

MD2400/2401/2420 Circuit Description :

The following circuit description for model MD2400/2401/2420 is based on the circuit diagram and block diagram of MD2400/2401/2420.

MD2400/2401/2420 Handset :

1. Receiving Path

The receiving path is established by the following sections.

Low Noise Amplifier (LNA), Mixer, Demodulator

The RF signal is filtered by the Band Pass filter 2.4GHz, and input to transceiver DLH24RF17B (RU1 pin 4) and through 1st and 2nd mixer to GFSK demodulator.

GFSK data demodulation

The GFSK data is output from IC DH24RF17B (RF_RU1) transceiver IC, then goes to WDCT controller chip DLH36107 (BS_U2) for decoding to audio and through audio amplifier output on pin 33. The audio signal is output to the handset speaker.

2. Transmitting Path

The transmitting path is established by the following sections.

Mic amplifier and encoder

Audio picked up by handset microphone is amplified by internal mic amplifier of U2 of WDCT controller chip DLH36107 (BS_U2), then goes to encoding.

Modulator and RF power amplifier

The GFSK data output from WDCT controller chip (BS_U2), then input to transceiver IC DH24RF17B (RF_RU1). The modulated signal goes through internal power amplifier, then through power amplifier and 2.4GHz band pass filter to antenna.

MD2400/2401 Base Unit :

1. Receiving Path

The receiving path is established by below sections.

Low Noise Amplifier (LNA), Mixer, Demodulator

The RF signal filtering by the Band Pass filter 2.4GHz , and input to LNA of IC DH24RF17B (RF_RU1 pin 4) transceiver IC . Then through mixer and GFSK data output from demodulator .

GFSK data demodulate

The GFSK data is output from IC DH24RF17B (RF_RU1) transceiver IC, then go to WDCT controller chip DLH36119 (BS_U2) for decode to audio and output on pin 34. And audio signal before output to the line interface through audio amplifier.

2. Transmitting Path

The transmitting path is established by below sections.

audio amplifier and encoder

Audio pick up by line interface is amplified by Q11 and internal audio amplifier of WDCT controller chip DLH36119 (BS_U1) , then go to encoding .

Modulator and RF power amplifier

The GFSK data output from WDCT controller chip, then input to transceiver IC DH24RF17B (RF_RU1). The modulated signal goes out to 1st and 2nd mixer, then goes to power amplifier and through 2.4MHz band pass filter to antenna 1 and 2.

3. Telephone line interface

The telephone line interface circuit is established by below sections.

Audio power amplifier

Q15 and Q18 are both as a power amplifier , according to high current output requirement for line interface.

Line transistor

Q13, Q10 and Q12 are the line controlled transistor , both audio input and output is though Q13 and Q10 line seize , which is controlled by Q12.

Ring detect circuit

Ringer is thought the R113, R114, C43 and C44 input to WDCT controller

DLH36119 (BS_U1) pin 42 , 43 differential amplifier input for picks up the ring signal.

MD2400/2401/2420 digital security coding system :

The handset and base unit of MD2400/2401/2420 will registration on both 20 bit digital random generated security code with manufacturer ID code . This is pass to FCC Part 15.214(d) requirement.

MD2400/2401/2420 CID and CW system :

The CID signal through R113, R114, C43 and C44 input to WDCT controller DLH36119 (BS_U1) pin 42 , 43 differential amplifier and internal CID demodulator to demodulate the CID data then displayed on Handset LCD display.