Technical Description

Company name: PRIMATRONIX LTD
Model no.: CD810 (Receiver and corded phone)
Date: May 29, 2006

1. General description

This device is a friendly big button corded phone with a LCD display, caller ID function with speakerphone and wireless emergency pendant.

2. Circuit description

This device contains only a receiver part and a corded phone circuit. The receiver MUST BE PAIRED UP with the corresponding transmitter before use.

A. Receiver Portion

The encoded ASK signal will be received by the antenna 1. Then the received signal will be amplified by the amplifier circuit and pass through a SAW resonator (SAW1) at 868.35 MHz to eliminate unwanted out-band signal. Then the signal will be demodulated by ASK receiver (TDA5200). Actually, this ASK receiver (TDA5200) is a single conversion receiver with an on-chip fully integrated PLL frequency synthesizer and an IF of nominal 10.7MHz. The demodulated signal (encoded data) will be sent to the MCU (EM78811). Then the MCU will compare this encoded data with the security code that pair up with the transmitter before. If the received encoded data is the same as the security code, then transmission is allowed between the transmitter and this receiver. And this MCU (EM78811) can undergo a pair up process with up to 5 individual transmitters.

B. Corded phone Portion

The following are the detailed function explanation of IC components:

- EM78811 is an 8-bit CID (Call Identification) RISC type microprocessor. It provide LCD driver, FSK decoder, DTMF generator and CID of calling message display.

- MC34018 is a speaker-phone integrated circuit incorporates the necessary functions to produce a high quality hands-free speaker-phone function;

- HT9170D is a Dual Tone Multi Frequency (DTMF) receiver;

- ISD5108 is a voice recorder IC with recorder time from 4-8 minutes;

- HC374 is octal D-type flip-flops that functions a buffer;

- TA31002 is used provide multiple selection for the ringer tone;

- 6202P502 is a regulator, which is used to provide a stable DC power.

3. Security coding information

This device contains an encoder IC. The length of security code is 20 bit, which can provide up to 2^{20} ~ 1 million different codes. When the pairing button is pressed on the phone base and SW1 is pressed at the transmitter side, the encoder at the transmitter side will generate a random security code. The decoder at the receiver side will then recognize and 'remember' this security code from the transmitter. Then this recognized security code will be used for each transmission for each pair up transmitter and receiver. This security code will only be changed when the pairing procedure is being taken again.

As the length of the security code is significantly long, therefore it can minimize the possibility of code 'collision'.