

6.2.1	ALL UNIT	CIRCUIT DESCRIPTION
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This Telephone consist of the parts, base unit and handset(portable unit).

The operation frequency bands are (H/S : 43 MHz to 46 MHz B/S: 48 MHz to 49MHz). During in use mode, the telephone occupies one of the frequency pair in table.

CHANNEL	HANDSET RX BASE TX	BASE UNIT RX HANDSET TX	CHANNEL	HANDSET RX BASE TX	BASE RX HANDSET TX	CHANNEL	HANDSET RX BASE TX	BASE RX HANDSET TX
CH-01	43.720	48.760	CH-10	44.200	49.240	CH-19	46.710	49.770
CH-02	43.740	48.840	CH-11	44.320	49.280	CH-20	46.730	49.875
CH-03	43.820	48.860	CH-12	44.360	49.360	CH-21	46.770	49.830
CH-04	43.840	48.920	CH-13	44.400	49.400	CH-22	46.830	49.890
CH-05	43.920	49.020	CH-14	44.460	49.460	CH-23	46.870	49.930
CH-06	43.960	49.080	CH-15	44.480	49.500	CH-24	46.930	49.990
CH-07	44.120	49.100	CH-16	46.610	49.670	CH-25	46.970	49.970
CH-08	44.160	49.160	CH-17	46.630	49.845			
CH-09	44.180	49.200	CH-18	46.670	49.860			

6.2.2	CIRCUIT DESCRIPTION	GENERATOR OPERATION
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In this telephone, radio frequency pair is decided by phase lock loop (PLL:IC1/ HANDSET, U1/BASE UNIT) synthesizer. When talk key on handset is pressed, a 49 MHz RX signal carrying a random security code and a digital command a random security code and a digital command signal is transmitted to base unit. If the code received matches with the one in U1of base unit ,the digital command will be identified. The base unit will then change to off hook condition and be enable to make two way conversation.

In order to make a telephone call, handset and base unit must be within the communication range ,and handset and base unit must carry the same security code.

6.2.3	HANDSET	RECEIVE
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The RF signal of desired receiving frequency (46MHz) is picked up by the antenna, after passing through the RF amplifier. The RF signal is amplified by RF amplifier (Q100).Voltage control oscillator (VCC) generates a frequency ($F_{in}+10.7\text{MHz}$) to mixer .

The RF signal is mixed to make 10.7MHz, filtered by CF101.

U101 is a one chip cordless phone IC, which is included 2nd mix, 1st IF AMP. 2nd IF AMP DEMODULATOR. DATA AMP. EXPANDED, COMPRESSOR, PLL, AUDIO AMP. NOIS AMP.CIRCUIT between Pin 3 and 4 forms an 11.5MHz oscillator which converts, with the built-in mixer of IC1, the 10.7MHz signal to a signal of 455KHz.

Audio signal is then demodulator and output to Pin 27. Security code and digital commands are decoded by data decoder (internal amp of U101) and input to Pin 24 of CPU (U102) of handset. After expanded by expander (U101), audio signal is then amplified and sent to speaker.

6.3	HANDSET	TRANSMITTER
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Voice signal is first converted to electrical signal by condenser microphone (MIC100) and then amplified. After being compressed by compressor(U101),the signal is input to VCO(Q101 and VD100), which is controlled by PLL(U101), Digital commands security code directly input to VCO. Signals are then FM modulated in 49MHz band carrier, amplified by TX amplifier (Q105), filtered by a band pass filter, and transmitted to the air by antenna.

6.4.1	BASE	
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Base operating frequencies (Base transmitter is 46MHz and receiver is 49 MHz),the receiver and transmitter circuitry of base unit are the same as that of handset, except there is audio signal sent to telephone line. And CPU input (Pin 36 of U302) to filter the generated by RX data.

6.4.2	BASE	RINGING MODE
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During stand-by condition, if U304 (PCT71) detects a ringing signal, a security code followed by a digital command will be output from U301 to modulator, and transmitted via a 46MHz carrier . When handset receiver a correct security code and command, U102 on handset will output ringing signal to ringer.

For Bell sensitivity, specification is from 40Vrms ~ 150Vrms, unit should be ring.

Set the telephone analyzer to 35Vrms at 20Hz Bell frequency in production line.

6.4.3	BASE	RESETTING
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Resetting security code and channel information.

Communication between handset and base unit may not be possible in any of the following situations.

- ❶ After a power failure.
- ❷ After relocating the base unit by disconnecting the AC adaptor.
- ❸ After replacing the handset on the base unit 2 to 5 seconds.

6.5.1	FEATURES DESCRIPTION	SECURITY CODE
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The security code will be transferred to handset when handset is put on charge cradle . A security code is randomly ferreted by U302 in base unit. There is more than 1000000 combination of security code.

6.5.2	FEATURES DESCRIPTION	CHANNEL SELECT IN THE HANDSET
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If the CH button is pressed during talk mode, the cordless phone fails to change to other channel, it may due to the new channel is being engaged, the cordless phone will remain using last channel for communication

6.5.3	FEATURES DESCRIPTION	TONE DIALING
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DTMF Distortion

The total power of all exogenous signal in the voice band above 500Hz will be at least 20dB below the level of the fundamental frequency of the DTMF signals.

Frequency Tolerance : +/- 1.0%
 Tone Duration : 80 ms
 Interdigit Time : 80 ms

6.5.4	FEATURES DESCRIPTION	LAST NUMBER REDIAL
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The unit has the last number radial memory in the base and it will automatically remember the last phone number dialed (34 digits).

The LNRIP button is only enabled when first go into talk mode or after a flash signal.

If LNRIP button is pressed during dialing, it will output a 2 sec pause.

6.5.5	FEATURES DESCRIPTION	13 MEMORY DIALING
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The 13 two-touch memory dialing are stored in the base and for each memory location, it can store up to 16 digits. The digits that can be stored in the memory, buffer are 1 to 0, *, #, PAUSE.

6.5.5.1	13 MEMORY DIALING	MEMORY STORAGE
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STORE-TELEPHONE NUMBER-MEM-LOCATION NUMGER(1 TO 0, M1 to M3).

6.5.5.2	13 MEMORY DIALING	TO RECALL
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During the talk mode, press the STORE button followed by a MEMORY location number (1 TO 0, M1 to M3).

6.6	FEATURES DESCRIPTION	FLASH
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When the flash button is pressed during the talk mode, the telephone will generate a 98ms on hook signal to the telephone line.

Flash Timing : 600ms

6.7	FEATURES DESCRIPTION	AUTO-STAND BY MODE
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If the handset is put in the base cradle. It will be in the stans by mode.

6.8	FEATURES DESCRIPTION	OUT OF RANGE WARNING TONE
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When the handset does not receive the proper command acknowledgment from the base, a unique tone burst will be generated.

This tone signifies that the unit's maximum operating range has been exceeded or there is an interference.

6.9	FEATURES DESCRIPTION	BATTERY LOW DETECTION
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When the battery voltage falls below a certain level, which the LED lights flash and can be hear.

6.10	FEATURES DESCRIPTION	RING ON/OFF IN THE HANDSET
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When the switch is in the off position, the ring is OFF.

6.11	FEATURES DESCRIPTION	FEATIRES
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- a. 25 Channel selectable from handset. During talk mode, user can change to next channel by press the channel button.
- b. Automatic 20 bit security code cover (over 1000000 possible combinations).
- c. Tone pause dialing
- d. 13 Two touch memory dialing with 16 digits each.
- e. Last number radial with 34 digits each.
- f. Auto-stand by mode.
- g. Flash.
- h. One-way paging.
- i. Power saving mode in handset during stand-by.
- j. Ring ON/OFF in handset.
- k. Out of range warning tone.
- l. Both microcontrollers in the HANDSET and BASE unit operated at 4.0 Mhz and 6.0Mhz.
- m. Pause function for use with PABX.