

## 27MHZ RF Optical Mouse Solution

### Product Target Specification Summary for Application Reference Wireless Optical Mouse Target Specification for Application Reference Document

All information contained in this document is provided strictly on a Confidential basis.

#### 1 Purpose

This document contains the Product Specifications for 256 ID channels 27MHz Wireless Optical Mouse Application Department I at MOSART for Customers reference design only.

Please direct any clarification or feedback about the contents of this document to:  
System Application Department I  
System Application Division

#### 1.1 Product Presentation

RF band as a 27MHz 256 ID channels implemented to mouse side and a dangle side with USB + PS/2 combo interface.

Functionally, the product is identical to current mice, with the added convenience of being free of cable for

USB disk shape alike

The mouse is powered with 2 low cost AAA alkaline batteries.

#### 1.2 Overview Of Features

Optical Mouse industrial design compatible sensor.

Plug compliance with current combo mice, USB by default.

Unidirectional radio transmission of movements, switches and status from the mouse to the PC.

Using "Frequency Agility Protocol" with solution to move away from frequencies with disturbing traffic from other systems.

Transmission range: 1~1.5[m] for Dangle receiver.

256 ID channels , 27 MHZ

Mouse powered by 2 low cost Standard AAA batteries. (Life time: 1 ~ 3 month for an average user)

Vertical/Horizontal Sensor orientation to fit different mechanical design. by strap setting

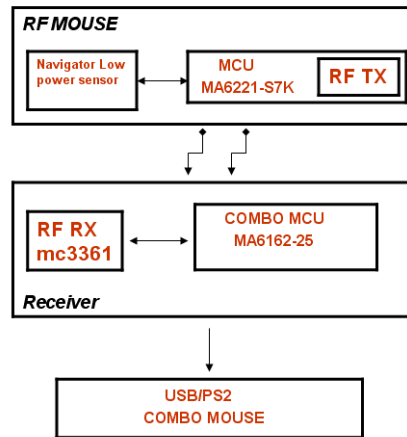
800CPI Resolution for XY motion.

☐ Power Down function support for convenient on/off button to go even longer.

Fast shut down function support for micro receiver inside mouse storage.

## 2. Electrical Specification

### 2.1 Function Block Diagram



## 2.2 Wireless Link Specification

Carrier Frequencies: 27MHz

Modulation: FSK with “Frequency Agility Protocol” coding.

Baud Rate: 4800 bps in air or 4096 bps as in optical mouse mode.

ID: 256 ID number allows the receiver to identify its mouse.

Minimum transmission range: 1 [m] (can be lower in a noisy environment or near metallic environment)

Maximum transmission range: 1.5 [m] (open field)

## 2.3 Mouse Specification

### 2.3.1 Function

Max. displacement speed 21 inches/sec.

Number of switches 3 ~ 5 buttons

Wheel Mechanism encoder

Resolution 800 CPI resolution for XY motion

ID Switching button 256 ID number

### 2.3.2 Operate Modes

There is a transition mode where a trade off was found between the fast reaction time needed by the user operating its mouse slowly, and the low power constraints for achieving good battery life.

The

MCU spends most of the time in its WAIT mode.

<b>Parameter</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Test condition</b>
Operating Voltage	1.8V		3.6V	
Startup Voltage	2.0V			
Operating Current @ 3 V with 3101 Sensor	18mA	22mA <5mA <1mA	30mA <5mA <1mA	Run mode Save power mode sleep mode
Battery autonomy		2 months of typical office usage		Based on 8.0hrs/day of 5-day/ week usage pattern, using Alkaline batteries. Uses two AAA batteries.
Low battery detection threshold Alkaline batteries				Over operating temp. range; falling transition.

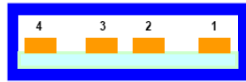
## 2.4 Receiver Specification

### 2.4.1 Features Overview

- Default interface is USB
- PS/2 interface through an adapter
- 256 ID channels in for mouse device
- Using “Frequency Agility Protocol” with solution to move away from frequencies with disturbing traffic from other systems.
- Transmission range: 1~1.5 [m] with a cordless mouse
- Connect button for easy devices mating
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### USB Connection

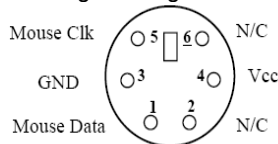
The following table shows the USB Type A connector pin assignment



Pin-out of USB connector

### PS/2 Connection

The following drawing shows the pin out of 6-pin male PS/2 connector



Pin-out of 6-pin male PS/2 connector

**Computer System required : windows 98 windows2000, windows Xp, Vista**

## FCC COMPLIANCE STATEMENT

**This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:**

- (1) This device may not cause harmful interference, and**
- (2) this device must accept any interference received, including interference that may cause undesired operation.**

### **IMPORTANT NOTE: FCC Radiation Exposure Statement:**

**This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with FCC RF exposure compliance requirements, please avoid direct contact to the transmitting antenna during transmitting.**

**NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.**