

CIRCUIT DESCRIPTION AND  
DIGITAL SECURITY CODE INFORMATION

| FCC ID     | MODEL    |
|------------|----------|
| AAO4301109 | 43-1109  |
| AJXFH8809  | FH-8809  |
| AMWUC619   | EXLI8962 |

Equipment Description uc617z  
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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 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.

The specifications are as below:

General:

Frequency Control : PLL Synthesized  
Modulation : FSK  
Operating Temperature : -10 deg. C to +50 deg. C

Base Unit:

Transmitting Frequency: 924.996683 MHz to 927.893854 MHz  
Receiving Frequency : 902.119024 MHz to 905.016095 MHz

Power Requirements : 9V DC 210mA  
(Use with the AC Adapter)

#### Handset:

Transmitting Frequency: 902.119024 MHz to 905.016095 MHz  
Receiving Frequency : 924.996683 MHz to 927.893854 MHz  
Power Requirements : 3.6 VDC (Rechargeable Battery)

#### Circuit Description and Operating Frequency

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##### Overview

This equipment is a Cordless Telephone System which operates within the 900MHz ISM band. This equipment 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 this device to communicate on an available (empty) channel. When pressing the CH key on the handset, the communications will move to another open channel without disconnecting the telephone. This situation is true even if their interference which causes an interruption to voice communications.

#### 1. Handset

##### 1) Local Frequencies and Intermediate Frequencies

TX VCO Frequency : 451.059512 MHz to 452.508098 MHz  
RX 1st Local Freq.: 935.536390 MHz to 938.433561 MHz

1st Intermediate Frequency: 10.539707 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 shown above is produced by

PLL IC (IC502) and RX VCO (Q512). Then, this frequency produce the RX 1st Local frequency.

This 1st local signal is applied to the 1st Mixer (IC502) which produces 1st IF of 10.54MHz.

Demodulated signal by IC601 is fed to D/A converter IC602 for AF signal and then amplified by the audio amplifier (IC602) to drive a speaker.

#### TX Circuit:

TX VCO signal is generated at the PLL circuit and the TX VCO (IC502). Meanwhile, voice signal from the microphone (MC601) modulates the TX VCO signal at IC502. This modulated signal is multiplied twice by the Doubler (Q507) to produce the TX RF frequencies as listed above.

Then, the TX RF signal is amplified by RF AMP (Q507) and fed into the antenna through a band pass filter (FL501).

### 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 (IC606) generates corresponding dial pulse codes.

## 2. Base Unit

### 1) Local Frequencies and Intermediate Frequencies

TX VCO Frequency : 462.498341 MHz to 463.946927 MHz  
RX 1st Local Freq.: 891.579317 MHz to 894.476488 MHz

1st Intermediate Frequency: 10.539707 MHz

### 2) Communication Link to Handset

#### RX Circuit:

An incoming RF signal from the base unit is received through the antenna.

RX VCO frequency shown above is produced by PLL IC (IC202) and RX VCO (Q212). Then, this frequency produce the RX 1st

Local frequency. This 1st local signal is applied to the 1st Mixer (IC202) which produces 1st IF of 10.54MHz.

The demodulated signal by IC1 is fed to D/A converter IC2 for AF signal and then amplified by the audio amplifier (IC2) to drive a telephone line.

#### TX Circuit:

TX VCO signal is generated at the PLL circuit and the TX VCO (IC202). Meanwhile, voice signal from Telephone Network through the Hybrid Transformer (T1) is fed to A/D converter IC2 to produce a digital signal and then fed to the TX VCO for modulation. This modulated signal is multiplied twice by the Doubler (Q207) to produce the TX RF frequencies as listed above. Then, the TX RF signal is amplified by RF AMP (Q206) and fed into the antenna through a band pass filter (FL201).

#### 3) Dialing Signal

Dial pulse code sent from the handset is demodulated by IC1 as mentioned above, and is fed into the CPU (IC4) to control RL1.

#### 4) Telephone Interface Circuit

Outgoing voice signal to telephone network is amplified by IC2. When the Intercom/Telephone key is selected to telephone mode, 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 Q3/IC2 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 capacitor (C13) 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 (IC3) which has a sufficiently high impedance.

#### 6) Power Supply Circuit

The power supply circuits are composed of Q6, Q8 and a zener diode type HZ5A1. 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 STATUS LED lights. The unit is set for CH 14 Transmitting mode.

To change the transmitting frequency, change the TONE/PULSE switch position to TONE side and then press the PAGE button during the unit is set the TX Test mode, so that the channel is changed from CH 14 to CH 15. Every pressing the CHANNEL key, channel is changed as below.

14 15 16 30 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. The unit is set for CH 16 Transmitting mode. Every pressing the CH key, channel is changed as below.

16 15 14 30 1 2 3 - - - 29 30 1 2 3 4 ---

To cancel the test mode, press the TALK key.

| Channel | :CH Portable(TX Frequency) | Base(TX Frequency) |
|---------|----------------------------|--------------------|
| 1       | 902.119024MHz              | 924.996683MHz      |
| 2       | 902.218927MHz              | 925.096585MHz      |
| 3       | 902.318829MHz              | 925.196488MHz      |
| 4       | 902.418732MHz              | 925.296390MHz      |
| 5       | 902.518634MHz              | 925.396293MHz      |
| 6       | 902.618537MHz              | 925.496195MHz      |
| 7       | 902.718439MHz              | 925.596098MHz      |
| 8       | 902.818341MHz              | 925.696000MHz      |
| 9       | 902.918244MHz              | 925.795902MHz      |
| 10      | 903.018146MHz              | 925.895805MHz      |
| 11      | 903.118049MHz              | 925.995707MHz      |
| 12      | 903.217951MHz              | 926.095610MHz      |
| 13      | 903.317854MHz              | 926.195512MHz      |
| 14      | 903.417756MHz              | 926.295415MHz      |
| 15      | 903.517659MHz              | 926.395317MHz      |
| 16      | 903.617561MHz              | 926.495220MHz      |
| 17      | 903.717463MHz              | 926.595122MHz      |
| 18      | 903.817366MHz              | 926.695024MHz      |
| 19      | 903.917268MHz              | 926.794927MHz      |
| 20      | 904.017171MHz              | 926.894829MHz      |
| 21      | 904.117073MHz              | 926.994732MHz      |
| 22      | 904.216976MHz              | 927.094634MHz      |
| 23      | 904.316878MHz              | 927.194537MHz      |
| 24      | 904.416780MHz              | 927.294439MHz      |
| 25      | 904.516683MHz              | 927.394341MHz      |
| 26      | 904.616585MHz              | 927.594146MHz      |
| 27      | 904.716488MHz              | 927.594146MHz      |
| 28      | 904.816390MHz              | 927.694049MHz      |
| 29      | 904.916293MHz              | 927.793951MHz      |
| 30      | 905.016195MHz              | 927.893854MHz      |