LogicMark DECT Pendant

Theory of Operation:

The Pendant is powered by one Li-Ion battery.

It also utilizes a DSP Group DCX79 DECT RF and baseband processor that will do all alarm processing and calling over the PSTN or cellular accessory interface. A microphone and speaker will also interface to the processor to allow audio to the human to be heard over the PSTN .

This DECT device operates by means of a full duplex radio frequency TX/RX system in 1920 - 1930MHz band transceiver architecture.

It provides the following features:
1. 5 Radio frequency Channels in 1920 - 1930MHz
2. Time Division Duplex operation
3. 32kbps ADPCM voice CODEC

Transmission
ADPCM CODEC converts the voice signal into 32kbps digital data. The digital data is fed to Burst Mode Control Modem. The transmit FSK data is shaped by a Gaussian low-pass filter and modulated directly into the delta-sigma data stream. The DECT protocol used by the system utilizes Time Division Duplexing.

Receive
The receive path uses a single-conversion architecture which image-reject mixes the 2-level FSK-modulated receive signal to a low IF frequency of 864 kHz. Integrated band pass filters provide rejection of unwanted signals. The IF signal is amplified and limited prior to demodulation by an integrated FM discriminator that requires no external components or adjustment. The resulting demodulated audio signal is then filtered, sliced, and output to ADPCM CODEC. Finally, the ADPCM CODEC outputs received analog signal.

DECT Specification:
- Frequency: 1920 - 1930MHz
- Number of channel: 5
- One internal antenna
- Channel Separation: 1.782 MHz
- Modulation: FSK
- Bit Rate: 1152 kBit/sec.
- 1'st Intermediate frequency: 864 kHz
- Reference Clock: 13.824 MHz
- Duplexing: Time Division Duplex
- Burst Frame: 10 msec
- Voice Coding: ADPCM
- Monitoring is made thought the radio receiver used by this DECT phone for communication.

When the pendant powers up, it will enter a special mode to register it to the base.

1) Upon power up, the base can learn the pendant. The pendant transmits it's ID.

2) After pendant learning, it goes into stand-by and only sends battery status every 13 hours until the button is pushed for 2 seconds.

3) There are two push buttons and one LED on the Pendant. As soon as power is supplied the Pedant will remain in standby mode. Only user interaction required after this is the base learning process and push for help.