

CIRCUIT DESCRIPTION AND DIGITAL SECURITY CODE INFORMATION

Equipment Description

UC283Z

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This 900MHz cordless telephone 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 restraint of a handset cord.

This device consists of a base unit and a handset. The base unit is connected to a standard telephone modular jack (USOC RJ 11C Type) 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 pack.

This device operates by means of a full duplex radio frequency TX/RX system in 902 - 928 MHz band. These 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 Part 15 requirements.

Circuit Description and Operating Frequency

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Overview

This device is a Cordless Telephone System which operates within the 900MHz ISM band. This device consists of a base unit and a handset. The base unit is connected to a telephone network, and has transmitter and receiver circuits which are served to communication with the handset. The handset also has a transmitter and receiver portions in addition to regular dialing circuit.

Both the handset and the base unit have PLL circuits which enable to communicate in an empty channel. Pressing the CH key on the handset can last the communications moving into other open channel without cutting the line even if interfered by interruption on talks.

1. Handset

1) Local Frequencies and Intermediate Frequencies

TX VCO Frequency: 902.144772 MHz - 905.227158 MHz
RX 1st Local Freq.: 935.255564 MHz - 938.337950 MHz
RX VCO Frequency: 935.255564 MHz - 938.337950 MHz
Intermediate Frequency: 10.54 MHz

2) Communication Link to Base unit

RX Circuit:

An incoming RF signal from the base unit is received through the antenna. RX VCO frequency is produced by COMBO IC (IC601) and RX VCO (Q801). Then, this frequency is the RX Local frequency.

This local signal is applied to Mixer (Q602) which produces IF of 10.54MHz. The demodulated AF signal is amplified by IC601 an internal audio amplifier for driving a speaker.

TX Circuit:

TX VCO signal is generated at the PLL circuit and the TX VCO (Q852). Meanwhile, voice signal from the microphone (MC601) modulates the TX VCO signal at Q852. This modulated signal is the TX RF frequencies as listed in frequency chart.

Then, the TX RF signal is amplified by RF AMP (Q606/Q607) and fed into the antenna through a band pass filter (FT601).

3) Dialing Signal

When this equipment is in Talk Mode, the transmitting circuit and dialing circuit are activated to make outgoing call. In this condition, when any number keys are pressed, the CPU (IC602) generates corresponding dial pulse codes.

2. Base Unit

1) Local Frequencies and Intermediate Frequencies

TX VCO Frequency : 924.715792 MHz - 927.798178 MHz
RX 1st Local Freq.: 891.605000 MHz - 894.687386 MHz
RX VCO Frequency : 891.605000 MHz - 894.687386 MHz
Intermediate Frequency: 10.54 MHz

2) Communication Link to Handset

RX Circuit:

An incoming RF signal from the handset is received through the antenna.

RX VCO frequency shown above is produced by COMBO IC (IC1) and RX VCO (Q301). Then, this frequency is the RX Local frequency. This local signal is applied to Mixer (Q2) which produces IF of 10.54MHz.

The demodulated signal by IC1 contains a security code, and the code is fed to the CPU.

TX Circuit:

TX VCO signal is generated at the PLL circuit and the TX VCO (Q352). Meanwhile, voice signal from Telephone Network through the Hybrid Transformer (T1) modulates the TX VCO signal at Q352. This modulated signal is the TX RF frequencies as listed in frequency chart. Then, the TX RF signal is amplified by RF AMP (Q12/Q6) and fed into the antenna through a band pass filter (FT3).

3) Dialing Signal

Dial pulse code sent from the handset is demodulated by IC1 as mentioned above, and is fed into the CPU to control RL1.

4) Telephone Interface Circuit

Outgoing voice signal to telephone network is amplified by IC1. This signal is delivered to the telephone interface circuit through the Hybrid Transformer (T1).

Incoming voice signal also goes through T1, then it is amplified by IC1 to a proper level for frequency modulation, then it is fed to the TX circuit. To protect the TX/RX circuits from a metallic surge, the surge absorbing zener (D15) is provided at the secondary circuit of the Hybrid Transformer (T1).

5) Bell Signal

An alerting signal (Bell signal) is detected by means of a Photo Coupler (IC4) which has a sufficiently high impedance.

6) Power Supply Circuit

The power supply circuits are composed of Q7, Q11 and a zener diode type D11 and D13. These are voltage regulator circuits to stabilize input voltage from the AC Adapter to attain a stable operation.

Digital Security Code Information

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65536 Digital Security Code

This cordless telephone system automatically selects a different security code from 65536 possible discrete digital codes each time the cordless telephone is used.

Furthermore, the security code can be changed randomly by pressing PAGE button on the base unit when the handset is placed in the base unit.

[APPENDIX] TEST MODE AND OPERATION FREQUENCY

TEST MODE

This cordless telephone has test mode function which enable to perform TX/RX testing.

Test Mode for Base Unit

To enter the test mode, connect the AC Adapter to the unit while pressing the PAGE button. When test mode is set up, and the LINE LED lights. The unit is set for CH 13 (925.908974MHz) Transmitting mode.

To change the transmitting frequency, press the PAGE button during the unit is set the TX Test mode, so that the channel is changed from CH 13 to CH 16. Every pressing the PAGE button, channel is changed as below.

13 16 27 30 3 1 2 3 - - - 29 30 1 2 3 4 ---

To cancel the test mode, place the Handset in the Base Unit, so that the STATUS LED lights and the equipment is set for normal operation mode (Standby mode).

Or, disconnect the AC Adapter and connect it again, so that the test mode is easily canceled.

Test Mode for Handset

First, disconnect the battery pack. Then, connect the battery pack again while pressing # and * keys. When test mode is set up, long beep tone is heard and the TALK LED lights. The unit is set for CH 16 Transmitting mode. Every pressing the CHANNEL key, channel is changed as below.

16 13 27 30 3 1 2 3 - - - 29 30 1 2 3 4 ---

To cancel the test mode, press the TALK key.

FREQUENCY TABLE

CH	Handset (TX Frequency)	Base(TX Frequency)
1	902.144772MHz	924.715792MHz
2	902.244204MHz	924.818224MHz
3	902.343636MHz	924.914656MHz
4	902.443068MHz	925.014088MHz
5	902.542499MHz	925.113520MHz
6	902.641931MHz	925.212951MHz
7	902.741363MHz	925.312383MHz
8	902.840795MHz	925.411815MHz
9	902.940226MHz	925.511247MHz
10	903.039658MHz	925.610679MHz
11	903.139090MHz	925.710110MHz
12	903.238522MHz	925.809542MHz
13	903.337954MHz	925.908974MHz
14	903.437385MHz	926.008406MHz
15	903.536817MHz	926.107838MHz
16	903.636249MHz	926.207269MHz
17	903.735681MHz	926.306701MHz
18	903.835113MHz	926.406133MHz
19	903.934545MHz	926.505564MHz
20	904.033976MHz	926.604997MHz
21	904.133408MHz	926.704428MHz
22	904.232840MHz	926.803860MHz
23	904.332272MHz	926.903292MHz
24	904.431704MHz	927.002724MHz
25	904.630567MHz	927.201587MHz
26	904.829431MHz	927.400451MHz
27	904.928863MHz	927.499883MHz
28	905.028294MHz	927.599315MHz
29	905.127726MHz	927.698746MHz
30	905.227158MHz	927.798178MHz