

PCTC

Product Compliance Test Center

2476 Swedesford Road, Malvern, PA 19355

OPERATIONAL DESCRIPTION

**MelodyWave Baton
FCC ID: RXR0362022000**

**SCHULMERICH CARILLONS, INC.
SELLERSVILLE, PA**

FEBRUARY 16, 2005

Operational Description - MelodyWave Baton

The MelodyWave Baton Assembly is comprised of a 915 MHz RF transceiver mounted on a control PCB contained in a 1¼"x1¼"x15" black or white ABS housing. Combined with the 36-2024 MelodyWave Base Station Assembly and some form of tone generation, it forms a musical instrument. In simple terms, when the baton is actuated, it sends a message to the base station; the base station in turn processes this message and causes the tone generator to play a note.

The instrument uses a TDM scheme to allow unfettered communication between up to 49 batons and the base station. Communication is performed on one pair of frequencies separated by 500 kHz. Base tick transmission occurs on the lower frequency and baton data occurs on the upper. Four possible frequency pairs are listed below:

Baton Transmit Freq:	908.90 MHz or 909.90 MHz or 910.90 MHz or 911.90 MHz
Baton Receive Freq:	908.40 MHz or 909.40 MHz or 910.40 MHz or 911.40 MHz

The base station emits a tick message every 53.25 msec from which all batons base their transmission times. An address, set via a DIP switch on the control PCB, defines both the time slot the baton uses and the musical note it plays. When a valid action is performed on the baton, sensed either by accelerometer or photo-transistor signals, the baton waits for reception of a base station tick and then transmits, in its time slot, data appropriate to the sensed action. The data packet contains 72 bits: 32 preamble, 16 synch word, and 24 data payload. It is modulated with FSK at 76.8 kbits/sec with a deviation of 39.6 kHz around its center frequency. The baton is capable of transmitting successfully up to 8 packets per second. Each packet is 937.5 µsec in duration.

The baton is powered by a fused 7.2V NiMH rechargeable battery. This is regulated down to 3.0 VDC for the RF module and 5.0 VDC for all remaining control circuitry. Power is applied to the baton via a tilt switch and control circuitry when the baton is picked up from a horizontal position. It is removed only via the control circuitry when the baton is inactive.