

LASER CORDLESS MOUSE FUNCTIONAL REQUIREMENTS

1 Purpose

This document presents the functional requirements for the Laser Cordless Mouse as a product for BME Computers, Inc.

2 REASON FOR RE-ISSUE

ISSUE	MR #LCMxxxxxx	REASON FOR RE-ISSUE
1	MR #LCMxxxxxx	This is the first time the plan has been issued

3 Overview

The Laser Cordless Mouse is the complement of the computer products offered by BME Computers, Inc. It uses a laser to determine mouse motion and a proprietary scheme to communicate to a receiver which is inserted in the desktop or laptop USB port.

The nomenclature used in this document is as follows:

- **REQxxxx** denotes a **specific requirement** that must be met.
- **BACKxxxx** denotes an **information** statement that may be useful in interpreting requirements and the numbering should match the requirement number.
- Numbers should be displaced by 10 to allow for future requirements to be inserted into the document without re-numbering.

4 Document References

The following document references are either cited directly or may be useful in interpreting requirements, objectives and information statements contained herein:

- MicroSoft Windows TBD
- USB communications TBD
- Bluetooth and WiFi Specifications TBD
- HFMouse.01.TBD
- ENMouse.01.TBD
- LCMDD.TBD

5 Laser Cordless Mouse Functional Requirements

This section provides the functional requirements for the Laser Cordless Mouse Module and Receiver. This approach is reflected in **FIGURE 1: Laser Mouse Interfaces**.

5.1 Physical Requirements

This section provides physical and environmental requirements for the Laser Cordless Mouse Module and Receiver.

BME PROPRIETARY

Use pursuant to Company Instructions

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REQ010: Physical Design: The Laser Cordless Mouse Module and Receiver shall comply with the physical design as defined in the human factors specifications HFMouse.01.TBD.

BACK010: Laser Cordless Mouse is approximately 5 inches long, 2 inches tapering down to 1 inch wide and 1 inches deep. However, the precise arrangement is given by the cited document.

REQ020: Environmental: The Laser Cordless Mouse Module and Receiver shall comply with the environmental (temperature and humidity) design as defined in section 3.2 of the environment specifications document ENMouse.01.TBD

BACK020: Laser Cordless Mouse is to be used in a standard uncontrolled environment operating in the temperature and humidity ranges as given by the cited document.

REQ030: Maximum Speed: The maximum speed supported by the Laser Cordless Mouse Module shall be 65 inches per second on a rubberized mouse pad.

BACK030: The specifications of the rubberized mouse pad to be used are found in section 5.6 of the ENMouse.01.TBD.

REQ040: Maximum Acceleration: The maximum acceleration supported by the Laser Cordless Mouse Module shall be 20g on a rubberized mouse pad.

REQ050: (reserved for voltage isolation)

REQ060: (reserved for shock and vibration)

5.2 Communications Channel Requirements

This section provides the communication requirements between the Laser Cordless Mouse Module and its USB receiver.

REQ110: Channel Frequencies: The communication channel shall operate at a nominal frequency 2.4GHz and support frequency hopping of 70 frequencies.

BACK110: The exact value of the 70 frequencies is a designer choice and is to be documented in the detailed design document: LCMDD.001

REQ120: Communications Protocol: The communications channel shall use Bluetooth® 1.2 wireless technology and enhanced data rate Bluetooth® 2.0.

BACK120: Bluetooth® 1.2 wireless technology is industry standard method.

REQ130: Channel Speed and Encryption: The communication channel shall support a transmission rate of 500kbps with a 128 bit encryption.

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REQ140: Transmission Distance: The communication channel shall at a range of less than 100 meters.

5.3 Laser Cordless Mouse Receiver Requirements

This section provides the function requirement of the Laser Cordless Mouse Receiver.

REQ210: Receiver Interface: The Laser Cordless Mouse Receiver shall be connected to a computer via its standard USB port.

REQ220: Automatic Software Driver Exchange: The Laser Cordless Mouse Receiver shall be capable of downloading its driver software into the computer system automatically upon initial insertion in the port.

REQ230: Receiver Compatibility: The Laser Cordless Mouse Receiver shall support PC compatible computers and MS Windows® XP, 2000, and 98 operating systems.

REQ240: Receiver Precision: The Laser Cordless Mouse Receiver shall transmit mouse motion data to the operating system using 15 bits per axis.

REQ250: Configuration Data: The Laser Cordless Mouse Receiver shall transmit mouse configuration data to the mouse Laser Cordless Mouse.

BACK110: The mouse configuration data shall be defined LCMDD.TBD.

5.4 Laser Cordless Mouse Module Requirements

This section provides the Laser Cordless Mouse Module functional requirements.

REQ310: Operational Voltage: The Laser Cordless Mouse Module shall operate using 1 Li-Ion 3.7 volt battery packs.

REQ320: Operational Sensitivity: The Laser Cordless Mouse Module shall have 3 user selectable sensitivity levels of 400dpi, 800dpi, and 2000dpi.

6 Reliability

This section provides reliability requirements for the Laser Cordless Mouse Module and Receiver.

REQ510: Module Failure Rate: The Laser Cordless Mouse Module shall not have more than one failure for the expected 15-year lifetime of the equipment with 95% confidence.

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REQ520: Receiver Failure Rate: The Laser Cordless Mouse Receiver shall not have more than one failure for the expected 25-year lifetime of the equipment with 95% confidence.

7 Documentation

REQ510: Documentation in the form of appropriate schematic, equipment and/or handbook drawings and certification/qualification procedures shall be provided to support engineering, manufacturing, procurement, installation, operation and maintenance functions.

FIGURE 1:

TBD