



### **Operational Description**

The Wireless Device is a low powered, human interface device for peripheral. See the function descriptions in attached. The Wireless Device is powered by a 3 volt battery. It is designed to operated from 2408~2474MHz 34 channels. See the attached block diagram and schematic.

The Wireless Device is manually operated by the buttons clicked and controlled cursor by hand. Through the air transmit signal to host.

All tuning and verification are performed by the manufacture and there are no adjustments can be made by the user. No external ground is required.

#### **Function description:**

1. SW: T/R switch toggles between TX and RX.
2. LNA: Low Noise Amplifier provides low noise and high gain amplification for incoming received signal.
3. MIXER: RF mixer down converts received RF signal to 6MHz IF signal for further processing.
4. BPF: Band Pass Filter used to pass the 6 MHz IF signal and provides rejection for image and adjacent signals.
5. Limiting Amplifier :Used to amplification IF signal from BPF and provides limited IF signal for demodulation.
6. DEMOD: Quadrature demodulation block used to demodulate the IF signal into FSK data.
- 7: LDO & BG: LDO will regulate VDD down to 1.8V for all internal blocks. Band Gap block provides a reference voltage for all internal blocks.
- 8: Analog PLL block will generate different clocks for internal block from external 12MHz xtal.
- 9: SM & Framer: State Machine and Digital Framer provide all digital functions in MA60H43.
- 10: RF Synthesizer: This is the RF synthesizer implemented with reference clock of 12MHz and the output analog signal will lock the VCO to desired frequency.
- 11: VCO: Voltage-controlled-oscillator is phase locked by RF synthesizer and oscillates at 2.45GHz range.
- 12: MOD & FSK: Digital modulator generates modulated FSK IQ signal for upconverter.



13: LO\_SW: LO switch toggles between TX and RX paths.

14: I/Q Gen and Buffer: I/Q Gen and Buffer will convert LO signal into I and Q signals for Mixer.

15. Unconverter: upconverter converts the IQ LO signals and modulated FSK IQ signals into desired RF channel frequency.

16: PA: Power amplifier amplifies modulated RF signal and transmits to antenna.

17: RSSI: Detects received signal's strength.

### **The MCU**

Description of MCU function

Coordinate different operating states of mouse according to preprogrammed usage scheme to save power consumption.

- Active mode: continuous sensor detection by MCU of Key polling.
- Standby mode: reduced key polling detection by MCU.
- RF polling mode: continuous RF IC detection by MCU.
- The MCU manages three states according to a preset usage scheme aimed conserving power consumption and prolong battery life as much as possible.
- Check the button usage by user when waiting for an interrupt from the user pressing keyboard button.
- Transmit to receiver data for identifying the press key. The serial data stream send to the radio transmitter for FSK modulation and transmission using a carrier signal.
- Indicating when operating voltage is too low. This to protect against erratic function due to a too low device operating voltage and chemical spill from battery ruptures due prolonged usage.
- Transmit upon pressing the device connect button the generated data communication ID to the receiver.

### **The EEPROM**

To memory the keyboard unique ID for commutation to receiver.