CCS Technical Documentation NSB-9 Series Transceivers

# **Troubleshooting Instructions**

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# **RF** Troubleshooting

# Introduction

This document describes the methods of RF troubleshooting for Iris NSB-9 transceiver. Fault finding charts of the most common fails are included in this document. Arrows are marked with  $\checkmark$  (OK) and  $\thickapprox$  (NOT OK), respectively. Measurement equipment is marked as:

DMM	Digital Multimeter

OSC Oscilloscope

SA Spectrum Analyzer

Figures of typical signals and voltages at each testpoint are described in Chapter 8.

Location of testpoints are described in Chapters 9 and 10.

## EQUIPMENT NEEDED:

NSB-9 module jig MJS-48, power and DAU-9S cables

DC power supply 3.9 VDC >3A

Radio Communication Tester with GSM850/1900 option

Spectrum analyzer and probe with frequency range up to 4 GHz

Digital multimeter (DMM)

Oscilloscope with 10:1 probe

PC with Phoenix software

## **USEFUL HINTS**

Sometimes it is difficult to get reliable measurement results at high frequencies (500...4000 MHz) because of probe properties etc. If measurement results of faulty phone don't correspond to the results shown in this document it may be useful to measure a reference phone and finally, compare the results.

Special attention shall be paid with internal antenna. Visual inspection of antenna module (shape of radiator metal) is needed to verify that antenna is GSM850/1900 antenna – not GSM900/1800 used in similar European product. Both antennas behave very similarly in MJF-32 jig so it may be impossible to distinguish them by doing measurements over air interface.

# TROUBLESHOOTING IN CASE OF RF TUNING FAIL

# **Channel Select Filter Calibration**

Calibration is done using internal calibration circuit (UEM sends and receives a test signal to/from Hagar). VCO (G650), RX-bandfilters (Z501, Z551) and TX-filter/balun (Z700, T700) don't have any effect to the Channel Select Filter Calibration. Instead, baseband shall be functional (=VCTCXO G660 is running). Any failure in Hagar, its supply voltages or RX/TX IQ-lines may cause this calibration to be failed.

If baseband works and there are not any visible cause around Hagar (missing or broken components etc.), Hagar shall be replaced at first place.

## **RX** Calibration

The most probably reason for this is lack of gain in receiver chain. Check rx chain according to RX850/1900 fault finding charts. In GSM850 RX, components Z520, V500 and Z501 should be checked. In GSM1900 RX, components Z520, V550 and Z551 should be checked.

If signal seems to pass rx chains with adequate gain, VCO function shall be checked. It is also possible that signal passes rx chain to Hagar and VCO is functional but signal doesn't appear in RX IQ-lines. In this case, Hagar shall be replaced.

## **RX AM Suppression Calibration**

RX AM Suppression Calibration limits (LOPI, LOMI, LOPQ and LOMQ) are so wide that the calibration results can't exceed the limits. Instead, RSSI value measured after tuning may be too high. Also in this case, replacing Hagar may improve the result.

## **RX Band Filter Response Compensation**

If RX Calibration results are ok but this compensation fails, the most probably reason for this is lack of gain (or too big gain) in receiver chain in some frequency. Check rx chain according to RX850/1900 fault finding charts. Retest rx chain also in low and high channels. In GSM850 RX, components Z520 and Z501 should be checked. In GSM1900 RX, components Z520 and Z551 should be checked.

## **TX Power Level Tuning**

The most likely reason for this is lack of gain in transmitter chain. Check tx chain according to TX850/1900 fault finding charts. In GSM850 TX, components Z500, L750, N700 and Z700 should be checked. In GSM1900 TX, components Z500, L750, N700 and T700 should be checked.

If signal seems to pass tx chains with adequate gain, VCO function shall be checked. It is also possible that signal doesn't appear in TX IQ-lines. In this case, baseband shall be checked.

## TX IQ Tuning

TX IQ tuning fails, if IQ-spikes in the spectrum can't be tuned low enough. If replacing Hagar doesn't help with this issue, VCO component (G650) and components around it

shall be checked.

# TX 850 Troubleshooting

# Phoenix commands

 $\mathsf{RF}\ \mathsf{Controls} \Rightarrow \mathsf{Band}\ \mathsf{GSM}\ \mathsf{850}\ \mathsf{TX} \Rightarrow \mathsf{Burst}\ \mathsf{mode}$ 

Channel 190  $\Rightarrow$  TX Power Level 10

TX PA Mode Free  $\Rightarrow$  TX Data Random

16 RF Controls	
Band: GSM 850 💌 Active Unit: Tx 💌	Tx PA Mode: Free <u>▼</u> Tx Power Level: 10 ▼
Operation Mode: Burst	Tx Data Type: Random
Rx/Tx Channel: 190 836.600000	
Monitor Channel: 190 881.600000	
AGC: 8: FEG ON + 46 dB	
AFC: -144	Help



Figure 1: Fault finding chart, TX850



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# TX1900 TROUBLESHOOTING

## Phoenix commands

RF Controls  $\Rightarrow$  Band GSM 1900 TX  $\Rightarrow$  Burst mode

Channel 661  $\Rightarrow$  TX Power Level 10

TX PA Mode Free  $\Rightarrow$  TX Data Random

K RF Controls	
Band: GSM 1900	Tx PA Mode: Free 💌
Active Unit: 🛛 🔽	Tx Power Level: 10 💌
Operation Mode: Burst	Tx Data Type: 🛛 🛛 💌
Rx/Tx Channel: 661 1880.000000	
Monitor Channel: 661 1960.000000	
AGC: 8: FEG ON + 46 dB	<b>v</b>
AFC: 144	Help



Figure 2: Fault finding chart, TX1900



# **RX850 troubleshooting**

## Phoenix commands

RF Controls  $\Rightarrow$  Band GSM 850 RX  $\Rightarrow$  Continuous mode

Channel 190  $\Rightarrow$  AGC 8 FEG ON + 46 dB

Tx PA Mode: Free
Tx Power Level: 10
Tx Data Type: 🛛 🛛 💌
•
Help

Figure 3: Fault finding chart, RX850





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# RX1900 Troubleshooting

# Phoenix commands

 $\mathsf{RF}\ \mathsf{Controls} \Rightarrow \mathsf{Band}\ \mathsf{GSM}\ \mathsf{1900}\ \mathsf{RX} \Rightarrow \mathsf{Continuous}\ \mathsf{mode}$ 

Channel 661  $\Rightarrow$  AGC 8 FEG ON + 46 dB

K RF Controls	
Band: GSM 1900	Tx PA Mode: Free
Active Unit: 🛛 💌	Tx Power Level: 10
Operation Mode: Continuous 💌	Tx Data Type: 🛛 🛛 💌
Rx/Tx Channel: 661 1960.000000	
Monitor Channel: 661 1960.000000	
AGC: 8: FEG ON + 46 dB	•
AFC: 144	Help



Figure 4: Fault finding chart, RX1900



# Figures of signals and voltages in testpoints



Figure 5: TP20: 26 MHz VCTCXO output signal

Period (1+)

? 4.66595 ms

? 13.8564 ms



Figure 7: TP22: TX1900 modulator output signal



#### Figure 9: TP24: TX850 modulator output signal



VBW 10 kHz



Figure 11: TP 26: TX1900 PA power control signal



1	200♡/	_	_	_			E_277g	_ 100	_ 100≝/ _Stop <b>f 1</b> 594♡				
				~	****	*****	*****		*******	h			
			"م				:	-					
								- - 					
5													
1													
10. 1	<del>۳</del> – –	-	_	-			<u> </u>			-		*****	• <u>•••</u> ••• <u>•</u> ••
Ļ	$\Delta X = 0.00000 \text{s}$												
ĺ	<ul> <li>Mode</li> <li>Norma</li> </ul>	al	J	•	Source 1	J ×	¥.)	• Y1 4.063	v J_	43.8	≧ mV	J©Y1	Y2



#### Figure 13: TP 28: TX1900 signal at coupler output

Figure 14: TP29: Antenna switch control signal in TX1900 mode





#### Figure 15: TP30: TX850 signal at antenna pad







#### Figure 17: TP31: RX1900 signal at antenna switch output







## Figure 19: TP33: RX1900 signal at LNA output







Figure 21: TP36: RX1900 signal at 2nd band filter output



T 1.157 V

**€**↑

H 1.00 ms/div 💿 🔨 İ 0.0 s

OODA



Figure 23: TP37: RX IQ signal (GSM850, Continuous Mode, Signal level -90 dBm)

V p-p(1) Frequency (1+)



#### Figure 25: TP40: SHF VCO output signal in TX850 mode







#### Figure 27: TP40: SHF VCO output signal in RX850 mode















#### Figure 31: TP61: TX850 signal at coupler output

Figure 32: TP62: Antenna switch control signal in TX850 mode









## TP 65, 67: RX850 LNA control signals (Burst mode)







## Figure 36: TP68: RX850 signal at 2nd band filter output

# FM Radio Troubleshooting

# Introduction

This document describes the methods of FM radio troubleshooting for Iris NSB-9 transceiver.

# EQUIPMENT NEEDED

NSB-9 module jig MJS-48, power and DAU-9S cables

DC power supply 3.9 VDC >3A

Digital multimeter (DMM)

Audio Analyzer

Oscilloscope with 1 MHz 1:1 probe

PC with Phoenix software

Headset (HDB-4 or HDS-3)

# FM RADIO SCHEMATICS



#### Figure 37: Input signal connection to antenna (headset cable)

GND

GND
Figure 39: VCO components



Figure 40: Connection to UPP



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### FM Radio layout

Figure 42: Components



Figure 43: Components on PWB



Note! Components L105, L106, L107, L108, L109, C108, C109, C110, C111, R164, R165, R166, R167, R170 and R171 are not shown in the picture. Components are placed near audio amplifier N150.





#### Figure 45: FM radio fault finding chart

#### **REFERENCE MEASUREMENT RESULTS**



Signal 1: Audio output signal at PWB test points J103 and J104 (FM test signal, audio volume 100%)

Signal 2: Audio output at FM radio pins 22 and 23 (same signal as in C170 and C171)



Figure 47: Reference clock signal from UPP

FM radio clock at test point J359 (32 kHz clock signal when radio is turned on)

15:51:49 03 JUL 2002 MKR 97.9280 MHz REF -20.0 dBm #AT 0 dB -71.03 dBm SWEEP PEAK LOG CONT SGL FREE RUN 10 dB/ VIDEO LINE WA SB EXTERNAL MM M MMMMM sEFER Map SYNC CRD CENTER 98.0000 MHz SPAN 300.0 kHz TV TRIG #RES BW 10 kHz VBW 10 kHz #SWP 1.00 sec

Figure 48: RF input signal

FM modulated test signal at FM radio ASIC pin 37, at the other end of L358



#### Figure 49: VCO signal

VCO frequency at FM radio pins 3 and 4, at the other ends of V356 and V357

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# **Baseband Troubleshooting**

## **PWB** Test points





Figure 51: Baseband testpoints

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Figure 53: Miscellanous testpoints





Signal Name	Function	Test Point	Signal Characteristics	Notes
FBUS_TX	Flash programming data and phone	PRODTP2	2.8–0V, digital signal	From phone to prommer or PC
	control			
FBUS_RX	Flash programming data and phone	PRODTP3	2.8–0V, digital signal	From prommer or PC to phone
	control			
MBUS	Flash programming clock and phone	PRODTP7	2.8–0V, digital signal,	Bidirectional phone control
	control		clocks up to 6.5MHz	
BSI	Flash programming startup	Battery	2.8-0V, analog AD-	2.8V pulse when flashing starts, approx. 1.0V
	signal,battery size indicator, local	connector	converter and digital signal	in normal mode and OV in local mode
	mode switch, SIM card detection	and J101		
VPP	Flash programming voltage	PRODTP6	1.8V, up to12V during	Internal programming voltage 1.8V , external
			flash programming	12V
VR1A	Power supply for Hagar PLL charge	C600	4.75 V	
	pump			
VR2	Power supply for TX modulator	C706	2.8 V	
VR3	Power supply for VCTCXO	C662	2.8 V	Controlled by SLEEPX signal
VR4	Power supply for Hagar	C601	2.8 V	
VR5	Power supply for Hagar	C603	2.8 V	
VR6	Power supply for Hagar	C605	2.8 V	
VR7	Power supply for VCO	R652	2.8 V	
		1	•	
Signal Name	Function	Test Point	Signal Characteristics	Notes
VSIM	Power supply for SIM card	C390/conn.	1.8 or 3.0V	Level depend on SIM card type
SIMRST	SIM reset	C387/conn.	digital signal	Level depend on SIM card type
SIMIODAO	SIM data	C386/conn.	digital signal	Level depend on SIM card type
SIMCLKO	SIM clock	C388/conn.	3.25 MHz digital clock	Level depend on SIM card type
		-	signal	
SLEEPX	Sleep mode control	J403	1.8-0V, digital signal	
PURX	Power up reset	1402	1.8-0V. digital signal	
SLEEPCLK	Sleen clock	1404	1 8-0V 32 kHz digital	
SEELCER	Sicep clock	5404	clock signal	
Signal Name	Function	Test Point	Signal Characteristics	Notes
VBATTO 1	Power supply for VANA, VR3, VR4	C260	= VBAT	
_	and VR7 regulators			
VBATTO 2	Power supply for	C261	= VBAT	
-	VFLASH1, VFLASH2 and VSIM			
	regulators			
VBATTO 3	Power supply for VCORE regulator	C262	= VBAT	
VBATTO 4	Power supply for VR1A.VR1B and	C264	= VBAT	
_	VR2 regulators		1	
VBATTO 5	Power supply for VR5 and VR6	C263	= VBAT	
_	regulators		1	
VBATTO 6	Power supply for VIO regulator	C265	= VBAT	
RFCLK	System clock for baseband	C420	13 MHz analog signal	Requirement > 0.3 Vpp
RF BUSDA	1		, , , , , , , , , , , , , , , , , , ,	
	Hagar control serial data	J2	0 –1.8V, digital signal	

Signal Name	Function	Test Point	Signal Characteristics	Notes
CBUSCLK	Serial clock	J406	1.8-0V, 1MHz digital clock	Controlled by MCU
			signal	
CBUSDA	Serial data input/output	J407	1.8-0V, digital signal	Controlled by MCU

clock signal

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CDDS Selection and endore  Proce  1.8-0V, digital signal  Controlled by INCD    VIO  Power supply for LCD, UPP and flash memory  C205  2.8V    VFLASH1  Power supply for LCD, IR and flash memory  C206  2.8V    VANA  Power supply for UEM (AD, RF and audio codecs)  C208  1.0-1.8V programmable  1.8 V used in NHM-4, initial value is 1.5V    UGRE  Power supply for UPP  C208  1.0-1.8V programmable  1.8 V used in NHM-4, initial value is 1.5V    UGHT  DC/DC converter control  Converter pin8  -VBAT  Notes    Signal Name  Function  Test Point  Signal Characteristics  Notes    RESET  Hagar reset  J1  0 -1.8V, digital signal  -    Signal Name  LCD serial data haput  X300/2  1.0-1.8V, digital signal  -    SCI  LCD serial data input  X300/2  1.0-1.8V, digital signal  -    SCI  LCD serial clock input  X300/6  0-1.8V, digital signal  -    SCI  LCD serial clock input  X300/6  0-1.8V, digital signal  -    FLSKX  Flash memory clock in burst mode  J417  1.8-0V, digital signal  -    FLSKX  Flash memory clock in burst mode  J419  0-1.8V, digital signal  -	CRUSENIX	CRUS colection and anable	1409	1.9 OV digital signal	Controlled by MCII
VIO  Power supply for LCD, UPP and flash memory  C207  1.8V    VFLASH1  Power supply for LCD, IR and flash memory  C205  2.8V    VANA  Power supply for UEM (AD, RF and audio codes)  C206  2.8V    VCORE  Power supply for UEM (AD, RF and audio codes)  C208  1.0-1.8V programmable  1.8 V used in NHM-4, initial value is 1.5V    VCORE  Power supply for UEP  C208  1.0-1.8V programmable  1.8 V used in NHM-4, initial value is 1.5V    DLIGHT  DC/DC converter control  Converter pin8 VBAT    Signal Name  Function  Test Point  Signal Characteristics  Notes    RESET  Hagar restet  J1  0 -1.8V, digital signal	CDOJENA	CDOS SElection and enable	5400	1.0-0V, ulgital signal	controlled by Meo
VIO  Power supply for LCD, UPP and flash memory  C207  1.8V    VFLASH1  Power supply for LCD, IR and flash memory  C205  2.8V    VANA  Power supply for UEM (AD, RF and audio codecs)  C206  2.8V    VCORE  Power supply for UPP  C208  1.0-1.8V programmable  1.8 V used in NHM-4, initial value is 1.5V    DLIGHT  DC/DC converter pin8  -WBAT  Netse  Netse    Signal Name  Function  Test Point  Signal Characteristics  Netse    RESET  Hagar reset  J1  0-1.8V, digital signal  Netse    RESET  Hagar chip select and latch enable  J4  1.8-0V, digital signal  Netse    SI  LCD serial data input  X300/3  0-1.8V, digital signal  Netse    SCI  LCD serial clock input  X300/5  1.8-0V, digital signal  Netse    SIS  LCD serial clock input  X300/5  1.8-0V, digital signal  Netse    RESET  Flash memory read enable  J417  1.8-0V, digital signal  Netse    SIS  LCD serial clock in burst mode  J419  0-1.8V, digital signal  Netse    SIGNA  Flash memory read enable  J416  1.8-0V, digital signal  Netse    SIGNA  Flash memory read enable <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>					
VIO    Prover supply for LD, UP and man    C207    Lav      VELASH1    Power supply for LDD, IR and flash memory    C205    2.8V      VANA    Power supply for LDM (AD, RF and audio codecs)    C206    2.8V      VCIDRE    Power supply for LDM (AD, RF and audio codecs)    Converter    -VBAT      DLIGHT    DC/DC converter control    Converter control    Converter control      Signal Name    Function    Test Point    Signal Characteristics    Notes      RESET    Hagar reset    J1    0 -1.8V, digital signal    RESET      RESET    Hagar reset    X300/2    1.8-9-V, digital signal    RESET      SI    LCD reset    X300/2    0 -1.8V, JSA Mitz digital    Converter      SCI    LCD rip select    X300/3    0 -1.8V, JSA Mitz digital    Converter      SCI    LCD chip select    X300/3    0 -1.8V, ASA Mitz digital    Edital signal      FLSCSX    Flash memory logis letet    J410    0 -1.8V, ASA Mitz digital    Burst mode only when read      EXTRDX    Flash memory logis for UEM, power audifier, DC/DC converter, IR, audif	1/10	Deven even he for LCD, LIDD and float	C207	1.01/	
VIASH1    Power supply for LCD, IR and flash memory    C205    2.8V      VANA    Power supply for UEM (AD, RF and audio codecs)    C206    2.8V      VCORE    Power supply for UPP    C208    1.0-1.8V programmable    1.8 V used in NHM-4, initial value is 1.5V      DUGHT    DC/DC converter control    Converter pin8   VBAT    Notes      Signal Name    Function    Test Point    Signal Characteristics    Notes      RESET    Hagar reset    J1    0 -1.8V, digital signal    -      SIG    LCD serial data input    X300/2    1.8-0V, digital signal    -      SC1    LCD serial clock input    X300/2    0 -1.8V, digital signal    -      SC3    LCD serial clock input    X300/3    0 -1.8V, digital signal    -      SC3    LCD serial clock input    X300/5    1.8-0V, digital signal    -      FLSSX    Flash memory clock in burst mode    J410    1.8-0V, digital signal    -      FLSSX    Flash memory clock in burst mode    J416    1.8-0V, digital signal    -      FLSSX    Flash memory clock in burst mode    J416    1.8-0V, digital signal    -	VIU	Power supply for LCD, UPP and flash	C207	1.8V	
VFLSH1      Fower supply for LDL, in and Tash audio codecs)      Cub      ZaV        VANA      Power supply for UEM (AD, RF and audio codecs)      C206      2.8V        VCORE      Power supply for UPP      C208      1.0-1.8V programmable      1.8 V used in NHM-4, initial value is 1.5V        DLIGHT      DC/DC converter control      Converter pin8      -VBAT      -VBAT        Signal Name      Function      Test Point      Signal Characteristics      Notes        RESET      Hagar reset      J1      0 -1.8V, digital signal      -        SIG      LCD serial data input      X300/3      0 -1.8V, 32.5 MHz digital clock signal      -        SCI      LCD serial clock input      X300/3      0 -1.8V, 32.5 MHz digital clock signal      -        XCS      LCD chip select      X300/5      1.8-0V, digital signal      -        FLSCLX      Flash memory read enable      J417      1.8-0V, digital signal      -        FLSCLX      Flash memory clock in burst mode      J419      0 -1.8V, -35 MHz digital      Burst mode only when read clock signal      Eurotion        Signal Name      Function      Test Point      Signal Characteristics      Note		memory	0005	2.01/	
Memory    Immory    Current of the term    Current of the term    Current of term <thcurrent of="" term<="" th="">    Current of</thcurrent>	VFLASHI	Power supply for LCD, IK and flash	C205	2.8V	
VARA    Power supply for DEM (up, nr and costs)    2.80      VCORE    Power supply for UPP    C208    1.0-1.8V programmable    1.8 V used in NHM-4, initial value is 1.5V      DLIGHT    DC/DC converter control    Converter pin8    -VBAT    -VBAT      Signal Name    Function    Test Point    Signal Characteristics    Notes      Signal Name    Function    Test Point    Vigital signal    Image (n) select and latch enable    J4      RF SUSEN1    Hagar chip select and latch enable    J4    1.8-0V, digital signal    Image (n) select and latch enable    J4      SI    LCD serial clock input    X300/2    1.8-0V, digital signal    Image (n) select and latch enable    J4      SCI    LCD serial clock input    X300/3    0 -1.8V, digital signal    Image (n) select and (n) sel	1/ANIA	memory	6206	2.01/	
VCDRE      Power supply for UPP      C208      1.0-1.8V programmable      1.8 V used in NHM-4, initial value is 1.5V        DLIGHT      DC/DC converter control      Converter pin8      -VBAT      -VBAT        Signal Name      Function      Test Point      Signal Characteristics      Notes        RESET      Hagar reset      J1      0 -1.8V, digital signal          XRES      LCD reset      X300/2      1.8-0V, digital signal          SI      LCD serial data input      X300/2      0 -1.8V, digital signal          SCI      LCD serial clock input      X300/6      0 -1.8V, digital signal           SCI      LCD berial clock input      X300/5      1.8-0V, digital signal           SCI      LCD chip select      X300/5      1.8-0V, digital signal           FLSCX      Flash memory read enable      J417      1.8-0V, digital signal           FLSCX      Flash memory reade nable      J419      0 -1.8V, -35 MHz digital	VANA	Power supply for UEIVI (AD, RF and	C206	2.8V	
VUCKE      Power supply for OPP      C208      T.0-1.8V programmable      T.8 V used in NHM-4, initial value is 1.5V        DLIGHT      DC/DC converter control      Converter pin8      -VBAT      -VBAT        Signal Name      Function      Test Point      Signal Characteristics      Notes        RESET      Hagar chip select and latch enable      JA      1.8 - 0.9V, digital signal      Rest        SIG      LCD reset      X300/2      1.8 - 0V, digital signal      Rest      Rest        SI      LCD serial data input      X300/3      0 - 1.8V, digital signal      Rest      Res      Rest      Rest      Re	VOODE		0000		
DELEM I  DUDC converter control  Converter pin8 VBA I    Signal Name  Function  Test Point  Signal Characteristics  Notes    RESET  Hagar reset  J1  0 -1.8V, digital signal  Image: control of the section of th	VLOKE	Power supply for UPP	C208	1.0-1.8V programmable	1.8 V used in NHM-4, initial value is 1.5V
Signal Name      Function      Test Point      Signal Characteristics      Notes        RESET      Hagar reset      J1      0 -1.8V, digital signal      Image: Align and Align an	DLIGHT	DC/DC converter control	Converter	~VBAT	
Signal NameFunctionTest PointSignal CharacteristicsNotesRESETHagar resetJ10 -1.8V, digital signalRF_BUSEN1Hagar chip select and latch enableJ41.8-OV, digital signalXRESLCD serial data inputX300/21.8-OV, digital signalSILCD serial data inputX300/30 -1.8V, J2S MHz digitalSCILCD serial clock inputX300/51.8-OV, digital signalSCILCD chip selectX300/51.8-OV, digital signalXCSLCD chip selectX300/51.8-OV, digital signalEXTRDXFlash memory read enableJ4171.8-OV, digital signalFLSCSXFlash memory read enableJ4190 -1.8V,35 MHz digitalFLSCXFlash memory clock in burst modeJ4190 -1.8V,35 MHz digitalEXTWRXFlash memory urite enableJ4161.8-OV, digital signalFLSCXFlash memory write enableJ4161.8-OV, digital signalSignal NameFunctionTest PointSignal CharacteristicsVBATBattery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibra3.6V3.1V - 4.2VBTEMPBattery temperature, test mode switchBattery connector and J1020 -1.8V, digital signalFBUSTXFBUS from UEM to UPPJ4050 -1.8V, digital signalControlled by DSPDBUSDADBUS clockJ4140 -1.8V, digital signalControlled by DSPDBUSDADBUS selection and enableJ4140 -1.8V, digit			pin8		
Signal NameFunctionTest From test FormSignal CharacteristicsNotesRESETHagar resetJ10-1.8V, digital signal	Cinn al Nama	<b>F</b>	Tast Daint	Simul Changetanistics	N
RE_BUSEN1    Hagar reset:    71    0 = 1.8V, digital signal      RE_BUSEN1    Hagar chip select and latch enable    J4    1.8-0V, digital signal      SI    LCD reset    X300/2    0 = 1.8V, digital signal      SCI    LCD serial data input    X300/3    0 = 1.8V, digital signal      SCI    LCD serial clock input    X300/6    0 = 1.8V, digital signal      XCS    LCD chip select    X300/5    1.8-0V, digital signal      EXTRDX    Flash memory read enable    J417    1.8-0V, digital signal      FLSCSX    Flash memory read enable    J417    1.8-0V, digital signal      EXTRDX    Flash memory read enable    J416    1.8-0V, digital signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal      Signal Name    Function    Test Point    Signal Characteristics    Notes      Signal Name    Function    connector <td< td=""><td>Signai ivame</td><td>Function</td><td>lest Point</td><td>Signal Characteristics</td><td>Notes</td></td<>	Signai ivame	Function	lest Point	Signal Characteristics	Notes
HT_BUSEN1    Hagar chip select and latch enable    J4    1.8-0V, digital signal      SRES    LCD reset    X300/2    1.8-0V, digital signal      SI    LCD serial clock input    X300/6    0 -1.8V, digital signal      SCI    LCD serial clock input    X300/7    0.7.8V, digital signal      XCS    LCD chip select    X300/5    1.8-0V, digital signal      XCS    LCD chip select    X300/5    1.8-0V, digital signal      FLSCLK    Flash memory red enable    J417    1.8-0V, digital signal      FLSCLK    Flash memory clock in burst mode    J419    0 -1.8V, -35 MHz digital clock signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal    Burst mode only when read clock signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal    Burst mode only when read clock signal      Signal Name    Function    Test Point    Signal Characteristics    Notes      Signal Name    Function    Test Point    Signal Characteristics    Notes      Battery collage for UEM, power and/or and vibra    Battery connector and J102    3.1V - 4.2V    Silver 4.2V      Bustery temperature, test mode swit	RESEL	Hagar reset	JI	0 - 1.8V, digital signal	
XRESLCD resetX300/21.8-0V, digital signalSILCD serial data inputX300/30 -1.8V, digital signalSCILCD serial clock inputX300/60 -1.8V, 3.25 MHz digital clock signalXCSLCD chip selectX300/51.8-0V, digital signalEXTRDXFlash memory read enableJ4171.8-0V, digital signalFLSCSXFlash memory reb selectJ4201.8-0V, digital signalFLSCSXFlash memory clock in burst modeJ4190 -1.8V, -35 MHz digital clock signalEXTWRXFlash memory vrite enableJ4161.8-0V, digital signalEXTWRXFlash memory write enableJ4161.8-0V, digital signalSignal NameFunctionTest PointSignal CharacteristicsVBATBattery voltage for UEM, power audio amp, keyboard leds and vibraBattery connector3.6VBTEMPBattery temperature, test mode switchBattery connector and J1023.6VBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalBUSDADBUS clockJ4140 -1.8V, digital signalDBUSDADBUS clockJ4140 -1.8V, digital signalDBUSDADBUS clockJ4140 -1.8V, digital signalDBUSSRXMBUS from UEM to UPPJ41301.8V, digital signalDBUSSRXMBUS from UEM to UPPJ4101.8-0V, digital signalDBUSSRXMBUS from UEM to UPPJ4101.8-0V, digital signalDBUSSRXMBUS from UEM to UPPJ4101.8-0V, digital signal </td <td>KF_BUSEN1</td> <td>Hagar chip select and latch enable</td> <td>J4</td> <td>1.8-0V, digital signal</td> <td></td>	KF_BUSEN1	Hagar chip select and latch enable	J4	1.8-0V, digital signal	
SI    LCD serial data input    X300/3    0 -1.8V, 325 MHz digital signal      SCI    LCD serial clock input    X300/6    0 -1.8V, 325 MHz digital signal      XCS    LCD chip select    X300/5    1.8-0V, digital signal      EXTRDX    Flash memory che select    J420    1.8-0V, digital signal      FLSCSX    Flash memory che select    J420    1.8-0V, digital signal      FLSCSX    Flash memory che select    J420    1.8-0V, digital signal      FLSCSX    Flash memory che select    J420    1.8-0V, digital signal      FLSCSX    Flash memory che select    J420    1.8-0V, digital signal      FLSCSX    Flash memory che select    J420    1.8-0V, digital signal      FLSCXK    Flash memory che select    J420    1.8-0V, digital signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal      Signal Name    Function    Test Point    Signal Characteristics    Notes      VBAT    Battery voltage for UEM, power audio anp, keyboard leds and vina    Signal Characteristics    Notes      BTEMP    Battery temperature, test mode switch    and J102    onn J102    Intercepreature, test mode switch <td>XRES</td> <td>LCD reset</td> <td>X300/2</td> <td>1.8-0V, digital signal</td> <td></td>	XRES	LCD reset	X300/2	1.8-0V, digital signal	
SC1    LCD serial clock input    X300/6    0 - 1.8V, 3.25 MHz digital clock signal      XCS    LCD chip select    X300/5    1.8-0V, digital signal    Image: clock signal      EXTRDX    Flash memory read enable    J417    1.8-0V, digital signal    Image: clock signal      FLSCSX    Flash memory clock in burst mode    J419    0 -1.8V, ~35 MHz digital clock signal    Burst mode only when read      FLSCLK    Flash memory write enable    J416    1.8-0V, digital signal    Image: clock signal    Image: clock signal      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal    Image: clock signal    Image: clock signal      Signal Name    Function    Test Point    Signal Characteristics    Notes      VBAT    Battery voltage for UEN, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibra    8attery connector and J102    3.6V    3.1V - 4.2V      FBUS    Battery temperature, test mode switch    Battery connector and J102    0 -1.8V, digital signal    Image: clock signal      FBUSRX    FBUS from UEM to UPP    J412    0 -1.8V, digital signal    Image: clock signal    Image: clock signal      BUSDA    DBUS clock    J414    0 -1.8V, digital signal<	SI	LCD serial data input	X300/3	0 -1.8V, digital signal	
ACSLCD chip selectX300/51.8-0V, digital signalEXTRDXFlash memory read enableJ4171.8-0V, digital signalFLSCSXFlash memory chip selectJ4201.8-0V, digital signalFLSCSXFlash memory clock in burst modeJ4190-1.8V, -35 MHz digital clock signalBurst mode only when readEXTWRXFlash memory write enableJ4161.8-0V, digital signalBurst mode only when readEXTWRXFlash memory write enableJ4161.8-0V, digital signalDevelopmentEXTWRXFlash memory write enableJ4161.8-0V, digital signalDevelopmentSignal NameFunctionTest PointSignal CharacteristicsNotesVBATBattery voltage for UEM, power audio amp, keyboard leds and vibraBattery connector and J1023.6V3.1V - 4.2VFBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalDevelopmentFBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalDevelopmentFBUSDADBUS clockJ4111.8-0V, digital signalDevelopmentDBUSDADBUS clockJ4140 -1.8V, 13 MHz digitalControlled by DSPDBUSSRXMBUS from UEM to UPPJ4130 -1.8V, digital signalControlled by DSPDBUSSRXMBUS from UEM to UPPJ4130 -1.8V, digital signalControlled by DSPDBUSSRXMBUS from UEM to UPPJ4101.8-0V, digital signalControlled by DSPDBUSSRXMBUS from UEM to UPPJ4101.8-0V, digital signa	SCI	LCD serial clock input	X300/6	0 –1.8V, 3.25 MHz digital	
XCS    LCD chip select    X300/5    1.8–0V, digital signal      EXTRDX    Flash memory read enable    J417    1.8–0V, digital signal      FLSCSX    Flash memory chip select    J420    1.8–0V, digital signal      FLSCSX    Flash memory chip select    J420    1.8–0V, digital signal      FLSCLK    Flash memory write enable    J416    1.8–0V, digital signal      EXTWRX    Flash memory write enable    J416    1.8–0V, digital signal      Signal Name    Function    Test Point    Signal Characteristics    Notes      VBAT    Battery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibra    Battery connector    3.6V    3.1V – 4.2V      BTEMP    Battery temperature, test mode switch    Battery connector    and J102    0 – 1.8V, digital signal      FBUSRX    FBUS from UEM to UPP    J412    0 – 1.8V, digital signal    1      FBUSIX    FBUS from UPP to UEM    J411    1.8–0V, digital signal    1      UEMINT    Interrupt request for UPP    J405    0 – 1.8V, digital signal    1      DBUSDA    DBUS clock    J414    0 – 1.8V, digital signal    1    1   <				clock signal	
EXTRDXFlash memory read enableJ4171.8-0V, digital signalFLSCSXFlash memory chip selectJ4201.8-0V, digital signalFLSCLKFlash memory chip selectJ4190 -1.8V, ~35 MHz digital clock signalBurst mode only when readEXTWRXFlash memory write enableJ4161.8-0V, digital signalBurst mode only when readSignal NameFunctionTest PointSignal CharacteristicsNotesVBATBattery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibraBattery connector3.6V3.1V - 4.2VBTEMPBattery temperature, test mode switchBattery connector and J1020 -1.8V, digital signalFBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalDEMUNTInterrupt request for UPPJ4050 -1.8V, digital signalDBUSDADBUS clockJ4140 -1.8V, digital signalControlled by DSPDBUSCLKDBUS selection and enableJ4151.8-0V, digital signalControlled by DSPDBUSRXMBUS from UEM to UPPJ4100 -1.8V, digital signalControlled by DSPDBUSDADBUS clockJ4140 -1.8V, digital signalControlled by DSPDBUSSLIKDBUS selection and enableJ4151.8-0V, digital signalControlled by DSPMBUSRXMBUS from UEM to UPPJ4101.8-0V, digital signalControlled by DSP	XCS	LCD chip select	X300/5	1.8–0V, digital signal	
FLSCSX    Flash memory chip select    J420    1.8–0V, digital signal      FLSCSX    Flash memory clock in burst mode    J419    0 -1.8V, ~35 MH2 digital clock signal    Burst mode only when read      EXTWRX    Flash memory write enable    J416    1.8–0V, digital signal    Burst mode only when read      Signal Name    Function    Test Point    Signal Characteristics    Notes      VBAT    Battery voltage for UEM, power andifier, DC/DC converter, IR, audio amp, keyboard leds and vibra    Battery connector    3.6V    3.1V – 4.2V      BTEMP    Battery temperature, test mode switch    Battery connector and J102    01.8V, digital signal    1.8–0V, digital signal      FBUSRX    FBUS from UEM to UPP    J412    01.8V, digital signal    1.8–0V      FBUSTX    FBUS from UPP to UEM    J411    1.8–0V, digital signal    1.8–0V      DBUSDA    DBUS clock    J414    01.8V, digital signal    1.8–0V      DBUSCLK    DBUS selection and enable    J412    01.8V, digital signal    1.8–0V, digital signal      DBUSRX    MBUS from UEM to UPP    J413    01.8V, digital signal    1.8–0V    1.8–0V, digital signal    1.8–0V      DBUSCLK    DBUS selec	EXTRDX	Flash memory read enable	J417	1.8–0V, digital signal	
FLSCLK    Flash memory clock in burst mode    J419    0 - 1.8V, ~35 MHz digital clock signal    Burst mode only when read      EXTWRX    Flash memory write enable    J416    1.8-0V, digital signal    Image: Construction of the con	FLSCSX	Flash memory chip select	J420	1.8-0V, digital signal	
EXTWRXFlash memory write enableJ416I.8-OV, digital signalSignal NameFunctionTest PointSignal CharacteristicsNotesVBATBattery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibraBattery connector3.6V3.1V - 4.2VBTEMPBattery temperature, test mode switchBattery connector and J1023.6V3.1V - 4.2VFBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signal	FLSCLK	Flash memory clock in burst mode	J419	0 –1.8V, ~35 MHz digital	Burst mode only when read
EXTWRX    Flash memory write enable    J416    1.8–0V, digital signal      Signal Name    Function    Test Point    Signal Characteristics    Notes      VBAT    Battery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibra    Battery connector    3.6V    3.1V – 4.2V      BTEMP    Battery temperature, test mode switch    Battery connector    connector    and J102      FBUSRX    FBUS from UEM to UPP    J412    0 –1.8V, digital signal				clock signal	
Signal NameFunctionTest PointSignal CharacteristicsNotesVBATBattery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibraBattery connector3.6V3.1V - 4.2VBTEMPBattery temperature, test mode switchBattery connector and J102Battery connectorSettery connectorFBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalImage: Control of the temperature, test mode and J102FBUSRXFBUS from UEM to UPPJ4111.8-0V, digital signalImage: Control of temperature, test mode switchDBUSDADBUS clockJ4140 -1.8V, digital signalControlled by DSPDBUSCLKDBUS clockJ413 clock signal0 -1.8V, digital signalControlled by DSPDBUSEN1XDBUS selection and enableJ415 clock signal1.8-0V, digital signalControlled by DSPMBUSRXMBUS from UEM to UPPJ410 clock signalControlled by DSPMBUSRMBUSRXMBUS from UEM to UPPJ410 clock signalControlled by DSP	EXTWRX	Flash memory write enable	J416	1.8-0V, digital signal	
Signal NameFunctionTest PointSignal CharacteristicsNotesVBATBattery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibraBattery connector3.6V3.1V - 4.2VBTEMPBattery temperature, test mode switchBattery connector and J102Settery connector3.6VFBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalImage: Controlled by DSPFBUSRXFBUS from UEM to UPPJ4050 -1.8V, digital signalImage: Controlled by DSPDBUSDADBUS clockJ4140 -1.8V, digital signalControlled by DSPDBUSCLKDBUS data input/outputJ413 clock signal0 -1.8V, digital signalControlled by DSPDBUSEN1XDBUS selection and enableJ4151.8-0V, digital signalControlled by DSPMBUSRXMBUS from UEM to UPPJ4001.8-0V, digital signalControlled by DSP					
VBATBattery voltage for UEM, power amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibraBattery connector3.6V3.1V - 4.2VBTEMPBattery temperature, test mode switchBattery connector and J102Battery connector and J102Settery connector and J102Settery connector and J102FBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalSettery connector and J102FBUSTXFBUS from UPP to UEMJ4111.8-OV, digital signalSettery controlled by DSPDBUSDADBUS clockJ4140 -1.8V, digital signalControlled by DSPDBUSCLKDBUS data input/outputJ413 clock signal0 -1.8V, 13 MHz digital clock signalControlled by DSPDBUSEN1XDBUS selection and enableJ4151.8-OV, digital signalControlled by DSPMBUSRXMBUS from UEM to UPPJ4101.8-OV, digital signalControlled by DSP	Signal Name	Function	Test Point	Signal Characteristics	Notes
amplifier, DC/DC converter, IR, audio amp, keyboard leds and vibraconnectorBTEMPBattery temperature, test mode switchBattery connector and J102Battery connector and J102FBUSRXFBUS from UEM to UPPJ4120 -1.8V, digital signalFBUSTXFBUS from UPP to UEMJ4111.8-0V, digital signalUEMINTInterrupt request for UPPJ4050 -1.8V, digital signalDBUSDADBUS clockJ4140 -1.8V, digital signalDBUSCLKDBUS data input/outputJ413 clock signalControlled by DSPDBUSEN1XDBUS selection and enableJ4151.8-0V, digital signalMBUSRXMBUS from UEM to UPPJ4001.8-0V, digital signal	VBAT	Battery voltage for UEM, power	Battery	3.6V	3.1V - 4.2V
audio amp, keyboard leds and vibra    audio amp, keyboard leds and vibra      BTEMP    Battery temperature, test mode switch    Battery connector and J102      FBUSRX    FBUS from UEM to UPP    J412    0 -1.8V, digital signal      FBUSTX    FBUS from UPP to UEM    J411    1.8-0V, digital signal      UEMINT    Interrupt request for UPP    J405    0 -1.8V, digital signal      DBUSDA    DBUS clock    J414    0 -1.8V, digital signal      Controlled by DSP    DBUS clock    J413    0 -1.8V, 13 MHz digital controlled by DSP      DBUSCLK    DBUS data input/output    J413    0 -1.8V, 13 MHz digital controlled by DSP      DBUSEN1X    DBUS selection and enable    J415    1.8-0V, digital signal    Controlled by DSP      MBUSRX    MBUS from UEM to UPP    J410    1.8-0V, digital signal    Controlled by DSP		amplifier, DC/DC converter, IR.	connector		
BTEMP    Battery temperature, test mode switch    Battery connector and J102      FBUSRX    FBUS from UEM to UPP    J412    0 –1.8V, digital signal      FBUSTX    FBUS from UPP to UEM    J411    1.8–0V, digital signal      UEMINT    Interrupt request for UPP    J405    0 –1.8V, digital signal      DBUSDA    DBUS clock    J414    0 –1.8V, digital signal      DBUSCLK    DBUS data input/output    J413    0 –1.8V, 13 MHz digital controlled by DSP      DBUSEN1X    DBUS selection and enable    J415    1.8–0V, digital signal    Controlled by DSP      MBUSRX    MBUS from UEM to UPP    J410    1.8–0V, digital signal    Controlled by DSP		audio amp. keyboard leds and vibra			
Buskery competitions, test mode  Dattery competitions, test mode  Dattery competitions, test mode    switch  switch  connector and J102    FBUSRX  FBUS from UEM to UPP  J412  0 -1.8V, digital signal    FBUSTX  FBUS from UPP to UEM  J411  1.8-0V, digital signal    UEMINT  Interrupt request for UPP  J405  0 -1.8V, digital signal    DBUSDA  DBUS clock  J414  0 -1.8V, digital signal    DBUSCLK  DBUS data input/output  J413  0 -1.8V, 13 MHz digital clock signal  Controlled by DSP    DBUSEN1X  DBUS selection and enable  J415  1.8-0V, digital signal  Controlled by DSP    MBUSRX  MBUS from UEM to UPP  J410  1.8-0V, digital signal  Controlled by DSP	RTEMP	Battery temperature test mode	Battery		
SWICH    Connector and J102      FBUSRX    FBUS from UEM to UPP    J412    0 -1.8V, digital signal      FBUSTX    FBUS from UPP to UEM    J411    1.8-0V, digital signal      UEMINT    Interrupt request for UPP    J405    0 -1.8V, digital signal      DBUSDA    DBUS clock    J414    0 -1.8V, digital signal    Controlled by DSP      DBUSCLK    DBUS data input/output    J413    0 -1.8V, 13 MHz digital clock signal    Controlled by DSP      DBUSEN1X    DBUS selection and enable    J415    1.8-0V, digital signal    Controlled by DSP      MBUSRX    MBUS from UEM to UPP    J400    1.8-0V, digital signal    Controlled by DSP	DIEW	switch	connector		
FBUSRX    FBUS from UEM to UPP    J412    0 -1.8V, digital signal      FBUSTX    FBUS from UPP to UEM    J411    1.8-0V, digital signal      UEMINT    Interrupt request for UPP    J405    0 -1.8V, digital signal      DBUSDA    DBUS clock    J414    0 -1.8V, digital signal    Controlled by DSP      DBUSCLK    DBUS data input/output    J413    0 -1.8V, 13 MHz digital clock signal    Controlled by DSP      DBUSEN1X    DBUS selection and enable    J415    1.8-0V, digital signal    Controlled by DSP      MBUSRX    MBUS from UEM to UPP    J400    1.8-0V, digital signal    Controlled by DSP		SWITCH	and 1102		
FBUSKX  FBUS from UEP to UFP  J412  0 -1.8V, digital signal    FBUSTX  FBUS from UPP to UEM  J411  1.8–OV, digital signal    UEMINT  Interrupt request for UPP  J405  0 -1.8V, digital signal    DBUSDA  DBUS clock  J414  0 -1.8V, digital signal    Controlled by DSP    DBUSCLK  DBUS data input/output  J413  0 -1.8V, 13 MHz digital controlled by DSP    Clock signal  clock signal  Controlled by DSP    DBUSEN1X  DBUS selection and enable  J415  1.8–OV, digital signal    MBUSRX  MBUS from UEM to UPP  J410  1.8–OV, digital signal	FDUCDY				
FBUS TX  FBUS from UPP to UEIM  J411  1.8–0/, digital signal    UEMINT  Interrupt request for UPP  J405  0 -1.8V, digital signal    DBUSDA  DBUS clock  J414  0 -1.8V, digital signal  Controlled by DSP    DBUSCLK  DBUS data input/output  J413  0 -1.8V, 13 MHz digital clock signal  Controlled by DSP    DBUSEN1X  DBUS selection and enable  J415  1.8–0V, digital signal  Controlled by DSP    MBUSRX  MBUS from UEM to UPP  J410  1.8–0V, digital signal  Controlled by DSP	FBUSKA		J412	0 - 1.8V, digital signal	
UEMINT      Interrupt request for UPP      J405      0 -1.8V, digital signal        DBUSDA      DBUS clock      J414      0 -1.8V, digital signal      Controlled by DSP        DBUSCLK      DBUS data input/output      J413      0 -1.8V, 13 MHz digital controlled by DSP        DBUSEN1X      DBUS selection and enable      J415      1.8-0V, digital signal      Controlled by DSP        MBUSRX      MBUS from UEM to UPP      J410      1.8-0V, digital signal      Controlled by DSP	FBUSIX	FBUS from UPP to UEM	J411	1.8–0V, digital signal	
DBUSDA      DBUS clock      J414      0 -1.8V, digital signal      Controlled by DSP        DBUSCLK      DBUS data input/output      J413      0 -1.8V, 13 MHz digital clock signal      Controlled by DSP        DBUSEN1X      DBUS selection and enable      J415      1.8-0V, digital signal      Controlled by DSP        MBUSRX      MBUS from UEM to UPP      J410      1.8-0V, digital signal      Controlled by DSP	UEMINT	Interrupt request for UPP	J405	0 –1.8V, digital signal	
DBUSCLK  DBUS data input/output  J413  0 -1.8V, 13 MHz digital clock signal  Controlled by DSP    DBUSEN1X  DBUS selection and enable  J415  1.8-0V, digital signal  Controlled by DSP    MBUSRX  MBUS from UEM to UPP  J410  1.8-0V, digital signal  Controlled by DSP	DBUSDA	DBUS clock	J414	0 –1.8V, digital signal	Controlled by DSP
clock signal        DBUSEN1X      DBUS selection and enable      J415      1.8-0V, digital signal      Controlled by DSP        MBUSRX      MBUS from UEM to UPP      J410      1.8-0V, digital signal      MBUSRX	DBUSCLK	DBUS data input/output	J413	0 –1.8V, 13 MHz digital	Controlled by DSP
DBUSEN1X      DBUS selection and enable      J415      1.8-OV, digital signal      Controlled by DSP        MBUSRX      MBUS from UEM to UPP      J410      1.8-OV, digital signal      Image: Controlled by DSP        MBUSRX      MBUS from UEM to UPP      J410      1.8-OV, digital signal      Image: Controlled by DSP				clock signal	
MBUSRX MBUS from UEM to UPP J410 1.8-0V, digital signal	DBUSEN1X	DBUS selection and enable	J415	1.8-0V, digital signal	Controlled by DSP
MBLISTY MBLISTY MBLISTY IN 10 TH OF THE ANALY MBLISTY	MBUSBX	MBUS from UEM to UPP	1410	1 8-0V digital signal	
	MRUSTY	MBUS from UPP to UEM	1409	1.8-0V digital signal	

## Troubleshooting steps

The following hints help to find the problem if the circuitry seems to be faulty. The instructions are divided into following sections:

- 1. Phone is dead
- 2. Flash faults
- 3. Phone is jammed
- 4. Charging fault
- 5. Sim card fault
- 6. Audio faults
- 7. Display faults
- 8. Keypad fault
- 9. FM-radio faults

The first thing to do is to carry out a thorough visual check of the module. Ensure in particular that:

- 1. there is no any mechanical damages
- 2. soldered joints are OK

**CCS** Technical Documentation

## Main troubleshooting tree





# NOKIA

**CCS** Technical Documentation

## Phone is dead



## **Flash faults**





## Phone is jammed





## **Charging fault**



# NOKIA

**CCS** Technical Documentation

## SIM card fault



## Audio faults







1) If not working set first "All outputs off" and after that "IHF speaker"





2) If not working set first "All outputs off" and after that "HP speaker", after that insert headset again





3) If you don't get such a small signal out from signal generator, use resistor network to attenuate signal



## **Display faults**





## Keypad faults








## Flip faults





## FM Radio doesn't work

See page 35, FM Radio troubleshooting.