

~~FFY15~~ ~~915M~~ Circuit Description

1. Introduction

The model ~~915M~~^{FFY15} is a 40 channel (902.125 - 926.125Mhz) Caller ID cordless telephone. The whole unit is divided into two main parts as follow :

- a. A remote Handset.
- b. A Base unit.

2. Functional Blocks of the Remote Handset

- 2.1 Keyboard matrix and function LED
- 2.2 LCD
- 2.3 MCU and MCU interface
- 2.4 Antenna and RF module
- 2.5 Compander
- 2.6 Data shaper
- 2.7 Charge detector
- 2.8 Low battery detector
- 2.9 Buzzer amplifier

3. Circuit Block Description

3.1 Keyboard matrix and function LED

Pin 11 to pin13, pin 29 and pin 50 to pin 53 of the MCU:IC2 KS57P5616 form a keyboard, and the talk LED is controlled by the pin 31 of the MCU.

3.2 LCD

LCD1 is controlled by the MCU: IC2 KS57P5616 pin 1 to pin 9, pin 34 to pin 45, pin 59 to pin 100.

3.3 MCU and MCU interface

The handset and the base is link up by the pins(24,33 in HS and 13,26 in Base). Besides, the PLL of the RF Module is controlled by the pins 54 to pin 56 of the MCU.

3.4 Antenna and RF module

ANT is the common point for transmitting and receiving through antenna.

MD1 is a RF module which consists of Duplexer, Power amplifier, Mixer & IF, RXVCO, TXVCO, VCC & TXVCC control, Synthesizer and DEMO Audio Output circuits.

3.5 Comander

A compander U2 is used for improving the S/N of the transmit and receive audio signal.

3.6 Data shaper

The information which sending from base unit, is recovered by the amplifier U3C.

3.7 Charge detector

D10 to D13, ZD1, D7, C43, R70, R68 form a charge detector to direct the charging signal to the MCU pin 23.

3.8 Low battery detector

A battery low detector is built-in by the U3B which detects the battery dropping and sends a signal to pin 25 of MCU.

3.9 Buzzer amplifier

Q2 is a buzzer amplifier driven directly by the MCU pin 49.

4. Functional Blocks of the Base unit

- 4.1 Power supply
- 4.2 MCU and MCU interface
- 4.3 Calling line identifier
- 4.4 Antenna and RF module
- 4.5 Componder
- 4.6 Data shaper
- 4.7 Charge detector
- 4.8 Line audio interface
- 4.9 Ring detector
- 4.10 Led function board
- 4.11 Carrier detector

5. Circuit Block Description

5.1 Power supply

BU1 7805 regulate the input DC 9V to 5V which provides power to every part of the circuit.

5.2 MCU and MCU interface

The heart of the base is MCU BU6: KS57c5208 that communicates with the PLL of BMD1 through pins 19,20 and 21. Transmitter is controlled by the signal TX_DC which output from MCU via pin 14. MCU pin 34 is for generating DTMF signal. The communication between Handset and Base is via the pin 13 and pin 26 through the RF link.

5.3 Calling line identifier

BU2: CMX602 is a calling line identifier, it communicates with MCU via pin 10 to pin 15, when receiving caller ID data, MCU controls the LCD to display the correct information.

5.4 Antenna and RF modulator

ANT is antenna transmit and receive signal. BMD1 is a RF modulator which consist of Duplexer, Power amplifier, Mixer & IF, RXVCO, TXVCO, VCC & TXVCC control, Synthesizer and DEMO Audio Output circuits.

5.5 Compander

A compander BU4 is used for improving the S/N of the transmit and receive audio signal.

5.6 Data shaper

The information which sending from handset unit, is recovered by the amplifier BU3C.

5.7 Charge detector

BQ5 is a charge detector to direct the charging signal to the MCU pin 25.

5.8 Line audio interface

BR72, BK1, BR73, BC17, BL3, BL4 and BTR1 line transformer are the audio interface to the telephone line. The transformer is also used for telephone isolation.

5.9 Ring detector

BC44, BR71, BZD3, BZD2, BD7, BU7(K817) and BR66 form a ring detector which feed the signal through pin 27 of MCU.

5.10 LED function board

BLED1 is used for indicating "IN USE" and BLED2 is used for indicating "CHARGING" when handset is on cradle.

5.11 Carrier detector

The RF Module BMD1 pin 12 is an output pin of the carrier detector signal to MCU pin43.

23-DEC-1999 14:44

FROM ARTCOM LTD

TO

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P.01

900M CID Cordless FF915 handset/ base RF Test Mode Manual

ATTN: ANGELA TANG

FM: C.M. YUEN

Cordless Base RF test mode

RG: 915 Test mode

DEC 23, 99

Entering Cordless Test Mode

To enter cordless test mode, first set the **tone/pulse** switch to PULSE position, and **ring ON/OFF** selector to OFF position, then depress the **PAGE** key and power up the device. (handset removed from charge cradle)

Since NO Ringer SW at B/S, Please set PIN 22 OF B/S CPU To GND in order to enter test mode

Test Mode response / Procedure

The unit seize line. Audio un-mute, it will select communication channel 1, turn on RX & TX power and detect the **noise** input. If **noise** signal input is low (no noise), the LED will turn on, otherwise it turn off.

Press **PAGE** key once will go to next channel. When channel increment over 40, it will return back to channel 1.

Put the ring selector to ON position to quit the test mode & return to normal mode with the security code set to A5C3, last channel set to 8.

Channel frequencies

| CH. | BASE TX | H/S TX | CH. | BASE TX | HS/TX |
|-----|---------|---------|-----|---------|---------|
| 1 | 902.125 | 926.125 | 21 | 902.625 | 926.625 |
| 2 | 902.150 | 926.150 | 22 | 902.650 | 926.650 |
| 3 | 902.175 | 926.175 | 23 | 902.675 | 926.675 |
| 4 | 902.200 | 926.200 | 24 | 902.700 | 926.700 |
| 5 | 902.225 | 926.225 | 25 | 902.725 | 926.725 |
| 6 | 902.250 | 926.250 | 26 | 902.750 | 926.750 |
| 7 | 902.275 | 926.275 | 27 | 902.775 | 926.775 |
| 8 | 902.300 | 926.300 | 28 | 902.800 | 926.800 |
| 9 | 902.325 | 926.325 | 29 | 902.825 | 926.825 |
| 10 | 902.350 | 926.350 | 30 | 902.850 | 926.850 |
| 11 | 902.375 | 926.375 | 31 | 902.875 | 926.875 |
| 12 | 902.400 | 926.400 | 32 | 902.900 | 926.900 |
| 13 | 902.425 | 926.425 | 33 | 902.925 | 926.925 |
| 14 | 902.450 | 926.450 | 34 | 902.950 | 926.950 |
| 15 | 902.475 | 926.475 | 35 | 902.975 | 926.975 |
| 16 | 902.500 | 926.500 | 36 | 903.000 | 927.000 |
| 17 | 902.525 | 926.525 | 37 | 903.025 | 927.025 |
| 18 | 902.550 | 926.550 | 38 | 903.050 | 927.050 |
| 19 | 902.575 | 926.575 | 39 | 903.075 | 927.075 |
| 20 | 902.600 | 926.600 | 40 | 903.100 | 927.100 |

Cordless Handset RF test mode

Press and hold '3' and '#' key at the same time, turn on the power. LCD backlight lights up with 2