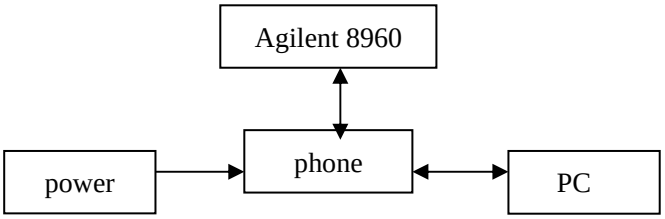
RF debug procedure



Test no signal mode connect chart

1 RX test result ：

No signel mode , 8960 set -90dbm PC set -90dbm， loss less than -1.5dbm

Signel mode , call 8960 sensitiving less than -102dbm

Confirm the analyzer station has been set up：

For example, have some problem in EGSM Rx Level check.

Connect the product to Agilent 8960 by RF cable. The RF cable is plugged to the RF connector.

Configure the Agilent 8960 in Output on the channel, band and the RX level defective; make the same thing for the product in Meta tool.

Note: Test on a good radio to get reference signal when you don't know if the signal is right.

Step1: Measure the output signal from RF Switch U101 to check if the signal is right, GSM850 signal: measured from pin 3(Measure at L106); PCS signal: measured from pin1 (measure at L131), If wrong signal was detected, measured the input signal to RF Switch U101. If input signal to RF Switch U101 was wrong, it maybe R130，C106，J101 value issue or soldering issue. If input signal to RF Switch U101 was right, we should check whether it was caused by RF Switch U101 poor soldering or control signal (measure at B101,B102,) have some problem. If control signal was wrong, it maybe CPU soldering issue or component defect.

Step2: If the output signal from RF Switch U101 was right, we should measure the signal to transceiver (U102). If wrong signal was detected, we should check Z102(DUALSAW), L106 (GSM900/850), L113(PCS) or parts around them.

Step3: If the output signal from L106 (GSM900/850), L113(PCS) was right, we should measured the signal of I&Q output from transceiver (U102), If wrong signal was detected, if maybe transceiver (U102) soldering issue or value issue.

Step4: If no clear issue was found, we should downloading SW again or replace CPU (U201) and rewrite RF data in Meta.

When repair RX QUALITY、BER，if RX LEVER was right ,commonly,we will replace transceiver (U102), CPU（U201)。

2 TX test result:

Key parameter of TX circuit are “MAX POWER”, “TX-CURRENT”, “Time Mask”, “Phase Error” ,“Freq. error” etc.

Following is normal analysis of the circuit.

Confirm the instrument for analysis is Ok (for example EGSM: Channel 1, Level=10)

- Power on radio, press ‘TX command’ button, setting up the channel (1) and power level (10).
- Set the right frequency (890.2MHZ) and sweeping time on spectrum analyzer.
- Set up the voltmeter and oscilloscope.

Step 1: Measure the I/Q signals that from CPU（U201）to transceiver (U102). If the I&Q signals have some problem be fund，check the transceiver (U102) and CPU（U201）solder issue or value of the two component 。

Step 2: If the I/Q signals is good, measure the TXOGSM signal that output by transceiver (U102).If any abnormity be fund , check transceiver (U102) solder issue and component value or check the voltage of VCCRF.

Step 3: If TXOGSM signal is good ，measure GSM TX pin（pin 21） in PA. If the input signal for U103 have some problem be fund, check the component value and solder issue of C121,R120

Step 4: If the signal is natural. Continue measure the U103 output signal in pin2, if abnormity. Measure the control signals of BANDSW、PAEN、VAPC. If the control have some problem be fund , check the component of R162,C105,R161,C161,R105,R106,C104 and U102（output VAPC）and CPU（U201）（BANDSW、PAEN、VAPC）solder issue or value. If the control signals are good, check the component of U103 solder issue and value.

Step 5: If the signal is good that output by U103， measure the signal that input to U101, if have any problem be fund ,check the component of C117,R103 solder issue and if the component mistake.

Step 6: If the signal input U101 is good. Measure the output signal of U101, if the signal has any problem, measure the control signals of LB_TX, HB_TX that output by CPU. If any problem be fund, repair the homologous circuit; if no problem be fund, check the RF_SW value and

solder issue.

Step 7: If the output signal is good by U101, check R130,C106 and J101 solder issue and value or component mistake.

Note：component position reference schematic UQ300_SCH.pdf