

Operation Description

1 PRODUCT INTRODUCTION

XT-500 is a slim mobile phone brought to you by ShenZhen KDI

Communication Co.,LTD, it works at 900Mhz and 1800Mhz frequency band .

XT-500 colour screen mobile phone is designed for use on the GSM/GPRS networks. Not only does the **XT-500** provide you with basic calling functions, but also with many practical functions such as double SIM cards mode, smart input method, a name card style phonebook, 64 chord rings, SMS, MMS, camera and video, MP3 and movie player, TV, recorder, clock/alarm, calculator, automatic power On / power Off, calendar, world clock, GPRS surfing, STK, Keypad lock.

2 HARDWARE

The main board includes RF circuit(use MT6139 and TQM6M4038) , base band circuit(use MT6225) , power management circuit(use MT6318), bluetooth circuit(MT6601),TV tuner circuit(use TLG1100), **some keyboard LEDs**, etc.....The processors used in **XT500** are MTK MT6225.

1 Adjustment of RF Output Power:

- (1) The equipment setup as shown in Figure 1.
- (2) Operation of PC adjusts equipment.
- (3) Use RF Engineering Tools at PC side.

Select GSM850 Band:

- 1) Set GSM850 Band.
- 2) Set ARFCN: 190
- 3) TX ON.
- 4) Adjust the power to 32.4dBm (Power control level: PCL=5) by PA DAC value.
- 5) Repeat 4) for 15 times, and adjust the power level to 30.5, 28.8, 27, 25, 23, 21, 19, 17, 15, 13, 11, 9, 7, 5.
- 6) Make 16 Ramp-Up/Ramp-Down data from the adjustment value of (5) and (6).

7) Data of 5) and 6) is written to flash memory.

Select PCS1900 Band:

- 1) Set PCS Band.
- 2) Set ARFCN: 661.
- 3) TX ON.
- 4) Adjust the power to 29.0 dBm (Power control level: PCL=0) by PA DAC value.
- 5) Repeat 4) for 15 times, and adjust the power level to 27.5, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0.
- 6) Make 16 Ramp-Up/Ramp-Down data from the adjustment value of (5) and (6).
- 7) Data of 5) and 6) is written to flash memory.

2 Adjustment of oscillation frequency of VCXO:

- (1) The equipment setup as shown in Figure 1.
- (2) Use Crystal AFC Control Tools to Set CapID and AFC DAC value.
- (3) Set Band=GSM850, Set ARFCN=190, Set PCL=12.
 - 1) Set AFC DAC=4096, fixed. (Check that $V_{afc}=1.4V$).
 - 2) Set CapID=0, and verify that frequency error $\gg 10KHz$.
 - 3) Set CapID=63, and verify that frequency error $\ll -10KHz$.
 - 4) If the above 3 items are verified, then change CapID value to make frequency error be closed to 0 Hz as possible, record this CapID value.
 - 5) Set CapID value got from step 4), then change AFC DAC value to make frequency error be closed to 0 Hz as possible, record this AFC DAC value.
 - 6) Download the CapID value and AFC DAC value to flash memory.

3 Adjustment of RX Sensitivity:

- (1) Select GSM850 Band:
 - 1) Set BCCH level: -85dBm; ARFCN: 128.
 - 2) Test sample make a call to connect RF Tester..
 - 3) Set TCH level: -106dBm.
 - 4) Measure BER II error at TCH ARFCN: 128, 190, 251.
 - 5) Tune up the RX matching circuit to make sure $BER II < 2\%$ at each ARFCN.

(2) Select PCS Band:

- 1) Set BCCH level:-85dBm;ARFCN:512.
- 2) Test sample make a call to connect RF Tester..
- 3) Set TCH level:-106dBm.
- 4) Measure BER II error at TCH ARFCN:512, 661, 810.
- 5) Tune up the RX matching circuit to make sure BER II <2% at each ARFCN.

4. Connect to a Computer USB Port

- 1) Turn on the power and set the test sample normal working.
- 2) Connect the USB cable with the USB port.
- 3) Wait for the PC auto-search the flash disk and load the software.
- 4) Normal use the USB function after the software is finished.

5. Connect to Bluetooth device

- 1) Turn on the power of the bluetooth function.
- 2) Turn on the power of the bluetooth earphone.
- 3) Make the mobile phone sample to search the bluetooth device.
- 4) Input the password and make the two bluetooth device to connected and work normally.
- 5) Normal use the Bluetooth function with the bluetooth earphone.