Repair instruction

RBMetal5SHPn

Published July 24, 2015

These repair instructions are for NON WARRANTY repairs only!
Please make visual inspection for signs of corrosion
or mechanical damages before starting.

Contents

List of RBMetal5SHPn series....3
Disassembling information....4
Routerboard does not power on....6
Routerboard does not boot....10
Ethernet port does not work....11
Voltage and temperatur monitor does not work....12
WiFi does not work....13

List of Metal 5SHPn series

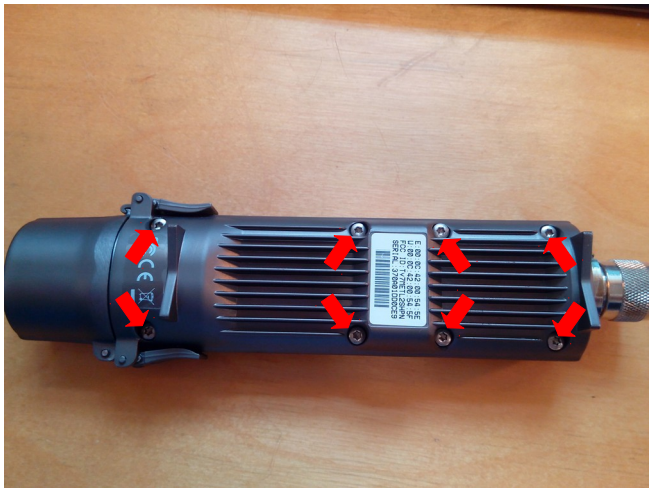
Metal 5SHPn

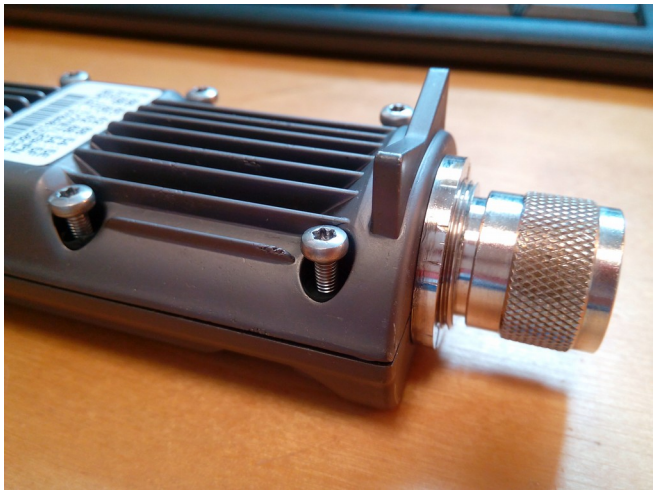




Disassembling information

1. Use “*” key to unscrew case.

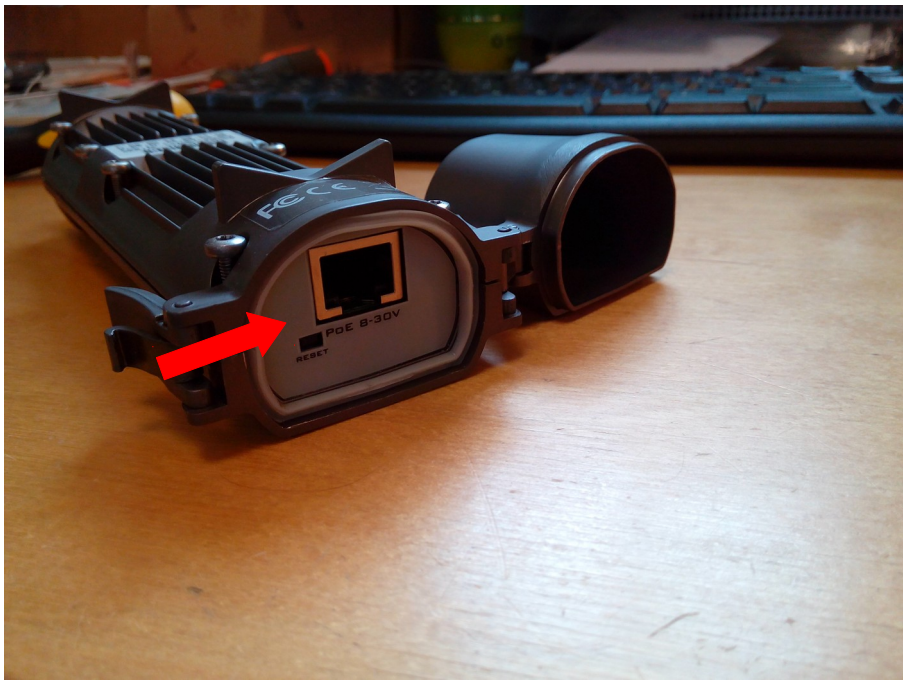




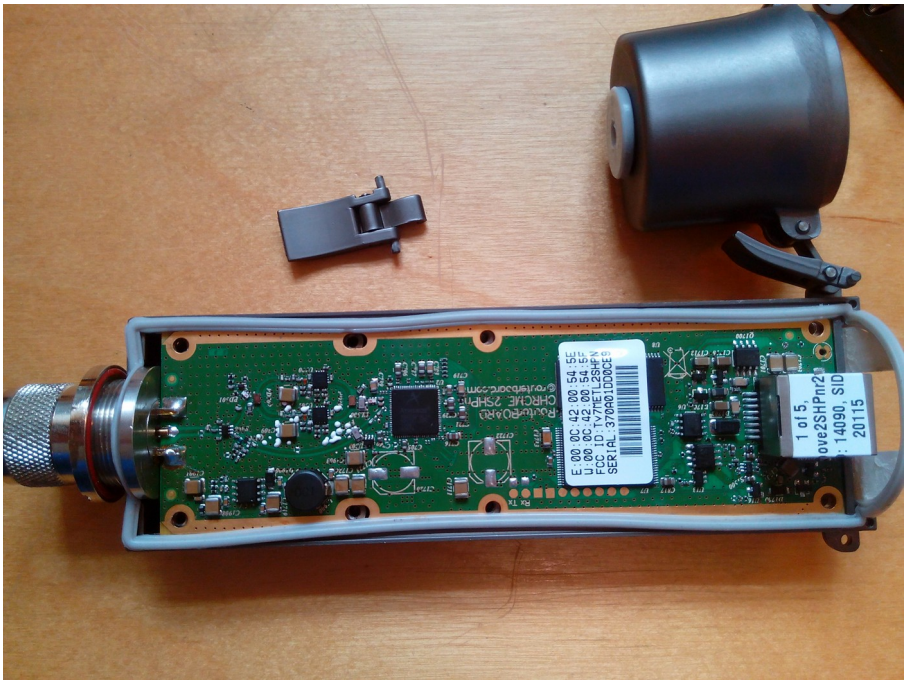
2. Unscrew N-type RF connector ring



3. Peel off sticker



4. Remove rubber and take out board from case.

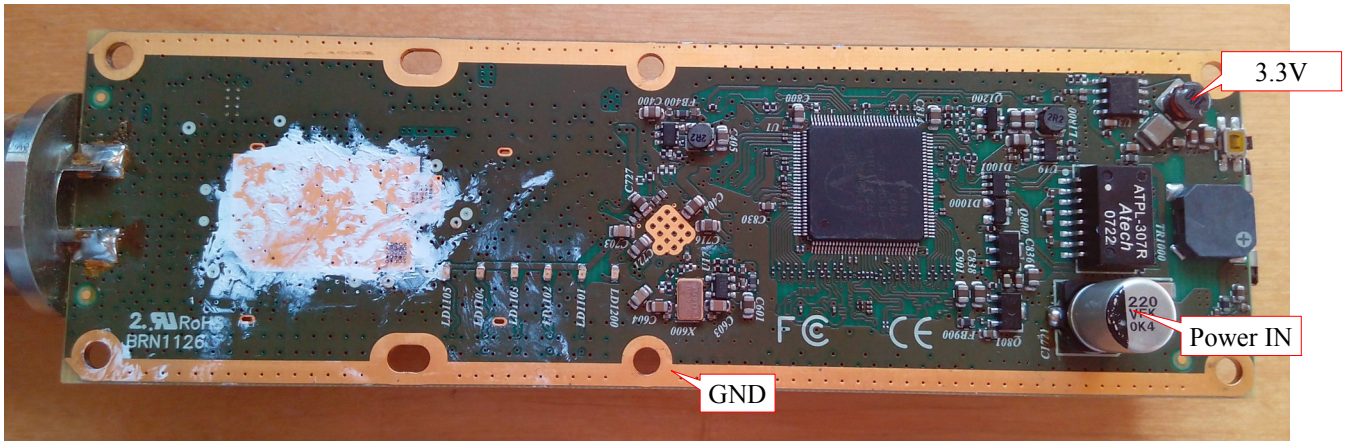


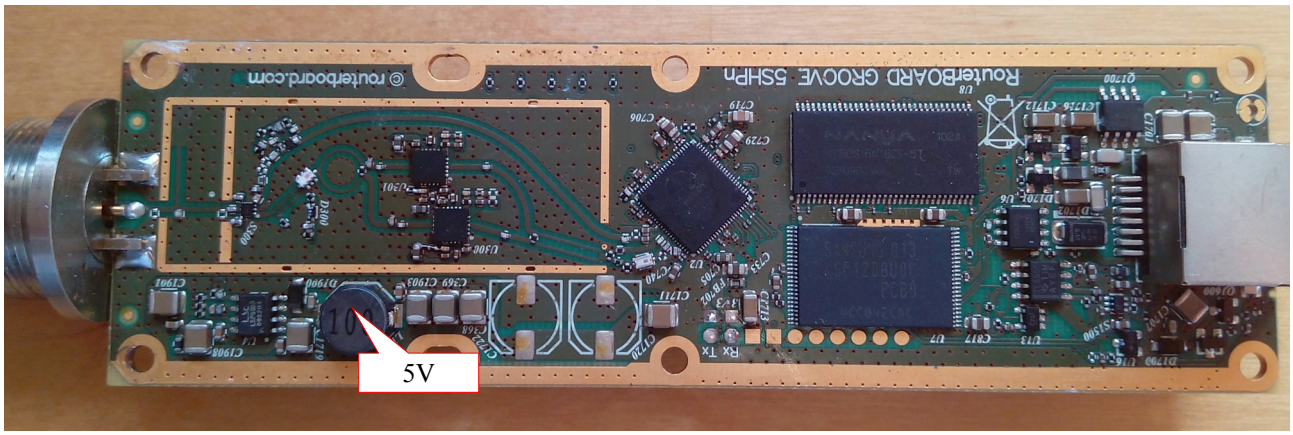
Routerboard does not power on

There no signs of any LED, LCD or buzzer activity

Find potential problem area

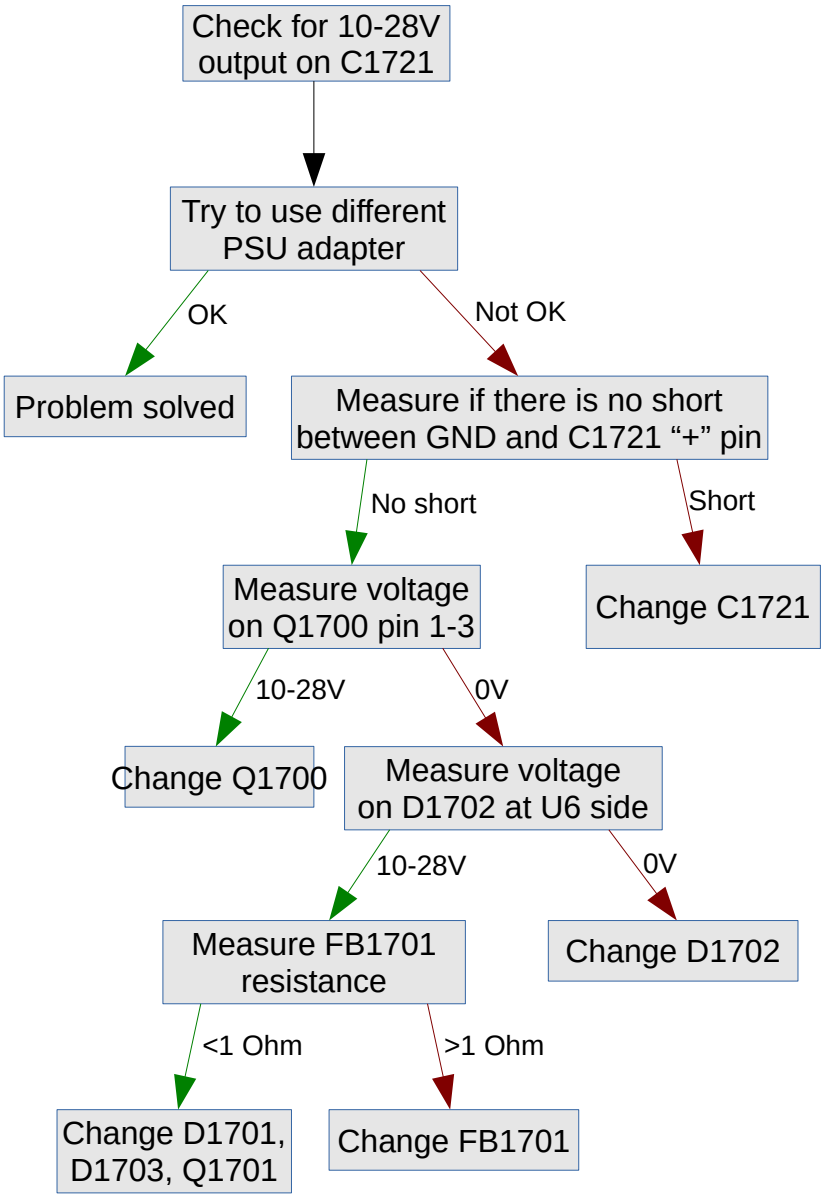
RouterBOARD does not turn on when one of the power is disconnected. Check Which voltage is switched off, Power IN (10 – 28V), 3.3V or 5V.





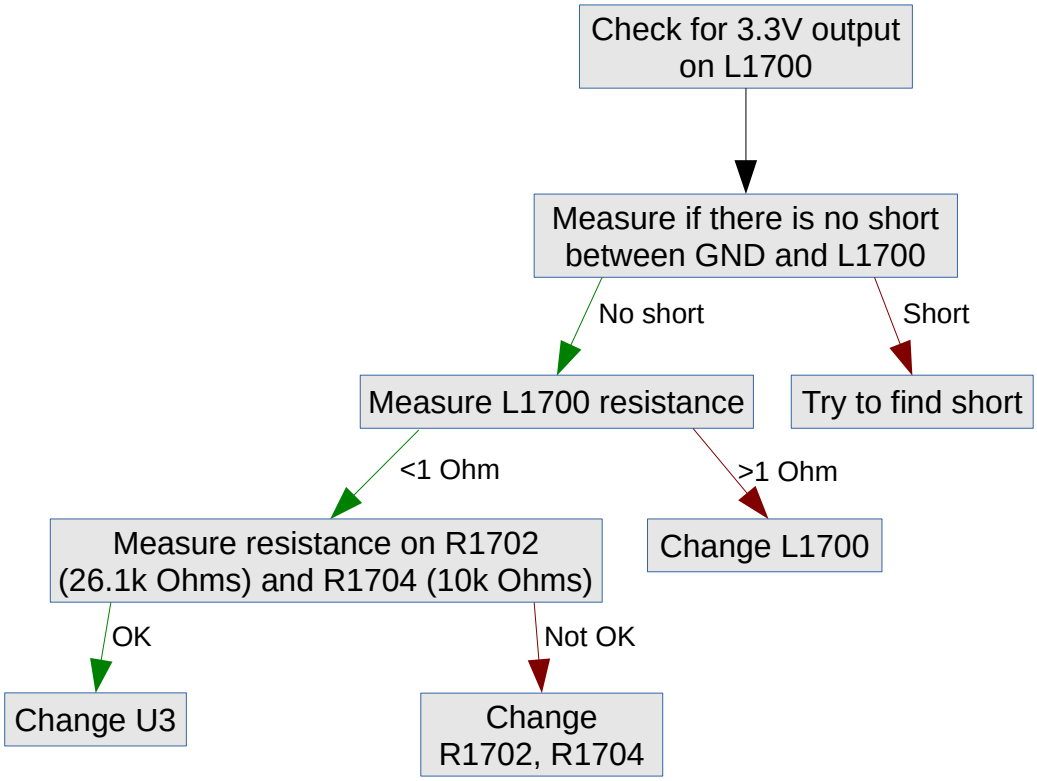
If Power_IN Failed

1. No power on 10-28V input

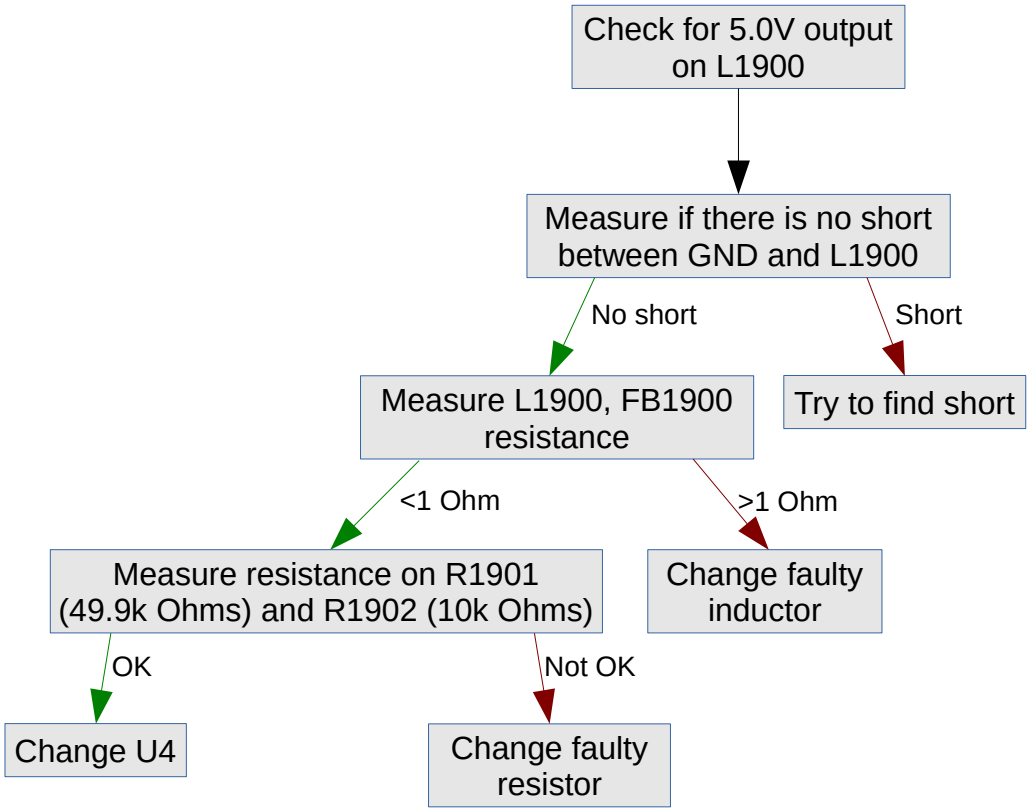


Is still board does not power up, please send it to RMA.

2. No Voltage on 3.3V output

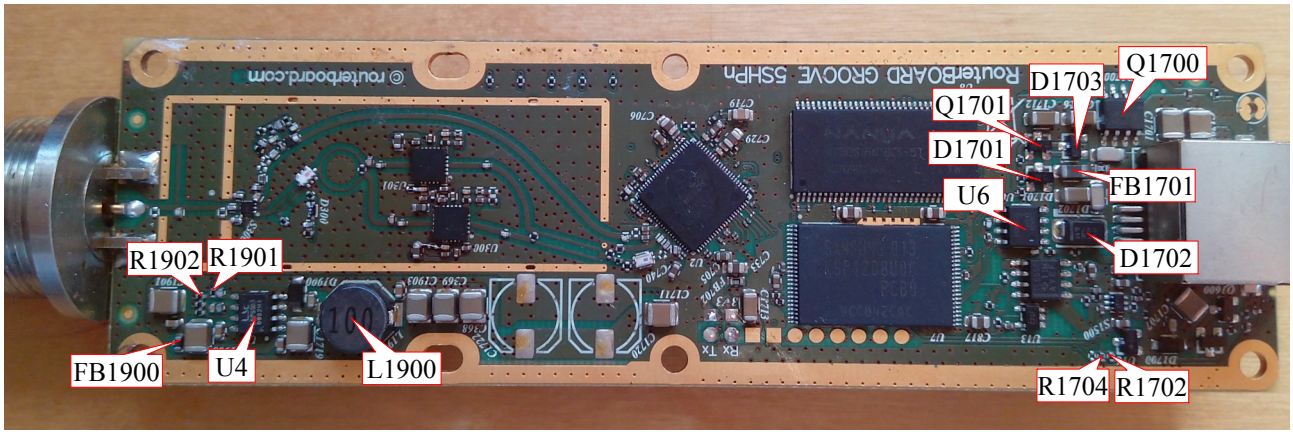


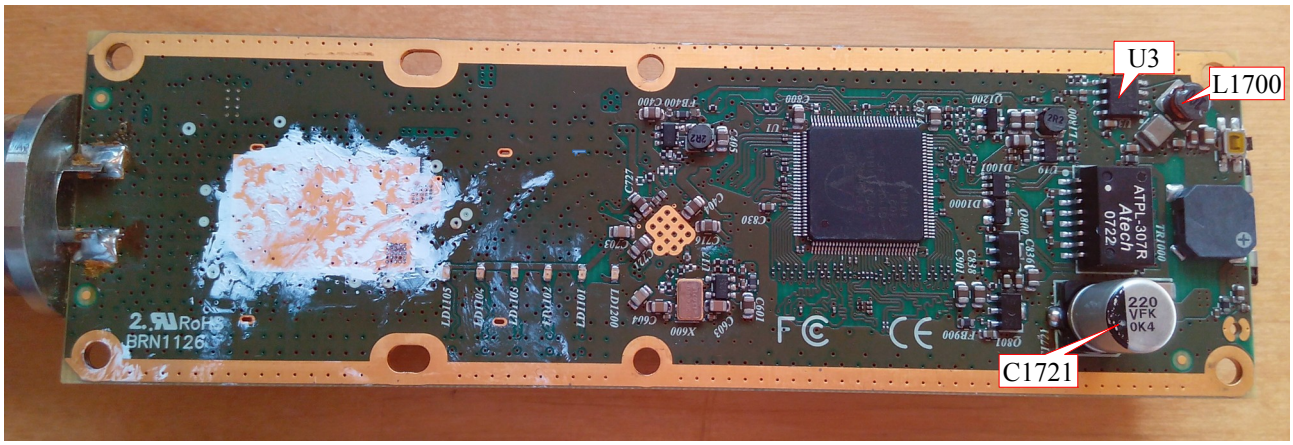
3. No Voltage on 5V output



Is still board does not power up, please send it to RMA.

4. Supply voltage components location on RouterBOARD





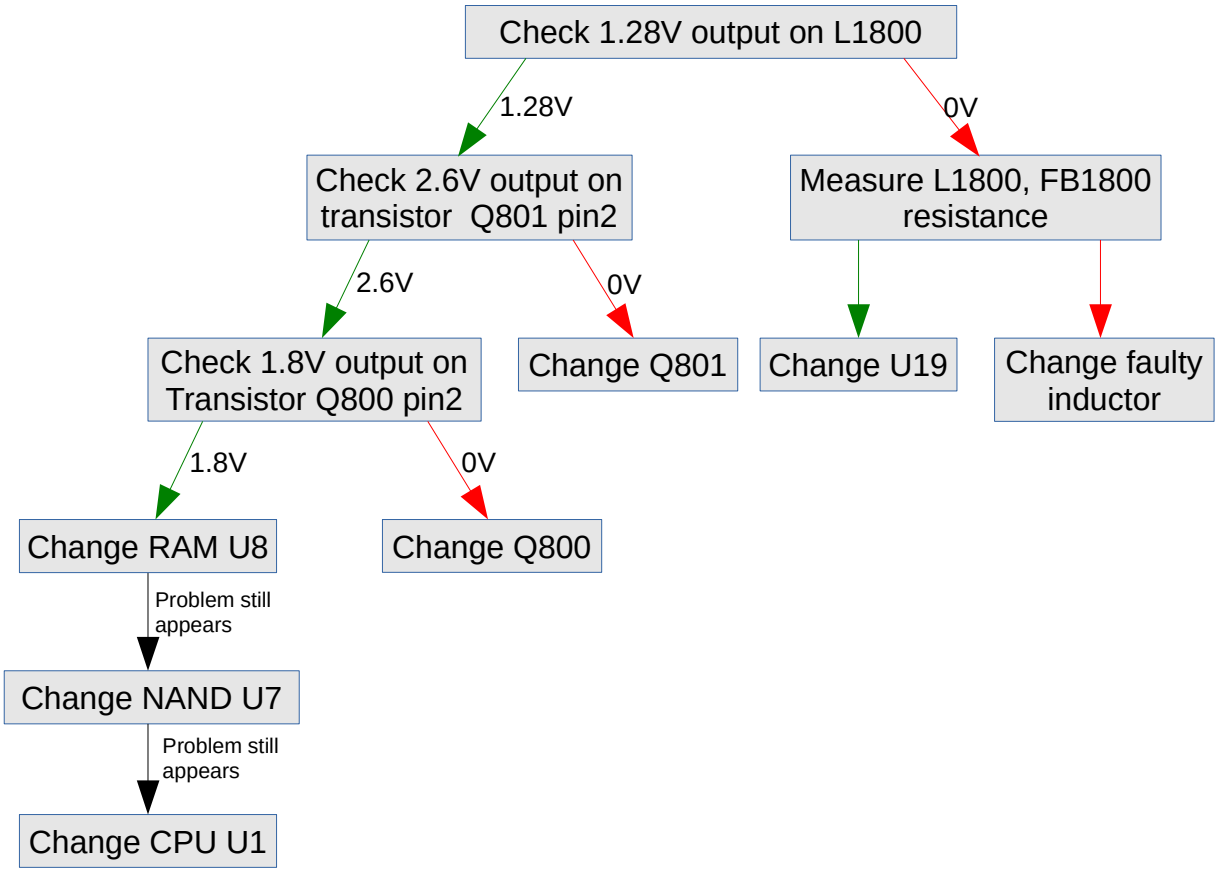
5. Supply voltage Components table

Reference	Manufacturer code	Description	Manufacturer
C1721	EMZE350ADA221MHA0G	Capacitor elec 220uF 20% 35V 8x10 SMD 8000h 600mA 0.22Ohm MZE-series	NIPPON CHEMI-CON CORPORATION
D1701	BZX84C10-7-F	Diode Zener BZX84C 10V 5% 300mW SOT23	Diodes Zetex Limited
D1702	B2100AF	Diode Schottky 100V 2A SMA	Lite-On Semiconductor corporation
D1703	BZX84B30-AU_R1_000A1	Diode Zener BZX84B 30V 2% 400mW SOT23 Automotive	PanJit International Inc.
FB1701	CB04YTYH800	Ferrite Bead 80 Ohm 3A 1204	Viking Tech Corporation
FB1900	CB03YTYH331	Ferrite Bead 330 Ohm 1.5A 0603	Viking Tech Corporation
L1700	BC43-100K	Inductor 10uH 10% 1.25A 4.3x4.8x3.5 RoHS	Bao Cheng Electronics Co.,Ltd.,
L1900	BCRH8D43-100N-NL	Inductor 10uH 30% 3.6A 8.3x8.3x4.7 34mOhm RoHS T&R	Bao Cheng Electronics Co.,Ltd.,
Q1700	P9006EVG	Transistor MOSFET P-Ch -60V -4.5A 90mOhm SO-8	Niko Semiconductor Co. Ltd.
Q1701	BC856B,215	Transistor PNP -65V -100mA 250mW Hfe=220-470 SOT-23 RoHS	NXP Semiconductors
R1702	RC0402FR-0726K1L	Resistor 26.1k 1% 0402	Yageo Corporation
R1704, R1902	CR10-1002-FN	Resistor 10k 1% 0402	ASJ PTE LTD
R1901	RC0402FR-0744K2L	Resistor 44.2k 1% 0402	Yageo Corporation
U3	LSP5526-S8A	DC-DC Step-down converter 4.5-30V input 2A output Sync SO8, RoHS	Lite-On Semiconductor corporation
U4	LSP5523-R8A	DC-DC Step-down converter 4.5-30V input 3A output Sync SO8, RoHS	Lite-On Semiconductor corporation
U6	PM25LV512A-100SCE	SPI Flash 512kbit SOIC-8 150mil 33MHz -40+105C 4kB sector	Chingis Technology Corporation [PMC]

Routerboard does not boot

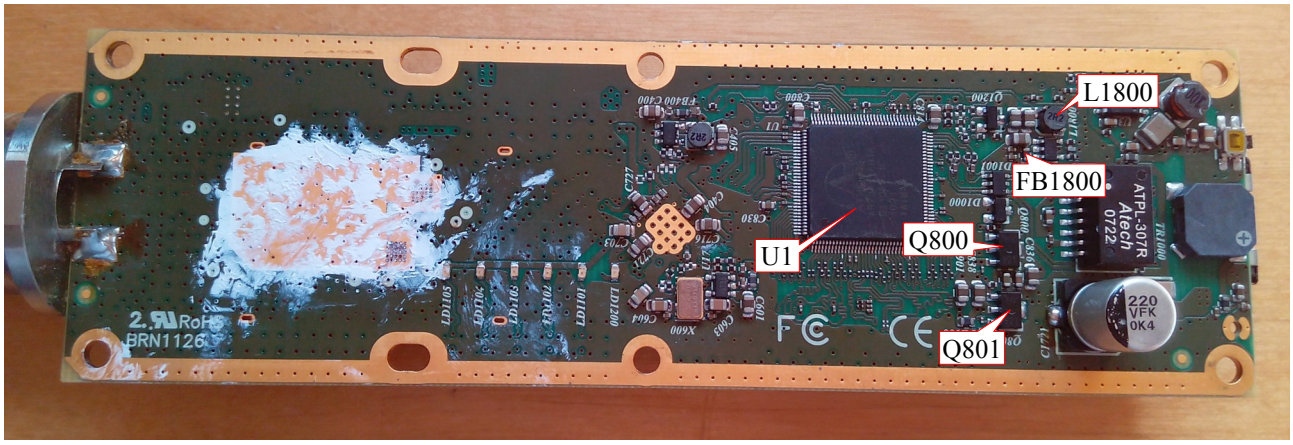
If Netinstall can see the board, but can not install it

1. Troubleshooting flow chart



If you still can't can't install Board, please send it to RMA.

2. Components location on RouterBOARD



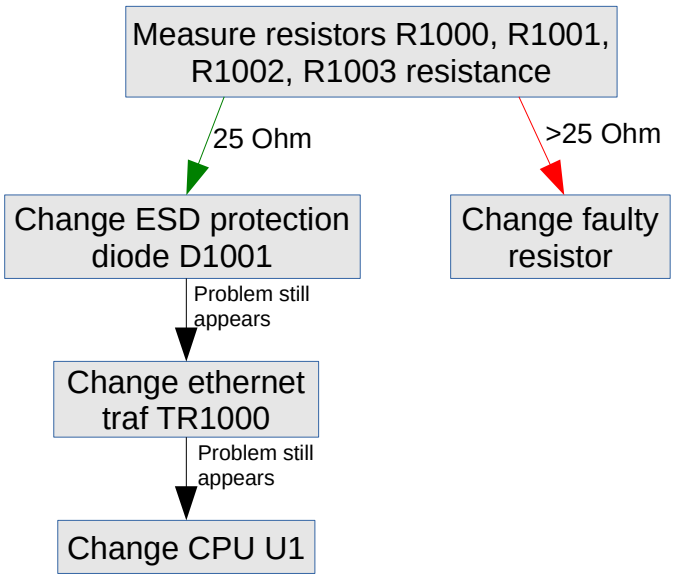
3. Components table

Reference	Manufacturer code	Description	Manufacturer
FB1800	CB03YTYH331	Ferrite Bead 330 Ohm 1.5A 0603	Viking Tech Corporation
L1800	BCRH2D18B/HP-4R7N	Inductor 4.7uH 1.2A 3.2x3.2x2 RoHS	Bao Cheng Electronics Co.,Ltd.,
Q800, Q801	DXT2907A-13	Transistor PNP -60V -600mA 0.5W Hfe=100-300 SOT89 RoHS	Diodes Incorporated
U1	AR7241-AH1A-R	Network processor 400MHz, DDR1/2, USB2.0 , PCI-E, 5x 10/100 PHY LQFP128-EP	Atheros Technology Ltd.
U7	W29N01GVSIAA	NAND Flash 1Gbit x8 TSOP-48 3.3V Vih0.8Vcc -40+85C NOP4	Winbond Electronics Corp.
U8	NT5DS32M16DS-5T	DDR SDRAM 512Mbit DDR400 32Mx16bit TSOPII-66 0+70C RoHS	NANYA TECHNOLOGY CORPORATION

Ethernet port does not work

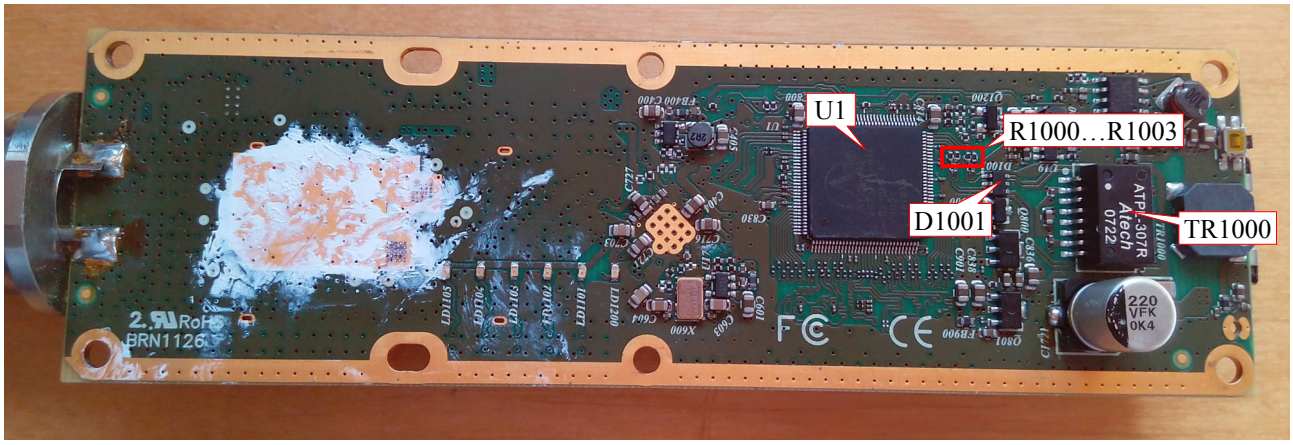
No link on Ethernet port

1. Troubleshooting flow chart



If there is still no link on ethernet port, please send board to RMA.

2. Ethernet port components location on RouterBOARD

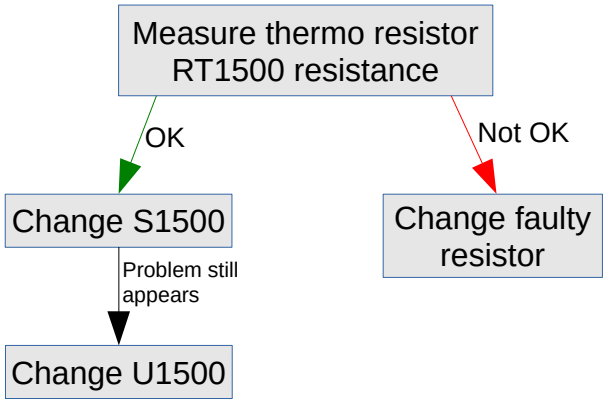


3. Ethernet port components table

Reference	Manufacturer code	Description	Manufacturer
D1001	TPD4S009DBVR	Diode Array TPD4S009 6V SOT23-6 8kV with Zener	Texas Instruments
R1000...R1003	RC0402FR-0749R9L	Resistor 49.9R 1% 0402	Yageo Corporation
U1	AR7241-AH1A-R	Network processor 400MHz, DDR1/2, USB2.0 , PCI-E, 5x 10/100 PHY LQFP128-EP	Atheros Technology Ltd.
TR1000	NS601680	10/100 Single Ethernet transformer SMD 16pin RoHS T&R	Feei Cherng Enterprise CO., LTD.

Voltage and temperature monitor does not work

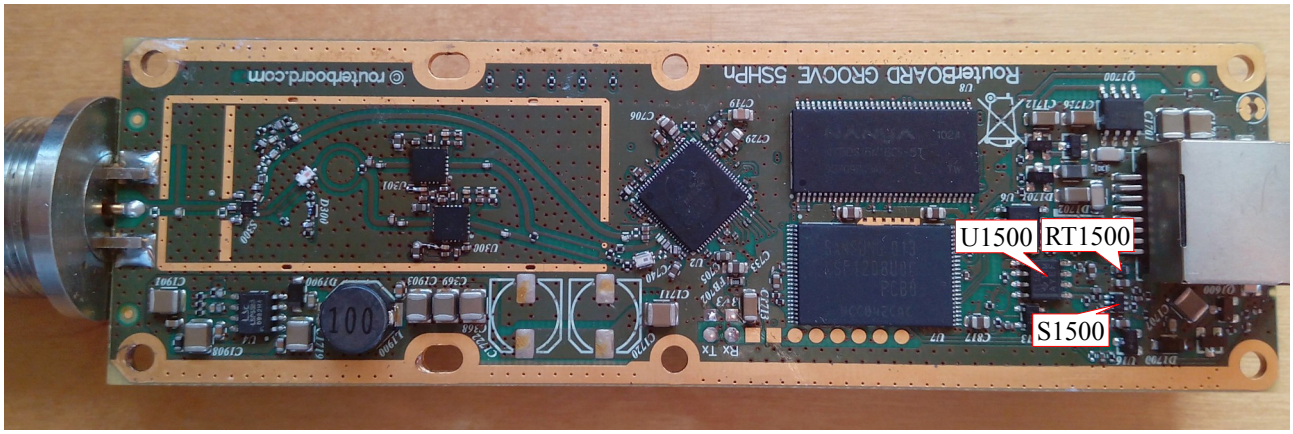
1. Troubleshooting flow chart



2. Voltage and temperature monitor components table

Reference	Manufacturer code	Description	Manufacturer
RT1500	ERT-J1VT152J	NTC Thermistor 1.5k 5% B=4450K 0603	Panasonic CVCA
S1500	SN74LVC1G3157DCKR	IC SWITCH SPDT SC70-6	Texas Instruments
U1500	TLC555CDR	General purpose timer 555, CMOS, Low-Power, Single, SOP-8	Texas Instruments

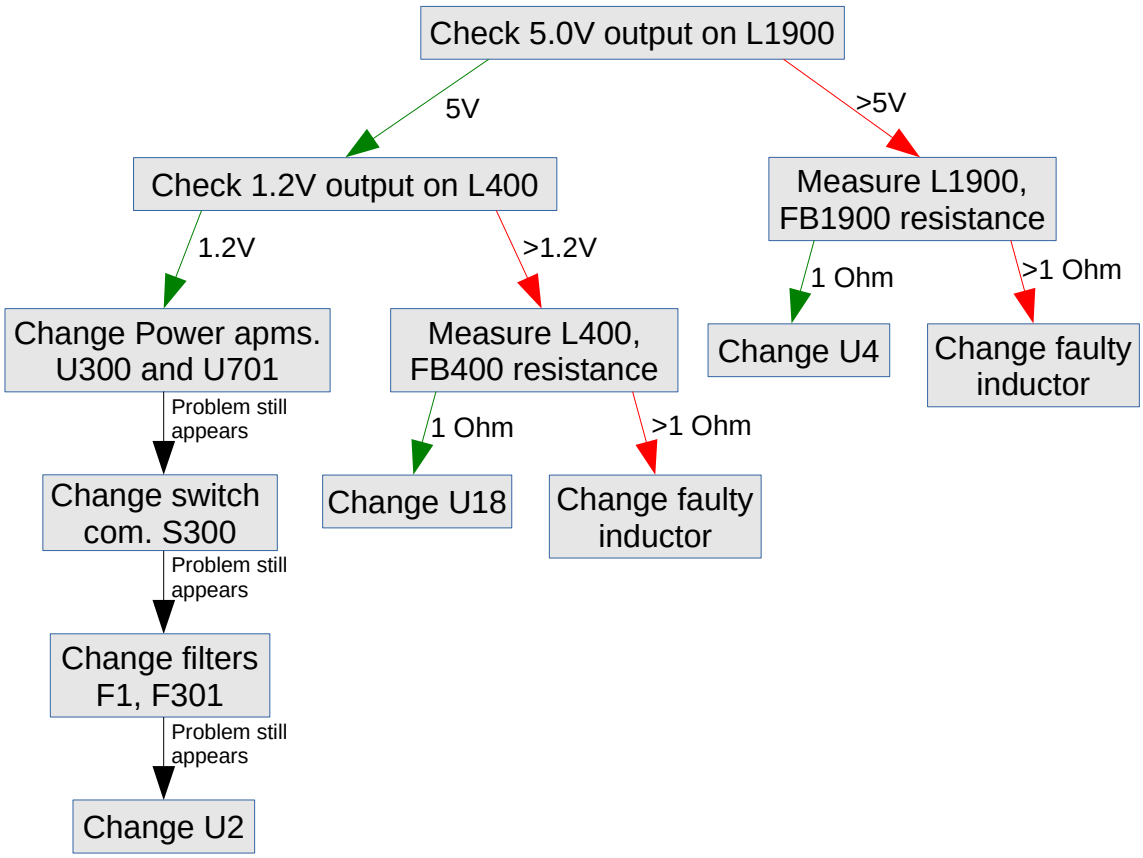
3. Voltage and temperature monitor components location on RouterBOARD



WiFi does not work

Weak transmit power

1. Troubleshooting flow chart



Weak RX sensitivity

1. Change LNA transistors Q300. If it does not help than try to change:

   - S300

   - U2

   If wireless still does not work, please send board to RMA.

2. RF components table

Reference	Manufacturer code	Description	Manufacturer
F1	LTL-2012-5G5S1-A2	Low pass filter 5787MHz	Mag.Layers Scientific-Technics Co., Ltd.
F300	LTB-2012-5G5H6-B3	Ceramic Bandpass Filter 5.5GHz	Mag.Layers Scientific-Technics Co., Ltd.
FB400, FB1900	CB03YTYH331	Ferrite Bead 330 Ohm 1.5A 0603	Viking Tech Corporation
L400	BCRH2D18B/HP-4R7N	Inductor 4.7uH 1.2A 3.2x3.2x2 RoHS	Bao Cheng Electronics Co.,Ltd.,
L1900	BCRH8D43-100N-NL	Inductor 10uH 30% 3.6A 8.3x8.3x4.7 34mOhm RoHS T&R	Bao Cheng Electronics Co.,Ltd.,
Q300	BFU730LXZ	NPN wideband silicon germanium RF transistor	NXP Semiconductors
S300	uPG2415T6X-E2-A	GaAs MMIC SPDT Switch, 2.4GHz&6GHz, 2.5-5.3V	NEC Electronics
U4	LSP5523-R8A	DC-DC Step-down converter 4.5-30V input 3A output Sync SO8, RoHS	Lite-On Semiconductor corporation
U2	AR9280-AL1A-R	802.11n 2.4/5GHz 2x2 MIMO MAC,BB,Radio WLAN IC, PCIe T&R	Atheros Technology Ltd.
U18	RT8025GJ5	1.25MHz, 400mA (works with 600mA load). PWM Step-Down DC/DC converter TSOT-23-5	RT8025GJ5
U300, U301	SE5004L-R	5GHz 26dBm Power Amplifier with Power Detector, T&R	SiGe Semiconductor

3. RF components location on RouterBoard

