Nokia Customer Care
6265/6265i/6268 (RM-66)
Mobile Terminals

Baseband Description and Troubleshooting

Contents

Page

This page intentionally left blank.

Introduction

The 6265/6265i/6268 baseband module is a tri-mode, Code Division Multiple Access (CDMA), dual-band engine and is based on the DCT4.5 standard. The baseband engine includes three major Application Specific Integrated Circuits (ASICs):

- D2200 — Universal Energy Management Enhanced Integrated Circuit (UEMEK IC), which includes the audio circuits, charge control, and voltage regulators
- D2800 — Main mobile terminal processor, which includes system logic for CDMA, two Digital Signal Processors (DSPs), the Main Control Unit (MCU), and the memory
- D3000 - Mobile terminal internal memory combo flash (NOR/NAND/SDRAM)

The BL-6C Li-ion battery is used as the main power source.

Power Up Sequence

When the mobile terminal is dead or jammed always check the Power Up Sequence of the baseband area. Verify all regulator and reset signals are correct to ensure proper power up of the UEMEK and D2800 (see Figure 1)

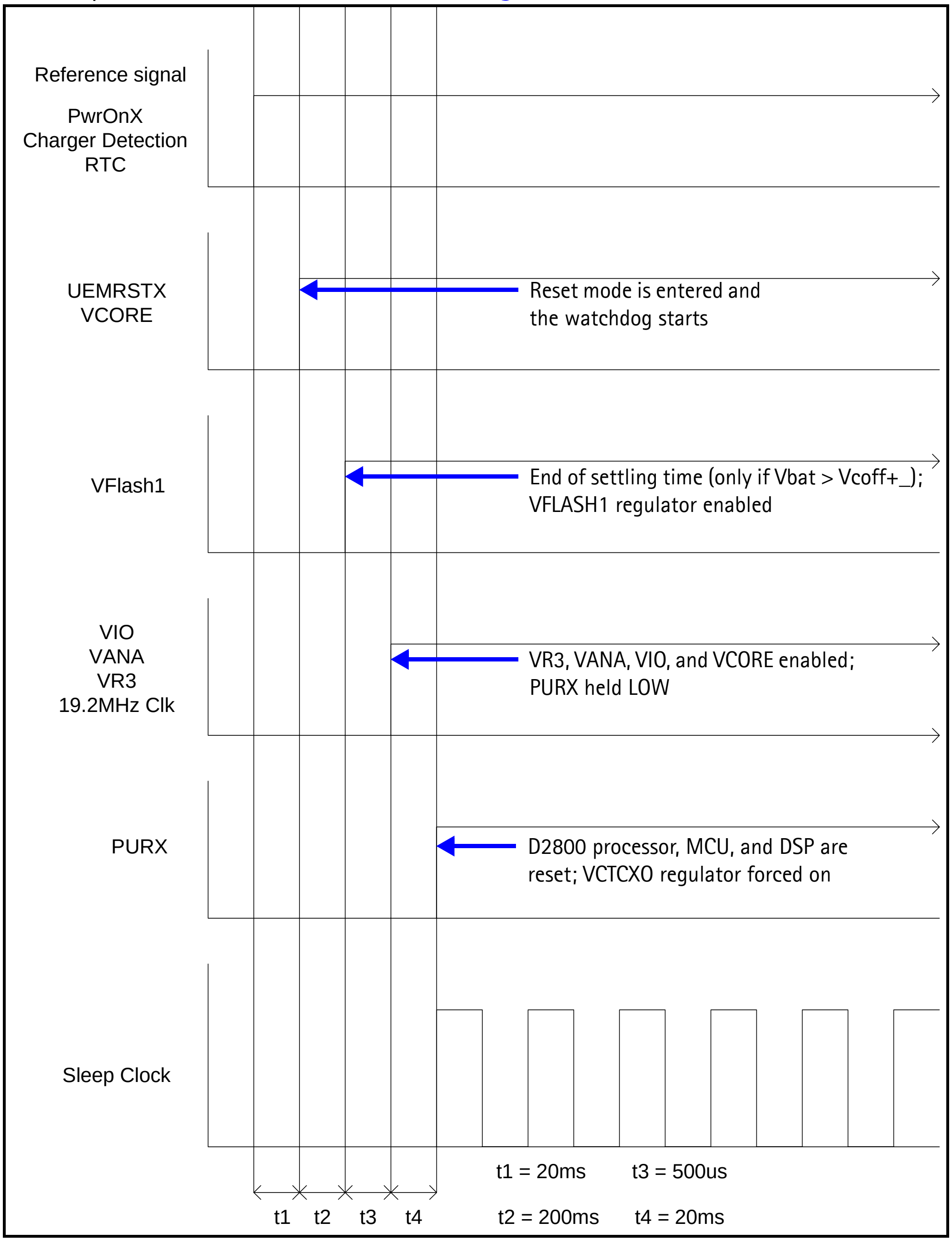

Figure 1: Power-on sequence and timing

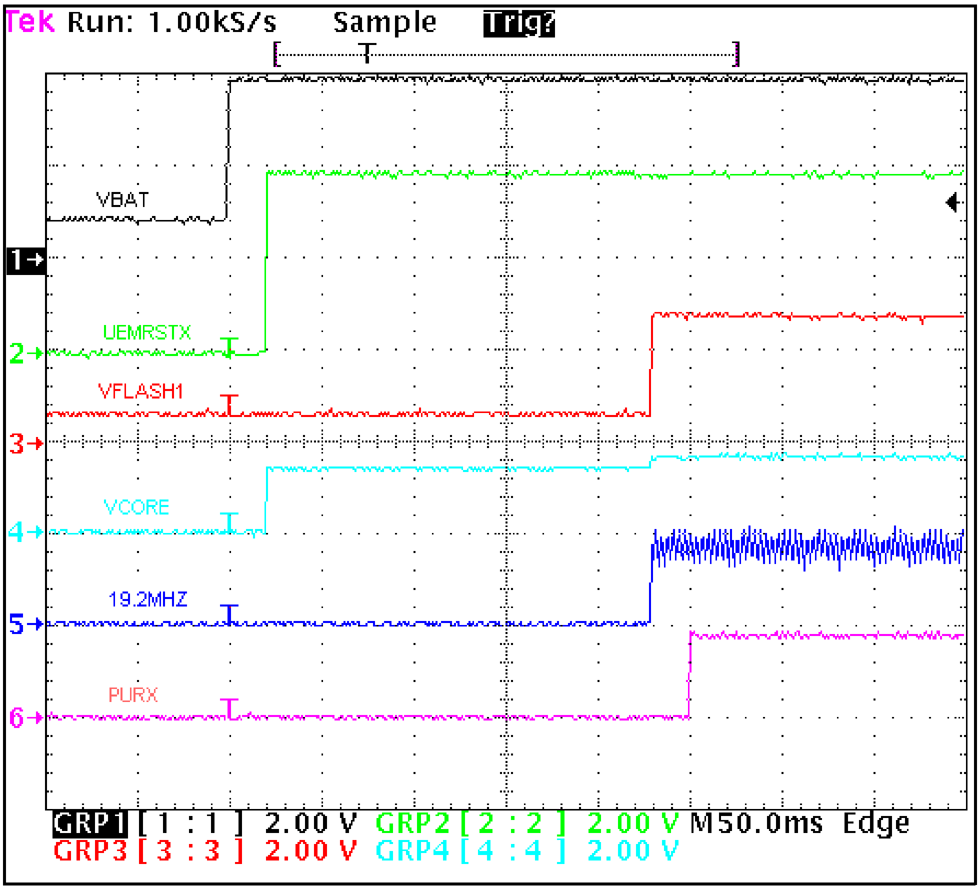

Figure 2: Measured power-on sequence and timing

Baseband/RF Regulators

Baseband Regulators

The baseband circuitry for the 6265/6265i/6268 is powered from five different UEMEK regulators: VANA, VIO, VFLASH1, VAUX, and VCORE DC/DC. See Figure 3 for regulator levels.

Table 1: Baseband regulators

Regulator	Maximum current (mA)	Vout (V)	Notes
VCORE DC/DC	300	1.35	Output voltage selectable 1.03V - 1.57V 2 modes: Normal 1.35V, Sleep 1.03V
VIO	150	1.8	Enabled always, except during power-off mode
VFLASH 1	70	2.78	Enabled always, except during power-off mode
VAUX 2	70	2.78	Enabled when smart accessories are connected
VANA	80	2.78	Enabled only when the system is awake (Off during sleep and power-off modes)
VSIM	25	3.0	Enabled when UIM card is detected

Baseband/RF Regulators

The following are voltage regulators from the UEMEK to the RF circuit.A charge pump used by VR1A is constructed around UEMEK. The charge pump provides a 4.75V regulated output to the RF block. See Figure 3 for regulator levels.

Table 2: Baseband/RF regulators

Regulator	Maximum current (mA)	Vout (V)	Notes
VR1A	10	4.75	Enabled when receiver is on
VR1B	10	4.75	Enabled when transmitter is on
VR2	100	2.78	Enabled when transmitter is on
VR3	20	2.78	Enabled when SleepX is high
VR4	50	2.78	Enabled when receiver is on
VR5	50	2.78	Enabled when receiver is on
VR6	50	2.78	Enabled when transmitter is on
VR7	45	2.78	Enabled when receiver is on
VREF RF1	---	1.35	Provides voltage reference prior to EM calibration

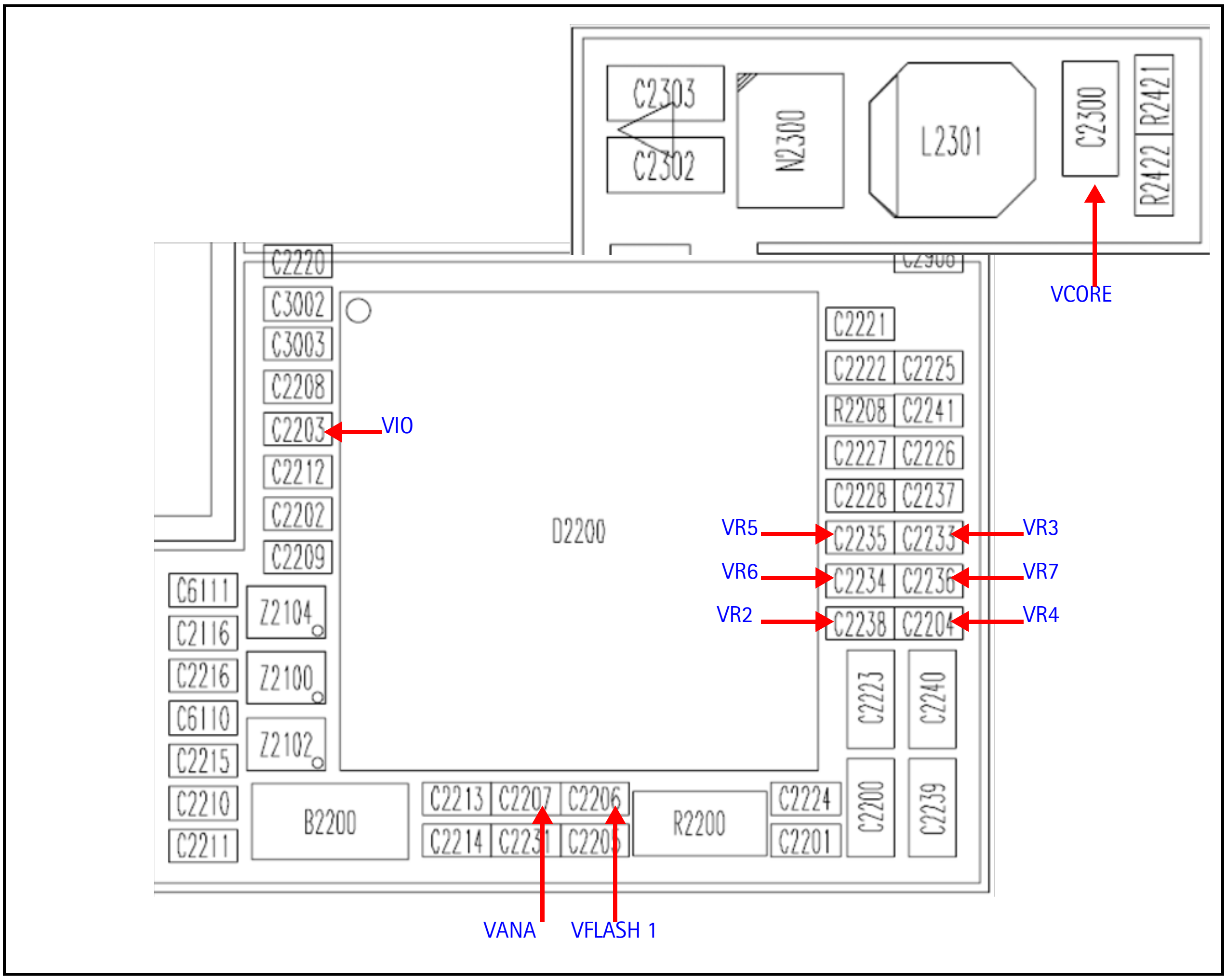

Figure 3: Voltage regulators-D2200

Flash Programming

Flashing Tool

Flash programming is done through the VPP, FBUSTX, FBUSRX, MBUS, and BSI signals

BSI = Used to indicate to MCU that the prommer is connected and mobile terminal is in flashing mode

MBUS = Used as clock signal for synchronizing the serial communication between the prommer and MCU

FBUSRX = Data to D2800

FBUSTX = Data to prommer

VPP = 0v/ 1.8v/ 12v (read only/normal op. or slow programming/fast programming)

Figure 4 shows the DA-57 docking station adapter and Module Jig MJ-73.

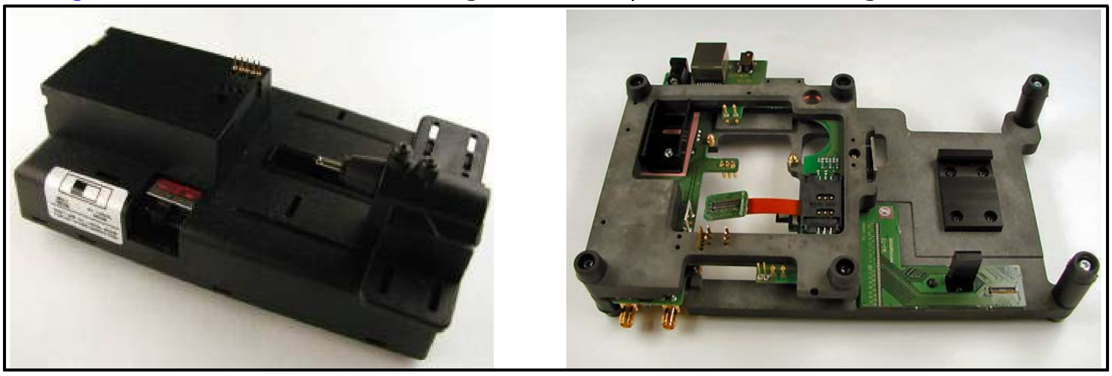

Figure 4: DA-57 docking station adapter and MJ-73 module jig

Flashing Troubleshooting

When troubleshooting flashing problems, first make sure the signals from the FPS-8 to the D2800 processor are functioning properly before replacing any component. Once signals between production test points and the D2200 and the D2800 processor have been checked, verify that the interface between D2800 processor and flash is correct. While all the signals between D2800 processor and flash are not visible, the available signals will help identify the components that may need to be replaced.

.

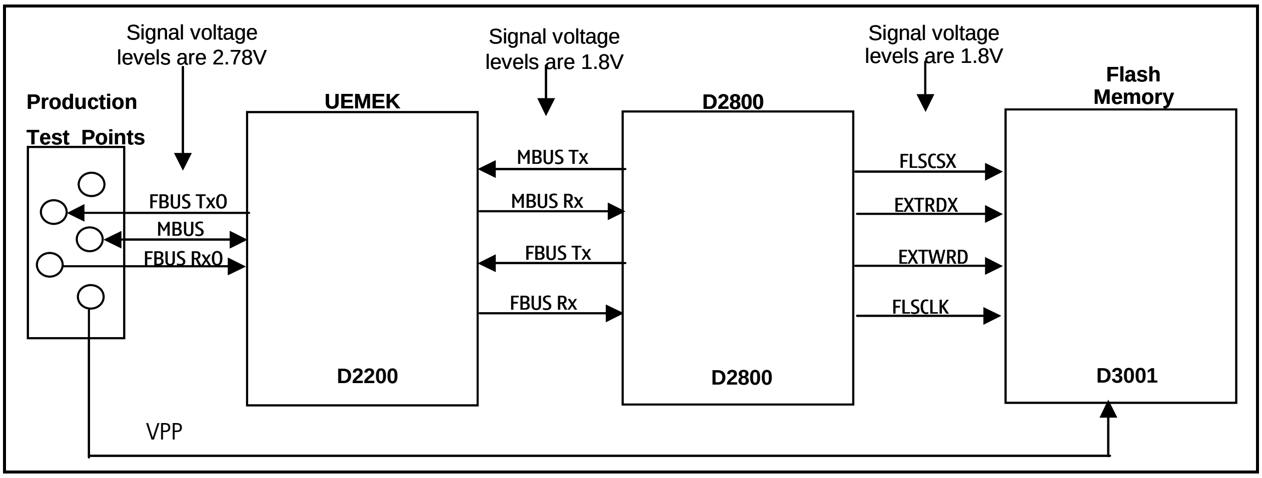

Figure 5: Flashing diagram

When troubleshooting the flashing to diagnose and determine faulty components, check the signals in the following sequence:

- Make sure the signals from the tester are making contact with the production flash pads.
- Use Phoenix to either program or erase a mobile terminal that is not working. This allows you to monitor the signals form the FPS-8 to the D2800 processor.
- When flashing or erasing the mobile terminal, monitor the MBUSRX and FBUSRX signals from the UEMEK to the D2800 processor for a signal at these points. If either signal does not appear, check the signal at the production test points. If the signal is ok, check the UEMEK. Re-flow or replace the UEMEK.
- Next make sure that the D2800 processor sends information back to the FPS-8 through the FBUSTX signal. If there is no activity at this point re-flow or replace the processor.
- If all points are ok, make sure the FBUSTX signal goes through the UEMEK by measuring the signal at the FBUSTXO at production test points. If there is no signal present, reflow or replace the UEMEK.
- If all signals form the production test points to the UEMEK to the D2800 processor are functioning, it is safe to assume that the UEMEK and D2800 processor are ok.

Continue troubleshooting the D2800 processor as it interfaces with the flash. Verify the available signal interface between the processor and flash as follows:

- Erase or program the mobile terminal to monitor the D2800 processor and flash interface as verified earlier using Phoenix External.
- When programming or erasing the mobile terminal, monitor the FLSCSX, FLSCLK, EXTRDX, and EXTWRX flash signals. If any of these signals has no activity, re-flow or replace the D2800 processor.
- If all signals are ok, re-flow or replace the flash.

If additional troubleshooting is still required to determine why the mobile terminal cannot be flashed, verify all the baseband voltages. In particular, check the VIO (1.8V at R3002) since it is one of the regulators that powers the flash chip.

Flashing Phoenix Interface

Run EZ Flash in Phoenix to flash the mobile terminal.

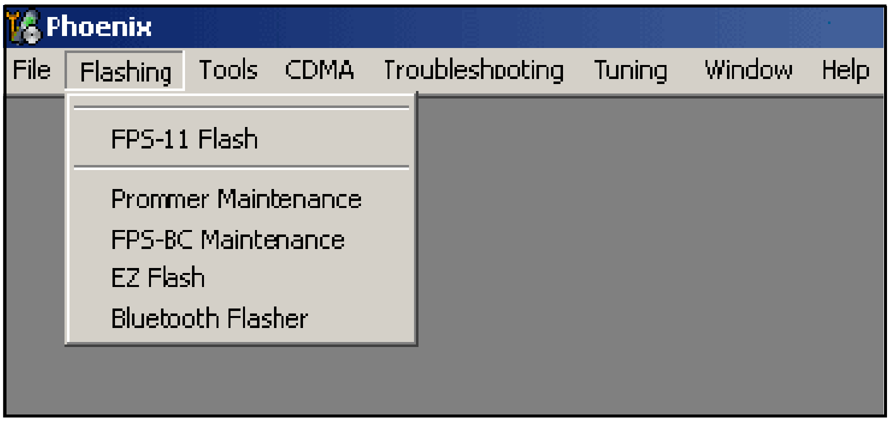

Figure 6: EZ Flash in Phoenix

.

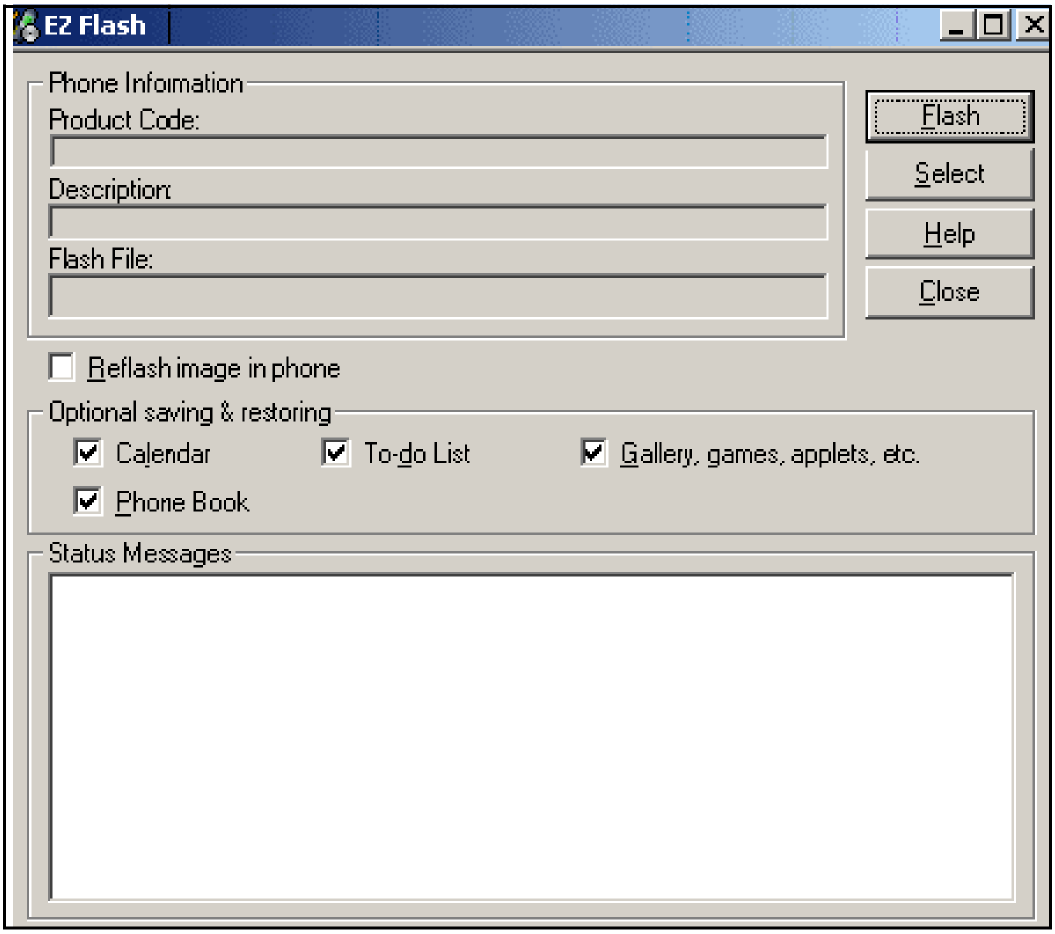

Figure 7: EZ Flash in Phoenix

Audio

How the Audio Works

The baseband supports three microphone inputs and two earpiece outputs. The microphone inputs are MIC1, MIC2, and MIC3:

- MIC1 input is used for the mobile terminal's internal microphone
- MIC2 input is used for headsets (Pop-port™)
- MIC3 input is used for the Universal Headset

Every microphone input can have either a differential or single-ended AC connection to the UEMEK circuit. In the Nokia 6265/6265i/6268, the internal microphone (MIC1) and external microphone (MIC2) for Pop-port™ accessory detection are both differential. However, the Universal Headset interface is single-ended. The microphone signals from different sources are connected to separate inputs at the UEMEK. Inputs for the microphone signals are differential types. Also, MICB1 is used for MIC1 and Vflash1 is used for MIC2 and MIC3 (Universal Headset).

Figure 8: Audio components

Audio Troubleshooting

When troubleshooting the audio, make these common checks (see Figure 8):

- Perform a visual inspection of all the ASIPs and the UEMEK.
- Inject a 1KHz signal into MiC1 and trace it to the earpiece. Only when using IHF signal will be amplified by a factor of 8x.

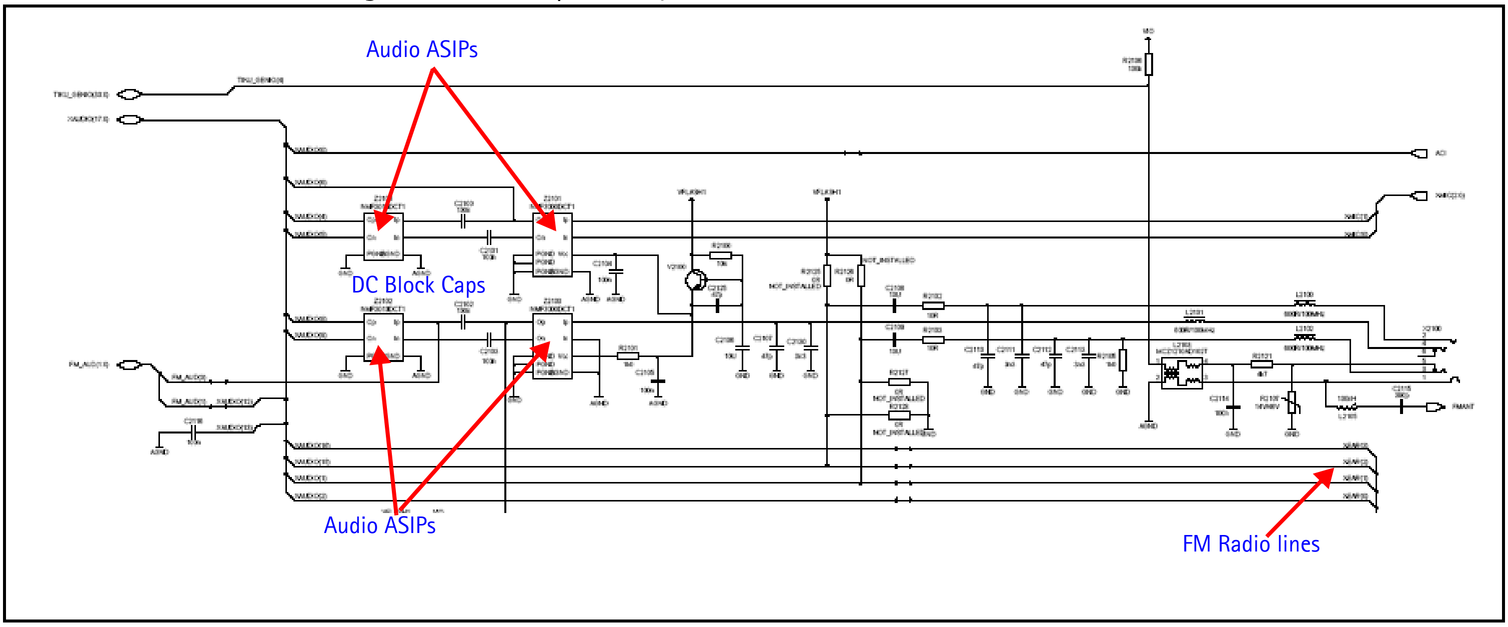

Figure 9: UEMEK Side of Audio diagram

- Make sure the audio amplifier and solder are ok.
- Make sure the IHF speaker contacts are ok.
- Make sure output is amplified by 8x. If not, check that the gain resistors network is correct.

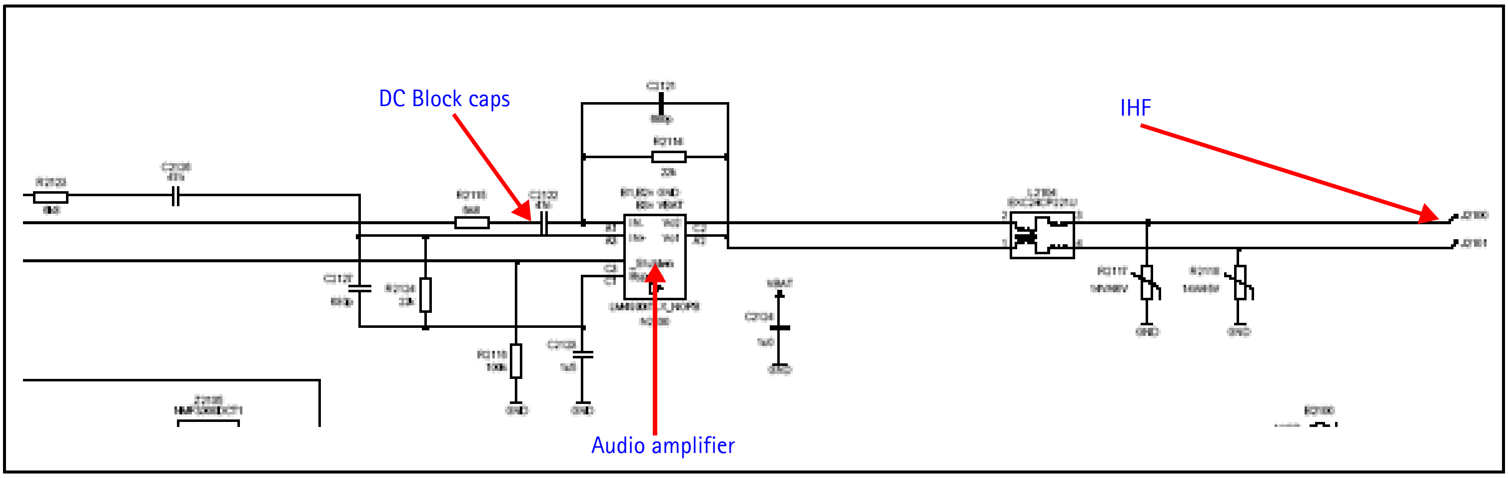

Figure 10: Figure 9: IHF troubleshooting

Audio Phoenix Interface

Run Audio Test in Phoenix to check the audio functionality.

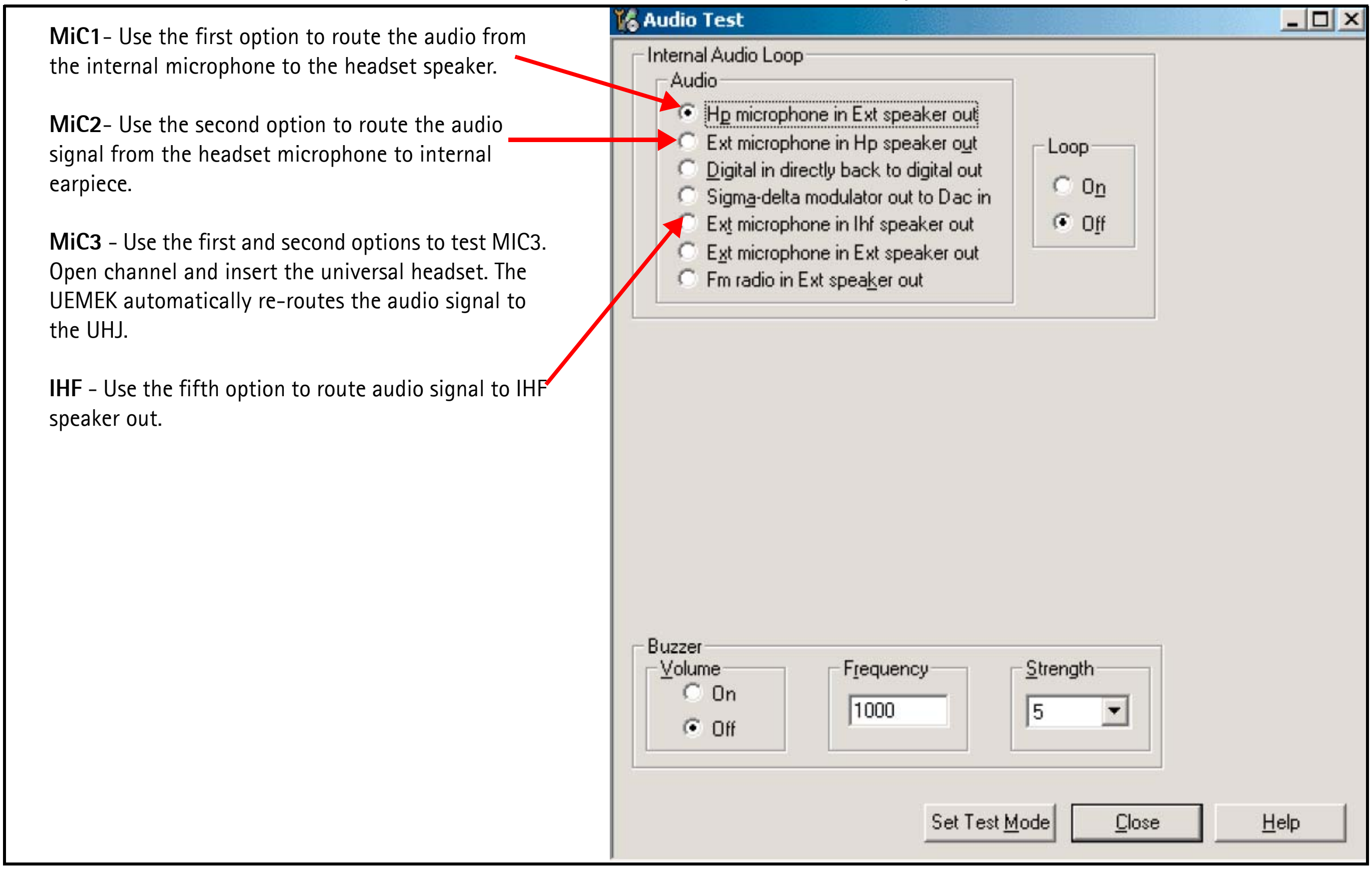

Figure 11: Audio test in Phoenix

Camera

How the Camera works

When you select the view finder to take a picture, the D2800 activates the camera by turning on GENIO(27) PDN and GENIO(24) 9.6MHz. Once the camera is initialized, D2800 sends control commands through the I2C (GENIO (25&26) interface. The camera takes a picture and sends raw data back to a hardware accelerator (HWA) device. The HWA delivers the processed image data to D2800. The D2800 takes the processed image data from the HWA, and the image is stored in the flash memory or mini SD, per user selection.

Figure 12: Camera flash

Camera Troubleshooting

When troubleshooting the camera, make these common checks (see Figure 13):

- Check power supply Enable from Tiku_GPIO (47)
- Check power supply V2.8, VDIG and V1.2
- Check that Enable GenIO(27) is high
- Check the Camera Clk GenIO(24)(9.6 MHz)
- Check the Control line I2C on GenIO 25 and 26
- Check CCP data/clk lines from the sensor to HWA, then to D2800
- Inspect the camera socket and replace camera
- Check D2800 for solder problems and replace it if necessary

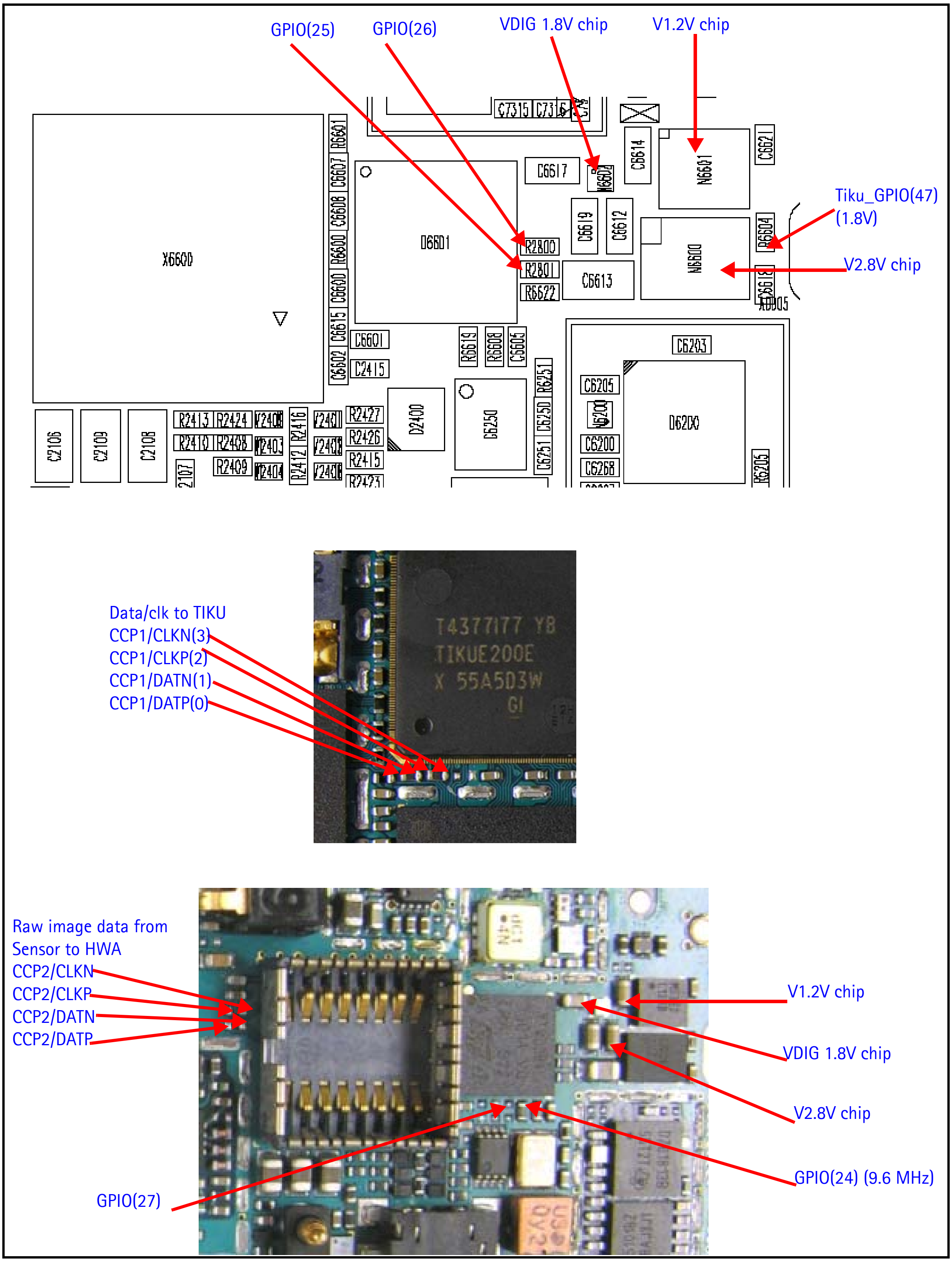

Figure 13: Camera components and test points

Camera Phoenix Interface

Run the Camera Control test in Phoenix to check the camera functionality.

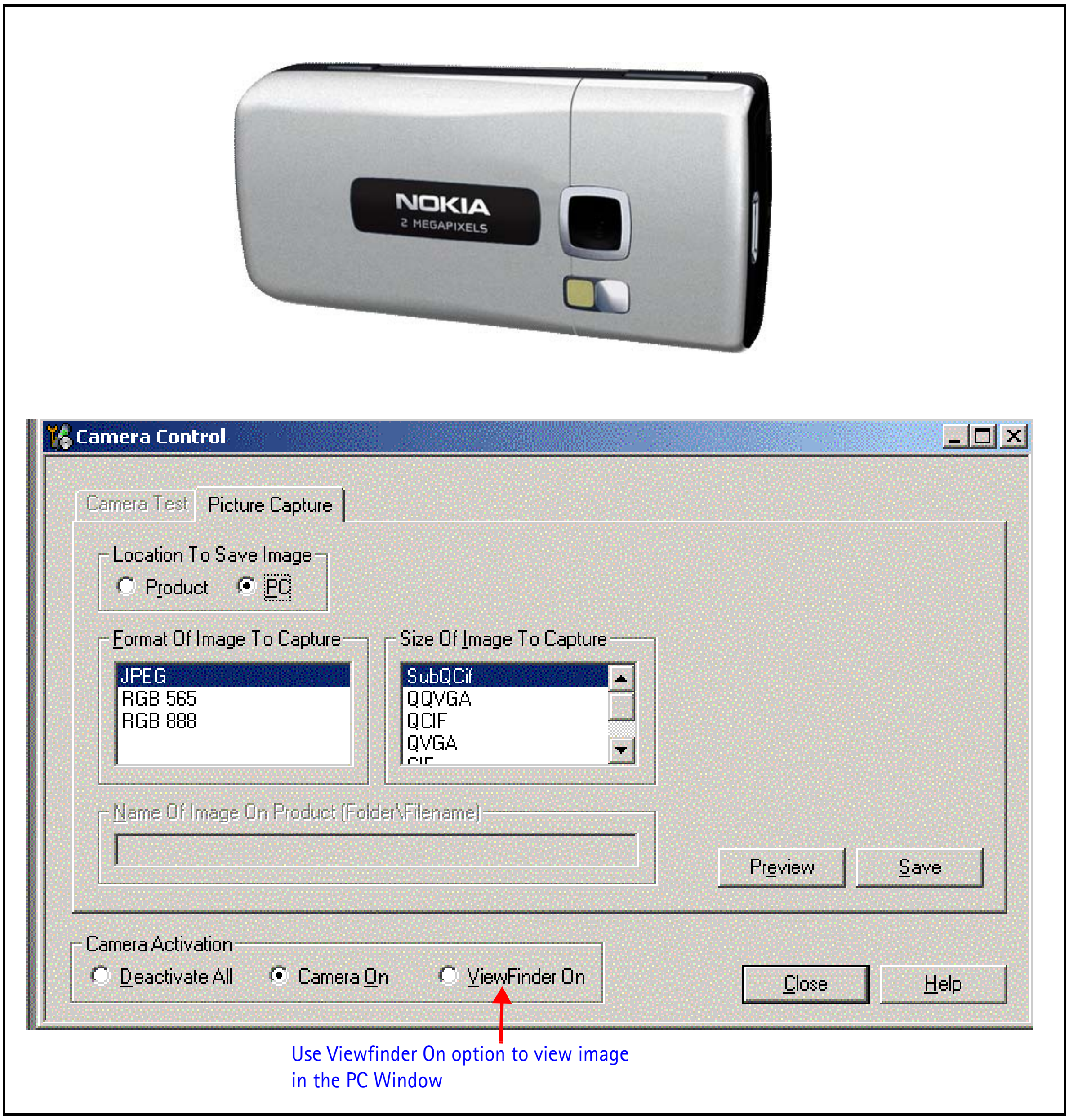

Figure 14: Camera control in Phoenix

FM Radio

How the FM Radio Works

The D2800 turns on the FM radio and sets the frequency using the CBUS serial interface as the communication channel. A high frequency FM radio signal comes in through RFIN1 Pin to the FM radio chip and gets demodulated into a low frequency signal and is sent to the UEMEK for amplification. The amplified signal then gets routed back either to the universal headset or to the system connector for the stereo headset.

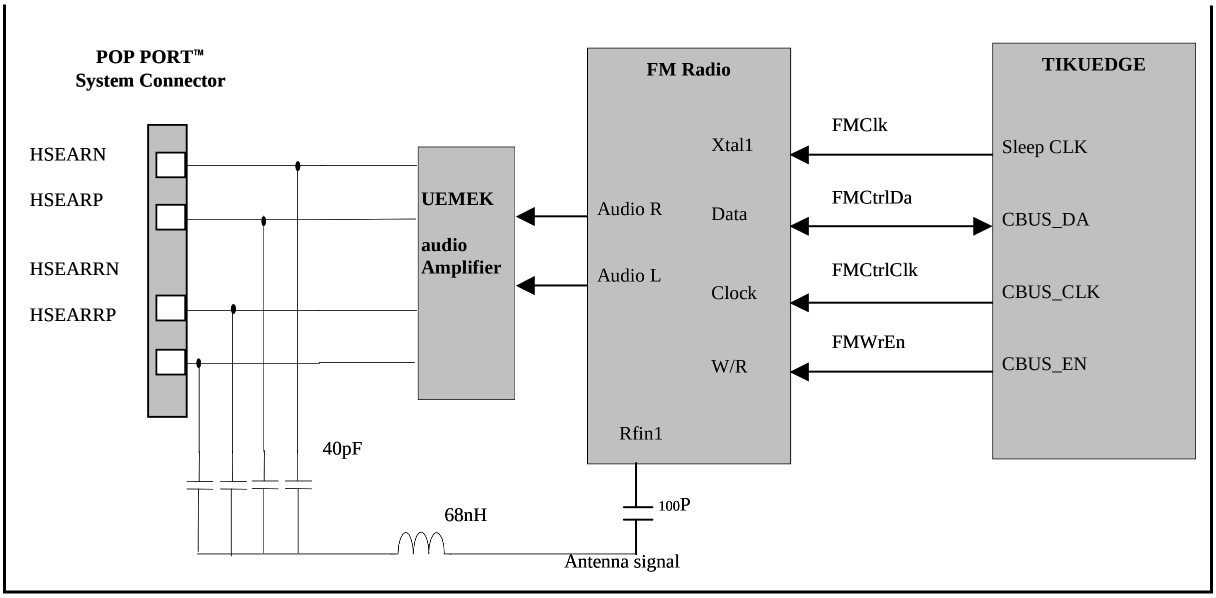

Figure 15: FM Radio (N356), Audio (N150), antenna, and digital interface connections

FM Radio Test

To hear the FM radio, first connect the headset to the Pop-port™ or UHJ ports because the headset is used as an FM radio antenna. Connect the headset to UHJ port to control the FM radio using Phoenix. If you connect a headset (such as HDS-3) to a Pop-port™ connector, then you cannot control the mobile terminal because the connection port (Pop-port™) is already occupied. In this case you have to have jumper wires on the production test points (Fbus Tx/RX,GND).

FM Radio Troubleshooting

When troubleshooting the FM radio, make these common checks (see Figure 16):

- Check Power Supply VIO and VANA
- Check SleepCLK
- Check FMANT

- Check for activity on CBUS
- Check the output of the FM radio on VAFR and VAFL. It should be an audio signal with a 800mv DC-offset.
- If the audio signal is not correct (with 800mv DC-offset), then check the FM radio chip for shorts, voids, and misalignments
- If the audio signal is correct (with 800mv DC-offset), then check the UEMEK for shorts, voids, and misalignments
- If the UEMEK and FM Radio Chip is correct, check the system connector

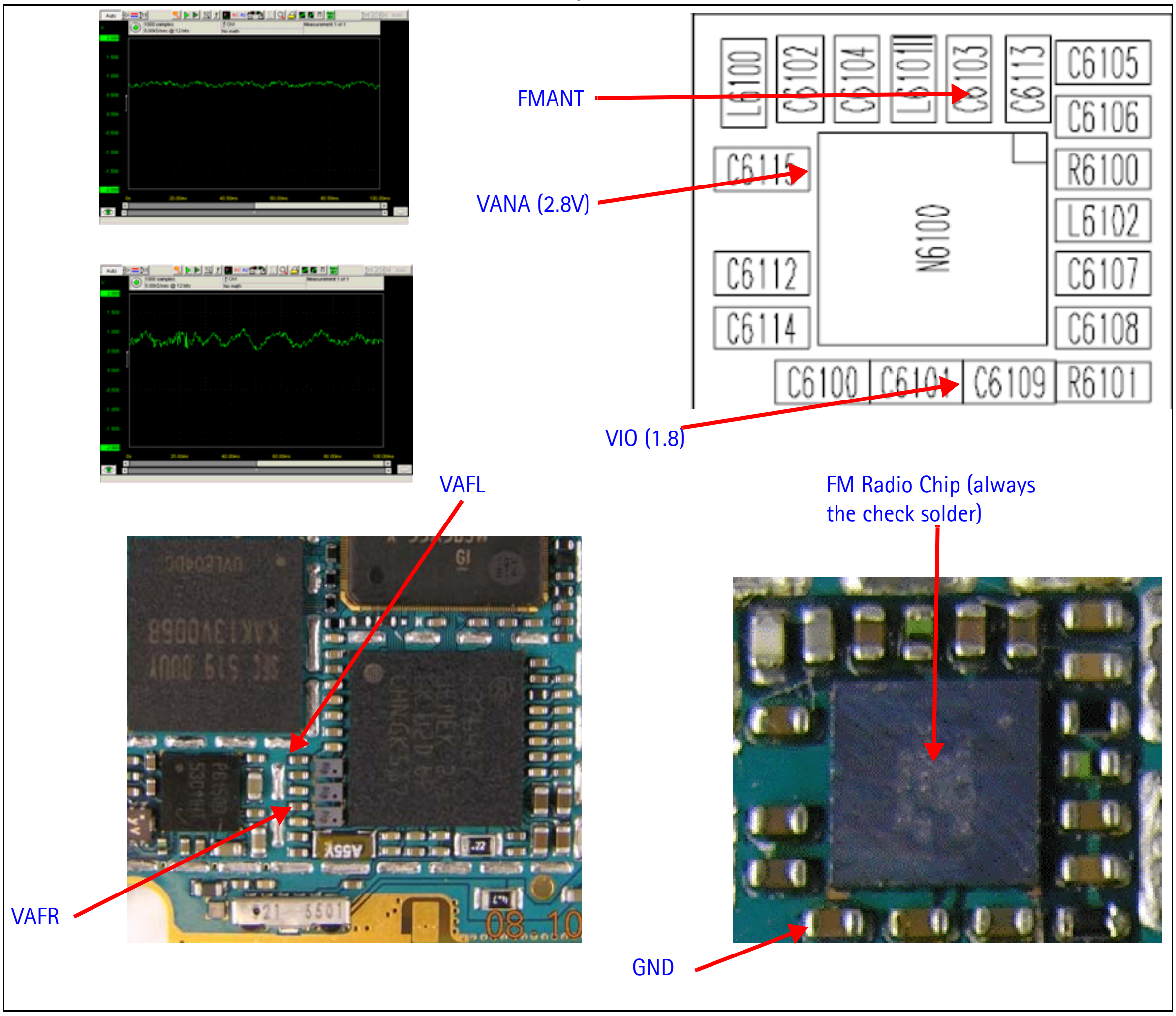

Figure 16: FM Radio chip and antenna

FM Radio Phoenix Interface

Checks for the FM radio that can be performed with Phoenix include:

- Verify that the FM radio is working by connecting headset to UHJ
- Turn on the FM radio using Phoenix
- Set frequency and volume

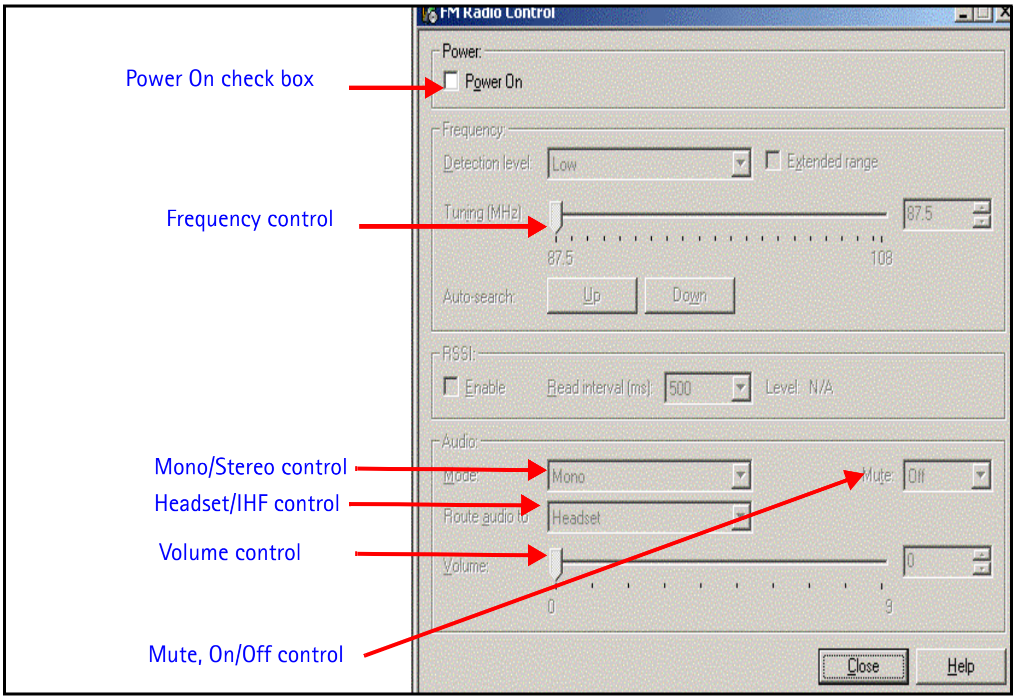

Figure 17: Phoenix FM Radio control panel

USB (Universal Serial Bus)

How the USB Interface Works

The Wireless 2 Function Controller (W2FC) core completes several USB functions automatically and is controlled by the ARM9 MCU. The Nokia USB Transceiver (NUT) provides the interface between the ASIC's 1.8 V bus and the 3.3 V USB bus. In addition, NUT is capable of transmitting and receiving Fbus signals to and from the Fbus UART in D2800. NUT is able to transmit and receive serial data at full-speed (12 Mbit/s). The USB signal ESD protection and line matching resistance, and USB pull-up resistor is included to the USB ASIP. This component also includes ESD protection for VOUT and ACI system connector pins.

When the mobile terminal is connected to a computer using a DKU-2 data cable, the computer will provide Vbus (5V) to and pull down D+ a,d D – lines. The mobile terminal will respond by pulling the D+ line high. The computer acknowledges and starts transferring data at 12Mbits/sec.

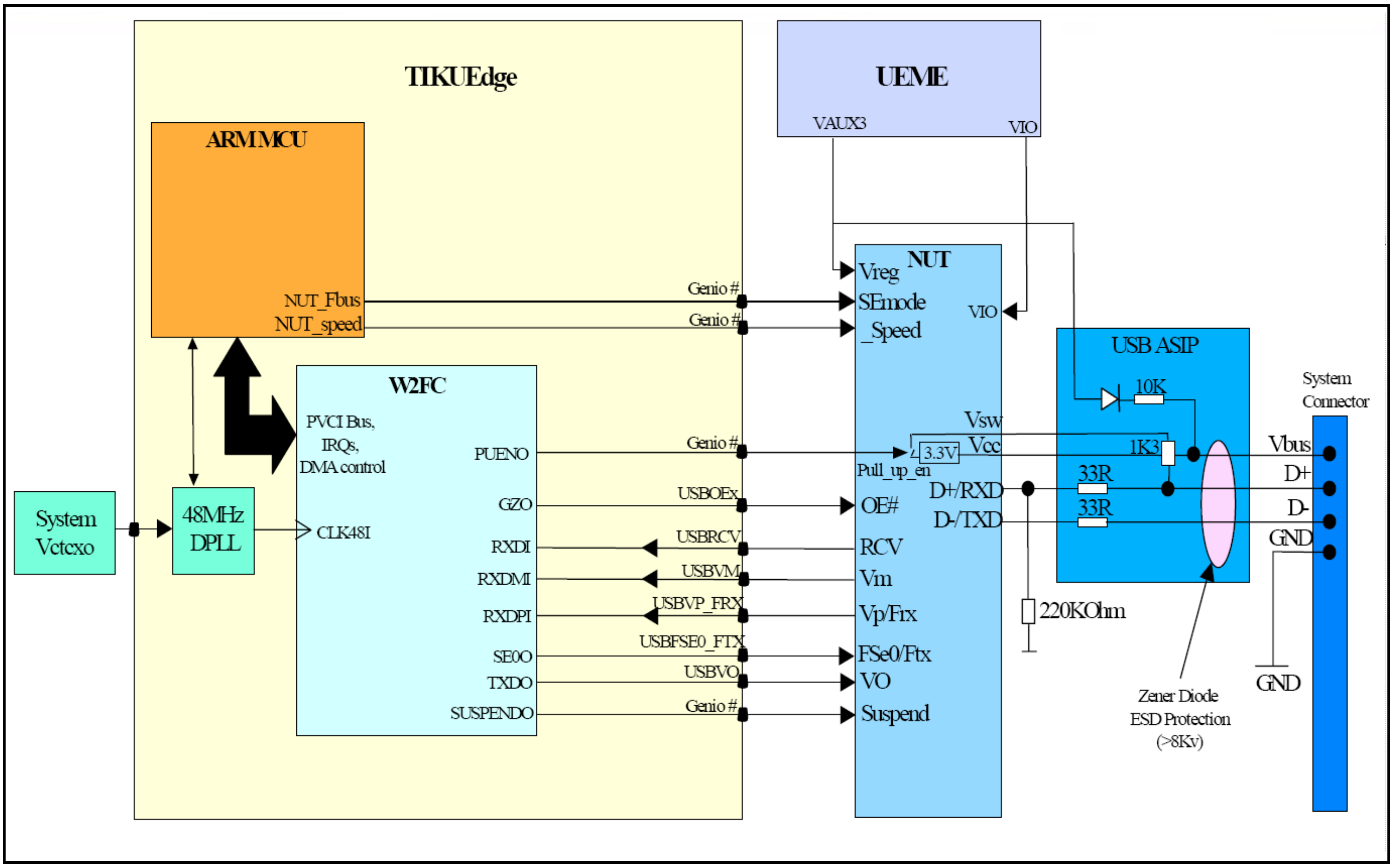

Figure 18: USB interface block diagram

USB Troubleshooting

Connect the mobile terminal to the computer using a DKU-2 data cable. Check under Device Manager menu if the computer recognizes the mobile terminal as a USB device. If the mobile terminal is recognized, there is no hardware fault. Stop troubleshooting.

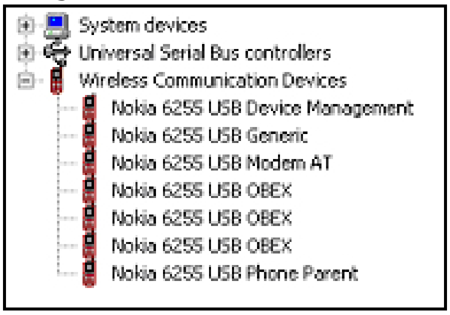

Figure 19: PC Device Manager

When troubleshooting the USB, make these common checks (see Figure 20, Figure 21):

- Perform a visual inspection on Pop-port™ connector, ESD Protection, NUT Chip, and caps and Inductors
- Check Vout, Vflash1, and ACI Line. If not correct, check UEMEK under X-ray or change the part.
- Check for activity on the USB D+ and USB D – lines. If there is no activity, check D2800 under X-ray or change the part.

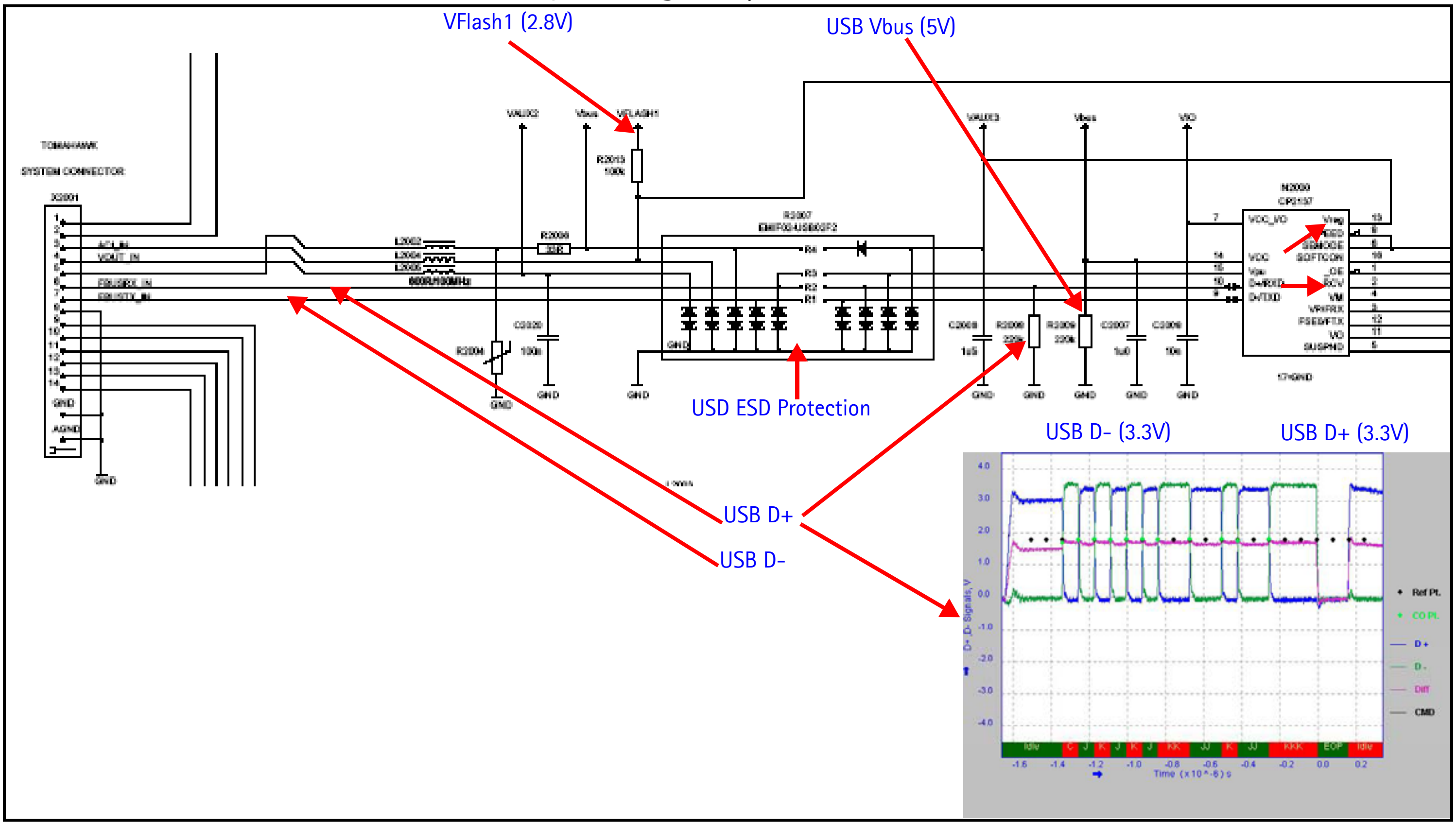

Figure 20: USB chip and diagram

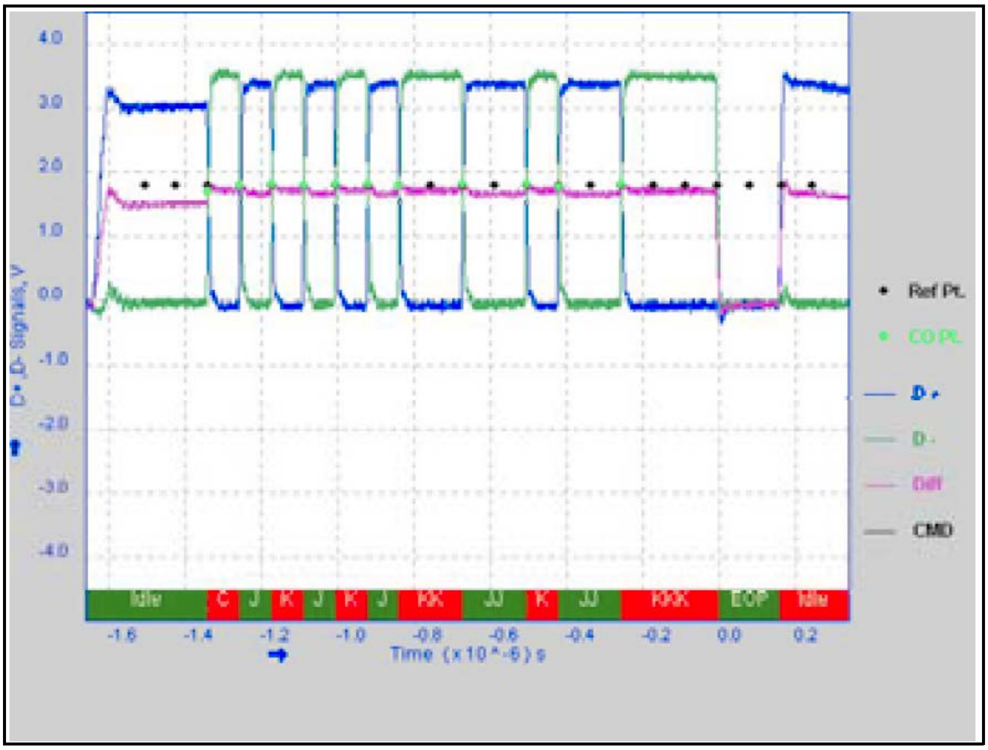

Figure 21: USB Vout

Infrared

How Infrared Works

The D2800 processor enables the infrared (IR) module by switching high GPIO (61). The UEMEK provides two power supply sources to the infrared module: VIO for digital Logic and Vflash1 for infrared. The Vbat powers up the IR LED. This interface receives data from and transmits data to peripheral equipment through the IrRX and IrTX line and transforms serial data to parallel data for the MCU or DSP and vice versa.

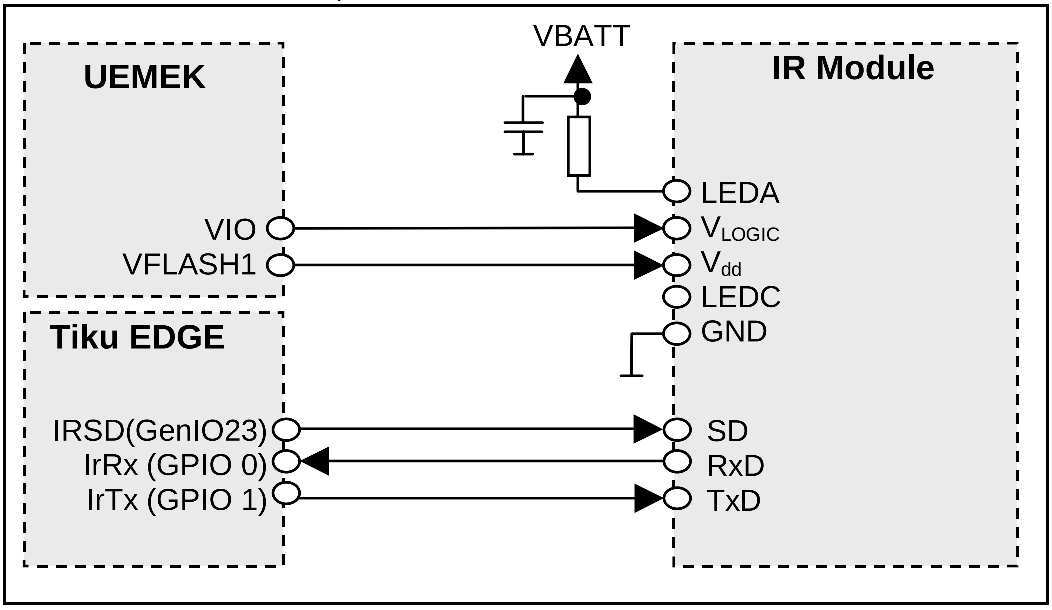

Figure 22: Infrared block diagram

Infrared Troubleshooting

When troubleshooting infrared, make these common checks (see Figure 23):

- Perform a visual inspection of the infrared module and caps
- Check for power supplies Vflash1 and Vbat
- If Vflash1 is not 2.78V check the UEMEK
- Check that GPIO(61) is enabled high
- Check for activity on IRTX and IRRX line, when transmitting or receiving
- If GPIO(61) or IRTx and IRRx are not working, check the D2800

.

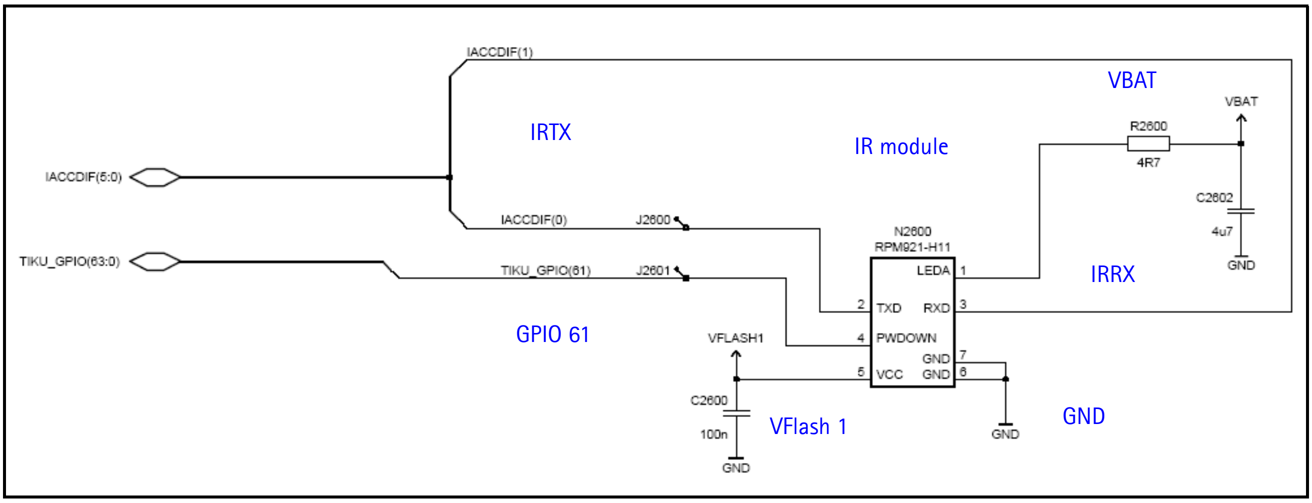

Figure 23: Infrared circuit

Infrared Phoenix Interface

Run the IR Test in Phoenix to test the infrared.

Figure 24: Phoenix IR test options

Display

How the Display Works

Nokia 6265/6265i/6268 has a large 262k color 2.2 inch QVGA display (320 x 240), controlled by the D2800 engine through a parallel interface. The display is protected against ESD through a ESD ASIP next to the flex connector. The display backlight uses 4 LED in series power by external LED driver.

Figure 25: Nokia 6265/6265i/6268 display

Display Troubleshooting

When troubleshooting the display, make these common checks (see Figure 26):

- Check that the display is connected properly and is making good contact with LCD connector. If there is no display, but the backlight is on, check ESD ASIP for shorts and cracks.
- Check the power supply VIO, VFlash1 and VLCD. If not correct, check the UEMEK or VLCD regulator.
- If there is no backlight and no display, check the board-to-board connector
- Check the activity on the LCD test points. If no activity, check or replace D2800.
- Check that the DIF CLk is 9.6MHz

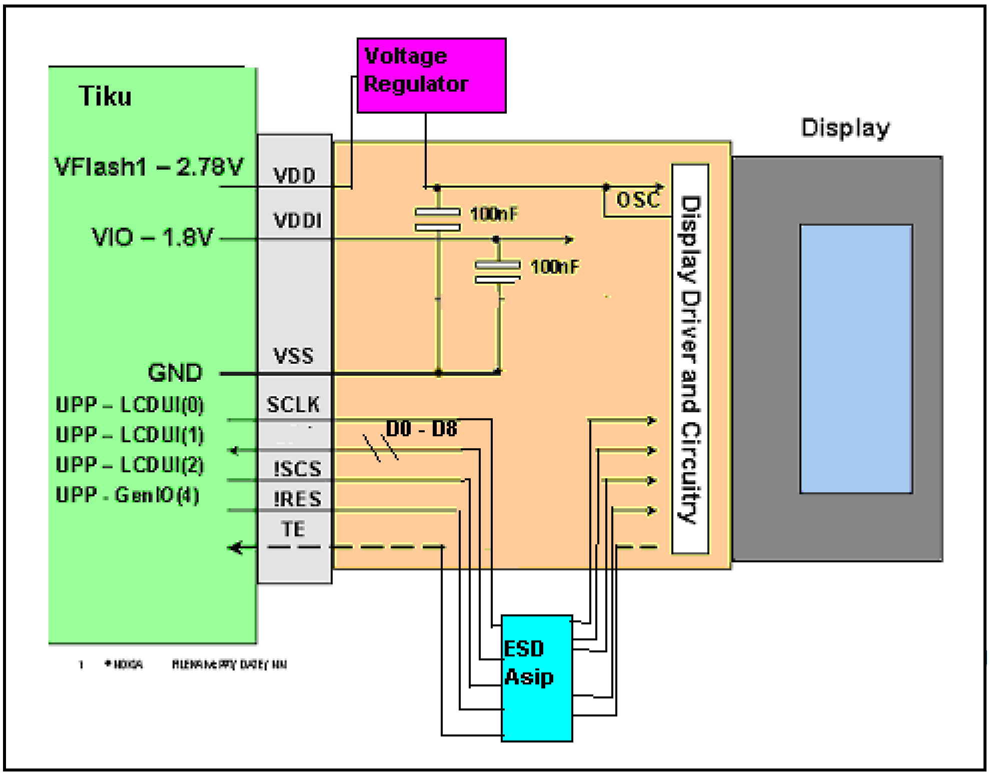

Figure 26: Display driver and circuitry

Display Backlight Troubleshooting

When troubleshooting the display backlight, make these common checks (see Figure 27):

- Perform a visual inspection of LCD connector and LED Driver circuitry
- If the display backlight does not turn on, check VLED +(~17V) for the main display.
- If there, then the driver is working properly and the LED inside the display might be faulty. Change the display.
- Check VLED + and VLED – on display driver circuitry
- Check Dlight enable line is high (~VBAT) for main LCD. If not correct, check UEMEK.
- Check Vbat(~4V) and Vin(~4V) are present on driver inputs. If not, check power supply connection.

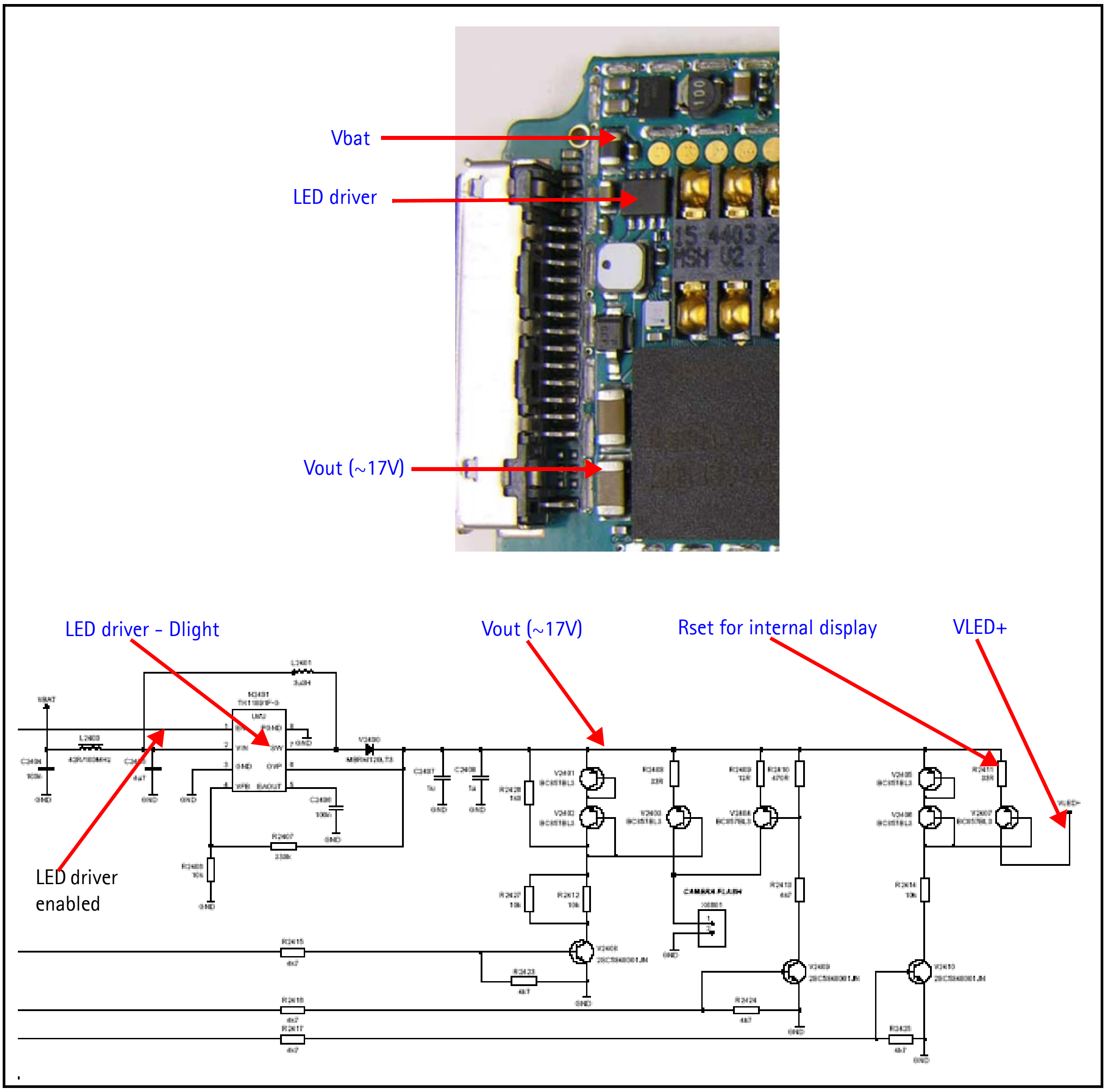

Figure 27: Display backlight chip and diagram

Display Phoenix Interface

Run the Display Test and Display Tune in Phoenix to check the display.

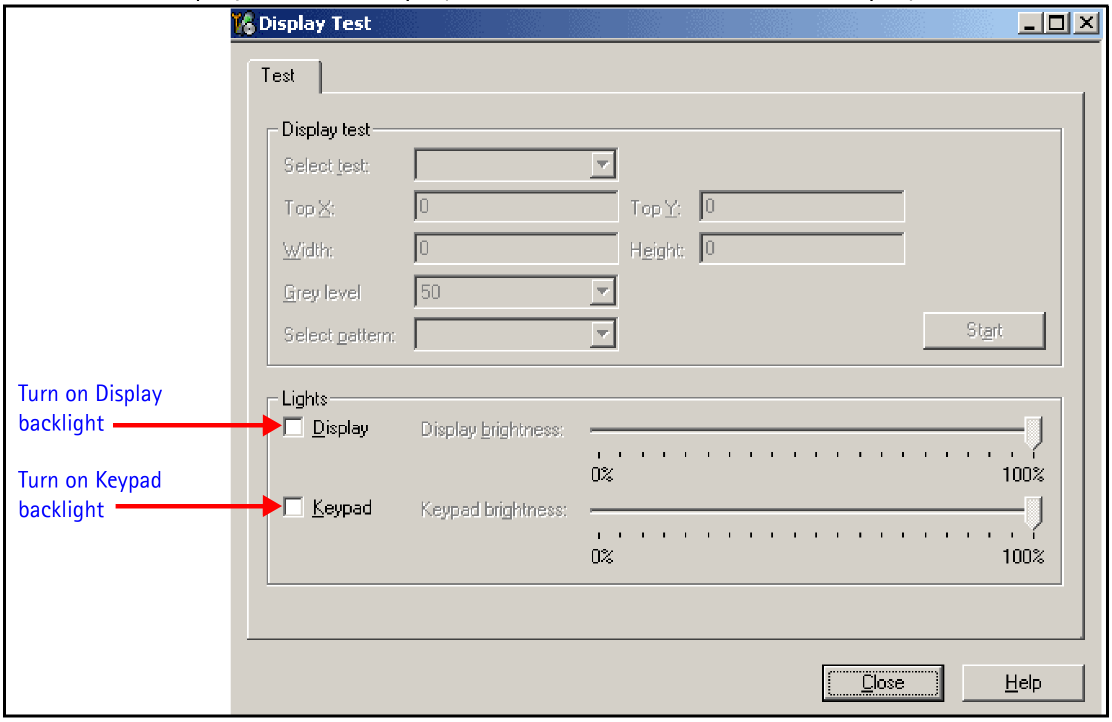

Figure 28: Phoenix display test option

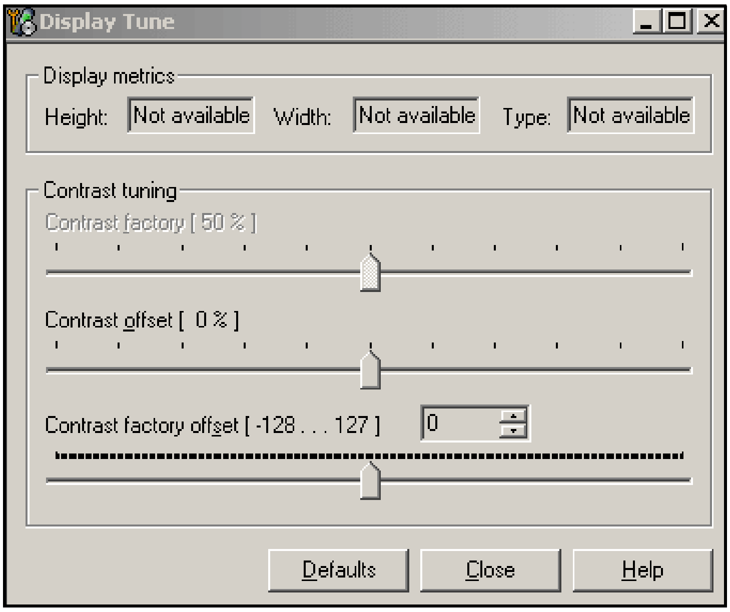

Figure 29: Phoenix display tune option

Keypad Backlight

How the Keypad Backlight Works

The keypad backlight is controlled by the UEMEK and powered by a constant current source driver that supplies the backlight LED of 10mA. The 10mA are set by a Rset Resistor of 12kohms going from the ISET pin to the Ground. The two keypads have two control lines, Dlight to enable the main keypad and Klight to enable the slide keypad.

Figure 30: Keypad backlight

Keypad Backlight Troubleshooting

When troubleshooting keypad backlight, make these common checks (see Figure 31 and Figure 32):

- Perform a visual inspection of all the components including LEDs
- Check Vbat to make sure the driver has power
- Check Klight to make sure driver is enabled by the UEMEK. If not correct, check the UEMEK.
- If lights are too dim or too bright, check Rset. Rset controls the current going through the LEDs.

- Check Vout to make sure LEDs are getting power. If still not working, change the LED. Make sure the LED orientation is correct.

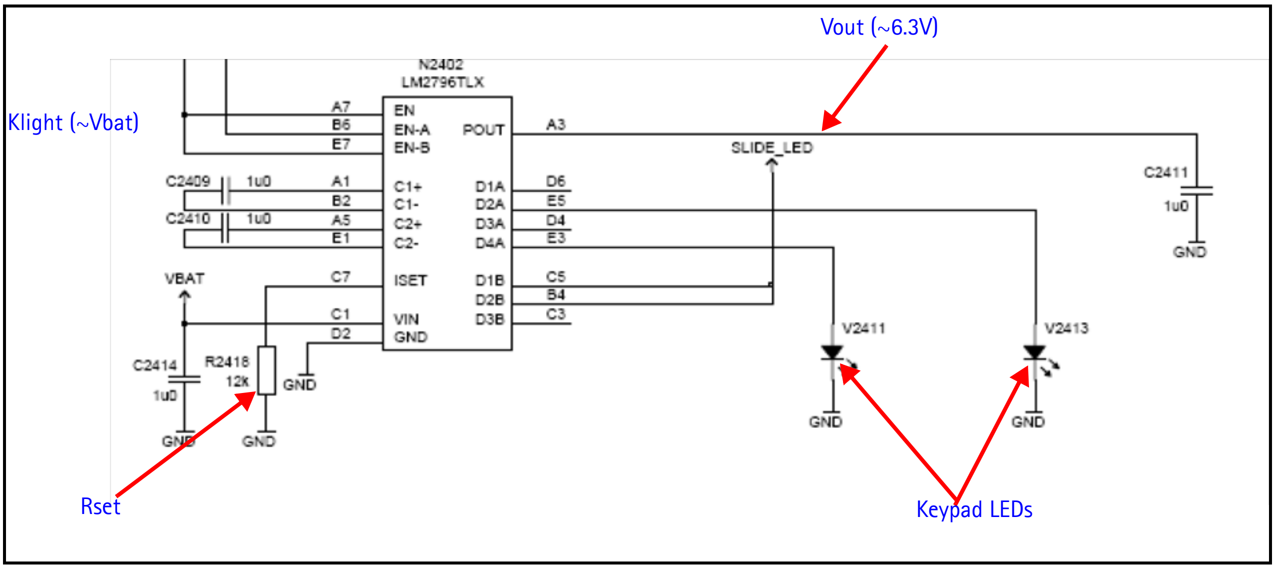

Figure 31: Keypad backlight diagram

Keypad Backlight Display Phoenix Interface

Run the Display Test in Phoenix to check the keypad backlight.

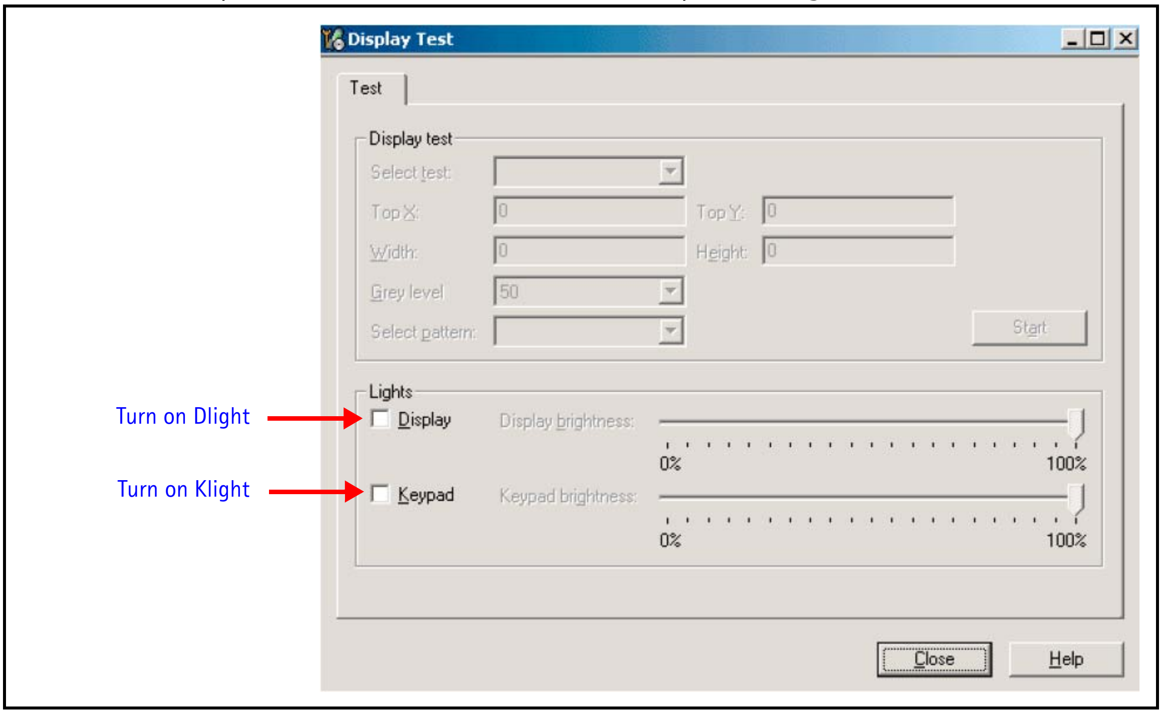

Figure 32: Phoenix display test option

Slide Detect Circuit

How the Slide Detect Circuit Works

The Hall-Effect sensor circuit monitors the position of the slide mechanism to determine if the mobile terminal is in open or closed position. The sensor has an open-collector output that is driven to ground when a magnetic field of appropriate strength is present. The sensor is located on the engine board and the corresponding magnet is mounted in the slide mechanics.

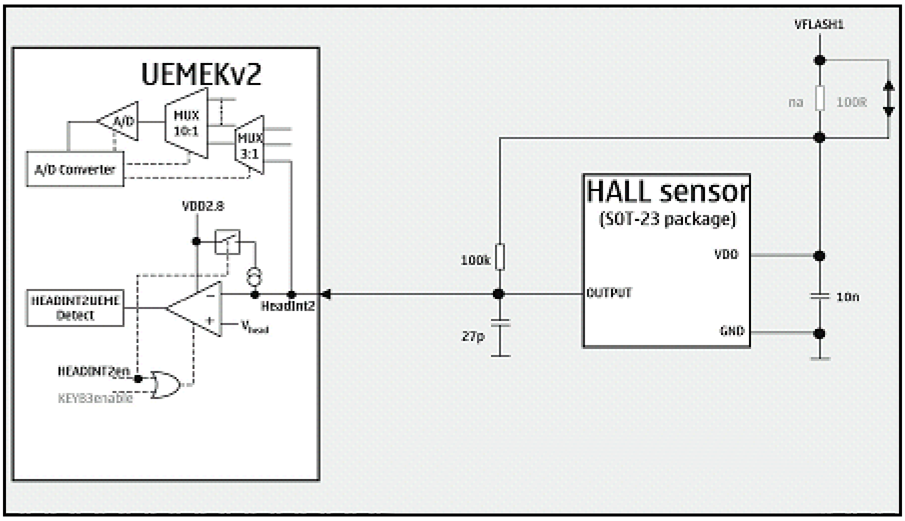

Figure 33: Slide Detect circuit

Slide Detect Circuit Troubleshooting

When troubleshooting the slide detect circuit, make these common checks (see Figure 34):

- Check components are OK
- Check power Supply VFLASH1
- Check output (ADC reading) to UEMEK (HEADINT2) is low when slide assembly is closed
- If OK check UEMEK

Hint: Use the Phoenix keypad test to determine if UEMEK detects the Hall circuit.

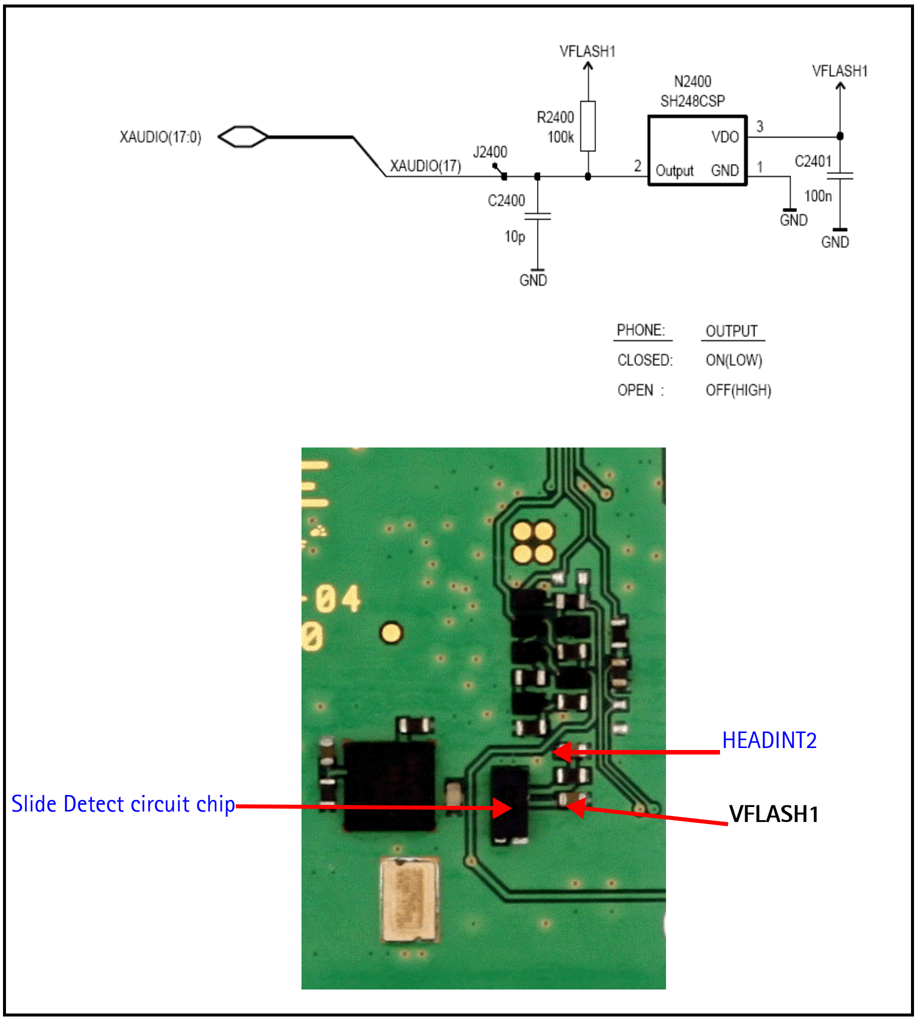

Figure 34: Slide Detect circuit and chip

GPS

How the GPS Works

This is for emergency 911 GPS service only. When you dial 911, the GPS turns on by using Vcore from the external DC-DC and VIO from UEMEK. GPS communicates with the D2800 using the UART interface. This turns on the BB chip and the RF chip. They synchronize with the mobile terminal using the 19.2Mhz clock. The mobile terminal locates the closest satellite and downloads the location coordinates to send them to the Emergency desk.

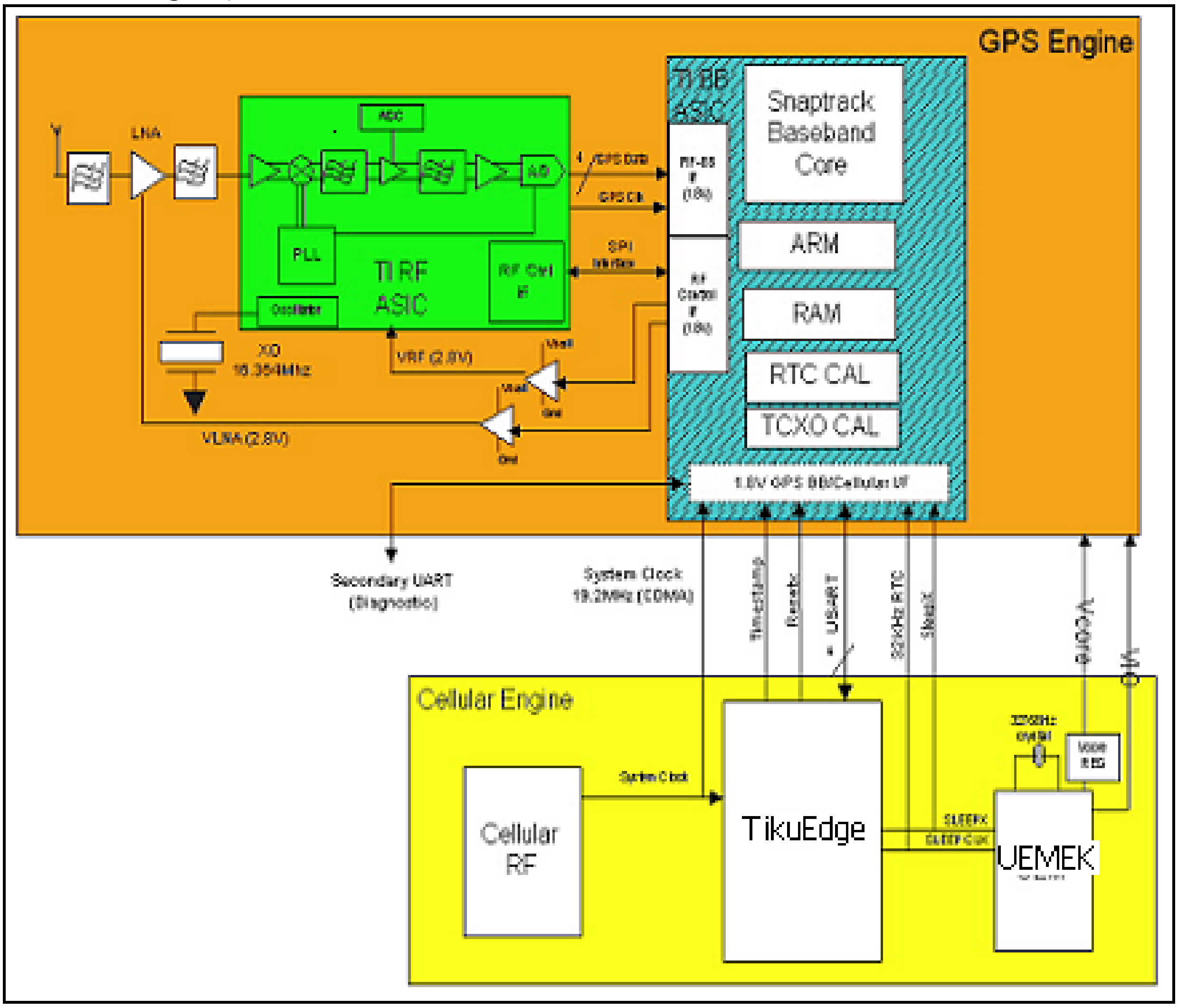

Figure 35: GPS block diagram

What does the GPS BB do?

The GPS BB module performs the following functions:

- Accept raw data from the GPS RF front-end
- Process the raw data to provide the CE with location information (2 CPUs)
- Accept commands from the CE
- Mode (sleep, idle, etc.)
- RF control commands
- GPS configuration, etc.
- Provide power for the GPS RF

GPS Troubleshooting

When troubleshooting GPS, make these common checks (see Figure 36 and Figure 37):

- Check the Power Vcore and VIO
- Check that CLK19M2_GPS = 19.2Mhz
- Check the VRF is enabled
- Check that VRF_GPS = 2.78
- Check that the GPS clock = 16.384Mhz
- Run Test Mode 1 on Phoenix
- Check USART activity
- Check GPS antenna

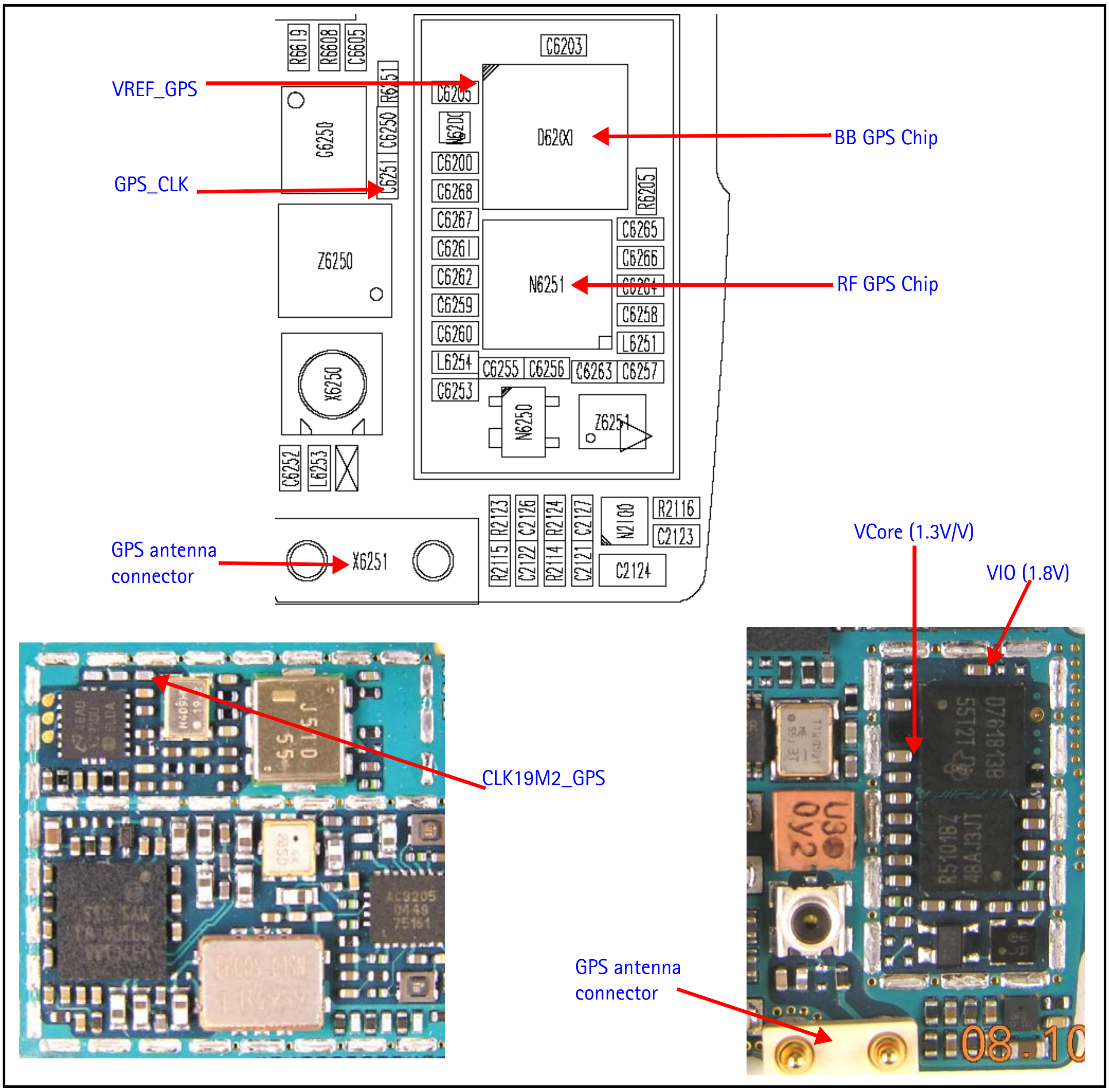

Figure 36: GPS chip

Continue with the following checks:

- Check GPS_EN_RESET (1.8V)
- Check GPS_SLEEPCLK (32.768kHz)
- Check GPS_SLEEPX

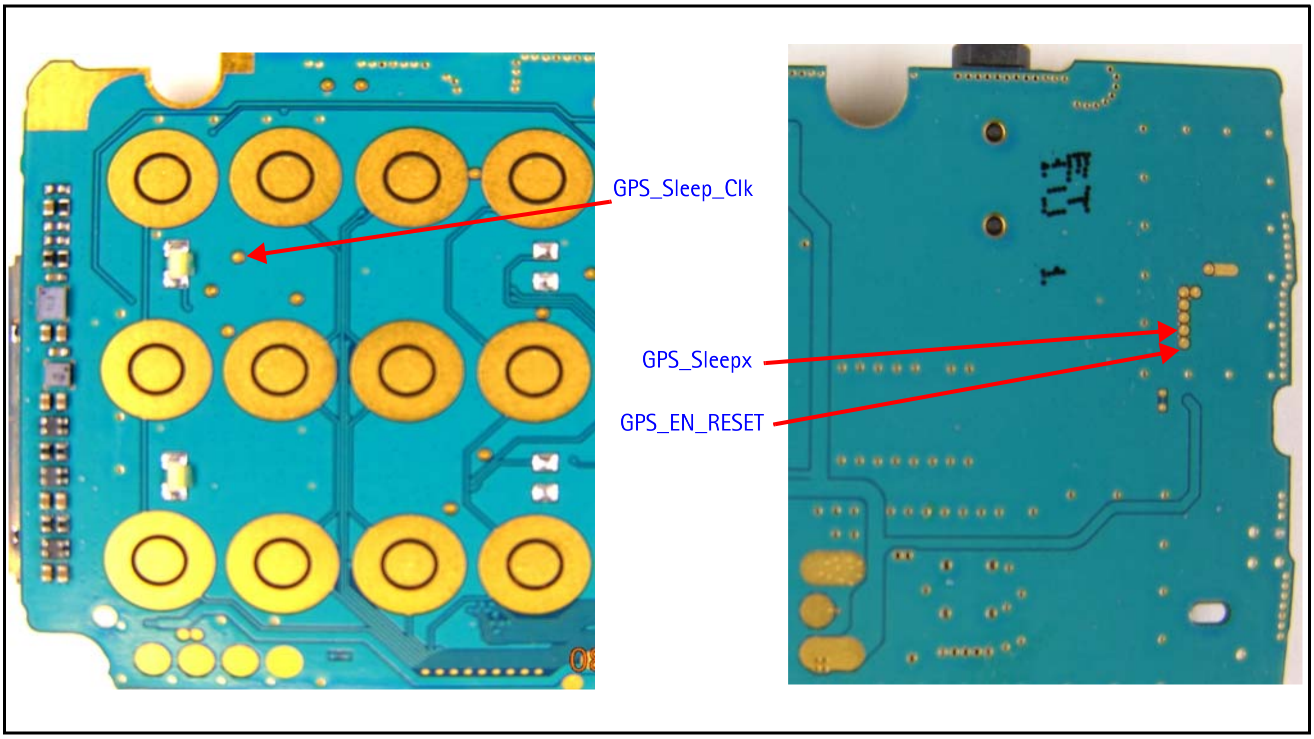

Figure 37: GPS troubleshooting test points

GPS Phoenix Interface

Run the GPS Quick Test in Phoenix to check the GPS BB.

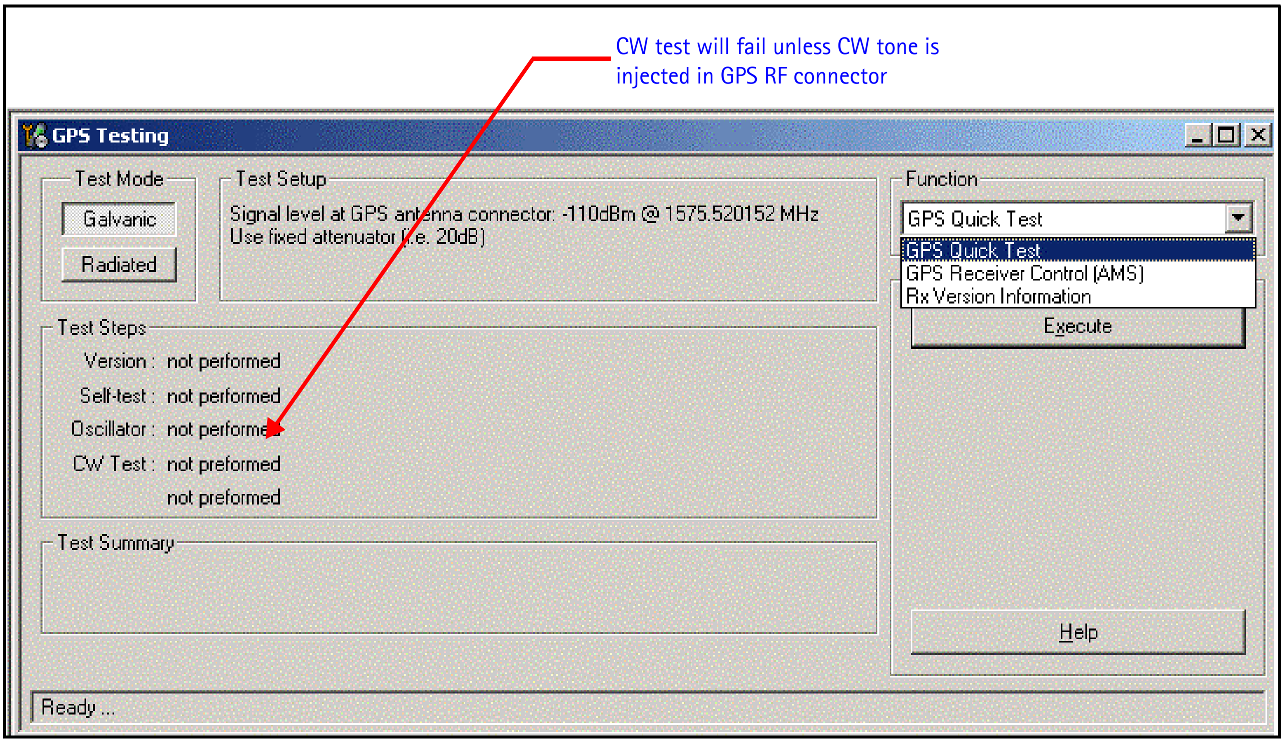

Figure 38: Phoenix GPS testing option

UIM Card

How UIM Card Works

The Nokia 6265/6265i/6268 supports two types of UIM cards that work at 1.8V and 3.0V. When the mobile terminal is switched on with a UIM card, the D2800 sends a 1.8V signal to the UIM card and waits for the UIM card's response and identification. After a wait period, if there is no answer from the UIM card, the mobile terminal will send another signal at 1.8V. In this case UEMEK acts as a level shifter and raises the signal to 3.0V. If there is still no response, the mobile terminal will not allow access. If there is a response, then the mobile terminal powers up.

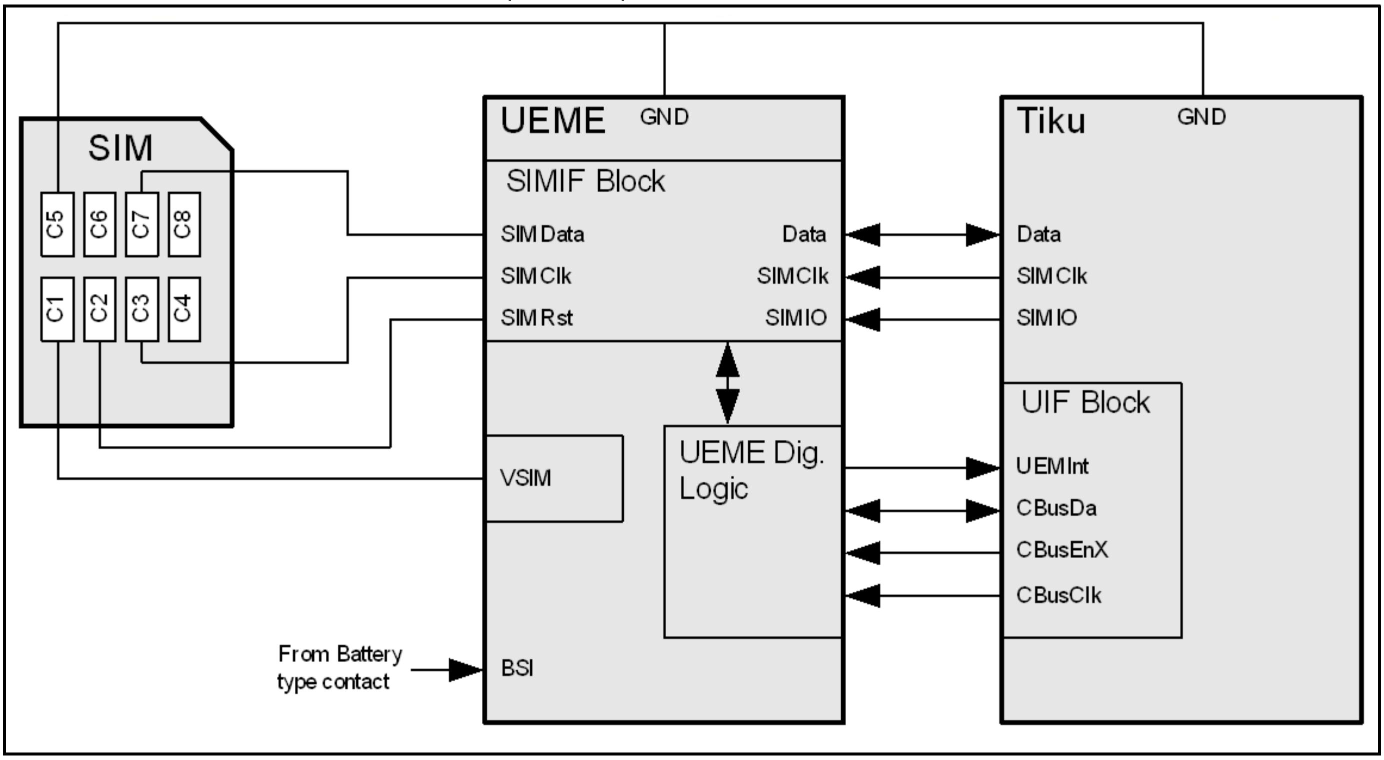

Figure 39: SIM Card block diagram

UIM Card Troubleshooting

When troubleshooting UIM cards, make these common checks (see Figure 40, Figure 41 and Figure 42):

- Check Vsim 1.8V or 3.0V. Vsim comes from UEMEK and goes through the SIM ESD protection chip. Check for bad or damaged solder joints. Replace chips if necessary.

Note: The only accessible test points are at the UIM interface.

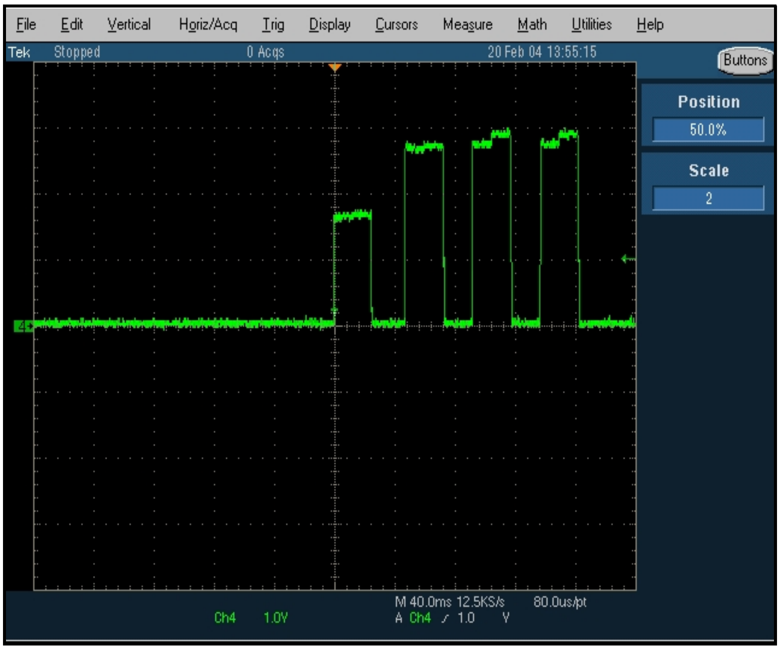

Figure 40: Vsim check

- Check detection sequence

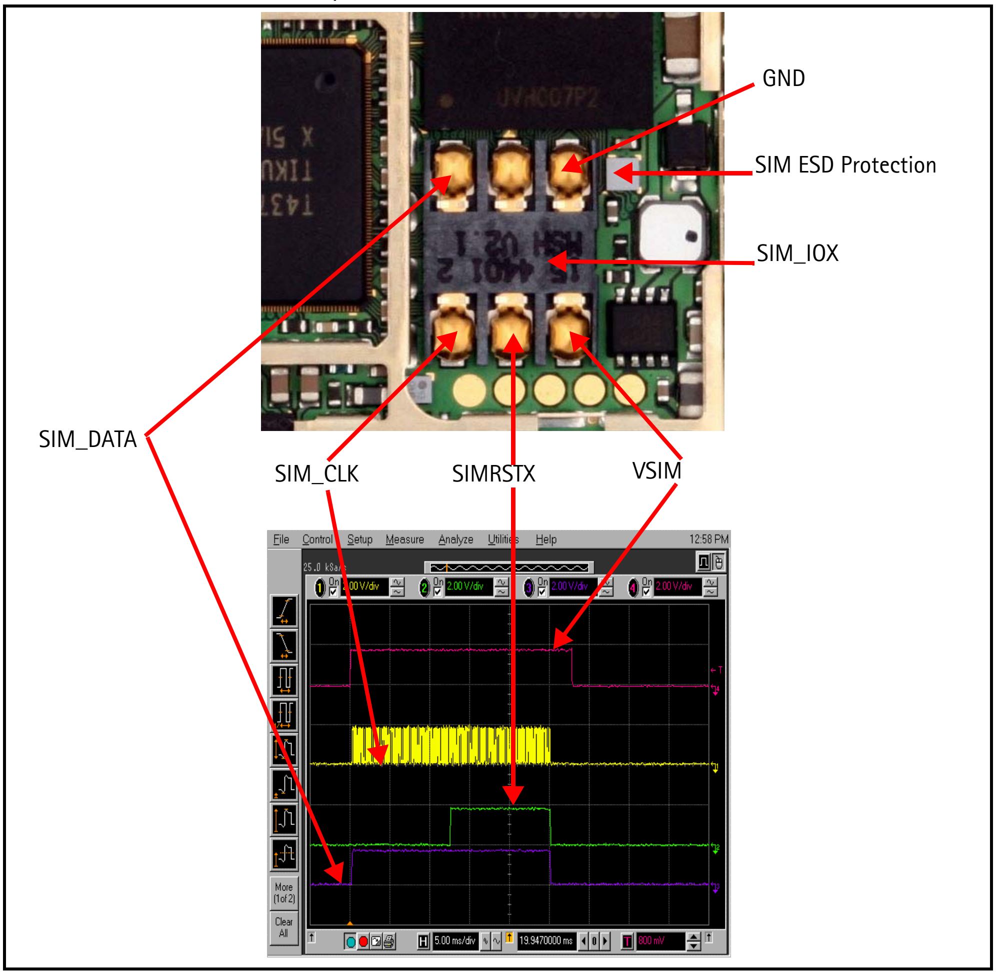

Figure 41: Detection sequence

- Verify communication signals

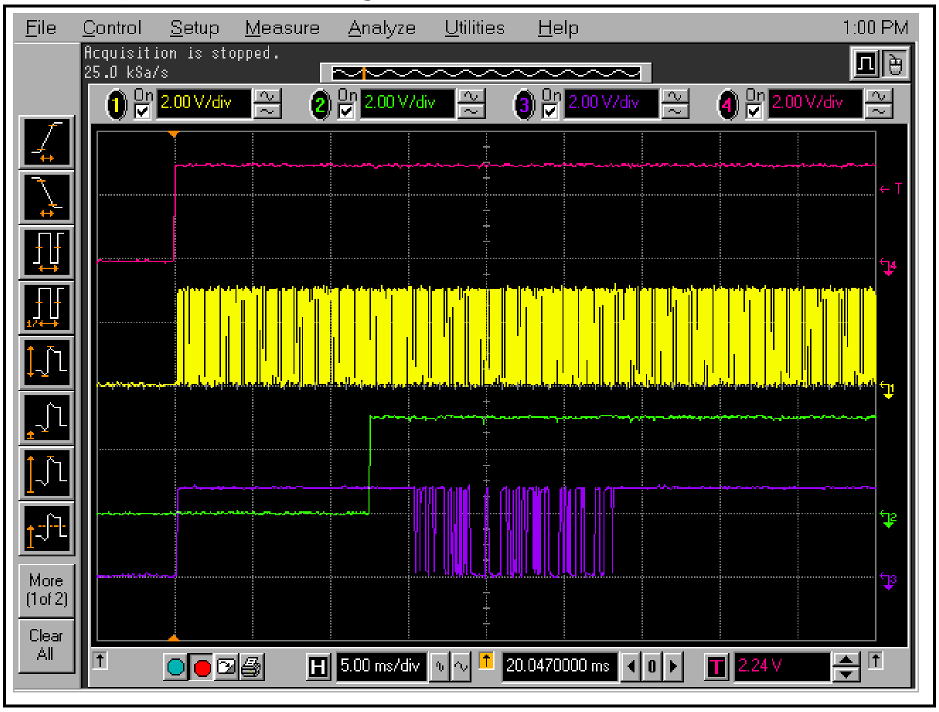

Figure 42: Communication signals

- If no signals are present: (1) check contacts on Sim connector are correct, (2) check ESD chips are correct, and (3) check the UEMEK is correct. Replace damaged parts if necessary.

UIM Card Phoenix Interface

Run the SIM-Lock Status in Phoenix to test a SIM (or UIM) card.

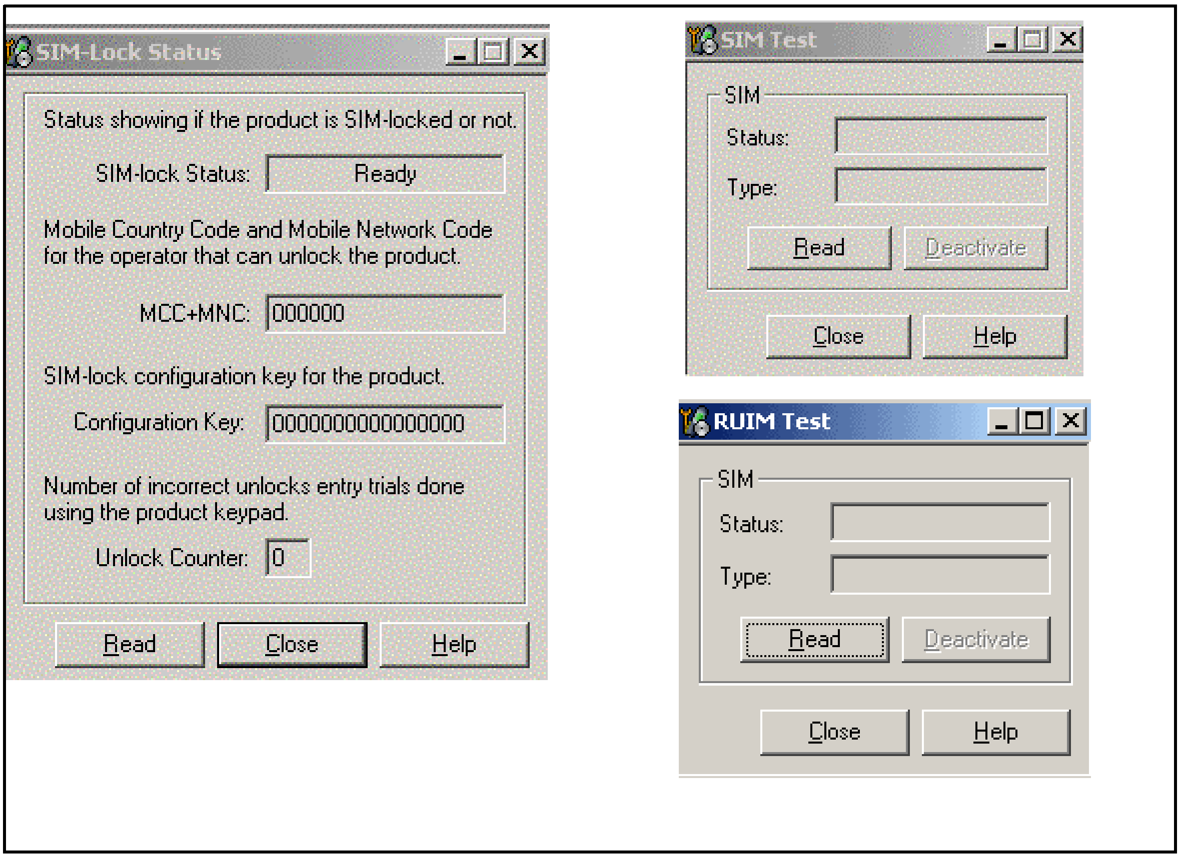

Figure 43: Phoenix UIM (SIM) testing options

Bluetooth

How the Bluetooth Works

Bluetooth is a low power, short- range radio technology. It is a standard developed by a group of electronics manufacturers that allows any sort of electronic device to correspond just by coming within proximity of each other. It allows communication between computers, cell phones or its accessories such as headsets or keyboards.

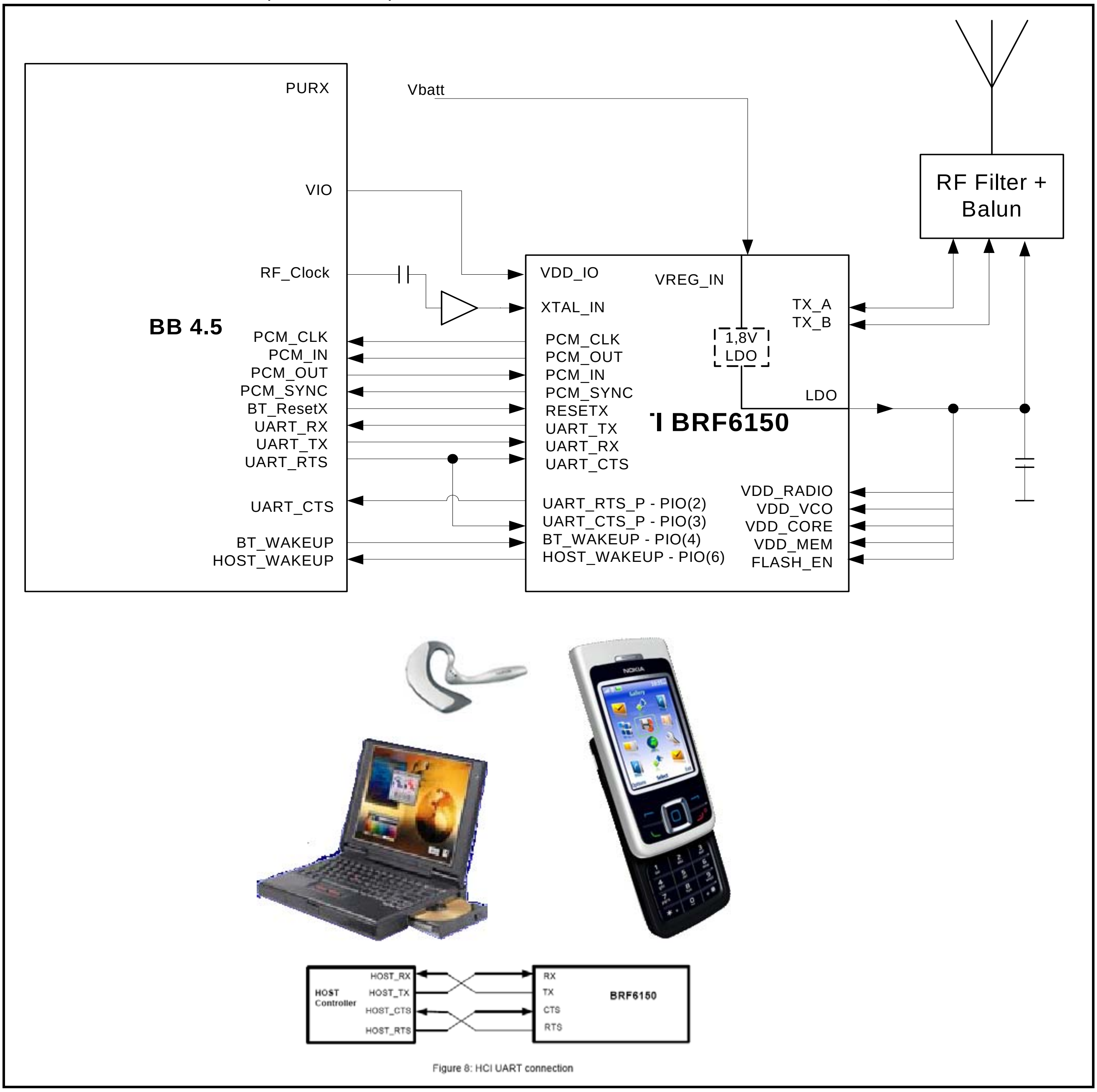

Figure 44: Bluetooth block diagram

Bluetooth Troubleshooting

- Check solder
- Check power supply, VIO
- Check CLK19M2_BT at UHF SYNTH

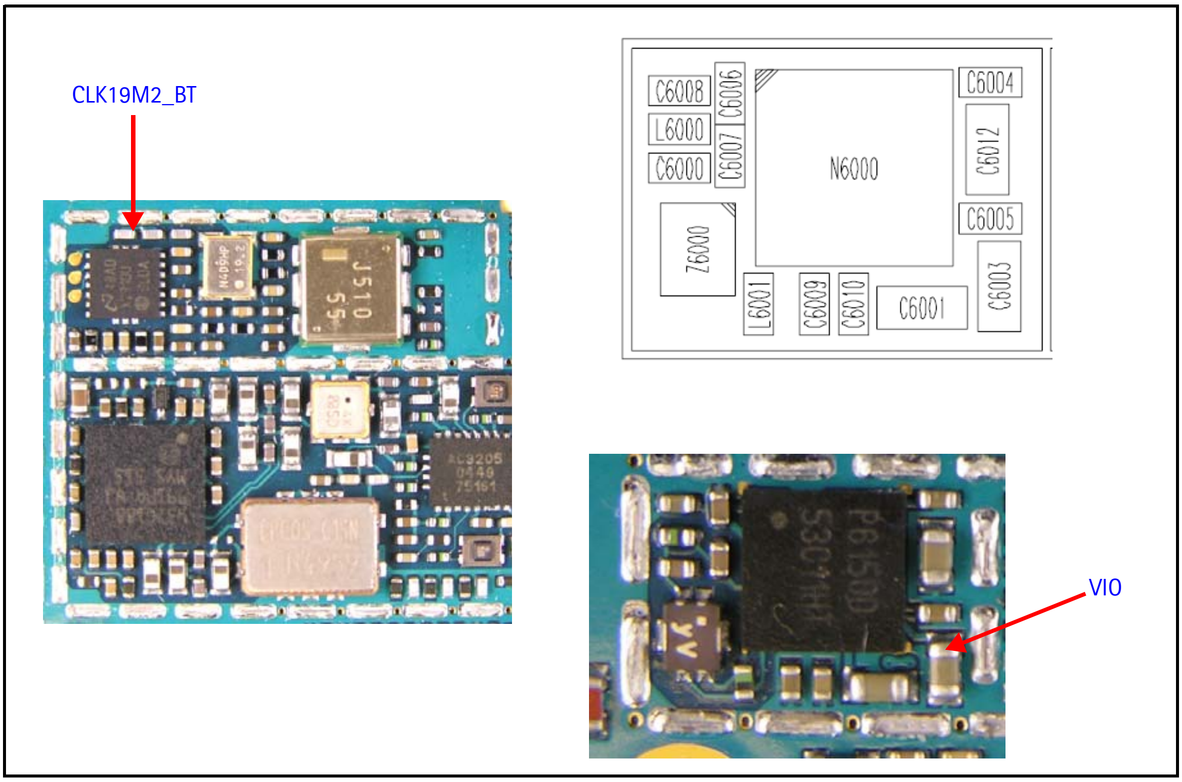

Figure 45: Bluetooth components and test points

Bluetooth Phoenix Interface

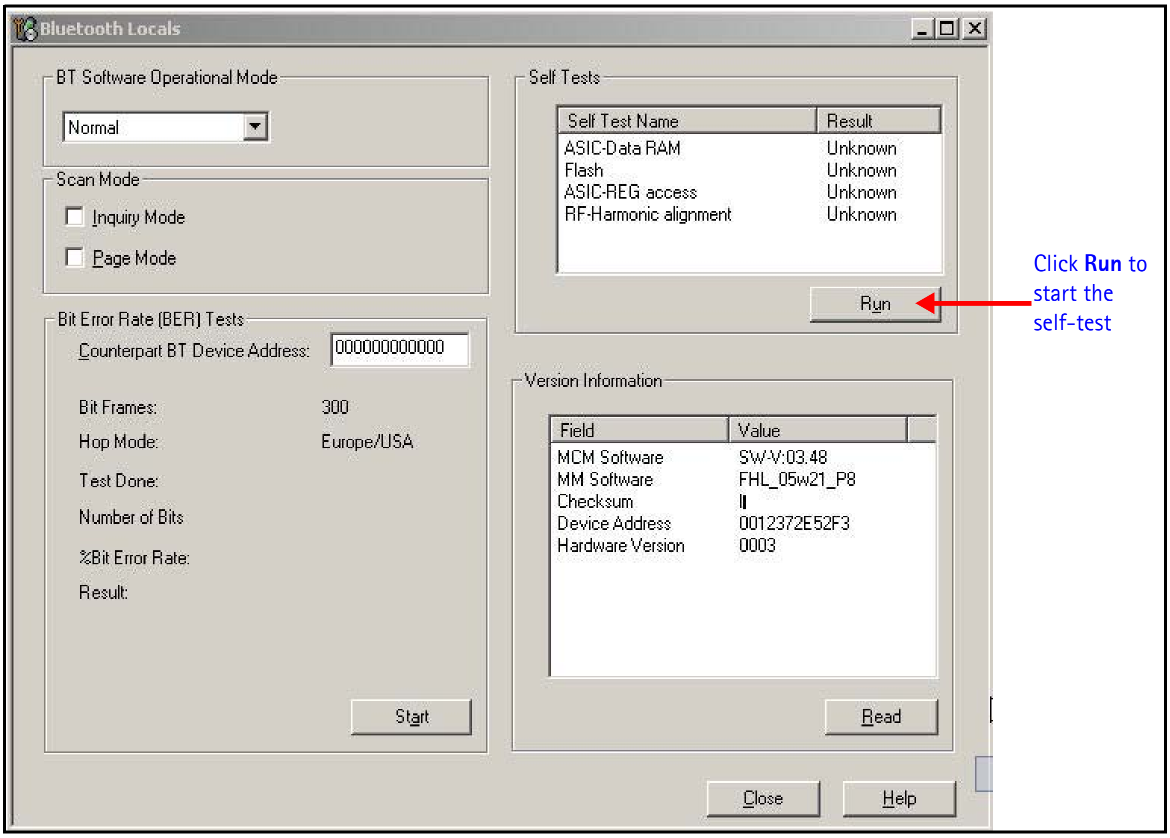

Figure 46: Bluetooth Locals menu in Phoenix

Mini-SD

Mini-SD Troubleshooting

- Perform a visual inspection on the Level Shifter and ESD ASIP
- Check the power supplies VIO, VBAT, and VMSD
- Check for activity on Mini SD control lines MMC_CLK, MMC_cmd, MMC_dat0 after Level Shifter
- If not ok then check Level Shifter and D2800
- Check for activity on Mini SD control lines
- MMC_CLK, MMC_cmd, MMC_dat0 after ESD ASIP
- If not ok replace ESD ASIP or check connector

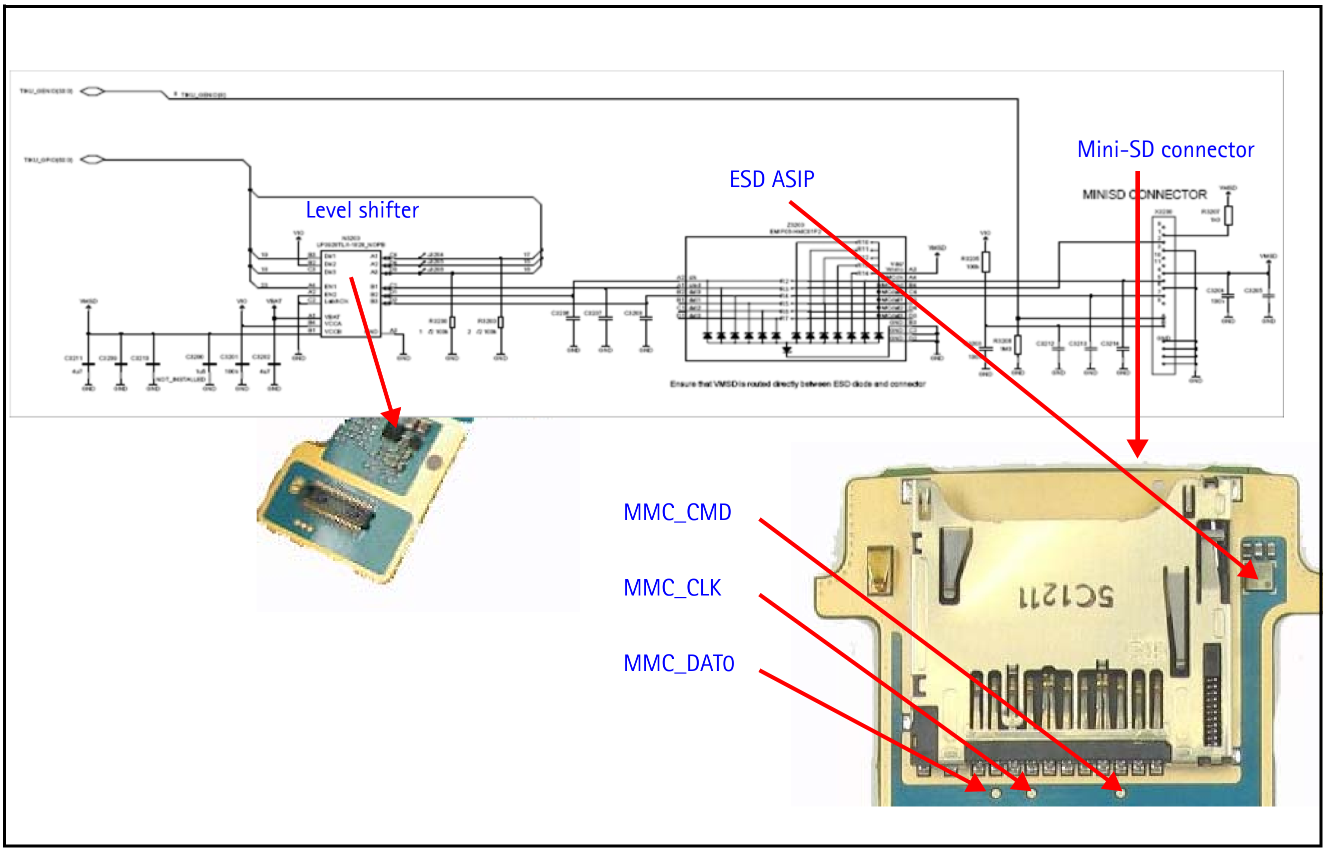

Figure 47: Mini-SD schematic and layouts

System Connector

Figure 48 provides a mapping for the system connector. The 6265/6265i/6268 supports Pop-port™ and Universal Headset accessories, differential and single-ended, respectively. Detection of the Pop-port™ accessories is done through the ACI signal where the Universal Headset is detected on TIKU_GenIO (4).

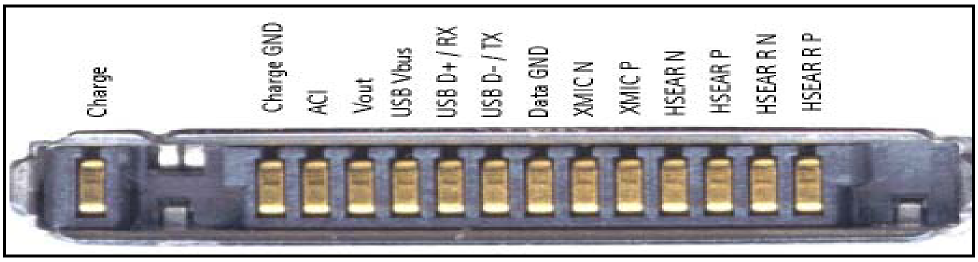

Figure 48: System connector

The pin out on the Pop-port™ connector is as follows:

- Charger
- Charger GND
- ACI
- Vout
- USB Vbus
- USB D+ / Fbus Rx
- USB D- / Fbus Tx
- Data GND
- XMic N
- XMic P
- HSear N
- HSear P
- HSear R N
- HSear R P

Accessory Detection

Figure 49 displays how the mobile terminal detects accessories. Dummy accessories pull down to GND ACI Line. Smart accessories pull down ACI line with a 56K Ohm resistor allowing communication between accessory and UEMEK.

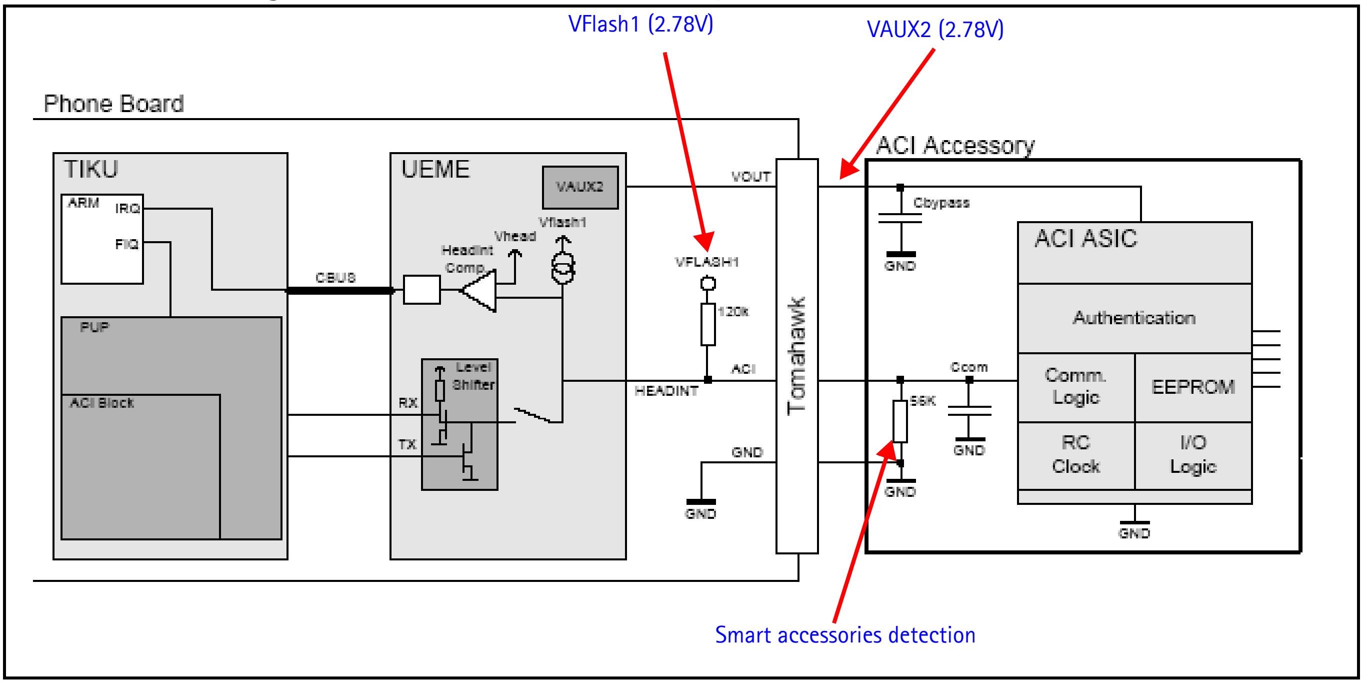

Figure 49: Accessory detection diagram

Battery Interface Circuit

Figure 50 illustrates the battery interface circuit. The BSI voltage level for different power-up modes:

- normal mode - 1.23V
- test mode - 170mV
- local mode - 90mV

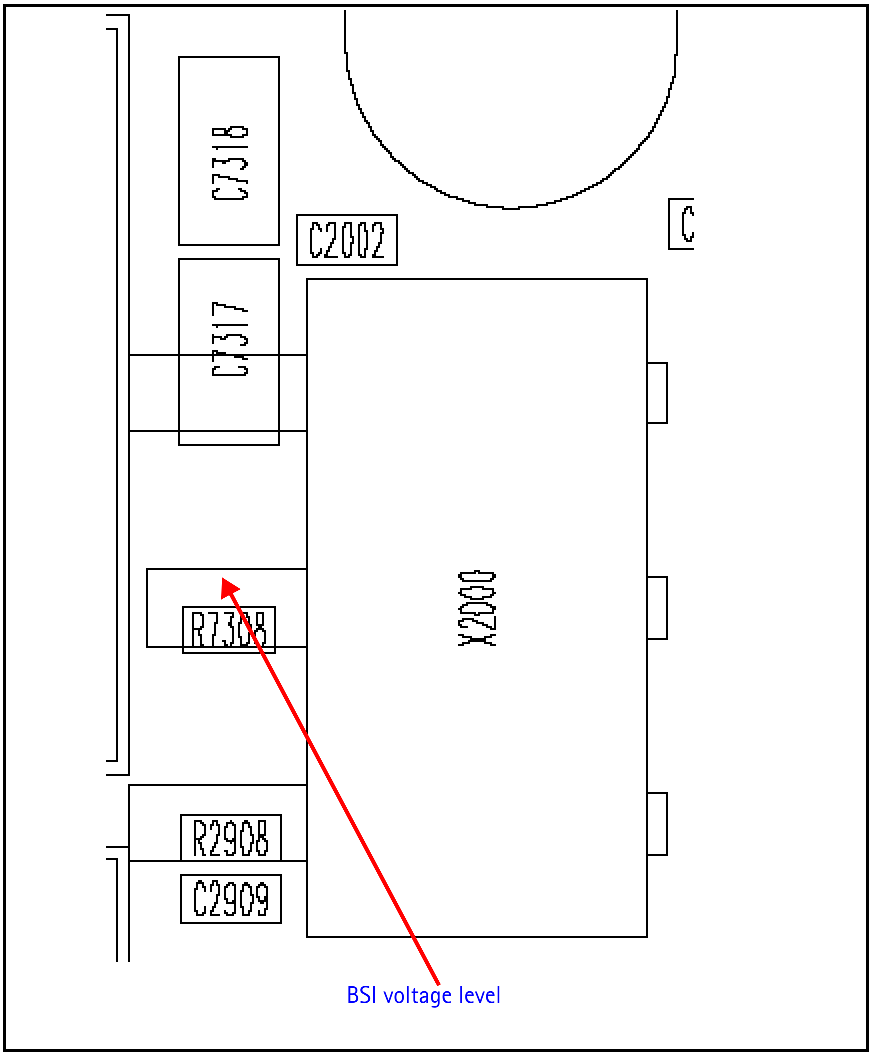

Figure 50: Battery interface circuit

The UEMEK has the following programmable charge cut-off limits:

- VBATLim1=3.6 V (Default)
- VBATLim2L=5.0 V
- VBATLim2H=5.25 V

When the voltage rises above VBATLim1, 2L, 2H+ charging stops. No change is done in operational mode. When the voltage decreases below VBATLim-, charging restarts.

The duty cycle range is 0% to 100%. The maximum charging current is limited to 1.2 A.

Charging

When troubleshooting battery charging, make these common checks (see Figure 51, Figure 52 and Figure 53):

- Does the battery bar scroll?

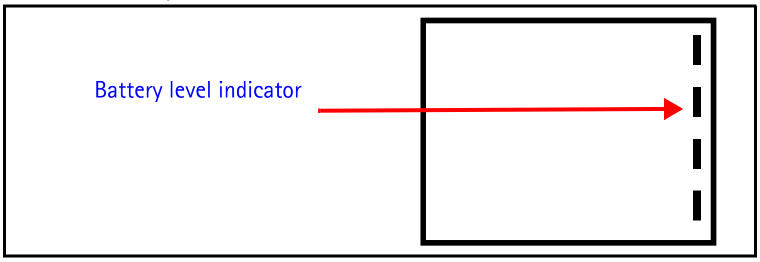

Figure 51: Battery indicator bar

- Measure voltage at V2000. Is it >3VDC?

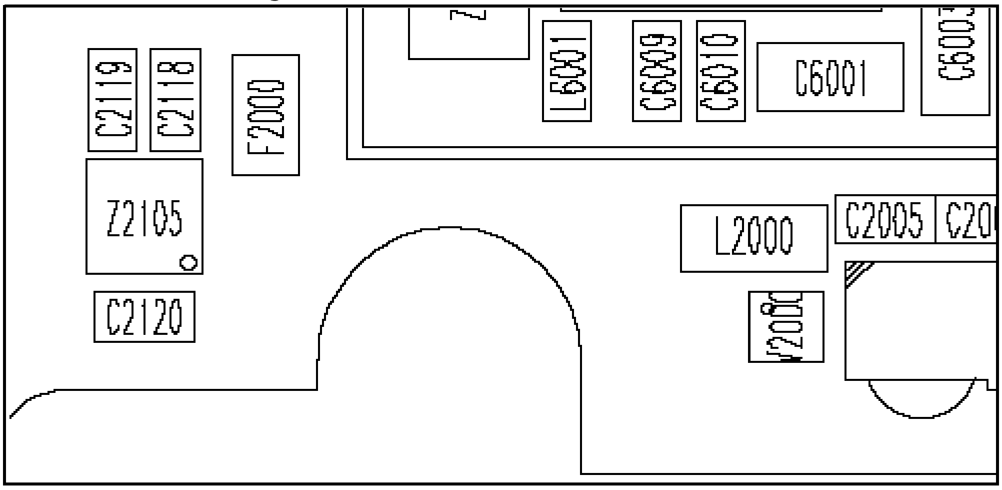

Figure 52: Charging layout

- Measure BTEMP via ADC reading. Is it ~25*C? If not, replace the UEMEK.

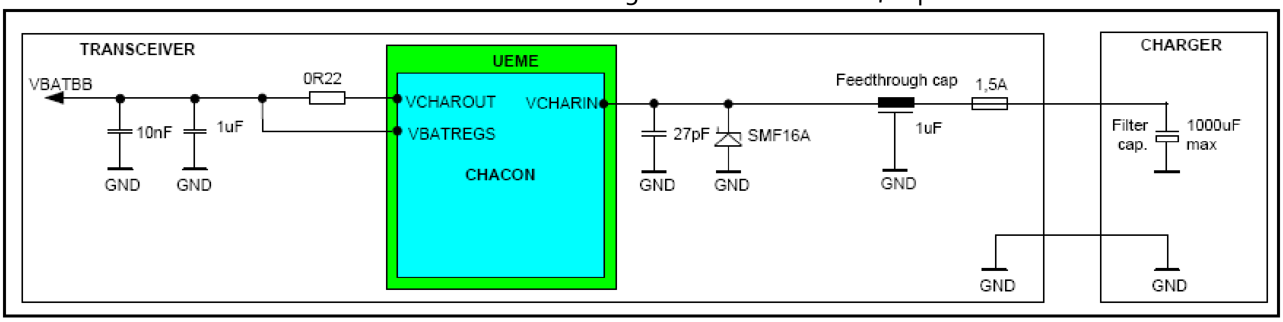

Figure 53: Charging diagram

- Check fuse at F2000. Measure current (ICHAR). Is it ~850mA? If not, replace the UEMEK.

Common Problems

The following section has a list of common problems, along with some standard checks.

No Communication During Flash

- Make sure there is a good connection between flash adaptor and the mobile terminal
- The mobile terminal has to be powered by prommer (FPS-8)
- Check the Baseband regulators VR3, VIO, VCORE, VFLASH1
- The mobile terminal will not able to flash without 19.2Mhz clock into D2800
- Check BSI, MBUS, FBUSRx, FBUSTx, PURX, SLEEPX for bad solder joints between UEMEK and D2800
- Check the Flash bus signal and VPP voltage level

No Communication During Alignment

- Check all connections between test fixture, cables and the mobile terminal
- Make sure the mobile terminal is in Local Mode, check Vbat voltage and current level. If not, check BSI signal level
- Make sure the mobile terminal is programmed/flashed

Failed Self Test/Calibrate

- Make sure the mobile terminal is in local mode
- Make sure power supply provides enough current (approximately 500mA and 2A for tuning)
- Use the troubleshooting guide to verify the failed circuit

Mobile Terminal Not Powering Up

Refers to when no power causes the mobile terminal to not able to flash, not to get into local mode and similar problems.

- Check the baseband regulators – VR3, VIO, VFLASH1, VCORE dc/dc, PURX
- Check VCTCXO 19.2MHz signal at D2800 input
- Check power-up sequence
- Check the Flash IC, flash bus signals, and voltage level

Shut Down After 32 Seconds

- Check for the absence of 32KHz SleepCLK
- Check for incorrect SleepX and PURX signal levels
- Check if ESN number is corrupt

No Audio

- Check for bad contacts or damaged ear piece
- Check for bad connections at mic
- Check for broken or bad solder joint of passive components
- Verify the audio signal paths using BaseBand “audio test” component with Phoenix as described in the troubleshooting guide

Key Pads Malfunction

- Check for protective film left on back of the key dome if a new one was installed
- Check for corrosion on both the key pads and keydome
- Check if flash software was corrupted
- Check for bad joint from D2800 to Z2400 interface
- Check for pins shorted on or bad on ESD ASIPs

No LCD Display

- Check for bad connections
- Check for a cracked or damaged display
- Probe test points as described in the troubleshooting guide for missing for incorrect signal level

Phoenix Tools

Baseband menu items in Phoenix Guide.

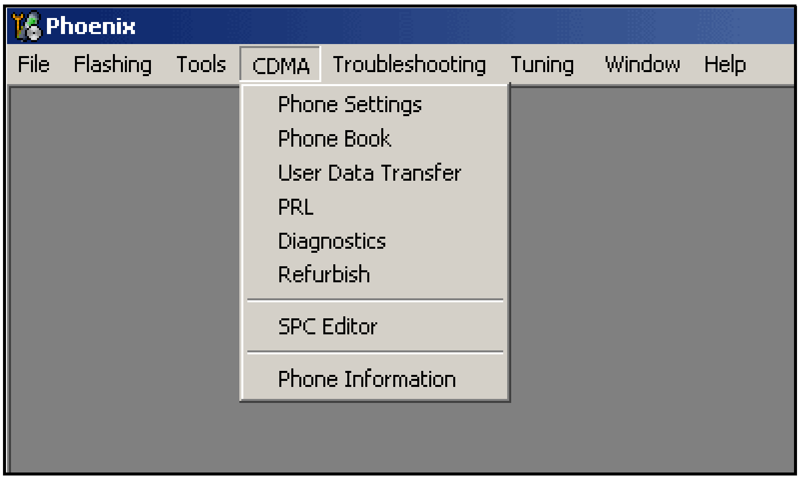

Figure 54: CDMA menu in Phoenix

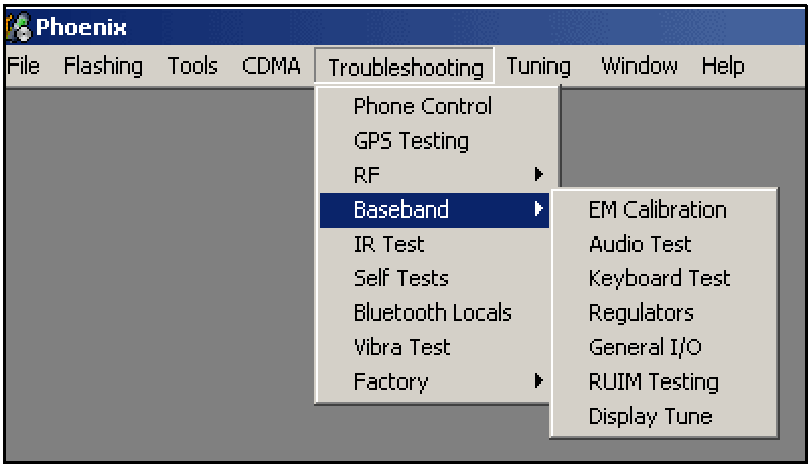

Figure 55: Baseband troubleshooting menu in Phoenix

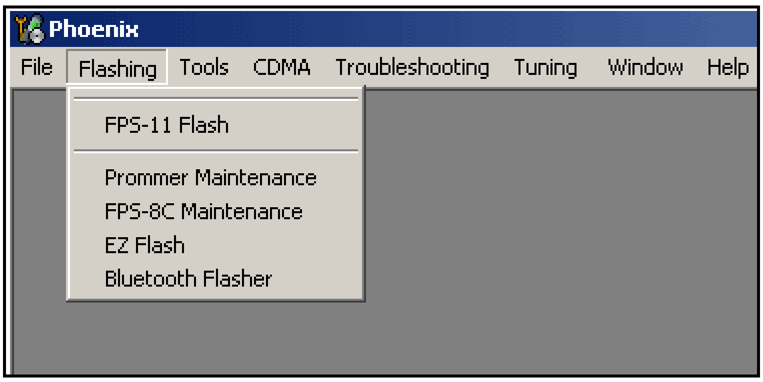

Figure 56: Flashing menu in Phoenix

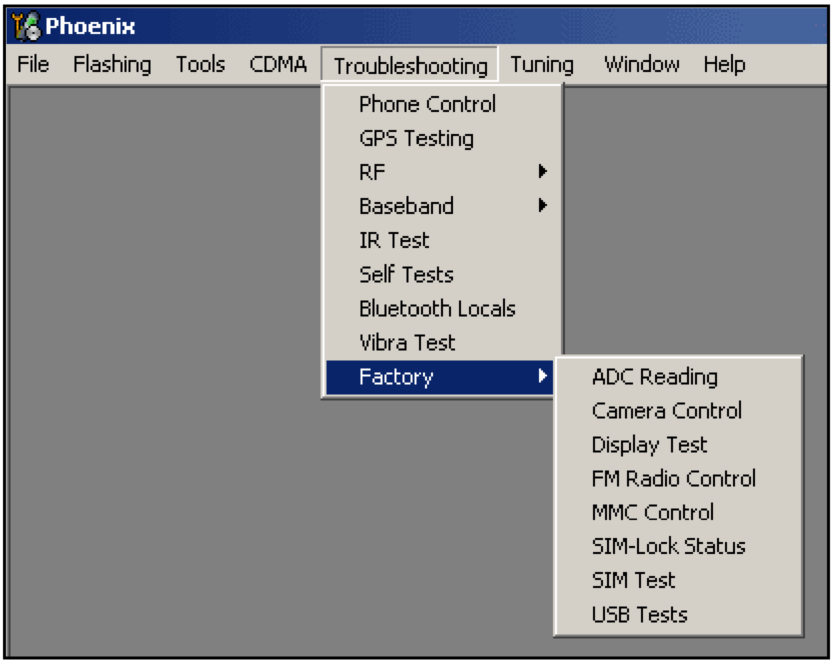

Figure 57: Troubleshooting factory menu in Phoenix

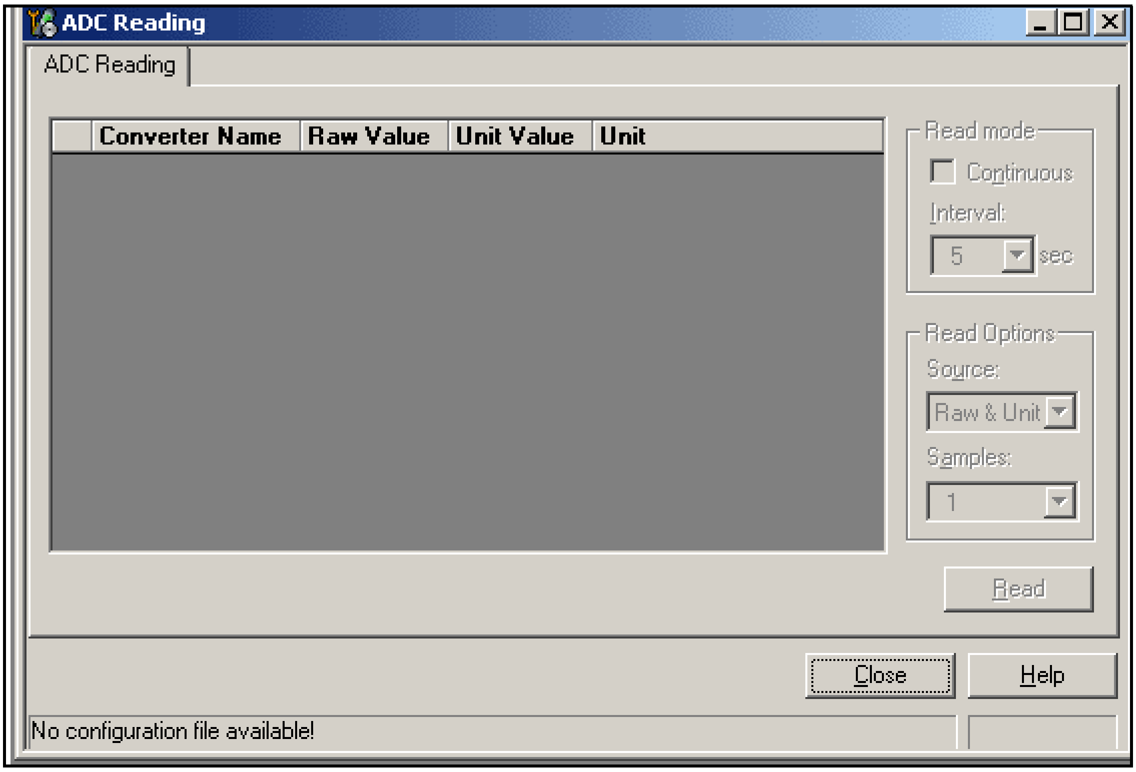

Figure 58: ADC menu in Phoenix

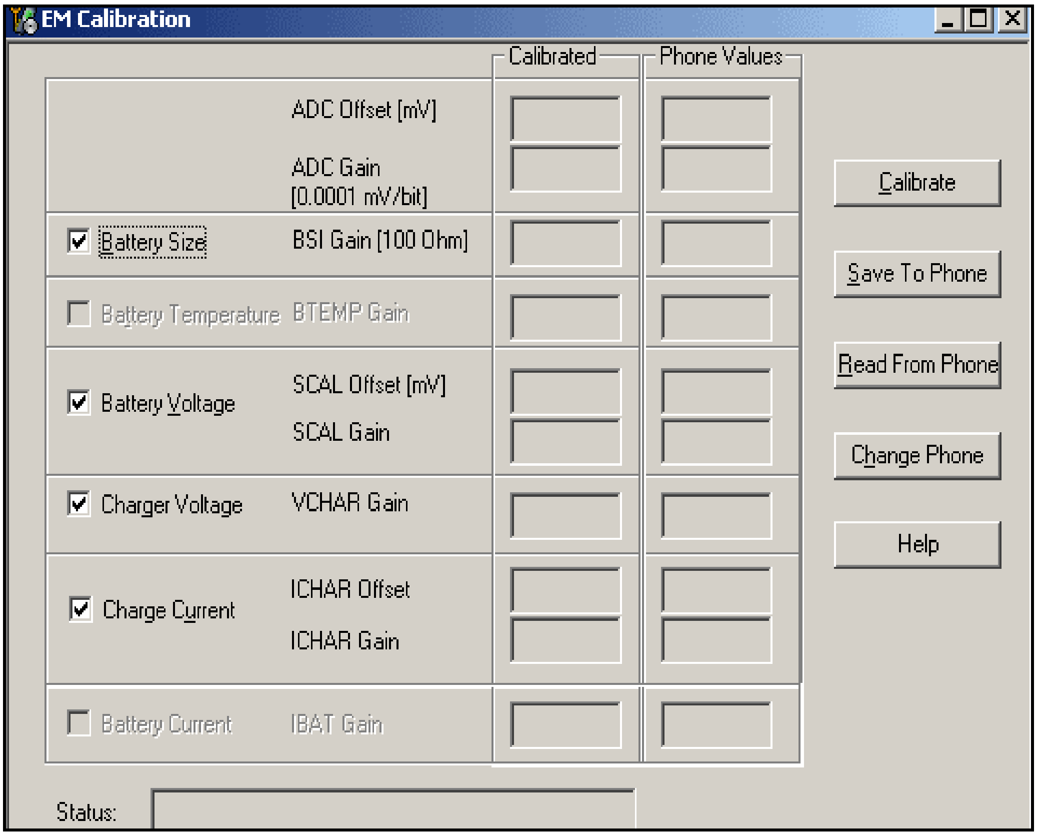

Figure 59: EM Calibration menu in Phoenix

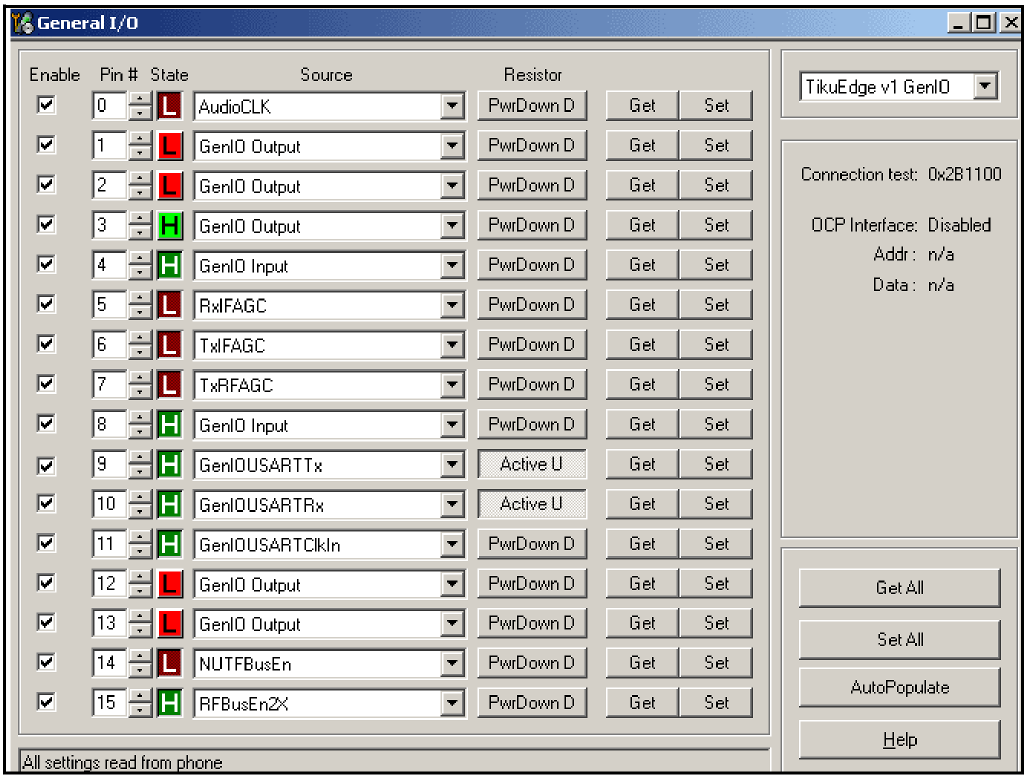

Figure 60: General IO and GPIO menu in Phoenix

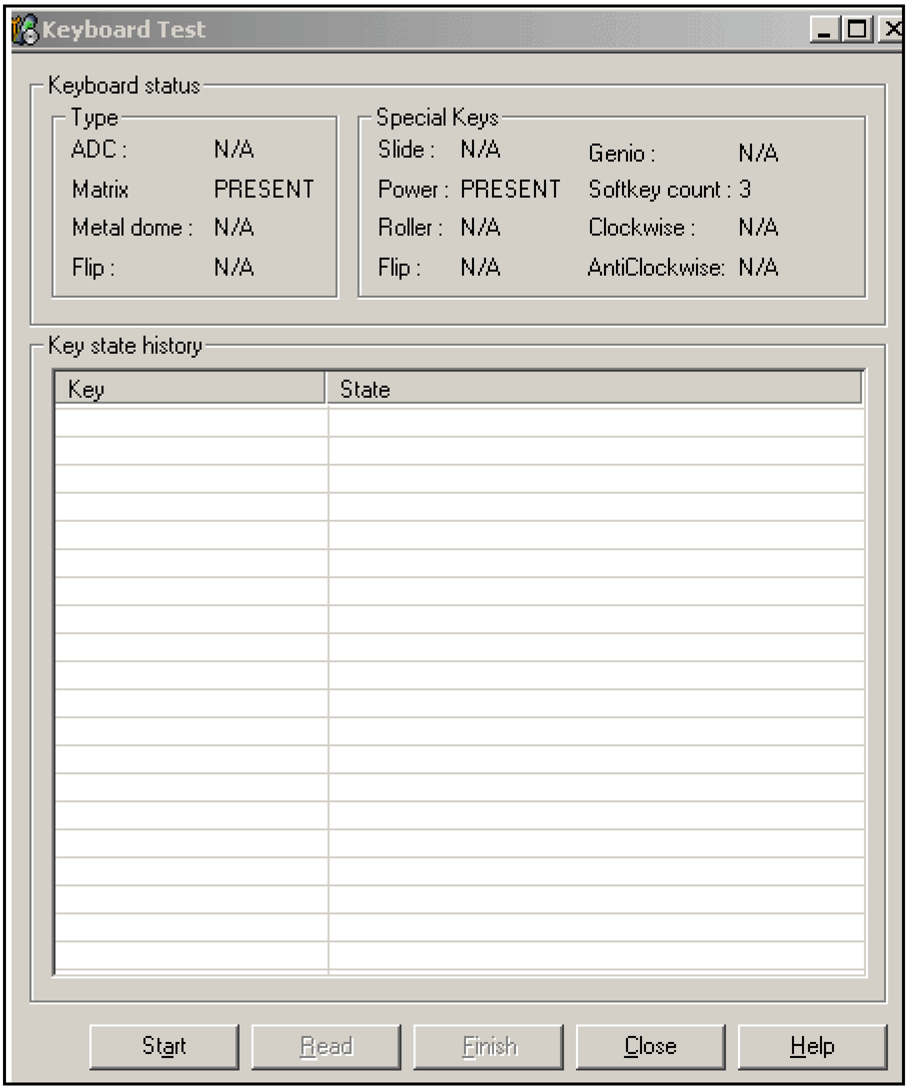

Figure 61: Keyboard test menu in Phoenix

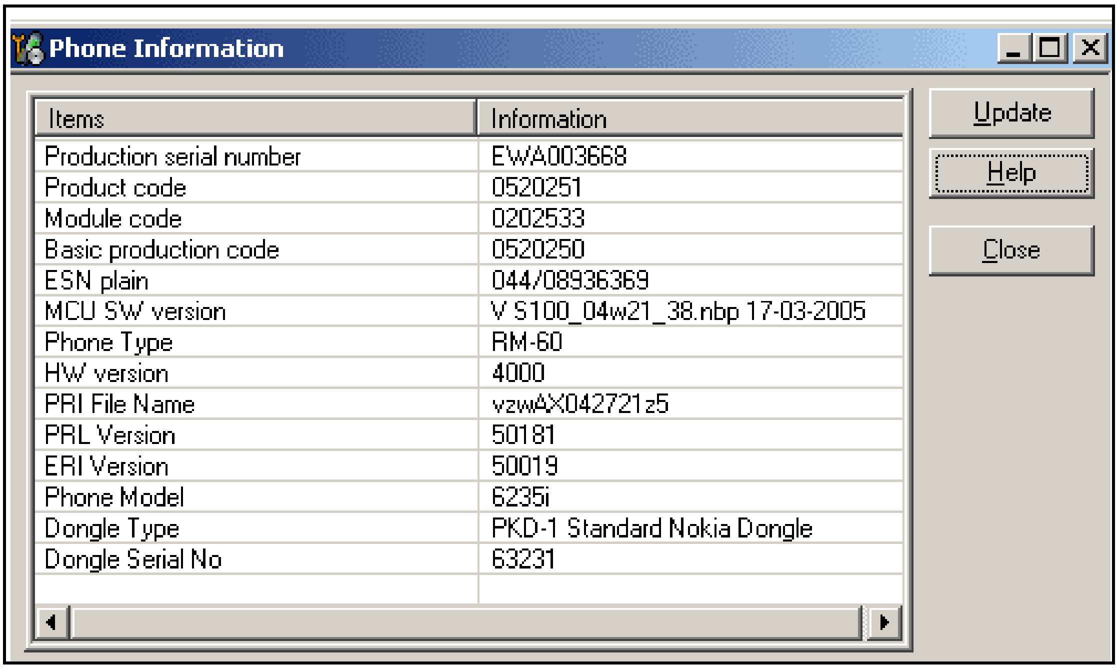

Figure 62: Phone Information menu in Phoenix

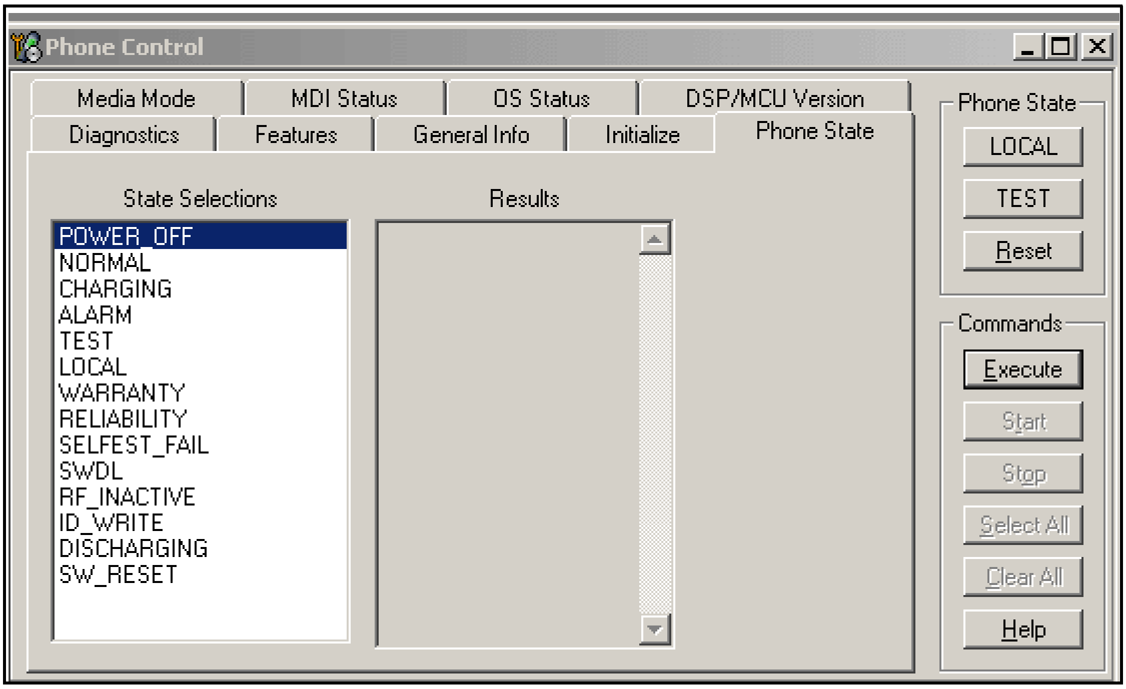

Figure 63: Phone Control menu in Phoenix

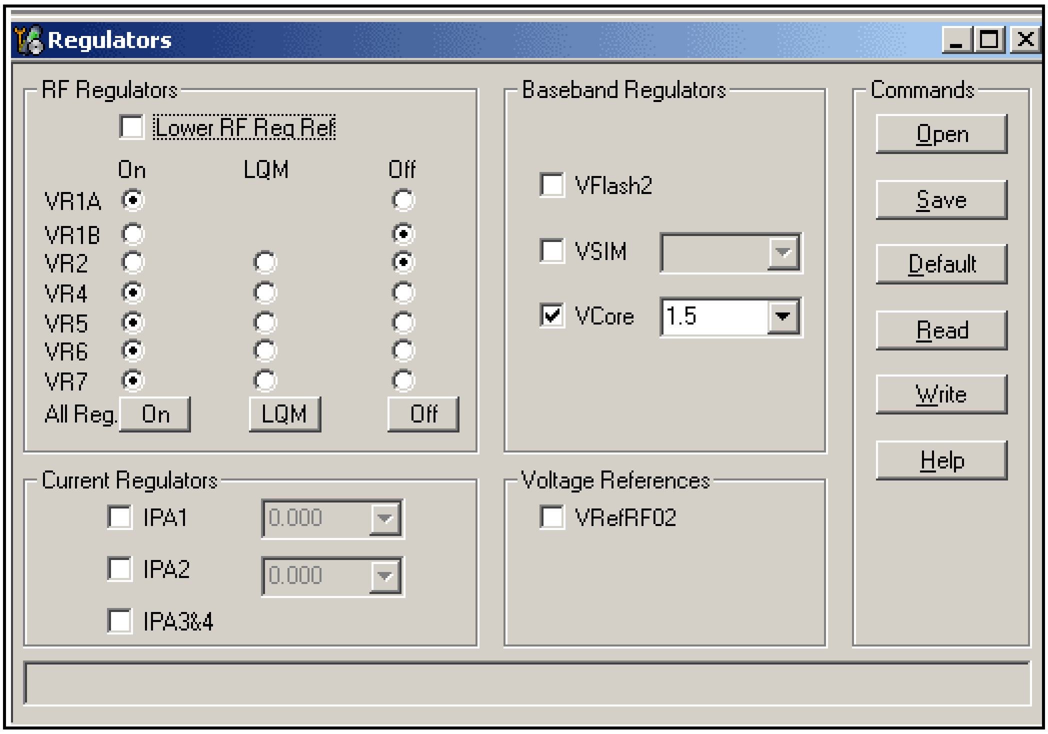

Figure 64: Regulator Control menu in Phoenix

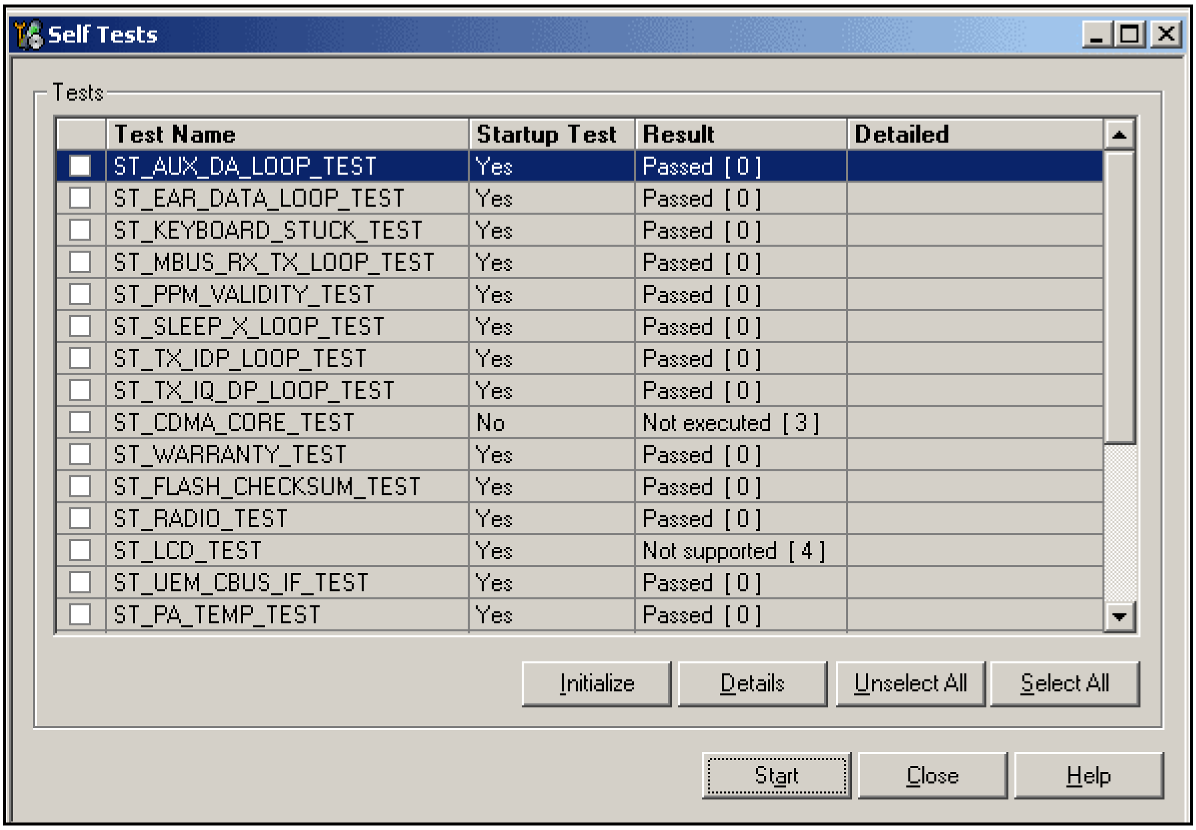

Figure 65: Self-test menu in Phoenix

Reference

Signal references

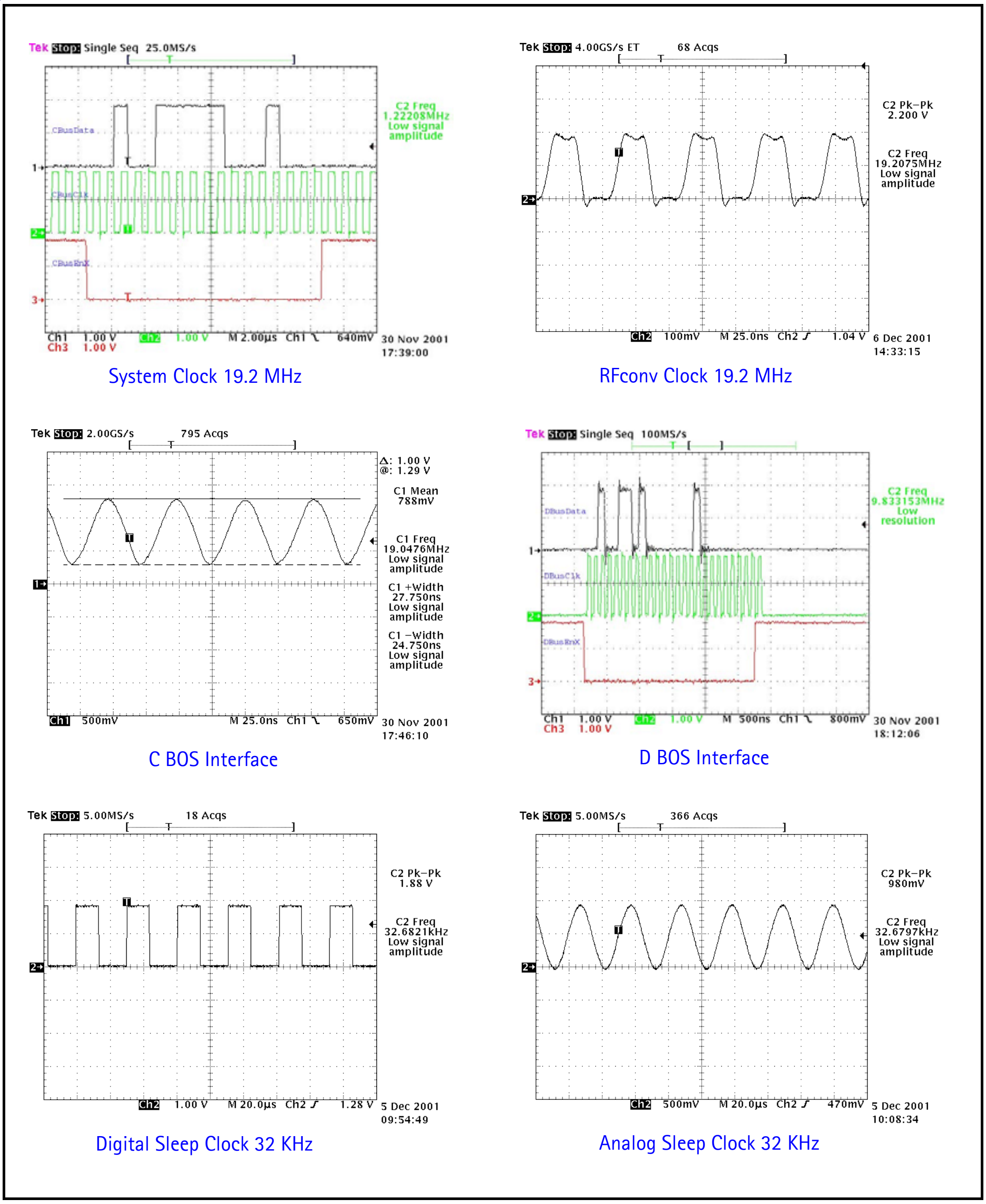

Figure 66: Signal references

Main Display Test Points

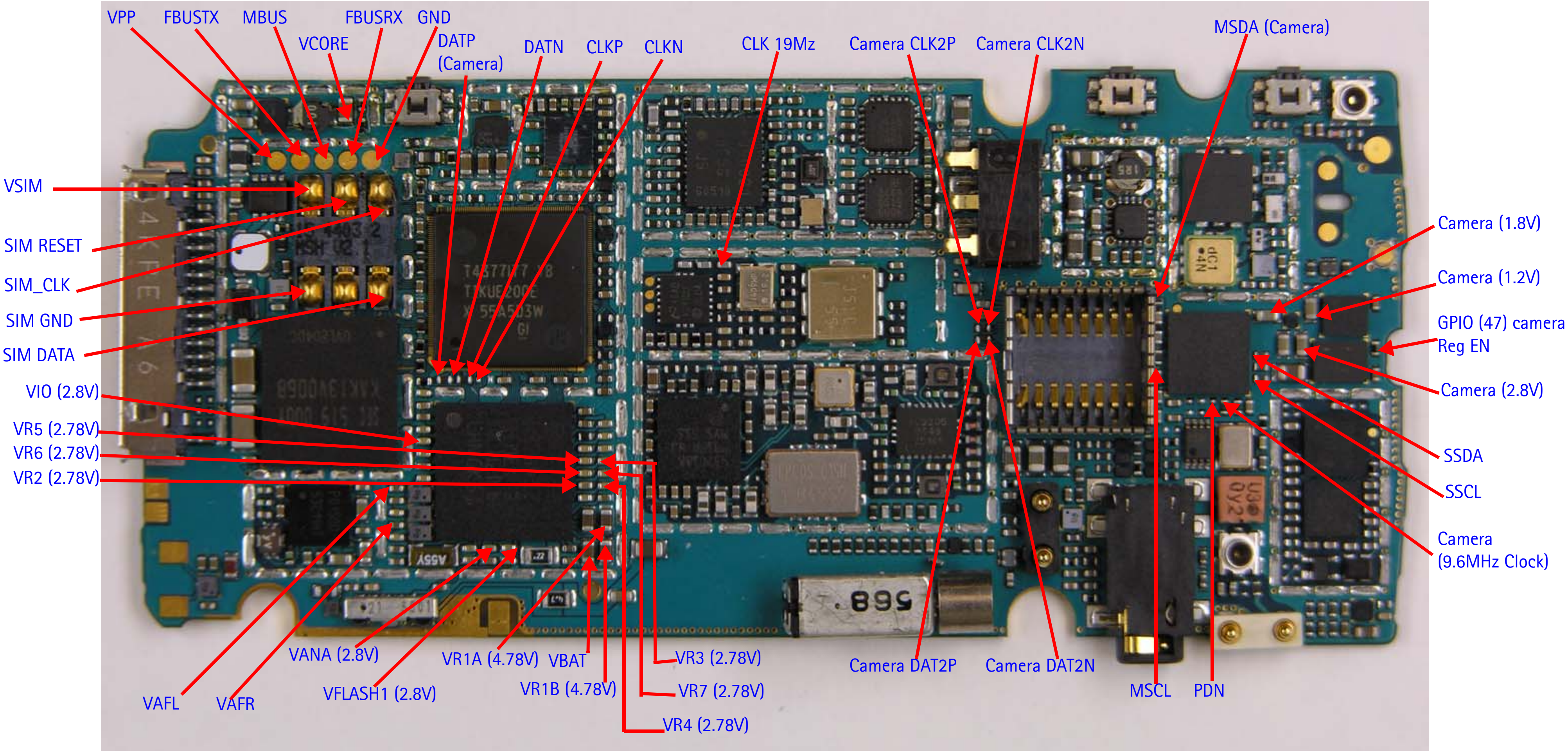

Figure 67: Main display test points – bottom