

New Horizons Technologies International Inc.

Cyclone 1100A **Alignment Specification**

| Author | Version/Date Issued | Comments |
|------------------------------|---------------------------------|--|
| Frank Baldry | 1.0 13.9.01 | Provisional. For Discussion |
| Andrei Ivanov | 1.1 10.12.01 | Updated according to meeting 06.12.01 |
| Frank Baldry | 1.2 15.12.01 | Special version for Issue C PCB Build |
| Frank Baldry | 1.3 21.12.01 | Corrected TX Hum and Noise Spec |
| <u>Roger R. Bisby</u> | <u>1.4 02.04.02</u> | <u>Correct P-0 wording.</u> |

Cyclone Alignment Procedure

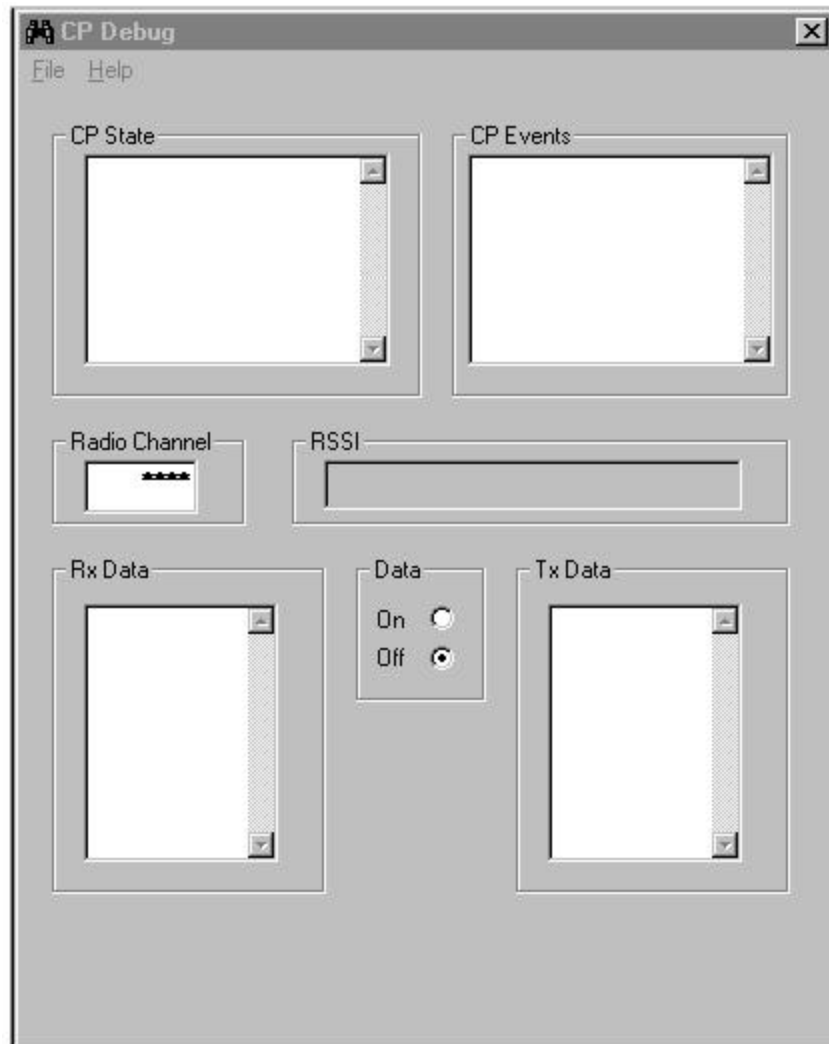
This document describes a **manual** test and alignment procedure using a PC based program called **iTalk Tools**.

1. Run iTalk Tools.exe

Select Debug/ Call Processing Screen

Power on UUT

Check that messages appear in screen. If the following screen is displayed then either the Serial Comms have failed or the Phone Software is not running in the UUT.



Debug Action

Check presence of 3V Digital and Audio (IC105). Check 4.8MHz clock is available from CLKOUT BB controller (IC106) to EXTAL MCU (IC101).

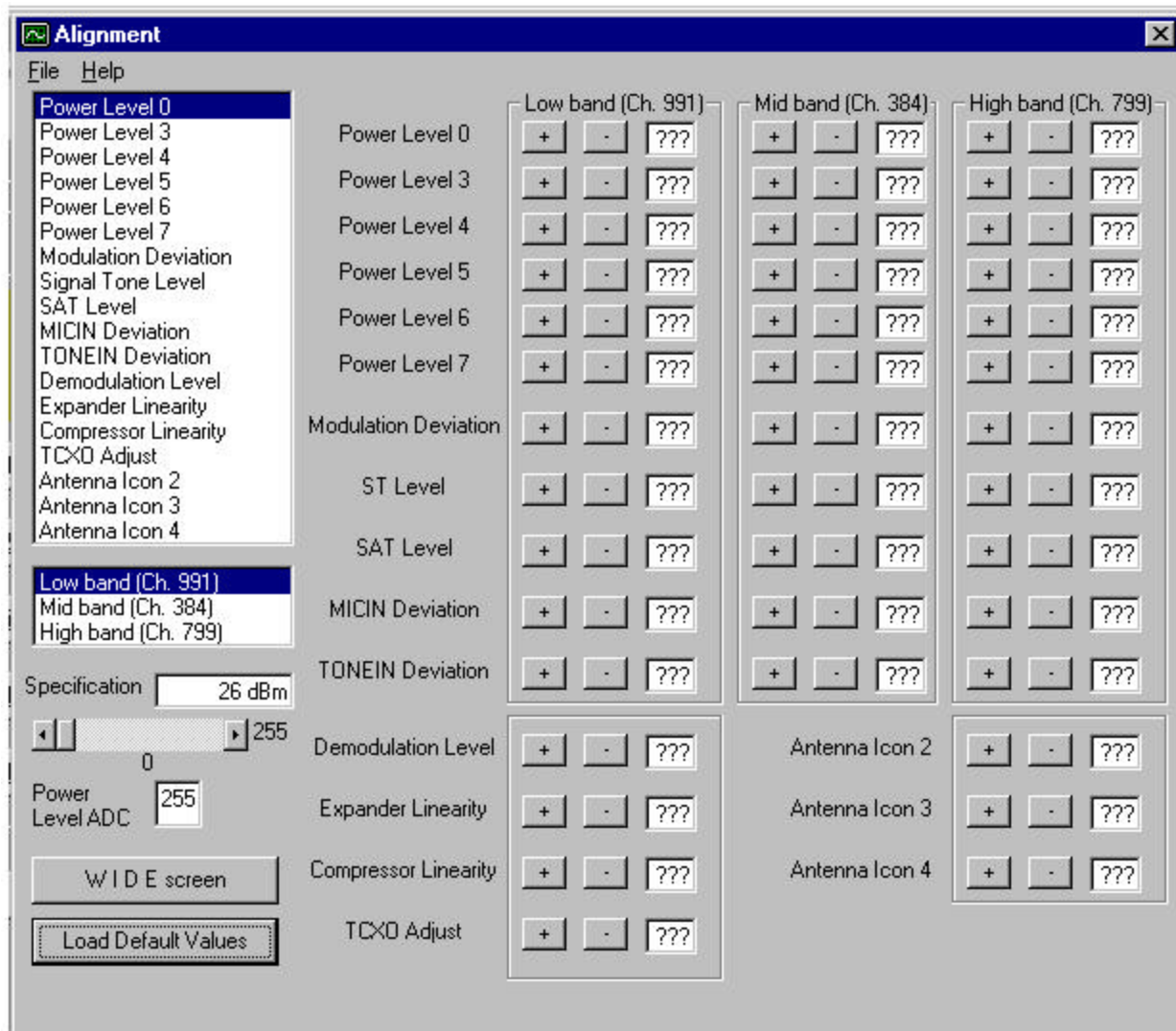
2. CHECK CURRENT DRAIN

Check **Current Drain** < 45 mA

3. TX POWER LEVELS

3.1 TX MAXIMUM POWER CHECK

Select Alignment Screen. If the following screen appears then iTalk Tools has failed to read the contents of the EEPROM which should be loaded with default calibration values.



The UUT should be transmitting at 824.04MHz. Click and drag the Slider adjustment button to maximum (255).

Check TX Output Power > **28** dBm

3.2 SETTING POWER LEVELS

Ensure “Power Level 0” is highlighted in the top left hand window.

Select “Low Band (Ch991)”, “Mid Band (Ch 384)” and “High Band (Ch799)” in turn and adjust the power level either by sliding the Adjustment button, clicking on the relevant “+” or “-” button or typing in a new value into the relevant box.

Set PL0 to **25.5dBm or less.**

Check Current Drain < **700 mA**

Repeat process for PL3,4,5,6 and 7

Set PL3 to **24dBm +/- 0.1dB**

Set PL4 to **20dBm +/- 0.2dB**

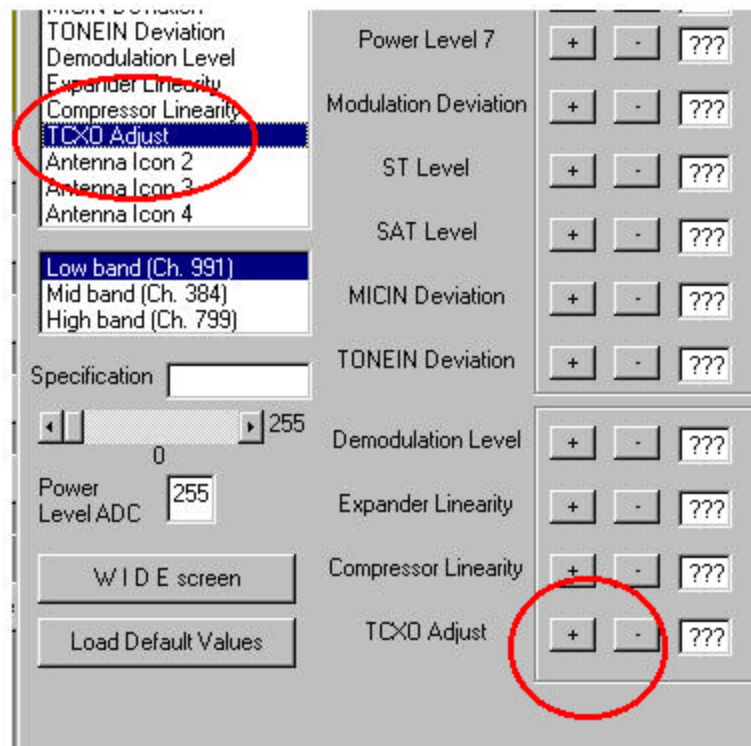
Set PL5 to **16dBm +/- 0.2dB**

Set PL6 to **12dBm +/- 0.5dB**

Set PL0 to **7dBm +/- 0.7dB**

4. VCTCXO

Click on “TCXO Adjust” in the test selection window. Adjust the transmitter frequency by clicking on the “+” or “-” next to “TCXO Adjust”.



Set the TX frequency to **within +/- 100Hz**

5. TX AUDIO ALIGNMENT

Note: “TONEIN DEVIATION” and “COMPRESSOR LINEARITY” should not be changed from the Default values.

5.1 SAT DEVIATION

Select “Mid Channel” and “SAT Level”

Set SAT DAC value to 0 and check SAT deviation. Adjust deviation by selecting “Modulation Deviation” and changing DAC value accordingly. Recheck SAT Deviation by selecting “SAT Level”

Set to **+/- 2kHz deviation +/- 0.1kHz**

Repeat on “Low Channel” and “High Channel”

5.2 SIGNAL TONE DEVIATION

Select “ST LEVEL” and adjust deviation on Low, Mid and High Channels. Set to **+/- 8kHz deviation +/- 0.2kHz**

5.3 MIC DEVIATION

Select “Mid Channel” and “MICIN Deviation”

Apply a 1kHz Tone to “ATE_AUDIO_IN”. Set level to 80mV rms

Adjust “MICIN Deviation” DAC to achieve **+/- 2.9kHz deviation +/- 0.2kHz**

Repeat on “Low Channel” and “High Channel”

6. RECEIVER

Note: “DEMODULATION LEVEL and “EXPANDOR LINEARITY” should not be changed from the Default values.

Select “DEMODULATION LEVEL”

Select “MID CHANNEL”. Apply an RF input at **881.52MHz, level - 116dBm, 1kHz modulation +/-8kHz deviation.**

Measure SINAD using CCITT filter at ATE_AUDIO_OUT. Check > **12dB**

Repeat on Low and High Channels at 869.04MHz and 893.97MHz respectively.

Alignment complete.