CIRCUIT DESCRIPTION AND
DIGITAL SECURITY CODE INFORMATION

1. OVER VIEW

This device is a telephone terminal device that is designed for voice operation in a similar fashion to an ordinary residential or business telephone without the inconvenience and restrain of a handset cord.

This device consists of a base unit and a handset. The base unit is intended to connect to standard telephone modular jacks and is supplied electric power from a standard AC power line by using with the AC Adapter. The handset is powered from an internal battery.

This device operates by means of a full duplex radio frequency TX/RX system in 1920 - 1930MHz band with DECT transceiver architecture. Theses radio frequency systems operate in accordance with Part 15 of the FCC Rules. This device has been specifically designed to comply with the requirements set forth in Part 68 of the FCC Rules as well as the Part15 requirements. It provides the following features:

- 5 Radio frequency Channels in 1920 - 1930MHz
- Time Division Duplex operation
- 32kbps ADPCM voice CODEC
- 130000 security codes

2. Configurations

2.1 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.

2.2 Reception

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.

2.3 Control

The RF frequency channel, ADPCM CODEC and audio signal switching controlled by DCX79 generates a random security code out of 130000 codes, which can protects customers privacy.

3.   Specification

- Frequency: 1920 - 1930MHz
- Number of channel: 5
- Channel Separation: 1.782 MHz
- Modulation: FSK
- Bit Rate: 1152 kBit/sec.
- Digital Security Codes: 130000codes
- 1'st Intermediate frequency: 864 kHz
- Reference Clock: 13.824 MHz
- Duplexing: Time Division Duplex
           (Operation slot is based on Long-slot.)
- Burst Frame: 10 msec
- Voice Coding: ADPCM
- Monitoring is made thought the radio receiver used by this DECT phone for communication.
- Power Supply: 3.7VDC Battery
- Operating temperature: 0 to 50 deg C
- Humidity: Up to 90%

Digital Security Code Information
130000 Digital Security Code:
This cordless telephone system provides the random digital security code.

4. Time Division Multiple Access (TDMA) Frame structure

The basic, repeating, frame structure is 10msec long. It is sub-divided into 12 slots, each 833.33usec long. The first 6 slots are used for uplink when the handset transmits to the base unit. The last 6 slots are used for downlink when the base transmits to the Handset.
This system uses TDD (Time Division Duplex) to carry a two-way voice communication.

4.1 Theoretical calculation for averaged field strength emission:

a) Handset: As default operation, handset is designed to operate on 1 of slots in each transmission frame in normal usage.

Actual dwell time by handset is calculated as;

$$0.833/10 = 83.3 \times 10^{-3} \quad ----> \quad -21.6dB$$

-21.6dB is obtained which corresponds to average field strength emission respect to peak value of field strength.

b) BASE unit: As default operation, Base unit will be able to operate with 4 of handsets simultaneously. In this condition, 4 of slots in each frame will be activated, therefore, dwell time would be calculated as

$$(0.833 \times 4)/10 = 333.2 \times 10^{-3} \quad ----> \quad -9.6dB$$

-9.6dB is obtained which corresponds to average field strength emission respect to peak value of field strength.