0x55, 0x07,                     //     UNIT_EXPONENT (7)
    0x09, 0x40,                     //     USAGE (ConfigVoltage)
    0xb1, 0x03,                     //     FEATURE (Cnst,Var,Abs)
    0xc0,                           //   END_COLLECTION
    0x09, 0x1e,                     //   USAGE (Flow)
    0xa1, 0x84,                     //   COLLECTION (VendorDefined)
    0x85, 0x06,                     //     REPORT_ID (6)
    0x75, 0x08,                     //     REPORT_SIZE (8)
    0x95, 0x01,                     //     REPORT_COUNT (1)
    0x15, 0x00,                     //     LOGICAL_MINIMUM (0)
    0x25, 0x7f,                     //     LOGICAL_MAXIMUM (127)
    0x65, 0x00,                     //     UNIT (None)
    0x09, 0x1f,                     //     USAGE (FlowID)
```

```
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x85, 0x07,                        //       REPORT_ID (7)
0x75, 0x10,                        //       REPORT_SIZE (16)
0x95, 0x01,                        //       REPORT_COUNT (1)
0x26, 0xf4, 0x01,                  //       LOGICAL_MAXIMUM (500)
0x67, 0x21, 0xd1, 0xf0, 0x00,      //       UNIT (SI Lin:Volts)
0x55, 0x07,                        //       UNIT_EXPONENT (7)
0x09, 0x40,                        //       USAGE (ConfigVoltage)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x85, 0x08,                        //       REPORT_ID (8)
0x75, 0x08,                        //       REPORT_SIZE (8)
0x95, 0x01,                        //       REPORT_COUNT (1)
0x15, 0x2d,                        //       LOGICAL_MINIMUM (45)
0x25, 0x41,                        //       LOGICAL_MAXIMUM (65)
0x66, 0x01, 0xf0,                  //       UNIT (SI Lin:Hertz)
0x55, 0x00,                        //       UNIT_EXPONENT (0)
0x09, 0x42,                        //       USAGE (ConfigFrequency)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x85, 0x09,                        //       REPORT_ID (9)
0x75, 0x10,                        //       REPORT_SIZE (16)
0x95, 0x01,                        //       REPORT_COUNT (1)
0x15, 0x00,                        //       LOGICAL_MINIMUM (0)
0x26, 0x20, 0x4e,                  //       LOGICAL_MAXIMUM (20000)
0x66, 0x21, 0xd1,                  //       UNIT (SI Lin:Power)
0x55, 0x07,                        //       UNIT_EXPONENT (7)
0x09, 0x43,                        //       USAGE (ConfigApparentPower)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x85, 0x0a,                        //       REPORT_ID (10)
0x95, 0x01,                        //       REPORT_COUNT (1)
0x09, 0x44,                        //       USAGE (ConfigActivePower)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0xc0,                              //     END_COLLECTION
0x09, 0x10,                        //     USAGE (BatterySystem)
0xa1, 0x00,                        //     COLLECTION (Physical)
0x85, 0x0b,                        //       REPORT_ID (11)
0x75, 0x08,                        //       REPORT_SIZE (8)
0x95, 0x01,                        //       REPORT_COUNT (1)
0x15, 0x00,                        //       LOGICAL_MINIMUM (0)
0x25, 0x7f,                        //       LOGICAL_MAXIMUM (127)
0x65, 0x00,                        //       UNIT (None)
0x55, 0x00,                        //       UNIT_EXPONENT (0)
0x09, 0x11,                        //       USAGE (BatterySystemID)
0xb1, 0x03,                        //       FEATURE (Cnst,Var,Abs)
0x09, 0x1a,                        //       USAGE (Input)
0xa1, 0x00,                        //       COLLECTION (Physical)
0x85, 0x0c,                        //         REPORT_ID (12)
0x95, 0x01,                        //         REPORT_COUNT (1)
0x09, 0x1b,                        //         USAGE (InputID)
0xb1, 0x03,                        //         FEATURE (Cnst,Var,Abs)
0x85, 0x0d,                        //         REPORT_ID (13)
0x95, 0x01,                        //         REPORT_COUNT (1)
0x09, 0x1f,                        //         USAGE (FlowID)
0xb1, 0x03,                        //         FEATURE (Cnst,Var,Abs)
0xc0,                              //       END_COLLECTION
0x09, 0x14,                        //       USAGE (Charger)
0xa1, 0x00,                        //       COLLECTION (Physical)
0x85, 0x0e,                        //         REPORT_ID (14)
0x95, 0x01,                        //         REPORT_COUNT (1)
0x09, 0x15,                        //         USAGE (ChargerID)
0xb1, 0x03,                        //         FEATURE (Cnst,Var,Abs)
0x09, 0x02,                        //         USAGE (PresentStatus)
0xa1, 0x02,                        //         COLLECTION (Logical)
0x85, 0x0f,                        //           REPORT_ID (15)
0x75, 0x01,                        //           REPORT_SIZE (1)
```

```
0x95, 0x08,                         //          REPORT_COUNT (8)
0x15, 0x00,                         //          LOGICAL_MINIMUM (0)
0x25, 0x01,                         //          LOGICAL_MAXIMUM (1)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x61,                         //          USAGE (Good)
0x09, 0x62,                         //          USAGE (InternalFailure)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0xb1, 0x83,                         //          FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x08,                         //          REPORT_COUNT (8)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x61,                         //          USAGE (Good)
0x09, 0x62,                         //          USAGE (InternalFailure)
0x09, 0x00,                         //          USAGE (Undefined)
0x09, 0x00,                         //          USAGE (Undefined)
0x81, 0x83,                         //          INPUT (Cnst,Var,Abs,Vol)
0xc0,                               //        END_COLLECTION
0xc0,                               //      END_COLLECTION
0x09, 0x1c,                         //      USAGE (Output)
0xa1, 0x00,                         //      COLLECTION (Physical)
0x85, 0x10,                         //        REPORT_ID (16)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x15, 0x00,                         //        LOGICAL_MINIMUM (0)
0x25, 0x7f,                         //        LOGICAL_MAXIMUM (127)
0x09, 0x1d,                         //        USAGE (OutputID)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0x85, 0x11,                         //        REPORT_ID (17)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x09, 0x1f,                         //        USAGE (FlowID)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0xc0,                               //      END_COLLECTION
0x09, 0x12,                         //      USAGE (Battery)
0xa1, 0x00,                         //      COLLECTION (Physical)
0x85, 0x12,                         //        REPORT_ID (18)
0x75, 0x08,                         //        REPORT_SIZE (8)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x15, 0x00,                         //        LOGICAL_MINIMUM (0)
0x25, 0x7f,                         //        LOGICAL_MAXIMUM (127)
0x09, 0x13,                         //        USAGE (BatteryID)
0xb1, 0x03,                         //        FEATURE (Cnst,Var,Abs)
0x85, 0x13,                         //        REPORT_ID (19)
0x75, 0x18,                         //        REPORT_SIZE (24)
0x95, 0x01,                         //        REPORT_COUNT (1)
0x17, 0x80, 0x51, 0x01, 0x00,       //        LOGICAL_MINIMUM (86400)
0x27, 0xc4, 0xff, 0x3b, 0x00,       //        LOGICAL_MAXIMUM (3932100)
0x66, 0x01, 0x10,                   //        UNIT (SI Lin:Time)
0x55, 0x00,                         //        UNIT_EXPONENT (0)
0x0b, 0x45, 0x00, 0xff, 0xff,       //        USAGE (Vendor defined MGE 1:0x45)
0xb1, 0x02,                         //        FEATURE (Data,Var,Abs)
0xa1, 0x02,                         //        COLLECTION (Logical)
0x85, 0x14,                         //          REPORT_ID (20)
0x75, 0x01,                         //          REPORT_SIZE (1)
0x95, 0x08,                         //          REPORT_COUNT (8)
0x15, 0x00,                         //          LOGICAL_MINIMUM (0)
0x25, 0x01,                         //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                         //          UNIT (None)
0x55, 0x00,                         //          UNIT_EXPONENT (0)
```

```
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x61,                         //            USAGE (Good)
0x09, 0x60,                         //            USAGE (Present)
0xb1, 0x83,                         //            FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x08,                         //            REPORT_COUNT (8)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x00,                         //            USAGE (Undefined)
0x09, 0x61,                         //            USAGE (Good)
0x09, 0x60,                         //            USAGE (Present)
0x81, 0x83,                         //            INPUT (Cnst,Var,Abs,Vol)
0xc0,                               //          END_COLLECTION
0xc0,                               //         END_COLLECTION
0xc0,                               //        END_COLLECTION
0x09, 0x16,                         //        USAGE (PowerConverter)
0xa1, 0x00,                         //        COLLECTION (Physical)
0x85, 0x15,                         //          REPORT_ID (21)
0x75, 0x08,                         //          REPORT_SIZE (8)
0x95, 0x01,                         //          REPORT_COUNT (1)
0x15, 0x00,                         //          LOGICAL_MINIMUM (0)
0x25, 0x7f,                         //          LOGICAL_MAXIMUM (127)
0x09, 0x17,                         //          USAGE (PowerConverterID)
0xb1, 0x03,                         //          FEATURE (Cnst,Var,Abs)
0x09, 0x1a,                         //          USAGE (Input)
0xa1, 0x81,                         //          COLLECTION (VendorDefined)
0x85, 0x16,                         //            REPORT_ID (22)
0x95, 0x01,                         //            REPORT_COUNT (1)
0x09, 0x1b,                         //            USAGE (InputID)
0xb1, 0x03,                         //            FEATURE (Cnst,Var,Abs)
0x85, 0x17,                         //            REPORT_ID (23)
0x95, 0x01,                         //            REPORT_COUNT (1)
0x09, 0x1f,                         //            USAGE (FlowID)
0xb1, 0x03,                         //            FEATURE (Cnst,Var,Abs)
0x85, 0x18,                         //            REPORT_ID (24)
0x75, 0x10,                         //            REPORT_SIZE (16)
0x95, 0x01,                         //            REPORT_COUNT (1)
0x15, 0x00,                         //            LOGICAL_MINIMUM (0)
0x26, 0xf4, 0x01,                   //            LOGICAL_MAXIMUM (500)
0x67, 0x21, 0xd1, 0xf0, 0x00,       //            UNIT (SI Lin:Volts)
0x55, 0x07,                         //            UNIT_EXPONENT (7)
0x09, 0x30,                         //            USAGE (Voltage)
0xb1, 0x83,                         //            FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x19,                         //            REPORT_ID (25)
0x95, 0x01,                         //            REPORT_COUNT (1)
0x09, 0x53,                         //            USAGE (LowVoltageTransfer)
0xb1, 0x03,                         //            FEATURE (Cnst,Var,Abs)
0x85, 0x1a,                         //            REPORT_ID (26)
0x95, 0x01,                         //            REPORT_COUNT (1)
0x09, 0x54,                         //            USAGE (HighVoltageTransfer)
0xb1, 0x03,                         //            FEATURE (Cnst,Var,Abs)
0x85, 0x1b,                         //            REPORT_ID (27)
0x75, 0x10,                         //            REPORT_SIZE (16)
0x95, 0x01,                         //            REPORT_COUNT (1)
0x15, 0x00,                         //            LOGICAL_MINIMUM (0)
0x26, 0x64, 0x19,                   //            LOGICAL_MAXIMUM (6500)
0x66, 0x01, 0xf0,                   //            UNIT (SI Lin:Hertz)
```

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0x55, 0x0e,                          //        UNIT_EXPONENT (-2)
0x09, 0x32,                          //        USAGE (Frequency)
0xb1, 0x83,                          //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                          //        USAGE (PresentStatus)
0xa1, 0x02,                          //        COLLECTION (Logical)
0x85, 0x1c,                          //          REPORT_ID (28)
0x75, 0x01,                          //          REPORT_SIZE (1)
0x95, 0x08,                          //          REPORT_COUNT (8)
0x15, 0x00,                          //          LOGICAL_MINIMUM (0)
0x25, 0x01,                          //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                          //          UNIT (None)
0x55, 0x00,                          //          UNIT_EXPONENT (0)
0x09, 0x61,                          //          USAGE (Good)
0x09, 0x62,                          //          USAGE (InternalFailure)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0xb1, 0x83,                          //          FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x08,                          //          REPORT_COUNT (8)
0x09, 0x61,                          //          USAGE (Good)
0x09, 0x62,                          //          USAGE (InternalFailure)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x09, 0x00,                          //          USAGE (Undefined)
0x81, 0x83,                          //          INPUT (Cnst,Var,Abs,Vol)
0xc0,                                //        END_COLLECTION
0xc0,                                //      END_COLLECTION
0x09, 0x1a,                          //      USAGE (Input)
0xa1, 0x83,                          //      COLLECTION (VendorDefined)
0x85, 0x1d,                          //        REPORT_ID (29)
0x75, 0x08,                          //        REPORT_SIZE (8)
0x95, 0x01,                          //        REPORT_COUNT (1)
0x15, 0x00,                          //        LOGICAL_MINIMUM (0)
0x25, 0x7f,                          //        LOGICAL_MAXIMUM (127)
0x09, 0x1b,                          //        USAGE (InputID)
0xb1, 0x03,                          //        FEATURE (Cnst,Var,Abs)
0x85, 0x1e,                          //        REPORT_ID (30)
0x95, 0x01,                          //        REPORT_COUNT (1)
0x09, 0x1f,                          //        USAGE (FlowID)
0xb1, 0x03,                          //        FEATURE (Cnst,Var,Abs)
0x85, 0x1f,                          //        REPORT_ID (31)
0x75, 0x10,                          //        REPORT_SIZE (16)
0x95, 0x01,                          //        REPORT_COUNT (1)
0x26, 0xf4, 0x01,                    //        LOGICAL_MAXIMUM (500)
0x67, 0x21, 0xd1, 0xf0, 0x00,  //        UNIT (SI Lin:Volts)
0x55, 0x07,                          //        UNIT_EXPONENT (7)
0x09, 0x30,                          //        USAGE (Voltage)
0xb1, 0x83,                          //        FEATURE (Cnst,Var,Abs,Vol)
0x09, 0x02,                          //        USAGE (PresentStatus)
0xa1, 0x02,                          //        COLLECTION (Logical)
0x85, 0x20,                          //          REPORT_ID (32)
0x75, 0x01,                          //          REPORT_SIZE (1)
0x95, 0x08,                          //          REPORT_COUNT (8)
0x15, 0x00,                          //          LOGICAL_MINIMUM (0)
0x25, 0x01,                          //          LOGICAL_MAXIMUM (1)
0x65, 0x00,                          //          UNIT (None)
0x55, 0x00,                          //          UNIT_EXPONENT (0)
0x09, 0x00,                          //          USAGE (Undefined)
```

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0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x61,                        //        USAGE (Good)
0x09, 0x6d,                        //        USAGE (Used)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0xb1, 0x83,                        //        FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x08,                        //        REPORT_COUNT (8)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x61,                        //        USAGE (Good)
0x09, 0x6d,                        //        USAGE (Used)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0x09, 0x00,                        //        USAGE (Undefined)
0x81, 0x83,                        //        INPUT (Cnst,Var,Abs,Vol)
0xc0,                              //      END_COLLECTION
0xc0,                              //    END_COLLECTION
0x09, 0x1c,                        //    USAGE (Output)
0xa1, 0x00,                        //    COLLECTION (Physical)
0x85, 0x21,                        //      REPORT_ID (33)
0x75, 0x08,                        //      REPORT_SIZE (8)
0x95, 0x01,                        //      REPORT_COUNT (1)
0x15, 0x00,                        //      LOGICAL_MINIMUM (0)
0x25, 0x7f,                        //      LOGICAL_MAXIMUM (127)
0x09, 0x1d,                        //      USAGE (OutputID)
0xb1, 0x03,                        //      FEATURE (Cnst,Var,Abs)
0x85, 0x22,                        //      REPORT_ID (34)
0x95, 0x01,                        //      REPORT_COUNT (1)
0x09, 0x1f,                        //      USAGE (FlowID)
0xb1, 0x03,                        //      FEATURE (Cnst,Var,Abs)
0x85, 0x23,                        //      REPORT_ID (35)
0x95, 0x01,                        //      REPORT_COUNT (1)
0x26, 0xff, 0x00,                  //      LOGICAL_MAXIMUM (255)
0x09, 0x35,                        //      USAGE (PercentLoad)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x24,                        //      REPORT_ID (36)
0x75, 0x10,                        //      REPORT_SIZE (16)
0x95, 0x01,                        //      REPORT_COUNT (1)
0x26, 0xf4, 0x01,                  //      LOGICAL_MAXIMUM (500)
0x67, 0x21, 0xd1, 0xf0, 0x00,  //      UNIT (SI Lin:Volts)
0x55, 0x07,                        //      UNIT_EXPONENT (7)
0x09, 0x30,                        //      USAGE (Voltage)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x25,                        //      REPORT_ID (37)
0x75, 0x10,                        //      REPORT_SIZE (16)
0x95, 0x01,                        //      REPORT_COUNT (1)
0x26, 0xd0, 0x07,                  //      LOGICAL_MAXIMUM (2000)
0x67, 0x01, 0x00, 0x10, 0x00,  //      UNIT (SI Lin:Amps)
0x55, 0x0f,                        //      UNIT_EXPONENT (-1)
0x09, 0x31,                        //      USAGE (Current)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x26,                        //      REPORT_ID (38)
0x75, 0x10,                        //      REPORT_SIZE (16)
0x95, 0x01,                        //      REPORT_COUNT (1)
0x26, 0x64, 0x19,                  //      LOGICAL_MAXIMUM (6500)
0x66, 0x01, 0xf0,                  //      UNIT (SI Lin:Hertz)
0x55, 0x0e,                        //      UNIT_EXPONENT (-2)
0x09, 0x32,                        //      USAGE (Frequency)
0xb1, 0x83,                        //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x27,                        //      REPORT_ID (39)
0x75, 0x10,                        //      REPORT_SIZE (16)
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0x95, 0x01,                      //        REPORT_COUNT (1)
0x26, 0x20, 0x4e,                //        LOGICAL_MAXIMUM (20000)
0x66, 0x21, 0xd1,                //        UNIT (SI Lin:Power)
0x55, 0x07,                      //        UNIT_EXPONENT (7)
0x09, 0x33,                      //        USAGE (ApparentPower)
0xb1, 0x83,                      //        FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x28,                      //        REPORT_ID (40)
0x95, 0x01,                      //        REPORT_COUNT (1)
0x09, 0x34,                      //        USAGE (ActivePower)
0xb1, 0x83,                      //        FEATURE (Cnst,Var,Abs,Vol)
0xc0,                            //      END_COLLECTION
0xc0,                            //     END_COLLECTION
0x09, 0x18,                      //     USAGE (OutletSystem)
0xa1, 0x00,                      //     COLLECTION (Physical)
0x85, 0x29,                      //       REPORT_ID (41)
0x75, 0x08,                      //       REPORT_SIZE (8)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x15, 0x00,                      //       LOGICAL_MINIMUM (0)
0x25, 0x7f,                      //       LOGICAL_MAXIMUM (127)
0x65, 0x00,                      //       UNIT (None)
0x55, 0x00,                      //       UNIT_EXPONENT (0)
0x09, 0x19,                      //       USAGE (OutletSystemID)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x09, 0x20,                      //       USAGE (Outlet)
0xa1, 0x81,                      //       COLLECTION (VendorDefined)
0x85, 0x2a,                      //         REPORT_ID (42)
0x95, 0x01,                      //         REPORT_COUNT (1)
0x09, 0x21,                      //         USAGE (OutletID)
0xb1, 0x03,                      //         FEATURE (Cnst,Var,Abs)
0x09, 0x02,                      //         USAGE (PresentStatus)
0xa1, 0x02,                      //         COLLECTION (Logical)
0x85, 0x2b,                      //           REPORT_ID (43)
0x75, 0x01,                      //           REPORT_SIZE (1)
0x95, 0x08,                      //           REPORT_COUNT (8)
0x15, 0x00,                      //           LOGICAL_MINIMUM (0)
0x25, 0x01,                      //           LOGICAL_MAXIMUM (1)
0x09, 0x6c,                      //           USAGE (Switchable)
0x09, 0x6b,                      //           USAGE (SwitchOn/Off)
0x09, 0x00,                      //           USAGE (Undefined)
0x09, 0x00,                      //           USAGE (Undefined)
0x09, 0x00,                      //           USAGE (Undefined)
0x09, 0x00,                      //           USAGE (Undefined)
0x09, 0x00,                      //           USAGE (Undefined)
0x09, 0x00,                      //           USAGE (Undefined)
0xb1, 0x83,                      //           FEATURE (Cnst,Var,Abs,Vol)
0xc0,                            //         END_COLLECTION
0xc0,                            //       END_COLLECTION
0xc0,                            //     END_COLLECTION
0x09, 0x24,                      //     USAGE (PowerSummary)
0xa1, 0x00,                      //     COLLECTION (Physical)
0x85, 0x2c,                      //       REPORT_ID (44)
0x75, 0x08,                      //       REPORT_SIZE (8)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x15, 0x00,                      //       LOGICAL_MINIMUM (0)
0x25, 0x7f,                      //       LOGICAL_MAXIMUM (127)
0x65, 0x00,                      //       UNIT (None)
0x55, 0x00,                      //       UNIT_EXPONENT (0)
0x09, 0x25,                      //       USAGE (PowerSummaryID)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x85, 0x2d,                      //       REPORT_ID (45)
0x95, 0x01,                      //       REPORT_COUNT (1)
0x09, 0x1f,                      //       USAGE (FlowID)
0xb1, 0x03,                      //       FEATURE (Cnst,Var,Abs)
0x85, 0x2e,                      //       REPORT_ID (46)
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0x95, 0x01,                           //      REPORT_COUNT (1)
0x25, 0x03,                           //      LOGICAL_MAXIMUM (3)
0x05, 0x85,                           //      USAGE_PAGE (Battery System)
0x09, 0x2c,                           //      USAGE (CapacityMode)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x2f,                           //      REPORT_ID (47)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x25, 0x01,                           //      LOGICAL_MAXIMUM (1)
0x09, 0x8b,                           //      USAGE (Rechargeable)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x30,                           //      REPORT_ID (48)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x25, 0x64,                           //      LOGICAL_MAXIMUM (100)
0x09, 0x83,                           //      USAGE (DesignCapacity)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x31,                           //      REPORT_ID (49)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x67,                           //      USAGE (FullChargeCapacity)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x32,                           //      REPORT_ID (50)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x29,                           //      USAGE (RemainingCapacityLimit)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x33,                           //      REPORT_ID (51)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x8d,                           //      USAGE (CapacityGranularity1)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x34,                           //      REPORT_ID (52)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x66,                           //      USAGE (RemainingCapacity)
0xb1, 0x83,                           //      FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x66,                           //      USAGE (RemainingCapacity)
0x81, 0x83,                           //      INPUT (Cnst,Var,Abs,Vol)
0x85, 0x35,                           //      REPORT_ID (53)
0x75, 0x10,                           //      REPORT_SIZE (16)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x15, 0x00,                           //      LOGICAL_MINIMUM (0)
0x27, 0xff, 0xff, 0x00, 0x00,   //      LOGICAL_MAXIMUM (65535)
0x66, 0x01, 0x10,                    //      UNIT (SI Lin:Time)
0x55, 0x00,                           //      UNIT_EXPONENT (0)
0x09, 0x68,                           //      USAGE (RunTimeToEmpty)
0xb1, 0x83,                           //      FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x68,                           //      USAGE (RunTimeToEmpty)
0x81, 0x83,                           //      INPUT (Cnst,Var,Abs,Vol)
0x85, 0x36,                           //      REPORT_ID (54)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x2a,                           //      USAGE (RemainingTimeLimit)
0xb1, 0x02,                           //      FEATURE (Data,Var,Abs)
0x85, 0x37,                           //      REPORT_ID (55)
0x75, 0x08,                           //      REPORT_SIZE (8)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x15, 0x00,                           //      LOGICAL_MINIMUM (0)
0x25, 0x7f,                           //      LOGICAL_MAXIMUM (127)
0x65, 0x00,                           //      UNIT (None)
0x09, 0x89,                           //      USAGE (iDeviceChemistery)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x38,                           //      REPORT_ID (56)
0x95, 0x01,                           //      REPORT_COUNT (1)
0x09, 0x8f,                           //      USAGE (Undefined)
0xb1, 0x03,                           //      FEATURE (Cnst,Var,Abs)
0x85, 0x39,                           //      REPORT_ID (57)
0x95, 0x01,                           //      REPORT_COUNT (1)
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0x05, 0x84,                          //      USAGE_PAGE (Power Device)
0x09, 0xfe,                          //      USAGE (Undefined)
0xb1, 0x03,                          //      FEATURE (Cnst,Var,Abs)
0x85, 0x43,                          //      REPORT_ID (67)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x0b, 0xf0, 0x00, 0xff, 0xff,        //      USAGE (Vendor defined MGE 1:iModel)
0xb1, 0x03,                          //      FEATURE (Cnst,Var,Abs)
0x85, 0x3a,                          //      REPORT_ID (58)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x09, 0xfd,                          //      USAGE (Undefined)
0xb1, 0x03,                          //      FEATURE (Cnst,Var,Abs)
0x85, 0x3b,                          //      REPORT_ID (59)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x09, 0xff,                          //      USAGE (Undefined)
0xb1, 0x03,                          //      FEATURE (Cnst,Var,Abs)
0x85, 0x3c,                          //      REPORT_ID (60)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x09, 0x35,                          //      USAGE (PercentLoad)
0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x3d,                          //      REPORT_ID (61)
0x75, 0x18,                          //      REPORT_SIZE (24)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x15, 0xff,                          //      LOGICAL_MINIMUM (-1)
0x27, 0xff, 0xff, 0x7f, 0x00,        //      LOGICAL_MAXIMUM (8388607)
0x66, 0x01, 0x10,                    //      UNIT (SI Lin:Time)
0x55, 0x00,                          //      UNIT_EXPONENT (0)
0x09, 0x57,                          //      USAGE (DelayBeforeShutdown)
0xb1, 0x82,                          //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x3e,                          //      REPORT_ID (62)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x09, 0x56,                          //      USAGE (DelayBeforeStartup)
0xb1, 0x82,                          //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x3f,                          //      REPORT_ID (63)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x09, 0x55,                          //      USAGE (DelayBeforeReboot)
0xb1, 0x82,                          //      FEATURE (Data,Var,Abs,Vol)
0x85, 0x40,                          //      REPORT_ID (64)
0x75, 0x10,                          //      REPORT_SIZE (16)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x15, 0x00,                          //      LOGICAL_MINIMUM (0)
0x26, 0xf4, 0x01,                    //      LOGICAL_MAXIMUM (500)
0x67, 0x21, 0xd1, 0xf0, 0x00,        //      UNIT (SI Lin:Volts)
0x55, 0x07,                          //      UNIT_EXPONENT (7)
0x09, 0x30,                          //      USAGE (Voltage)
0xb1, 0x83,                          //      FEATURE (Cnst,Var,Abs,Vol)
0x85, 0x41,                          //      REPORT_ID (65)
0x75, 0x08,                          //      REPORT_SIZE (8)
0x95, 0x01,                          //      REPORT_COUNT (1)
0x15, 0x01,                          //      LOGICAL_MINIMUM (1)
0x25, 0x03,                          //      LOGICAL_MAXIMUM (3)
0x65, 0x00,                          //      UNIT (None)
0x55, 0x00,                          //      UNIT_EXPONENT (0)
0x09, 0x5a,                          //      USAGE (Undefined)
0xb1, 0x82,                          //      FEATURE (Data,Var,Abs,Vol)
0x09, 0x02,                          //      USAGE (PresentStatus)
0xa1, 0x02,                          //      COLLECTION (Logical)
0x85, 0x42,                          //        REPORT_ID (66)
0x75, 0x01,                          //        REPORT_SIZE (1)
0x95, 0x10,                          //        REPORT_COUNT (16)
0x15, 0x00,                          //        LOGICAL_MINIMUM (0)
0x25, 0x01,                          //        LOGICAL_MAXIMUM (1)
0x05, 0x85,                          //        USAGE_PAGE (Battery System)
0x09, 0xd0,                          //        USAGE (ACPresent)
0x09, 0x44,                          //        USAGE (Charging)
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0x09, 0x45,                      //      USAGE (Discharging)
0x09, 0x42,                      //      USAGE (BelowRemainingCapacityLimit)
0x09, 0x43,                      //      USAGE (RemainingTimeLimitExpired)
0x09, 0x4b,                      //      USAGE (NeedReplacement)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x00,                      //      USAGE (Undefined)
0x05, 0x84,                      //      USAGE_PAGE (Power Device)
0x09, 0x61,                      //      USAGE (Good)
0x09, 0x65,                      //      USAGE (Overload)
0x09, 0x69,                      //      USAGE (ShutdownImminent)
0x09, 0x62,                      //      USAGE (InternalFailure)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x73,                      //      USAGE (Undefined)
0xb1, 0x83,                      //      FEATURE (Cnst,Var,Abs,Vol)
0x95, 0x10,                      //      REPORT_COUNT (16)
0x05, 0x85,                      //      USAGE_PAGE (Battery System)
0x09, 0xd0,                      //      USAGE (ACPresent)
0x09, 0x44,                      //      USAGE (Charging)
0x09, 0x45,                      //      USAGE (Discharging)
0x09, 0x42,                      //      USAGE (BelowRemainingCapacityLimit)
0x09, 0x43,                      //      USAGE (RemainingTimeLimitExpired)
0x09, 0x4b,                      //      USAGE (NeedReplacement)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x00,                      //      USAGE (Undefined)
0x05, 0x84,                      //      USAGE_PAGE (Power Device)
0x09, 0x61,                      //      USAGE (Good)
0x09, 0x65,                      //      USAGE (Overload)
0x09, 0x69,                      //      USAGE (ShutdownImminent)
0x09, 0x62,                      //      USAGE (InternalFailure)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x00,                      //      USAGE (Undefined)
0x09, 0x73,                      //      USAGE (Undefined)
0x81, 0x83,                      //      INPUT (Cnst,Var,Abs,Vol)
0xc0,                            //    END_COLLECTION
0xc0,                            //   END_COLLECTION
0x06, 0xff, 0xff,                //   USAGE_PAGE (Vendor defined MGE 1)
0x09, 0x70,                      //   USAGE (0x70)
0xa1, 0x02,                      //   COLLECTION (Logical)
0x85, 0x46,                      //     REPORT_ID (70)
0x75, 0x10,                      //     REPORT_SIZE (16)
0x95, 0x01,                      //     REPORT_COUNT (1)
0x15, 0x00,                      //     LOGICAL_MINIMUM (0)
0x27, 0xff, 0xff, 0x00, 0x00,    //     LOGICAL_MAXIMUM (65535)
0x65, 0x00,                      //     UNIT (None)
0x55, 0x00,                      //     UNIT_EXPONENT (0)
0x09, 0x89,                      //     USAGE (0x89)
0xb1, 0x02,                      //     FEATURE (Data,Var,Abs)
0x85, 0x47,                      //     REPORT_ID (71)
0x95, 0x01,                      //     REPORT_COUNT (1)
0x09, 0x8a,                      //     USAGE (0x8a)
0xb1, 0x82,                      //     FEATURE (Data,Var,Abs,Vol)
0x85, 0x48,                      //     REPORT_ID (72)
0x75, 0x08,                      //     REPORT_SIZE (8)
0x95, 0x01,                      //     REPORT_COUNT (1)
0x15, 0x01,                      //     LOGICAL_MINIMUM (1)
0x25, 0x02,                      //     LOGICAL_MAXIMUM (2)
0x09, 0x88,                      //     USAGE (0x88)
0xb1, 0x02,                      //     FEATURE (Data,Var,Abs)
0x85, 0x49,                      //     REPORT_ID (73)
0x95, 0x01,                      //     REPORT_COUNT (1)
0x15, 0x00,                      //     LOGICAL_MINIMUM (0)
```

```
    0x25, 0x03,                      //      LOGICAL_MAXIMUM (3)
    0x09, 0x71,                      //      USAGE (0x71)
    0xb1, 0x03,                      //      FEATURE (Cnst,Var,Abs)
    0x85, 0x4a,                      //      REPORT_ID (74)
    0x95, 0x01,                      //      REPORT_COUNT (1)
    0x15, 0x00,                      //      LOGICAL_MINIMUM (0)
    0x26, 0xff, 0x00,                //      LOGICAL_MAXIMUM (255)
    0x09, 0x73,                      //      USAGE (0x73)
    0xb1, 0x02,                      //      FEATURE (Data,Var,Abs)
    0xc0,                            //   END_COLLECTION
    0xc0                             // END_COLLECTION
};
```

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