

Procedure for checking over-voltage damage

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Checking procedure for over-voltage damage

Over-voltage can be caused by the following reasons: high voltage surge, lightning, electrostatics etc..

You can check if RouterBoard was damaged by over-voltage, by using the following testing methods:

1. Check Schottky diode

Schottky diode quality can be measured with digital multimeter in diode mode.

The diode has two terminals - the anode and the cathode. The anode is positive, and the cathode is negative (there is a strip on the diode case), see picture 2.

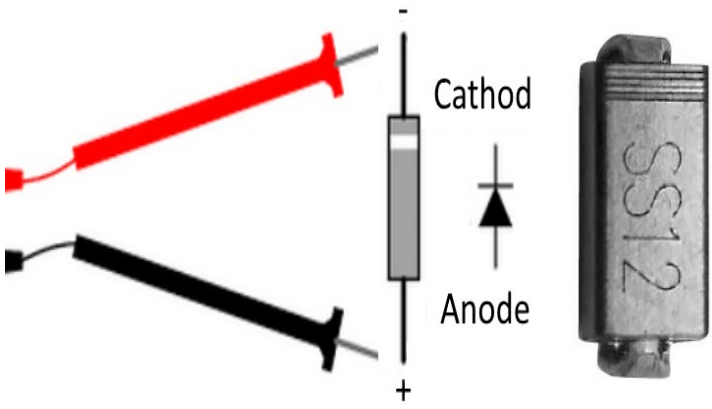
The diode needs to be checked in reverse switching, when a negative voltage is applied to the anode (multimeter black probe, “COM” probe), and a positive voltage is applied to the cathode (multimeter red probe, positive probe), see picture 2.

When the test probes are connected as shown in the picture 2, then value of measurement should be Open loop, as shown in the picture 1. This indicates that the p-n junction is normal and the current does not flow in the opposite direction.

If Schottky diode will be damaged, measurement will show some other value.



Picture 1

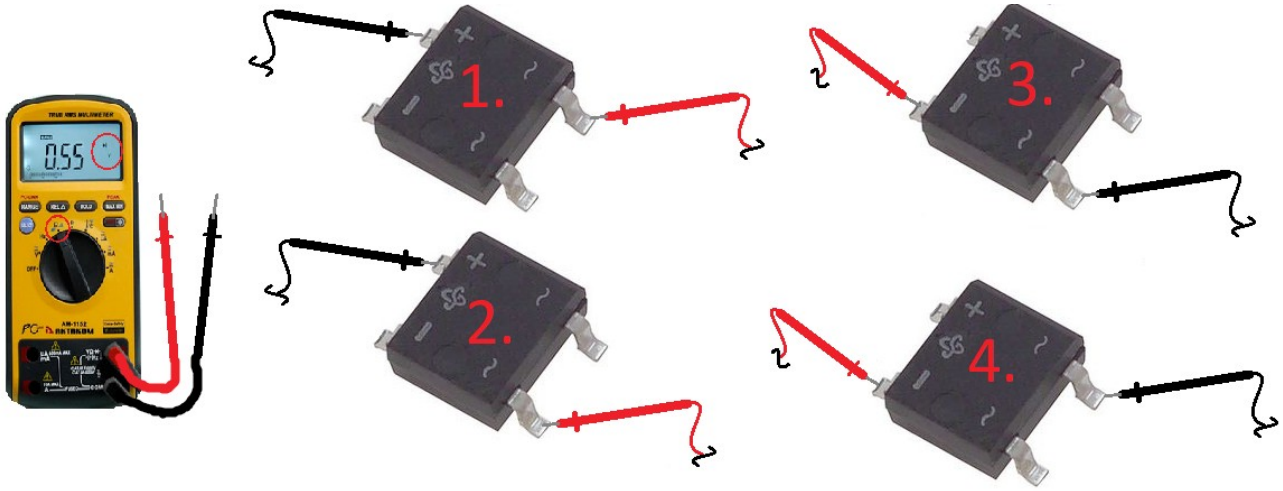


Picture 2

2. Diode bridge measurement

This measurement is required only in cases where basic test gives uncertain results. This includes readings greater than 1V instead of OL or fluctuating readings.

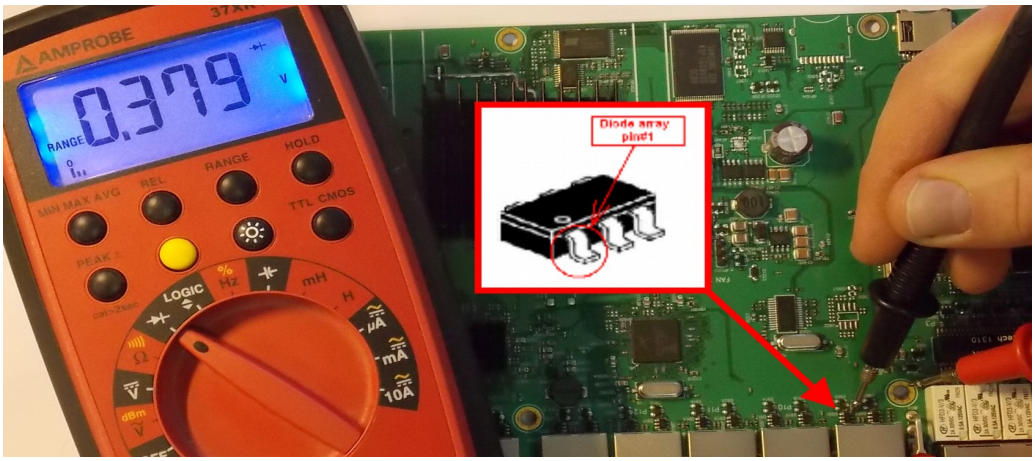
In such cases making sure that each of the bridge diodes have healthy forward voltage (0,45..0,65V) can confirm that there is no damage. In addition, the voltages obtained should not differ significantly (no more than 5%) from each other. This can be done in 4 measurements, by connecting the multi-meter as show in the following picture:



Picture 3

3. Check voltage drop value between diode array pin#1 and Ground

You should **measure in diode mode: hold red probe on the Ground and black probe to diode array pin#1. Diode array pin#1 is always marked by dot mark on the diode array case,** see picture 4.



Picture 4

4. Check voltage drop value between Ethernet transformer pins and Ground

You should **measure in diode mode: hold red probe on the Ground and black probe to Ethernet transformer pins.** In the picture 5 you can see an example of how to correctly measure.



Picture 5

5. Check termination resistors resistance in RJ-45 connector

For this measurement you should **take patch cord and plug it into the routerboard**,

see picture 6. **After that measure resistance** of termination resistors **by digital multimeter**.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%.

If resistance value is smaller or higher then Tx/Rx line was damaged by high voltage surge.



Picture 6

6. Check resistance on transformer in RJ-45 connector

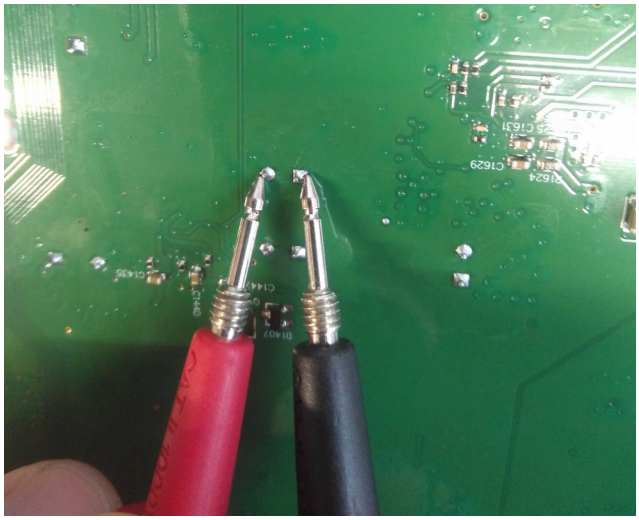
For this measurement you should take patch cord and plug it into the routerboard, see picture 7. After that measure resistance with digital multimeter. Resistance value for each twisted pair must be smaller than 5 Ohm. If resistance is higher that means line was damaged by high voltage surge.



Picture 7

7. Fuse check

For this measurement you use your multimeter in resistance mode, if you do not have multimeter with auto range function use lowest resistance setting typically 200 Ohms. With both probes touch the selected fuse leads. Fuse is OK if the multimeter shows very low value (less than 1 Ohm). A display showing OL is a sign of damaged fuse.



Picture 8

260 series RouterBoards

RB260GS



Picture 9

Disassembling information

Disassembly method of the board is the same as the RB260GSP board. Disassembly method is described on page 32.

Checking procedure for over-voltage

Checking Schottky diodes

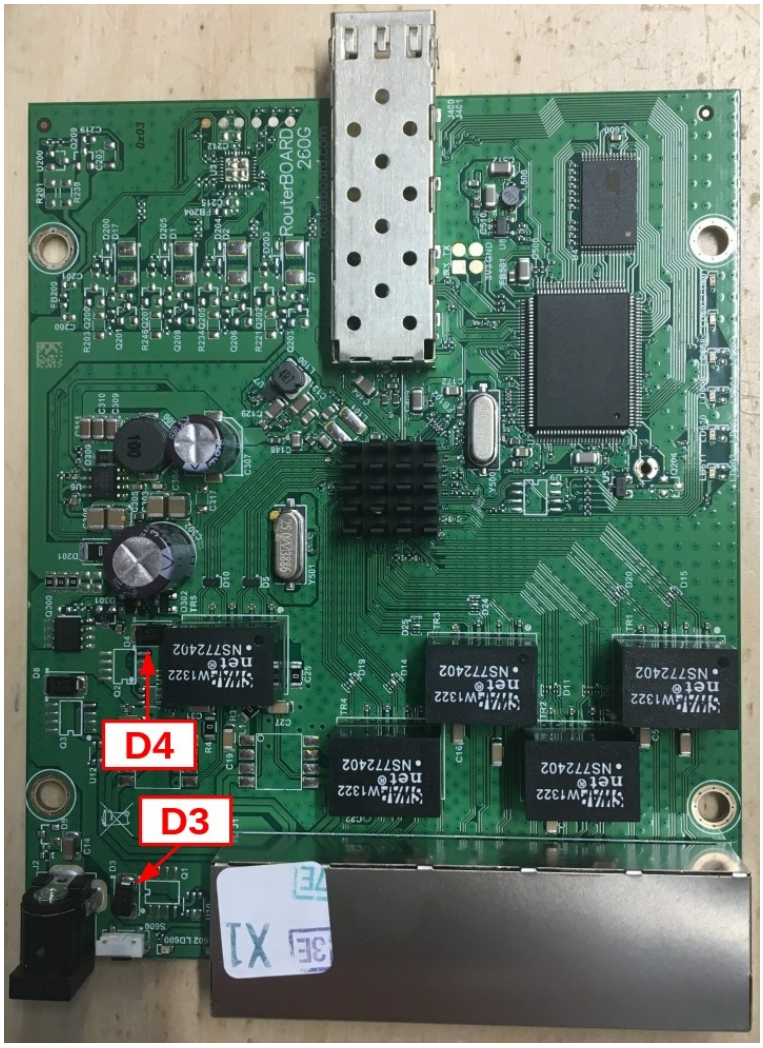
Check Schottky diodes D3, D4. Location of diodes on the board you can see in the picture 10. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

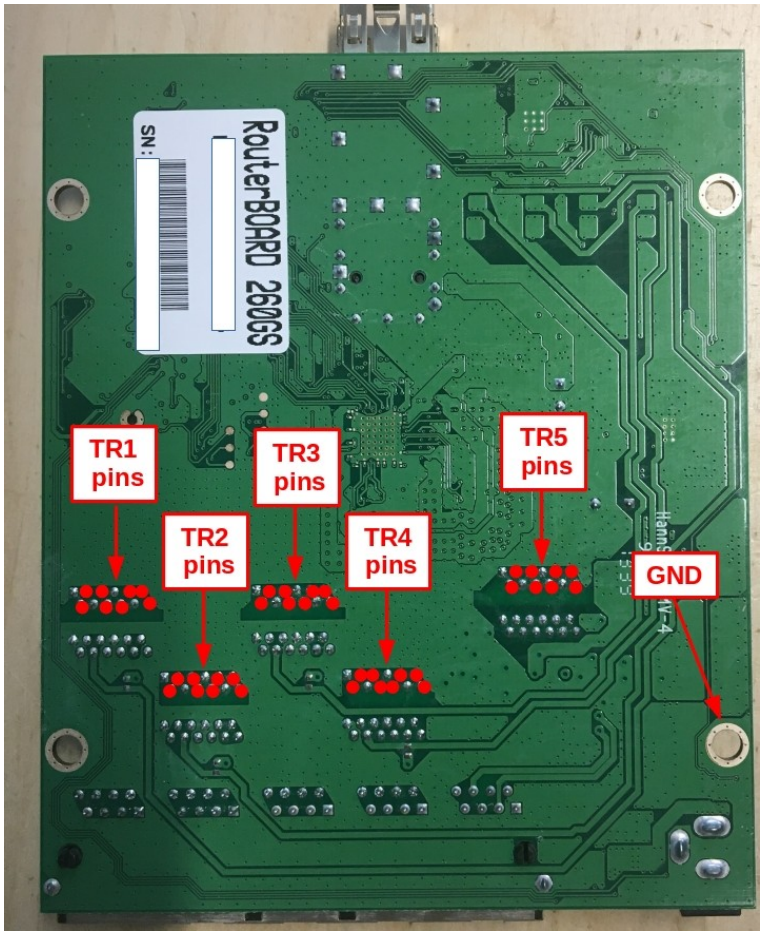
Check voltage drop value between Ethernet transformers TR1-TR5 pins and Ground.

Test points on the transformer pins are marked with red dots, see picture 11.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

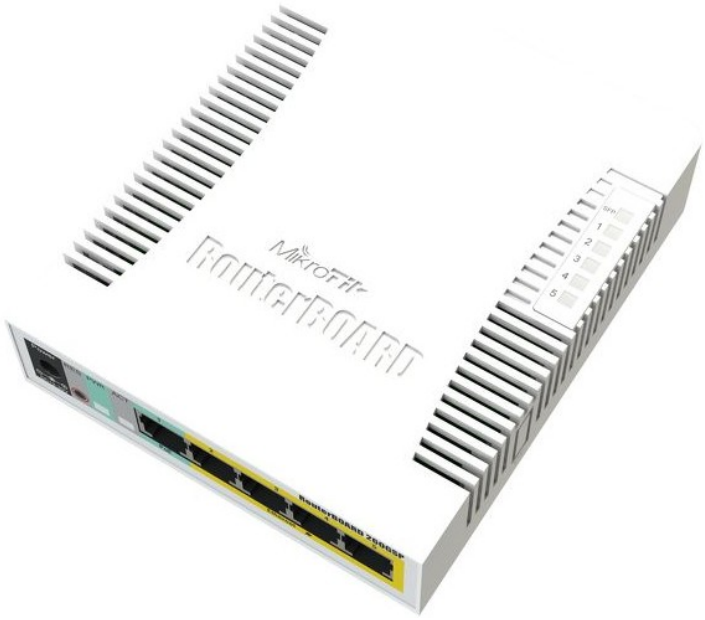


Picture 10


RouterBOARD 260GS
SN:
TR1 pins
TR2 pins
TR3 pins
TR4 pins
TR5 pins
GND

Picture 11

RB260GSP



Picture 12

Disassembling information

Step 1:

Take off case back sticker as shown in the picture 13.



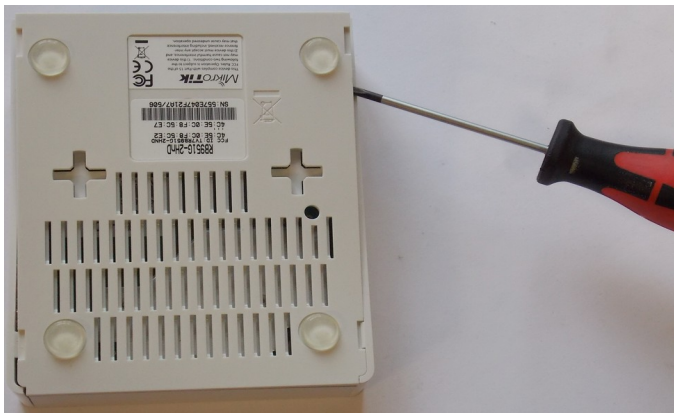
Picture 13

Step 2:

Take off the cover with a screwdriver as shown in the pictures 14-17.



Picture 14



Picture 15



Picture 16



Picture 17

Step 3:

Take out the board as shown in the picture 18.



Picture 18

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1-D4, D7, D17. Location of diodes on the board you can see in the picture 20. Schottky diodes quality measurement method is described on page 23.

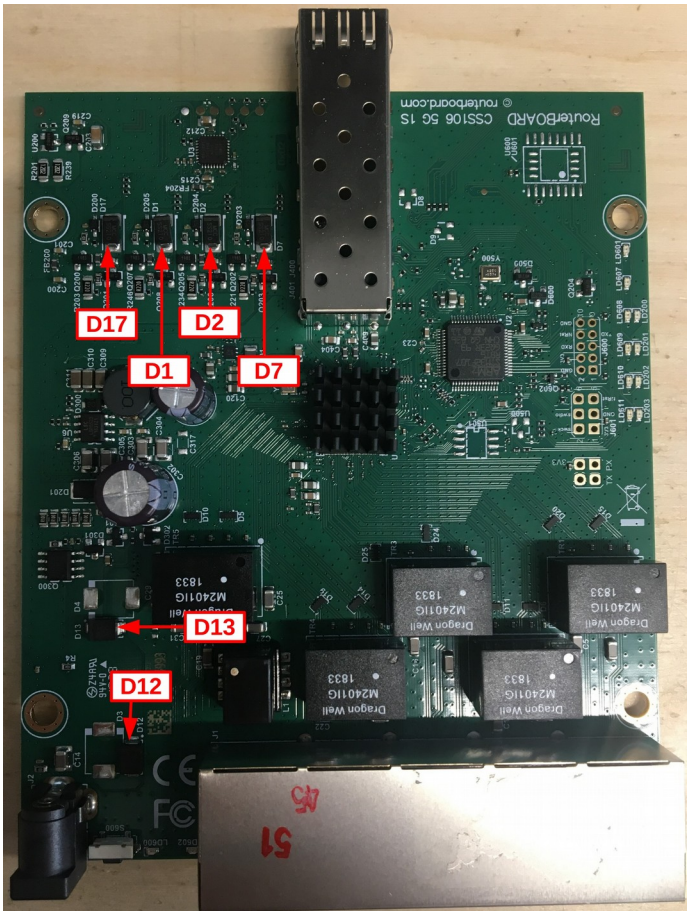
Some boards may have different PCB layout. If the board does not correspond the PCB in picture 20, then check Schottky diodes D1, D2, D7, D12, D13, D17. Location of diodes on the board you can see in the picture 19. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

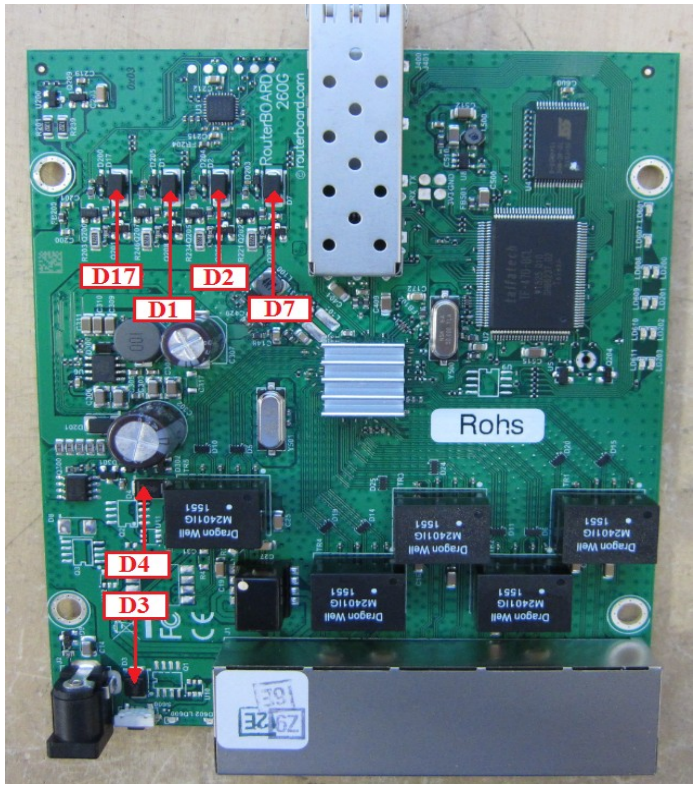
Check voltage drop value between Ethernet transformers TR1-TR5 pins and Ground.

Test points on the transformer pins are marked with red dots, see picture 21.

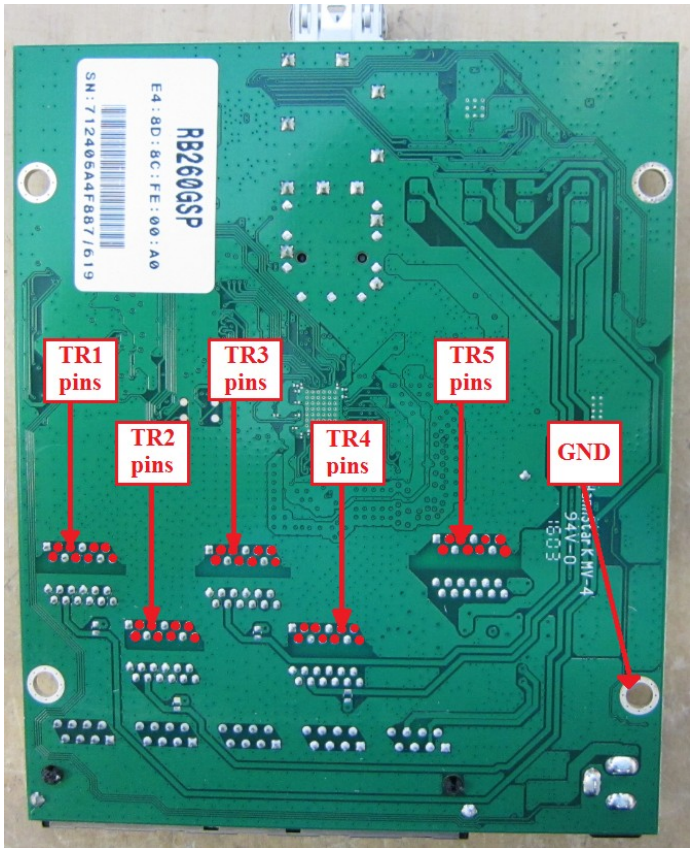
Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 19



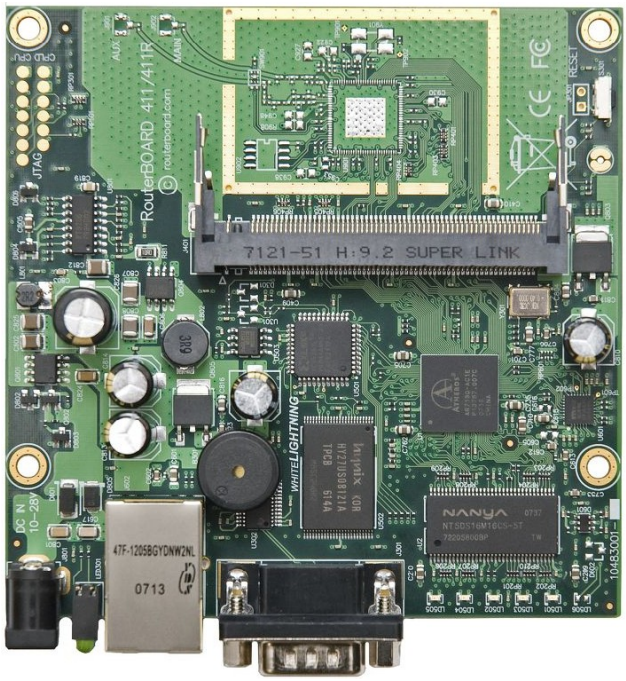
Picture 20


RB260GSP
E4:8D:8C:FE:00:A0
SN:712405A4F887/619
TR1 pins
TR2 pins
TR3 pins
TR4 pins
TR5 pins
GND

Picture 21

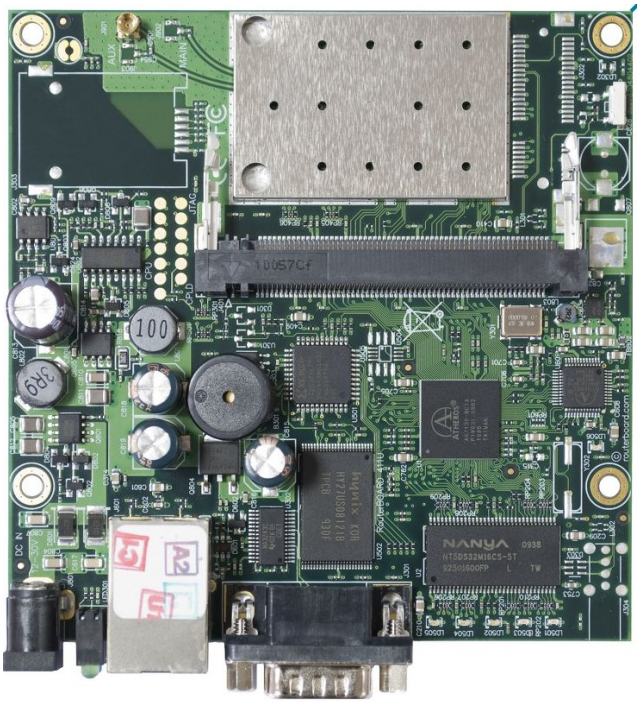
411 series RouterBoards

RB411AH



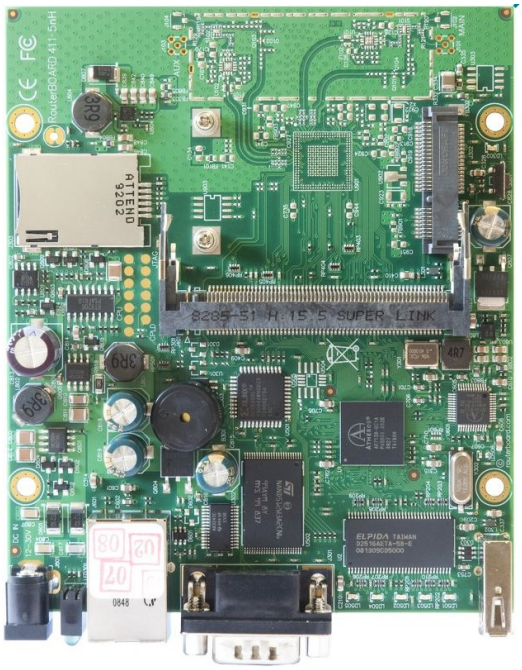
Picture 22

RB411AR



Picture 23

RB411U



Picture 24

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D801, D803. For RB411U you should also check Schottky diode D807. Location of diodes on the board you can see in the picture 25. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 pins and Ground

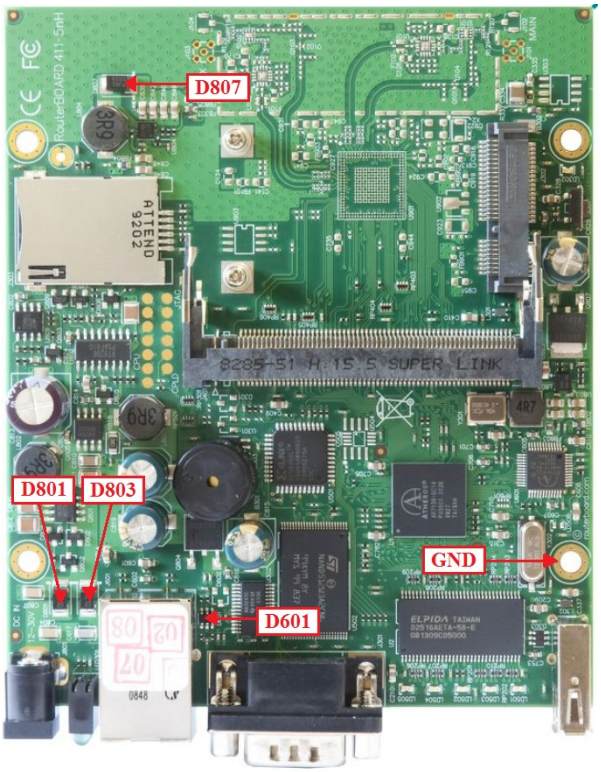
Check voltage drop value between diode array D601 pin#1 and Ground. Location of diode array on the boards RB411U, RB411AR you can see in the picture 25, but for RB411AH in the picture 26.

Voltage drop value should be in the range from 0,4V to 0,44V for all mentioned board types. Voltage drop measurement method is described on page 25.

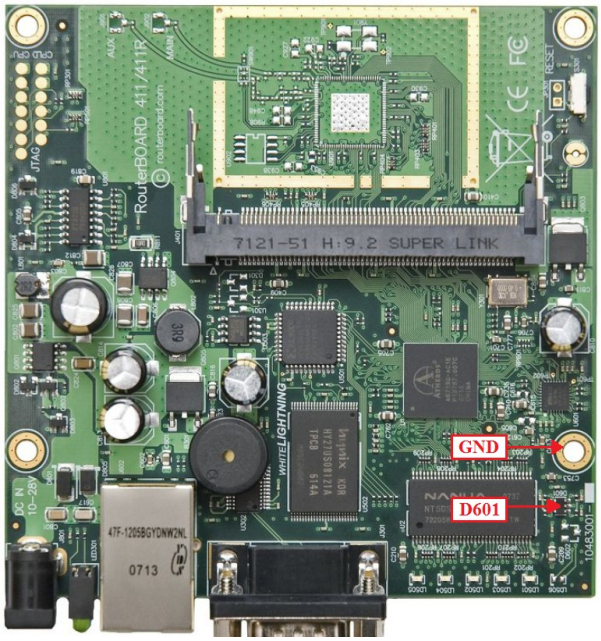
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J601 connector.

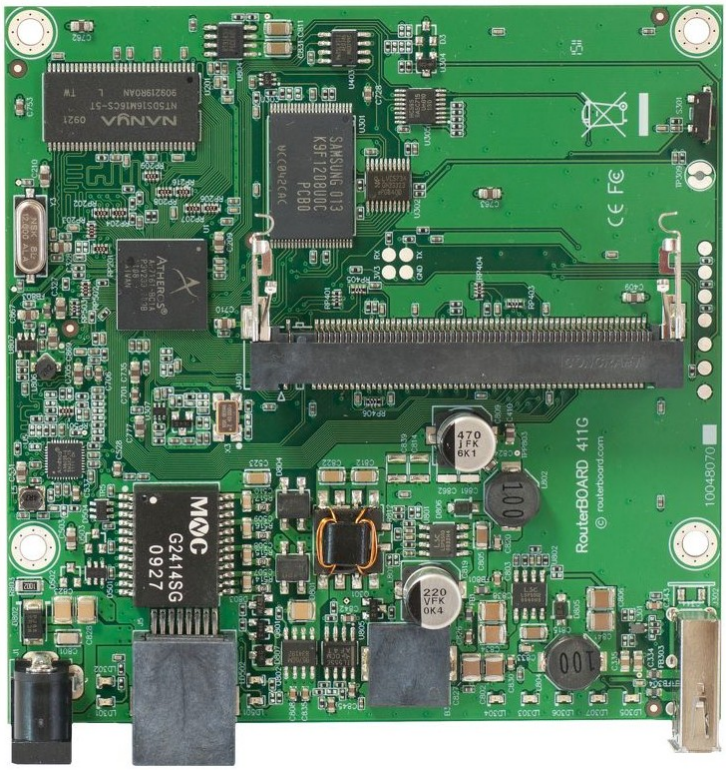
Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 25



Picture 26



Picture 27

Checking procedure for over-voltage

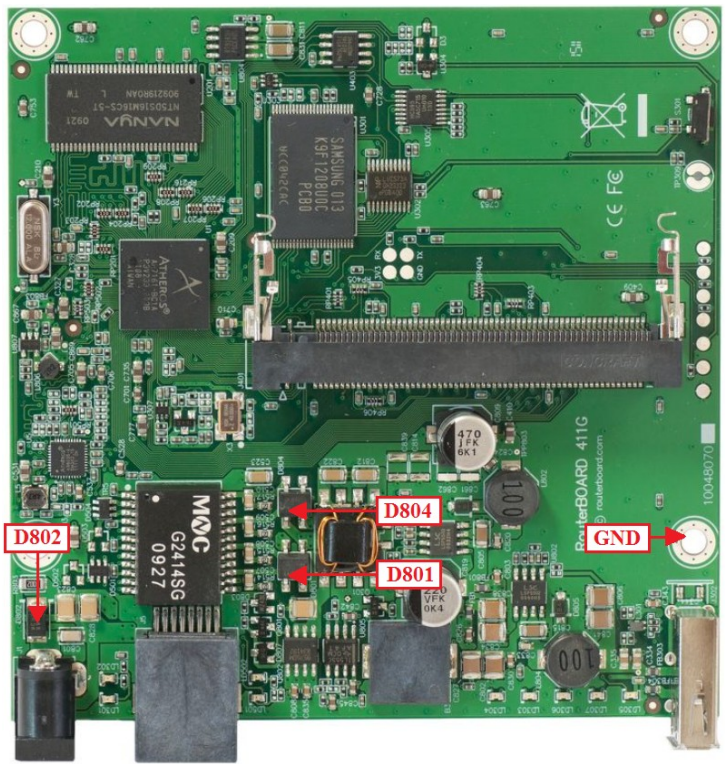
Checking Schottky diode and diodes bridges

Check Schottky diode D802 and diodes bridges D801, D804. Location of diodes on the board you can see in the picture 28. Diodes quality measurement method is described on page 23.

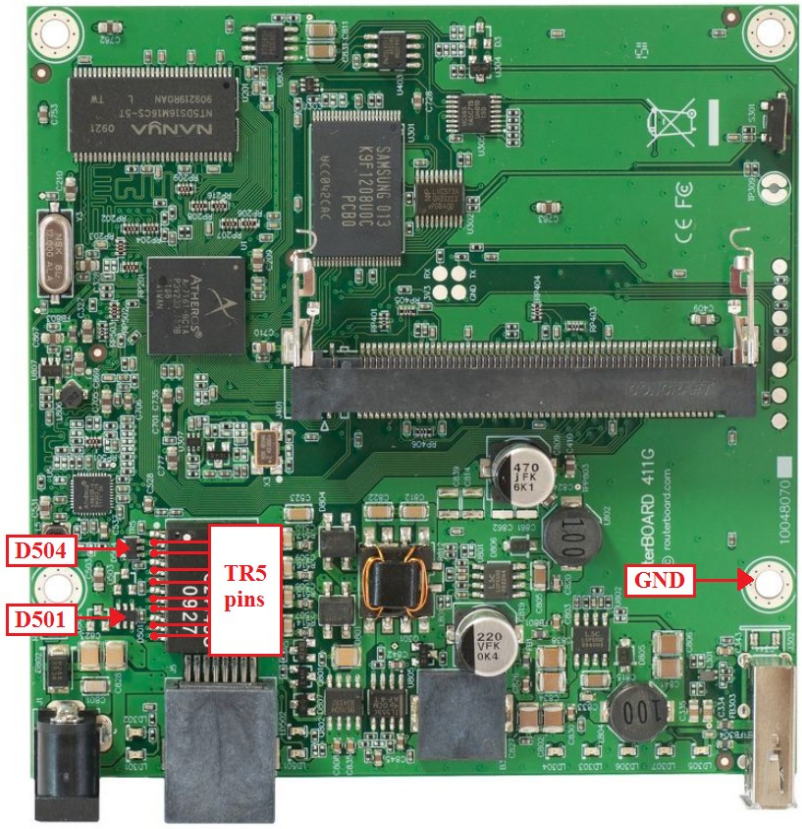
Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode arrays D501, D504 pin#1 and Ground or check voltage drop value between Ethernet transformer TR5 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 29.

Voltage drop value between diode arrays D501, D504 pin#1 and Ground as well as on the transformer TR5 pins and Ground should be in the range from 0,38V to 0,45V. Voltage drop measurement method is described on page 25.

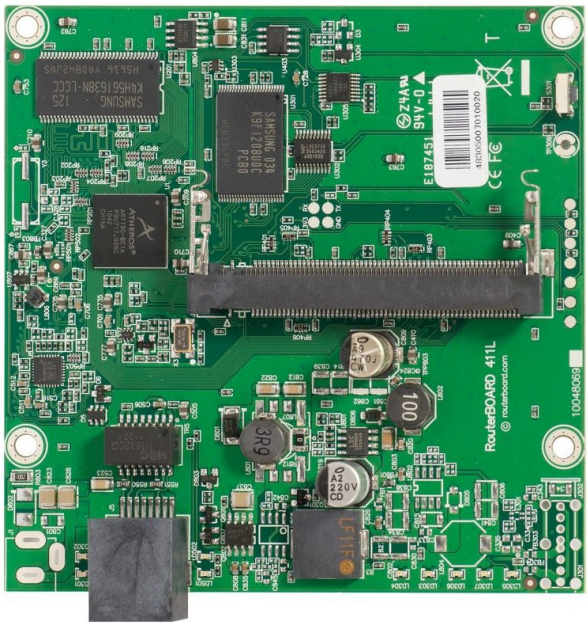


Picture 28



Picture 29

RB411L



Picture 30

Checking procedure for over-voltage

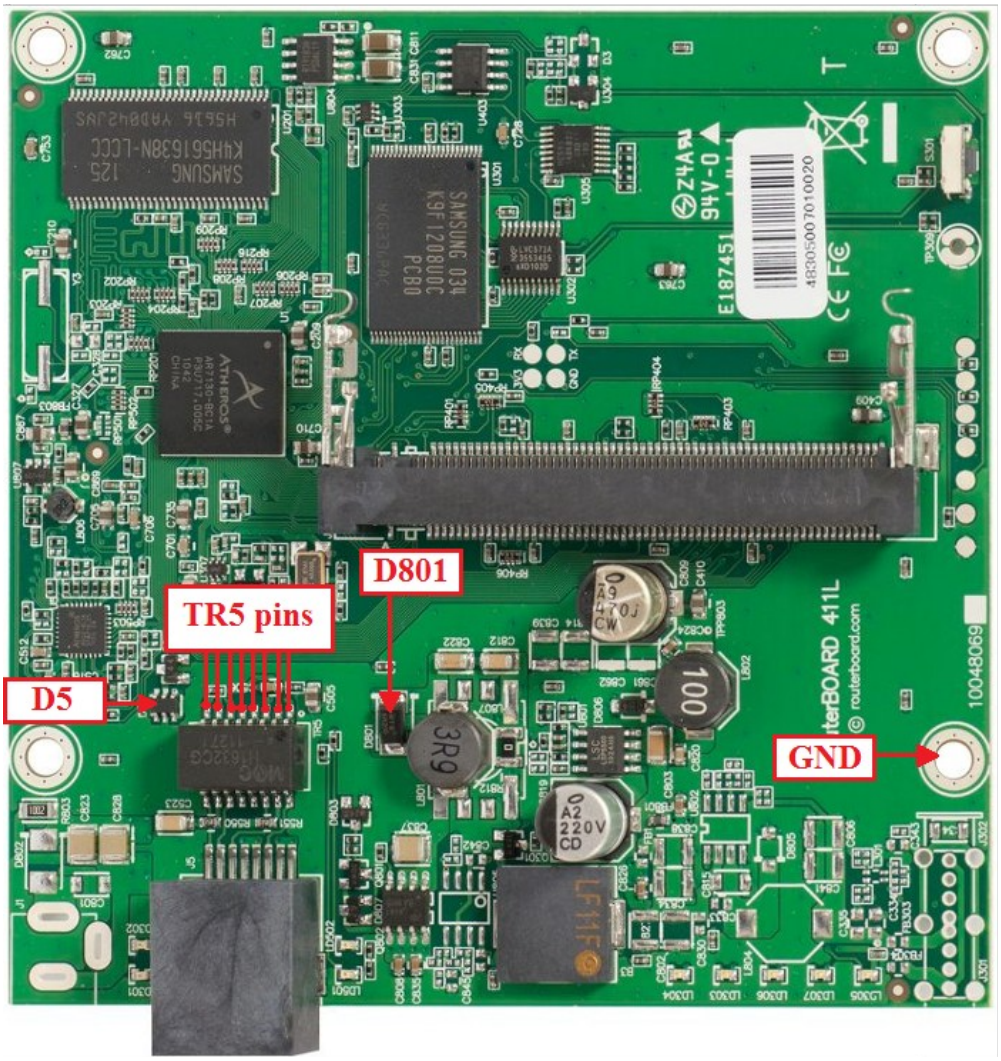
Checking Schottky diode

Check Schottky diode D801. Location of diode on the board you can see in the picture 31. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode array D5 pin#1 and Ground or check voltage drop value between transformer TR5 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 31.

Voltage drop value between diode array D5 pin#1 and Ground as well as on the transformer TR5 pins and Ground should be in the range from 0,38V to 0,45V. Voltage drop measurement method is described on page 25.



Picture 31

433 series RouterBoards

RB433AH



Picture 32

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D801, D802. Location of diodes on the board you can see in the picture 33. The method for checking the quality of the diodes is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

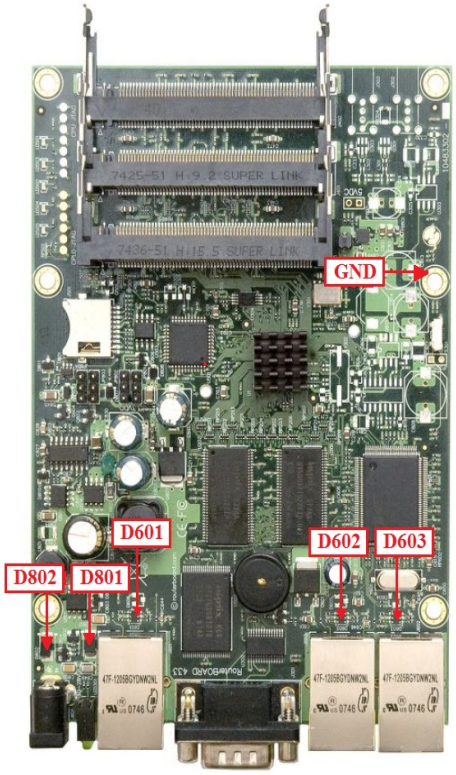
Check voltage drop value between diode arrays D601-D603 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 33.

Voltage drop value should be in the range from 0,4V to 0,44V. Voltage drop measurement method is described one page 25.

Checking termination resistors resistance in RJ-45 connector

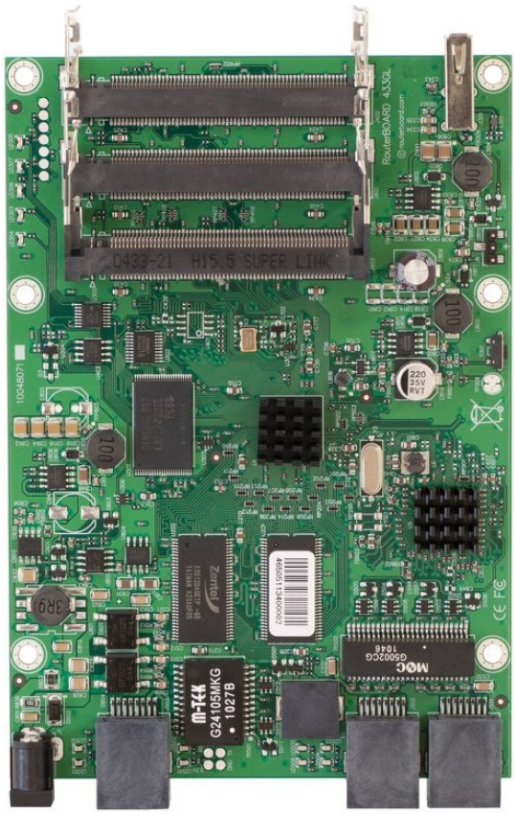
Check termination resistors resistance in each of Ethernet connector J601-J603.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 33

RB433GL



Picture 34

Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D802 and diodes bridges D801, D804. Location of diodes on the board you can see in the picture 35. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

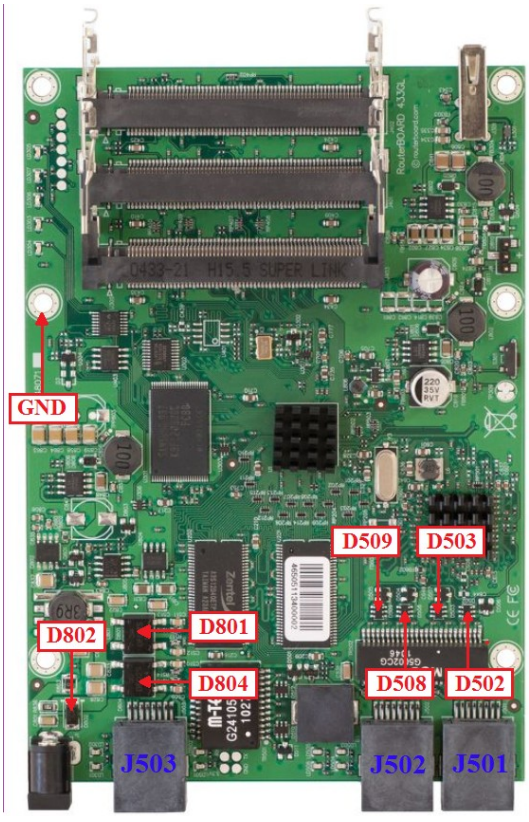
Check voltage drop value between diode arrays D502, D503, D508-D510, D512 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 35.

Voltage drop value should be in the range from 0,36V to 0,42V. Voltage drop measurement method is described one page 25.

Checking termination resistors resistance in RJ-45 connector

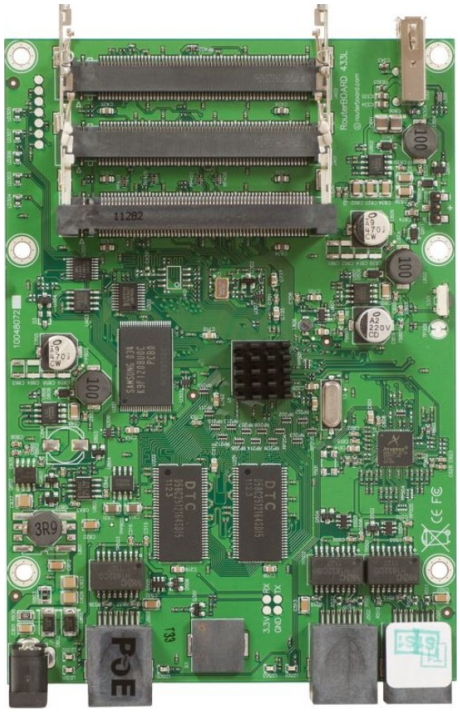
Check termination resistors resistance in J501-J503 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 35

RB433UL



Picture 36

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D801, D802. Location of diodes on the board you can see in the picture 37. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

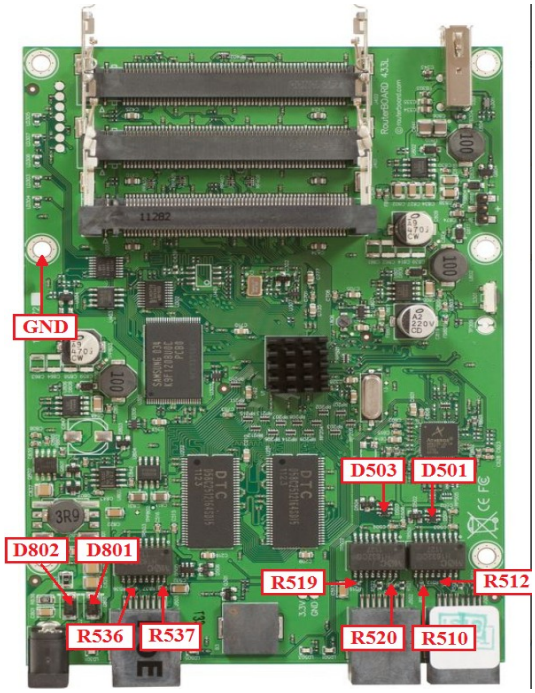
Check voltage drop value between diode arrays D501, D503, D505 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 37.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors R510, R512, R519, R520, R536, R537 resistance value.

It should be 75 Ohm +/-1%. Resistors location on the board you can see in the picture 37.



Picture 37

435 series RouterBoards

RB435G



Picture 38

Checking procedure for over-voltage

Checking Schottky diode

Check Schottky diode D109. Location of diode on the board you can see in the picture 39. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

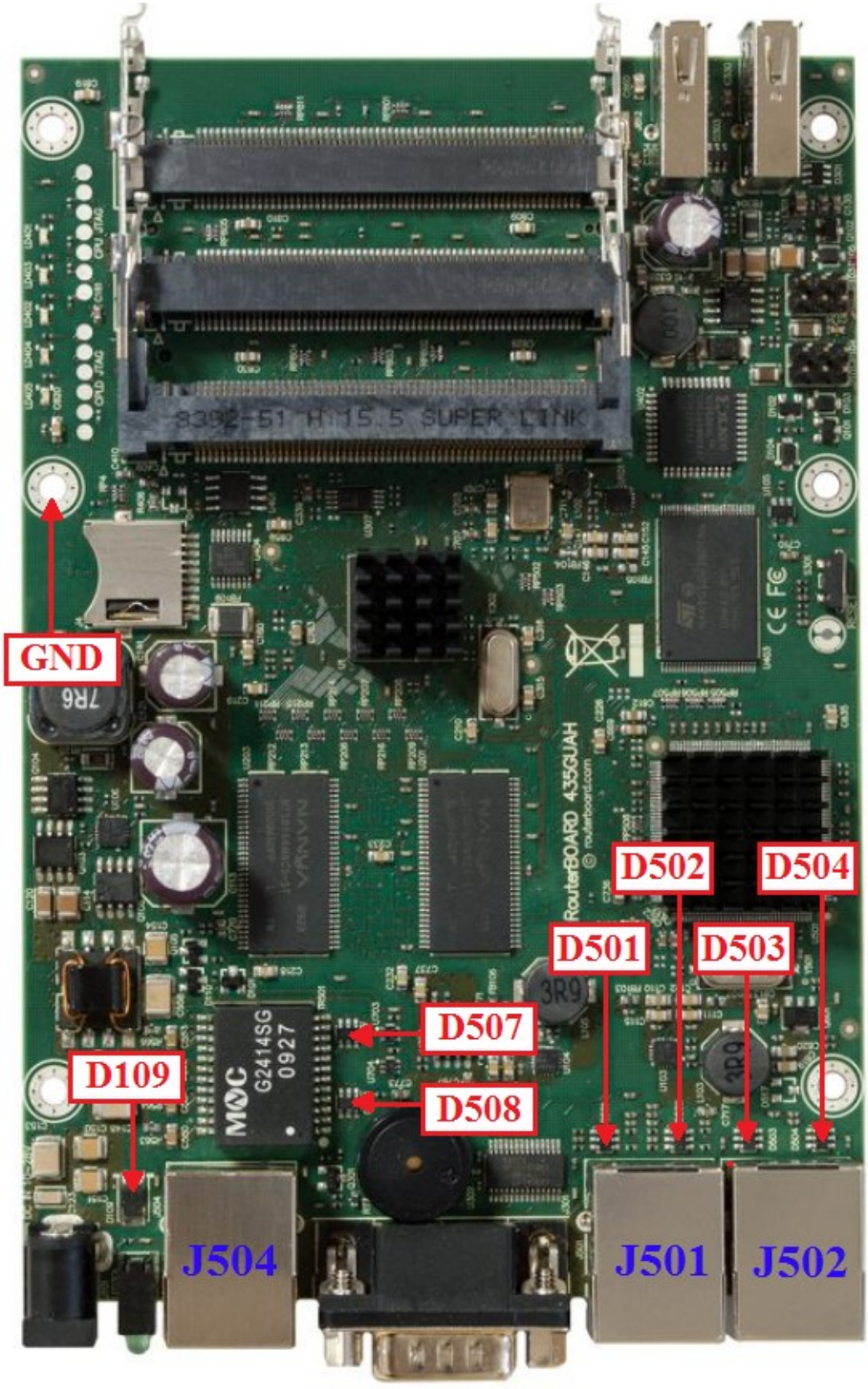
Check voltage drop value between diode arrays D501-D504, D507, D508 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 39.

Voltage drop value should be in the range from 0,2V to 0,24V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J501, J502 connectors.

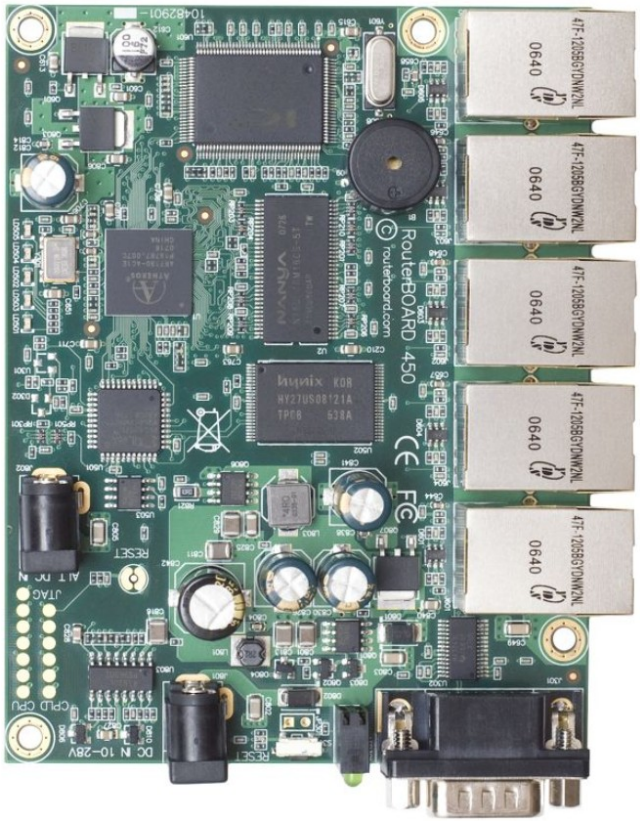
Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 39

450 series RouterBoards

RB450



Picture 40

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D801, D802. Location of diodes on the board you can see in the picture 41. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

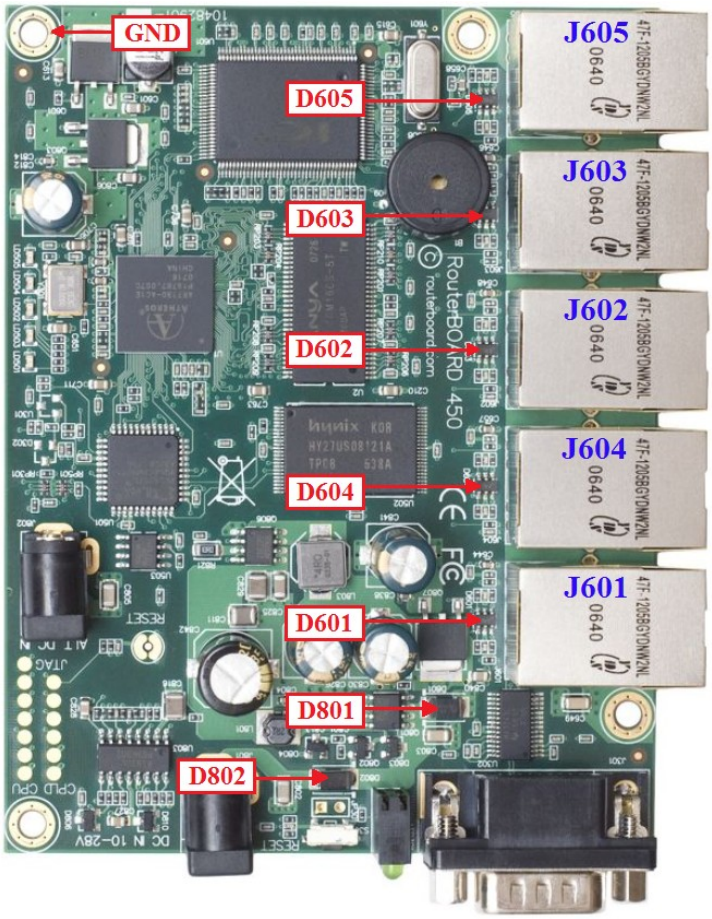
Check voltage drop value between diode arrays D601-D605 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 41.

Voltage drop value should be in the range from 0,4V to 0,44V. Voltage drop measurement method is described on page 25.

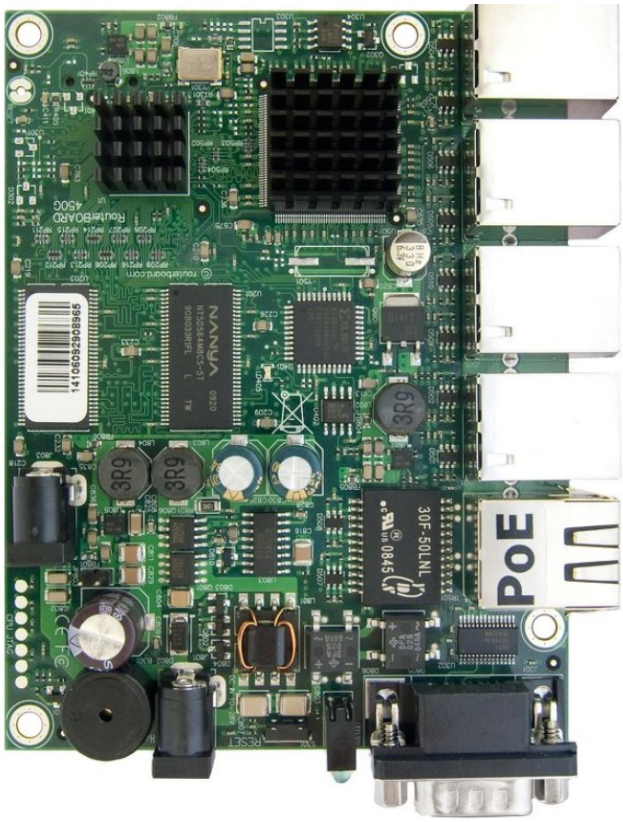
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J601-J605 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.


GND
D605
D603
D602
D604
D601
D801
D802
J605
J603
J602
J604
J601
RouterBOARD 450

Picture 41



Picture 42

Checking procedure for over-voltage

Checking Schottky diode and diodes bridge

Check Schottky diode D802 and diodes bridges D805, D806. Location of diodes on the board you can see in the picture 43. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

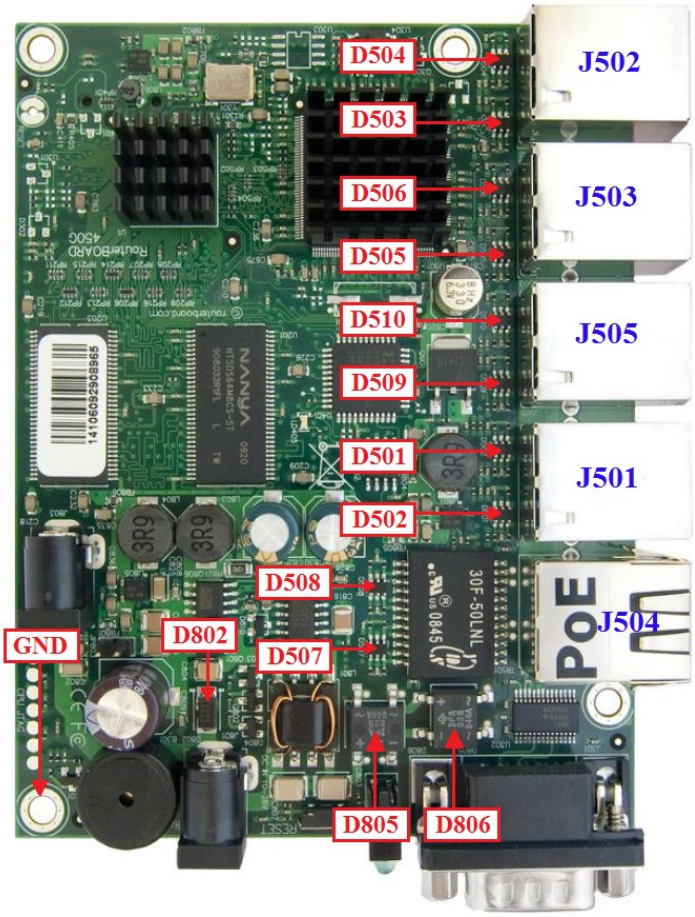
Check voltage drop value between diode arrays D501-D510 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 43.

Voltage drop value should be in the range from 0,2V to 0,26V. Voltage drop measurement method is described on page 25.

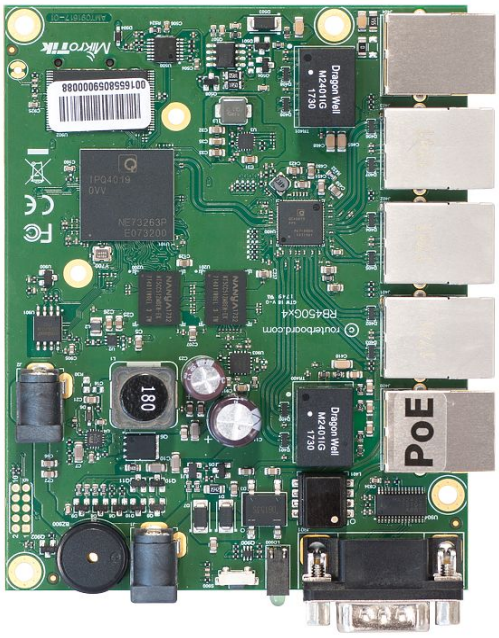
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J501-J503, J505 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.


D504
D503
D506
D505
D510
D509
D501
D502
D508
D802
D507
GND
D805
D806
J502
J503
J505
J501
J504
PoE

Picture 43



Picture 44

Checking procedure for over-voltage

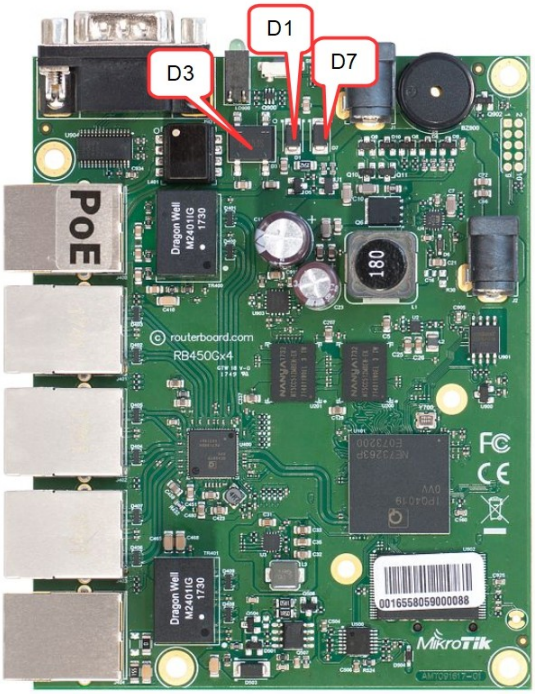
Checking Schottky diode and diodes bridge

Check Schottky diode D1, D7 and diodes bridges D3. Location of diodes on the board you can see in the picture 45. Diodes quality measurement method is described on page 23.

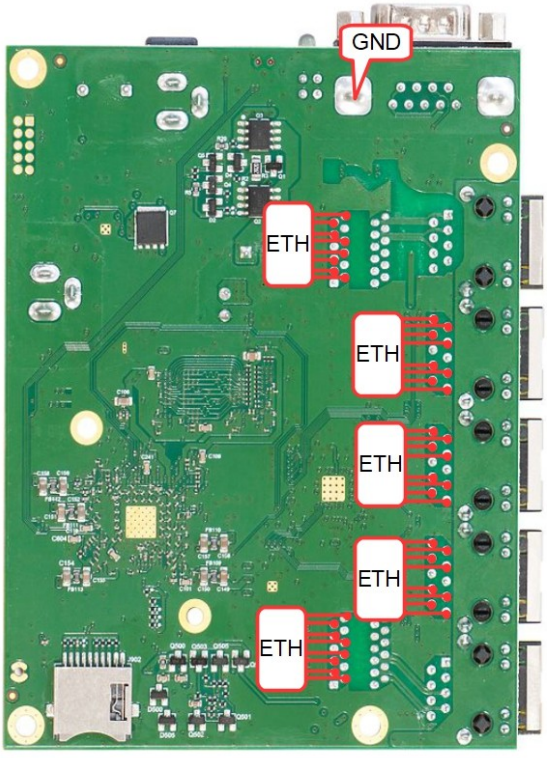
Checking voltage drop value between diode array and Ground on RJ45

Check voltage drop value between diode arrays D400-D409. Location of the test points by the name ETH you can see in the picture 46.

Voltage drop value should be in the range from 0,36V to 0,43V. Voltage drop measurement method is described on page 25.



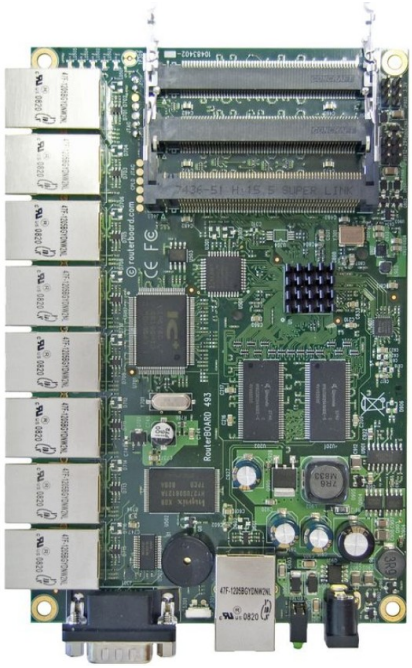
Picture 45



Picture 46

493 series RouterBoards

RB493AH



Picture 47

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D901, D902. Location of diodes on the board you can see in the picture 48. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

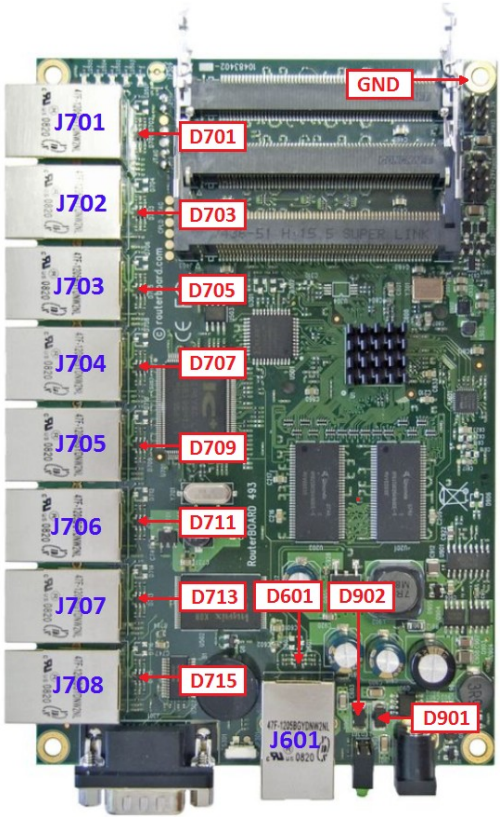
Check voltage drop value between diode arrays D601, D701, D703, D705, D707, D709, D711, D713, D715 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 48.

Voltage drop value should be in the range from 0,4V to 0,44V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

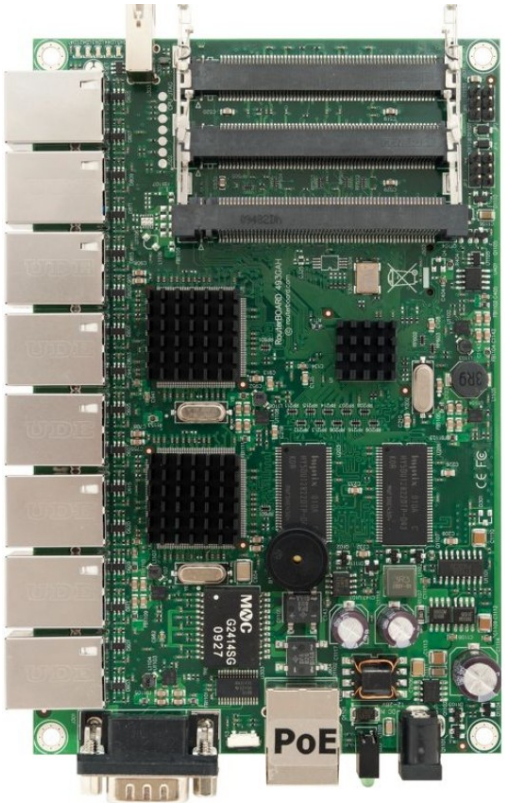
Check termination resistors resistance in J601, J701-J708 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 48

RB493G



Picture 49

Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D1101 and diodes bridges D1102, D1105. Location of diodes on the board you can see in the picture 50. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode arrays D601, D603, D609, D611, D615, D620, D605, D607, D801, D803, D815, D820, D809, D811, D805, D807 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 50.

Voltage drop value should be in the range from 0,20V to 0,25V. Voltage drop measurement method is described on page 25.

Checking voltage drop value between Ethernet transformer pins and Ground

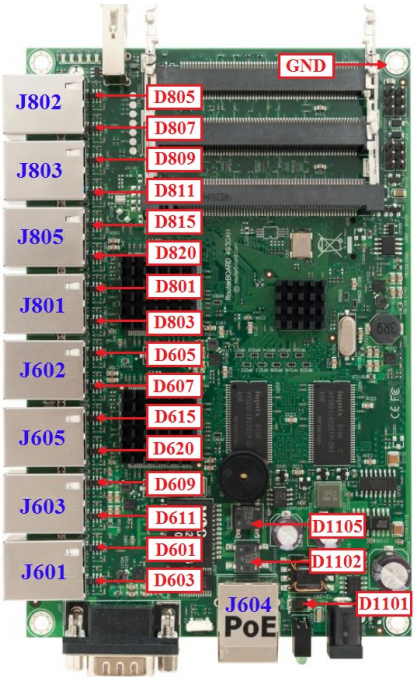
Check voltage drop value between transformer TR6 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 50.

Voltage drop value should be in the range from 0,2V to 0,25V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J601-J603, J605, JJ801-J803, J805 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 50

751 series RouterBoards

RB751U-2HnD



Picture 51

Disassembling information

Disassembly method of the board is the same as the RB260GSP board. Disassembly method is described on page 32.

Checking procedure for over-voltage

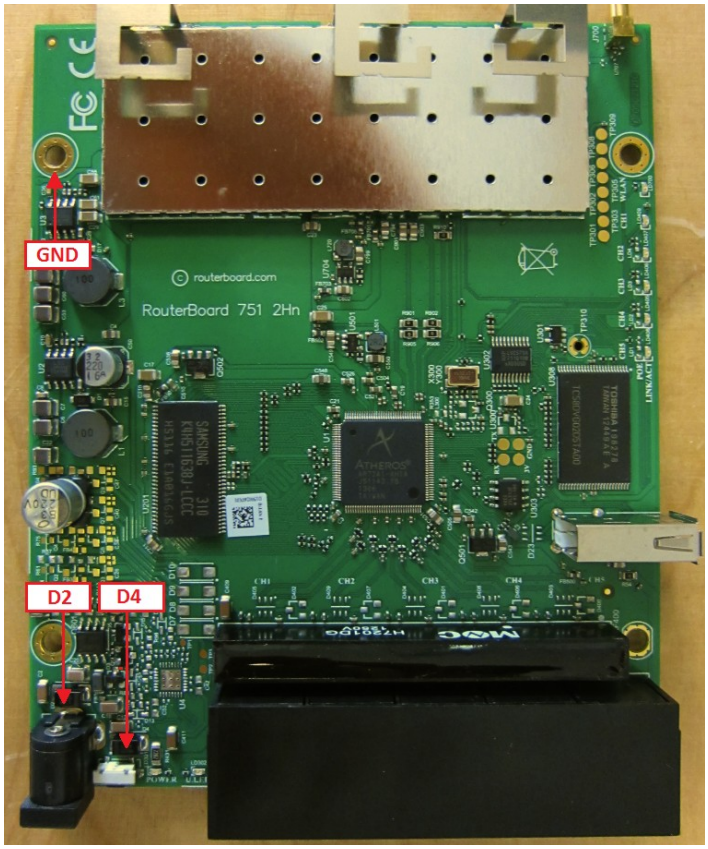
Checking Schottky diodes

Check Schottky diodes D2, D4. Location of diodes on the board you can see in the picture 52. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformers TRF400 pins and Ground. Test points are marked with red dots, see picture 53.

Voltage drop value should be in the range from 0,28V to 0,32V. Voltage drop measurement method is described on page 25.



Picture 52



Picture 53

800 series RouterBoards

RB800



Picture 54

Checking procedure for over-voltage

Checking diodes bridges

Check diodes bridges D17, D21. Location of diodes on the board you can see in the picture 55. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode arrays D1, D3, D5, D8, D9, D11 pin#1 and Ground also check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 56. Location of diode arrays on the board you can see in the picture 56.

Voltage drop value should be in the range from 0,3V to 0,36V. Voltage drop measurement method is described on page 25.

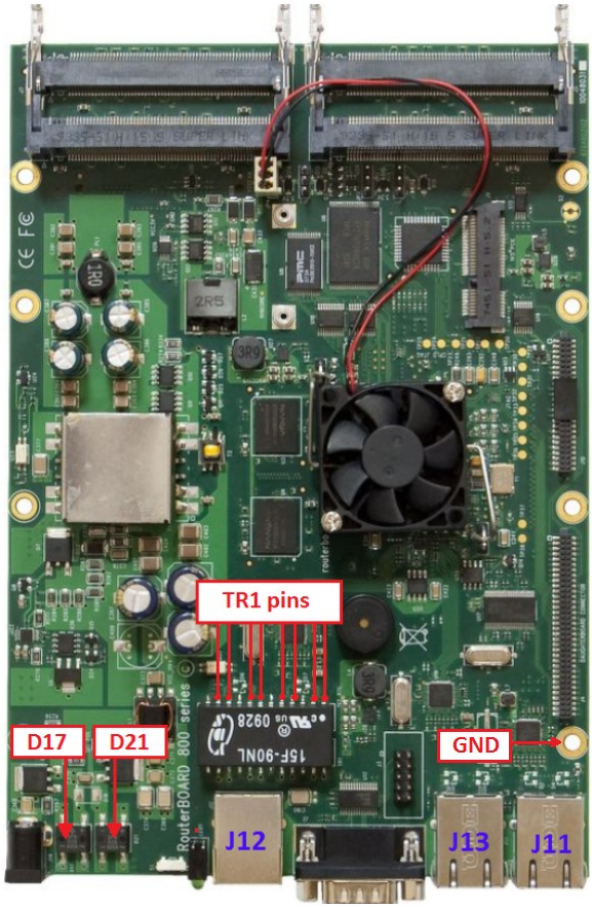
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J11, J13 connectors.

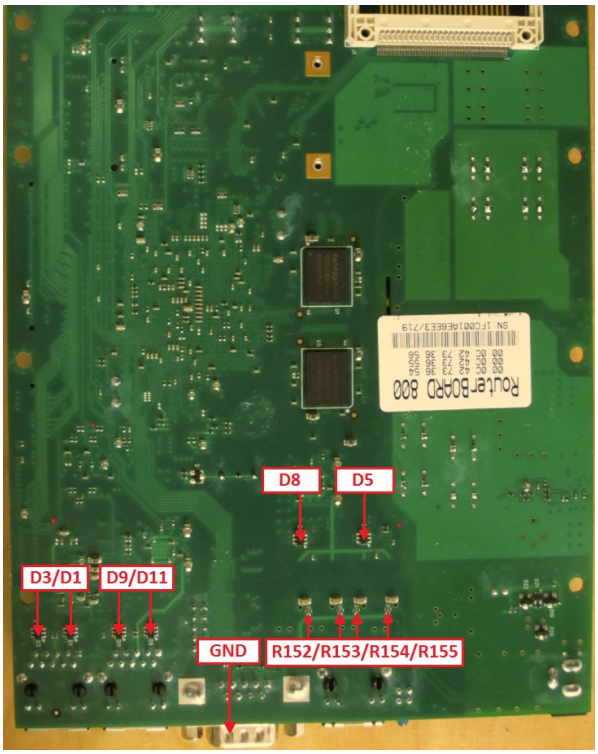
Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.

Checking 75 Ohm termination resistors resistance

Check resistors R152-R155 resistance value. It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 56.



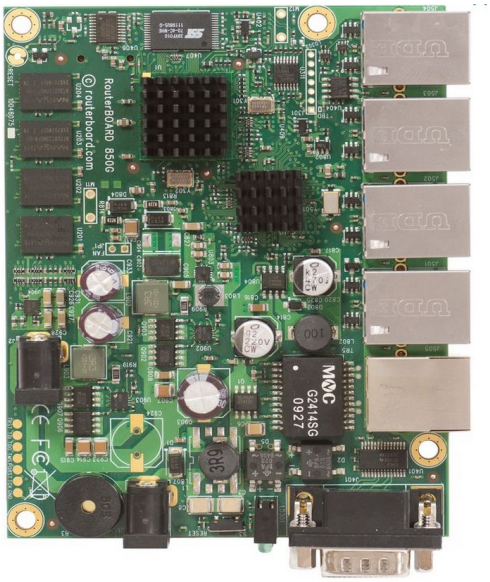
Picture 55



Picture 56

850 series RouterBoards

RB850Gx2



Picture 57

Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D1 and diodes bridges D2, D5. Location of diodes on the board you can see in the picture 58. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode arrays D501, D503, D505, D507, D509, D512, D515, D519 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 58.

Voltage drop value should be in the range from 0,38 to 0,44V. Voltage drop measurement method is described on page 25.

Checking voltage drop value between Ethernet transformer pins and Ground

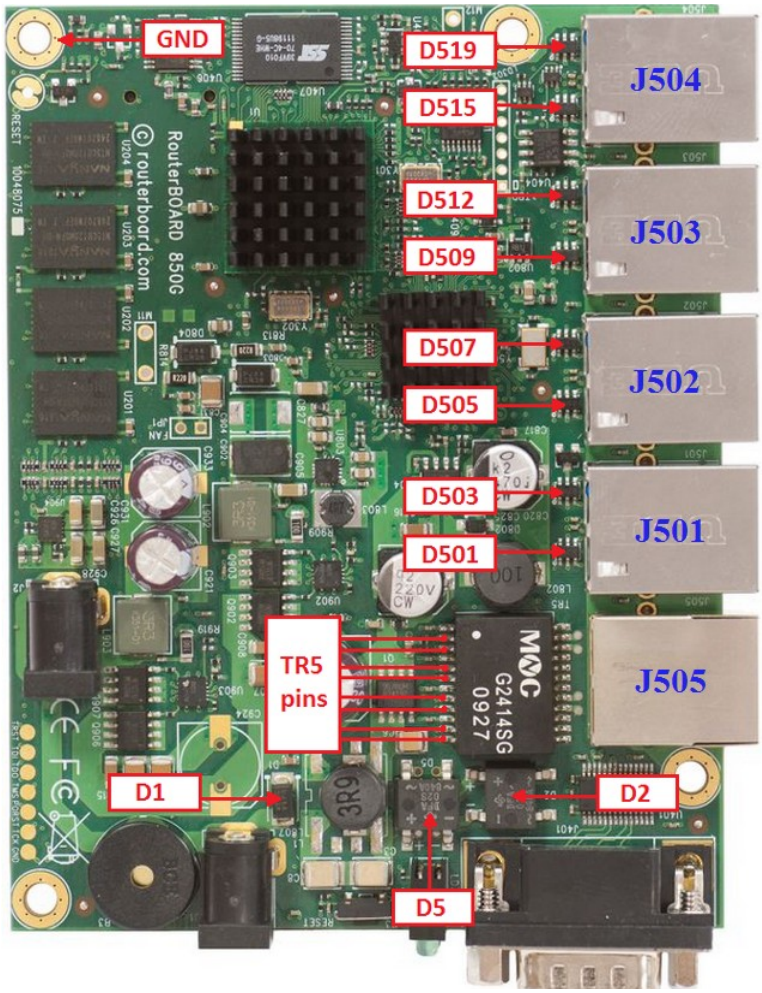
Check voltage drop value between Ethernet transformer TR5 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 58.

Voltage drop value should be in the range from 0,42V to 0,48V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J501-J504 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



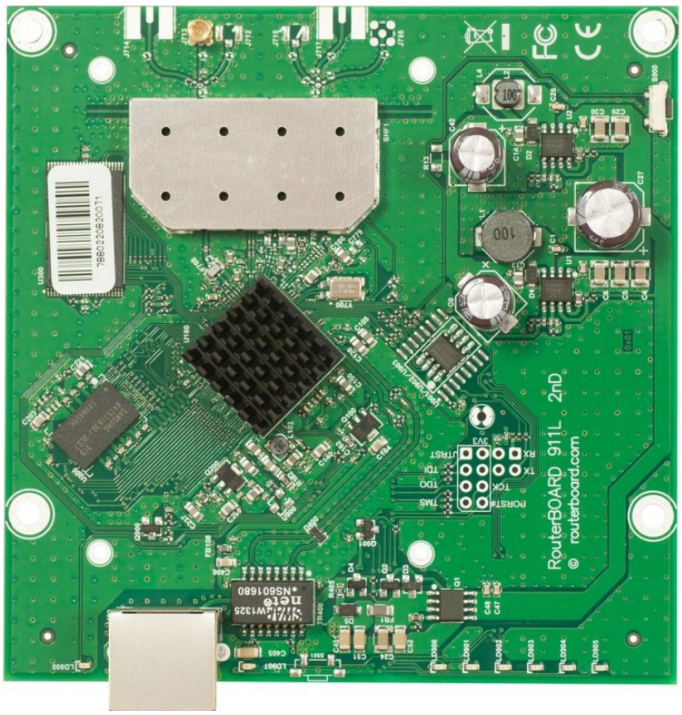
Picture 58

911 series RouterBoards

911 Lite 2 (911-2Hn)

911 Lite 5 (911-5Hn)

911 Lite 5 dual (911-5HnD)



Picture 59

Checking procedure for over-voltage

Checking Schottky diode

Check Schottky diode D5. Location of diode on the board you can see in the picture 60. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

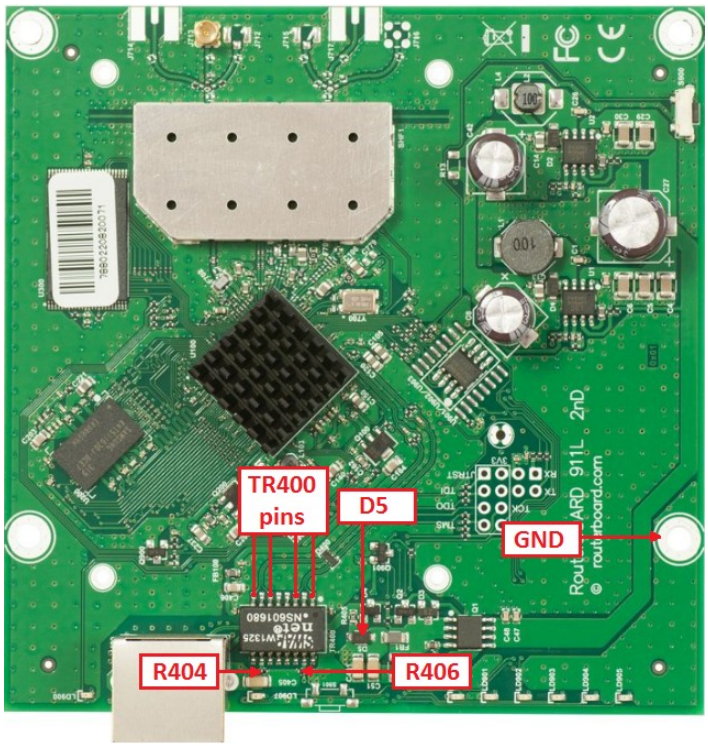
Check voltage drop value between Ethernet transformer TR400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 60.

Voltage drop value should be in the range from 0,32V to 0,38V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

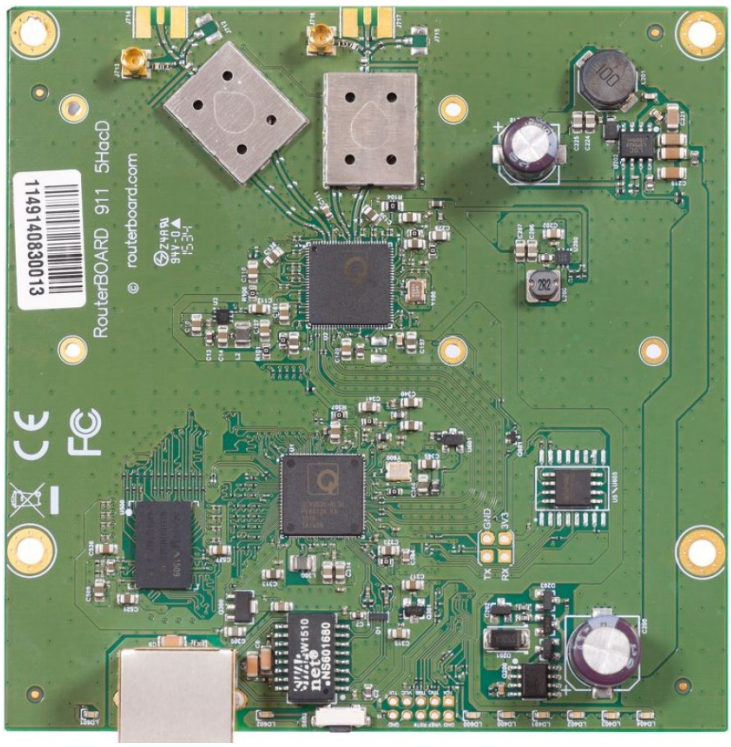
Check resistors R404, R406 resistance value. It should be 75 Ohm +/- 1%.

Location of resistors on the board you can see in the picture 60.



Picture 60

911 Lite 5 ac (911-5HacD)



Picture 61

Checking procedure for over-voltage

Checking Schottky diode

Check Schottky diode D201. Location of diode on the board you can see in the picture 62. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

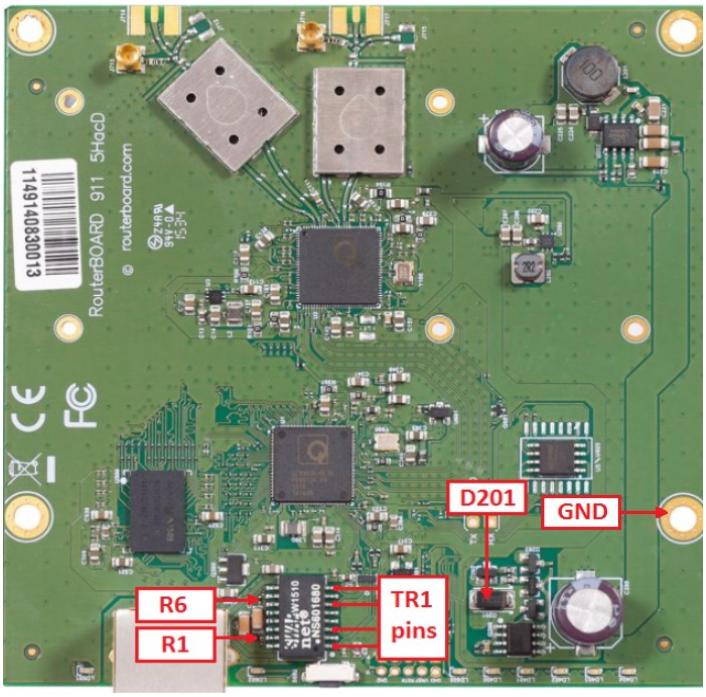
Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 62.

Voltage drop value should be in the range from 0,36V to 0,42V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors R1, R6 resistance value. It should be 75 Ohm +/-1%.

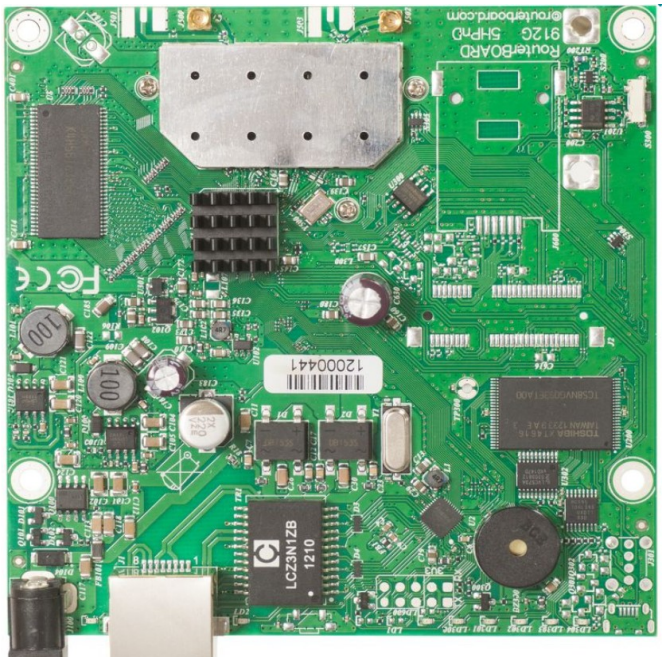
Location of resistors on the board you can see in the picture 62.



Picture 62

RB911G-2HPnD

RB911G-5HPnD



Picture 63

Checking procedure for over-voltage

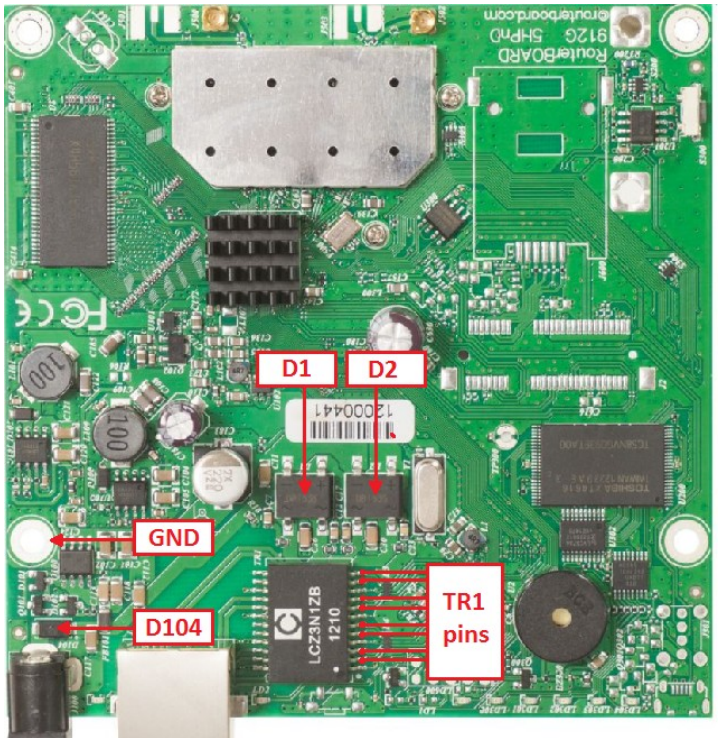
Checking Schottky diode and diodes bridges

Check Schottky diode D104 and diodes bridges D1, D2. Location of diodes on the board you can see in the picture 64. Diodes quality measurement method is described on page 23.

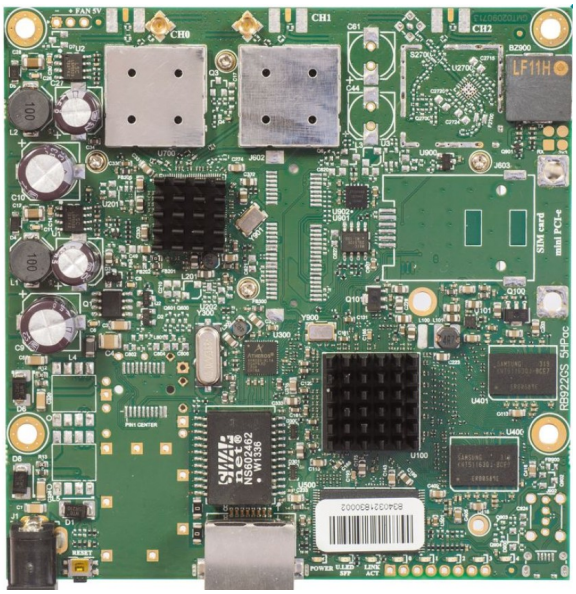
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 64.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 64



Picture 65

Checking procedure for over-voltage

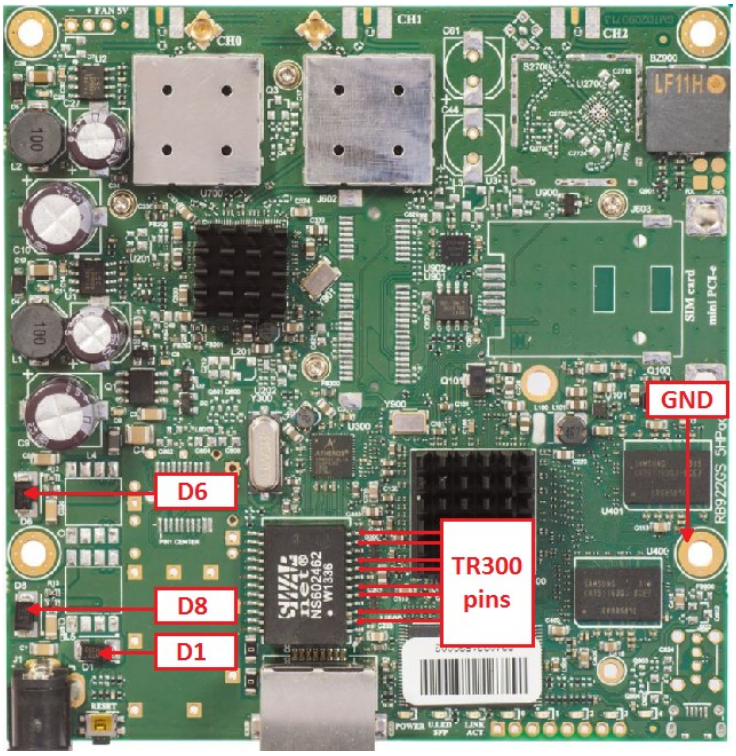
Checking Schottky diodes

Check Schottky diodes D1, D6, D8. Location of diodes on the board you can see in the picture 66. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 66.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

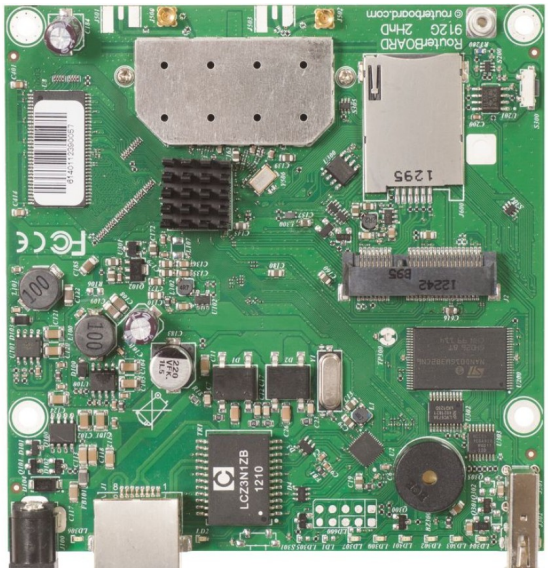


Picture 66

912 series RouterBoards

RB912UAG-2HPnD

RB912UAG-5HPnD



Picture 67

Checking procedure for over-voltage

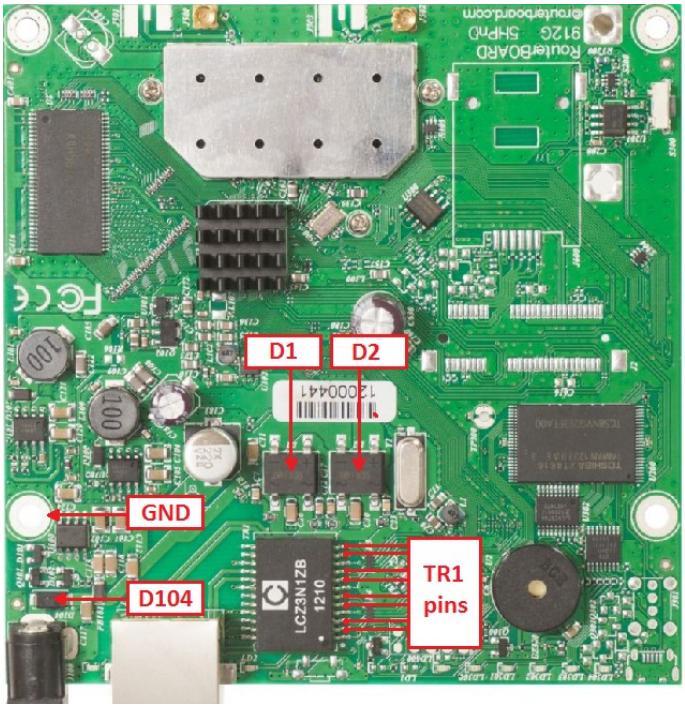
Checking Schottky diode and diodes bridges

Check Schottky diode D104 and diodes bridges D1, D2. Location of diodes on the board you can see in the picture 68. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between TR1 and Ground. Test points on the transformer pins are marked with red dots, see picture 68.

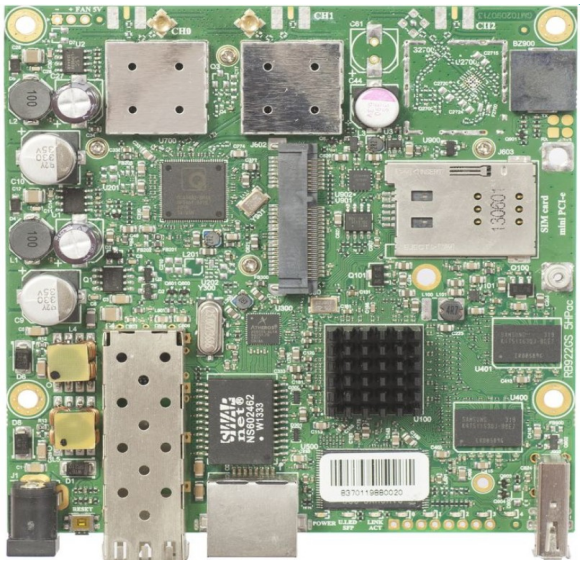
Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 68

922 series RouterBoards

RB922UAGS-5HPacD



Picture 69

Checking procedure for over-voltage

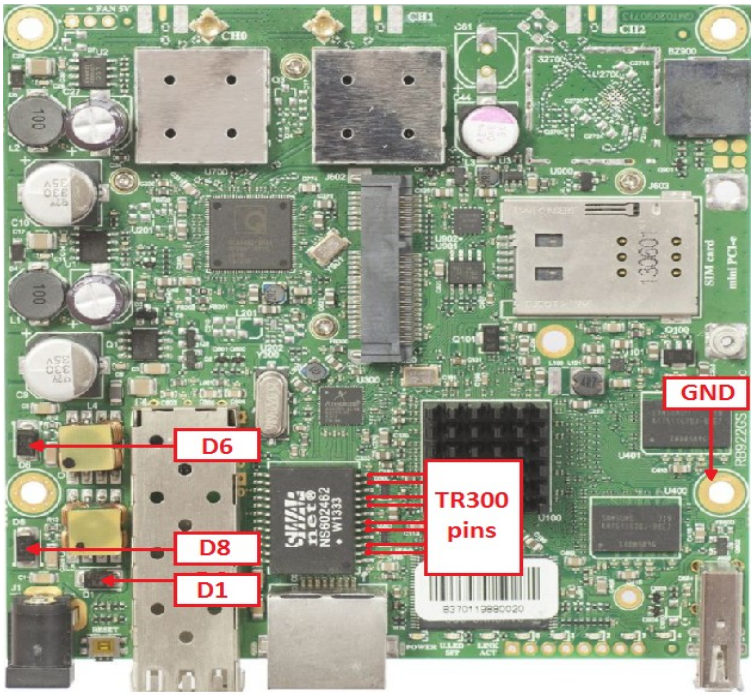
Checking Schottky diodes

Check Schottky diodes D1, D6, D8. Location of diodes on the board you can see in the picture 70. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 70.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 70

950 series RouterBoards

RB951-2Hn



Picture 71

Disassembling information

Step 1:

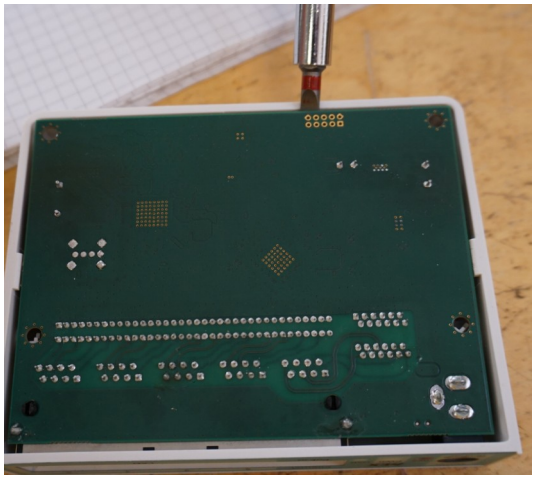
Take off the cover as shown in the picture 72.



Picture 72

Step 2:

Take out the board as shown in the picture 73.



Picture 73

Checking procedure for over-voltage

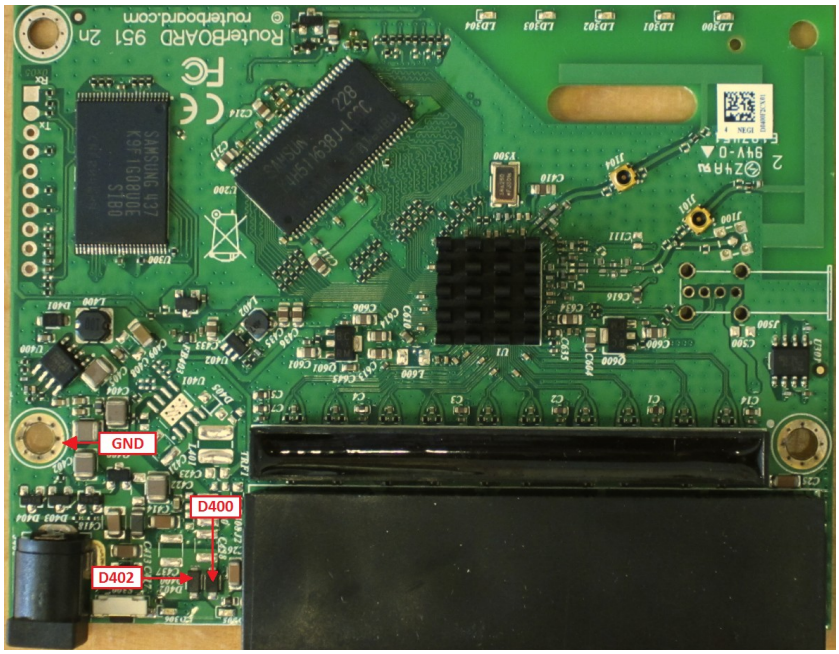
Checking Schottky diodes

Check Schottky diodes D400, D402. Location of diodes on the board you can see in the picture 74. Schottky diode quality measurement method is described on page 23.

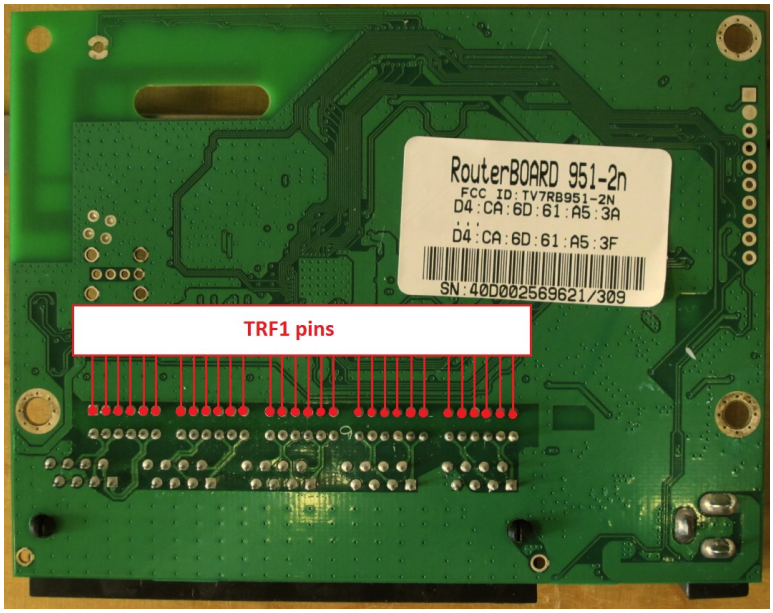
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet Transformer TRF1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 75.

Voltage drop value should be in the range from 0,32V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 74


RouterBOARD 951-2n
FCC ID:TV7RB951-2N
D4:CA:6D:61:A5:3A
...
D4:CA:6D:61:A5:3F
SN:40D002569621/309
TRF1 pins

Picture 75

RB951G-2HnD



Picture 76

Disassembling information

Disassembly method of the board is the same as the RB260GSP board.

Disassembly method is described on page 32.

Checking procedure for over-voltage

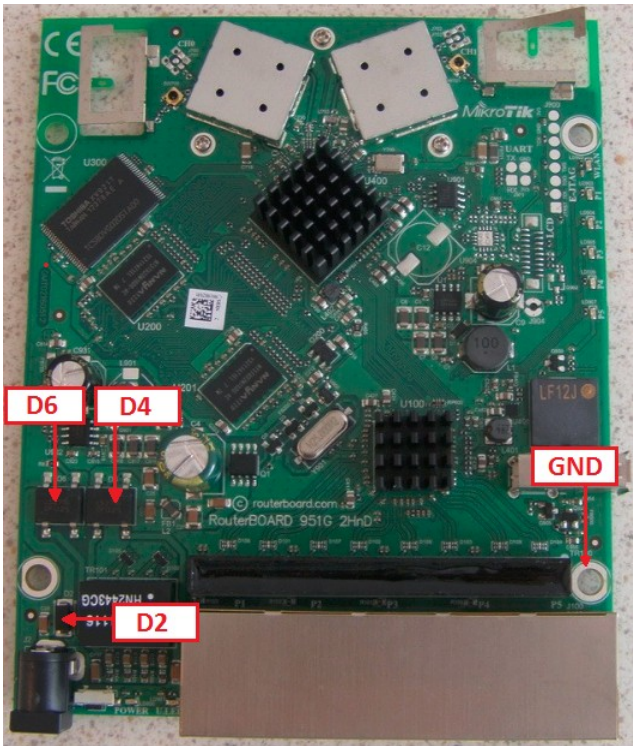
Checking Schottky diode and diodes bridges

Check Schottky diode D2 and diodes bridges D4, D6. Location of diodes on the board you can see in the picture 77. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR100, TR101 pins and Ground. Test points on the transformers pins are marked with red dots, see picture 78.

Voltage drop value between transformer TR100 pins and Ground should be in the range from 0,36V to 0,4V, but between transformer TR101 pins and Ground in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 77



Picture 78

RB951Ui-2HnD



Picture 79

Disassembling information

Disassembly method of the board is the same as the RB260GSP board. Disassembly method is described on page 32.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D2, D4, D1000. Location of diodes on the board you can see in the picture 80. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

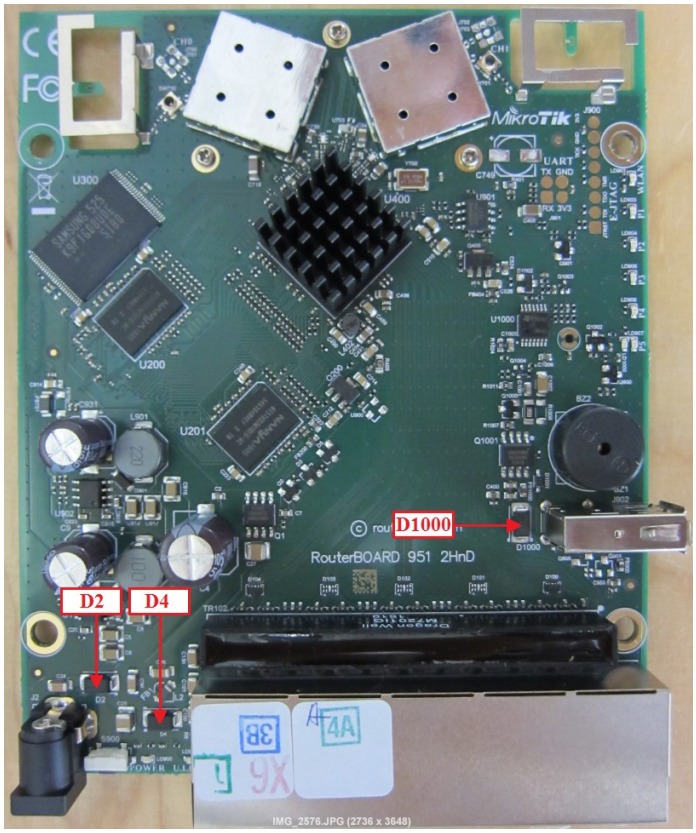
Check voltage drop value between Ethernet transformer TR102 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 81.

Voltage drop value should be in the range from 0,32V to 0,38V. Voltage drop measurement method is described on page 25.

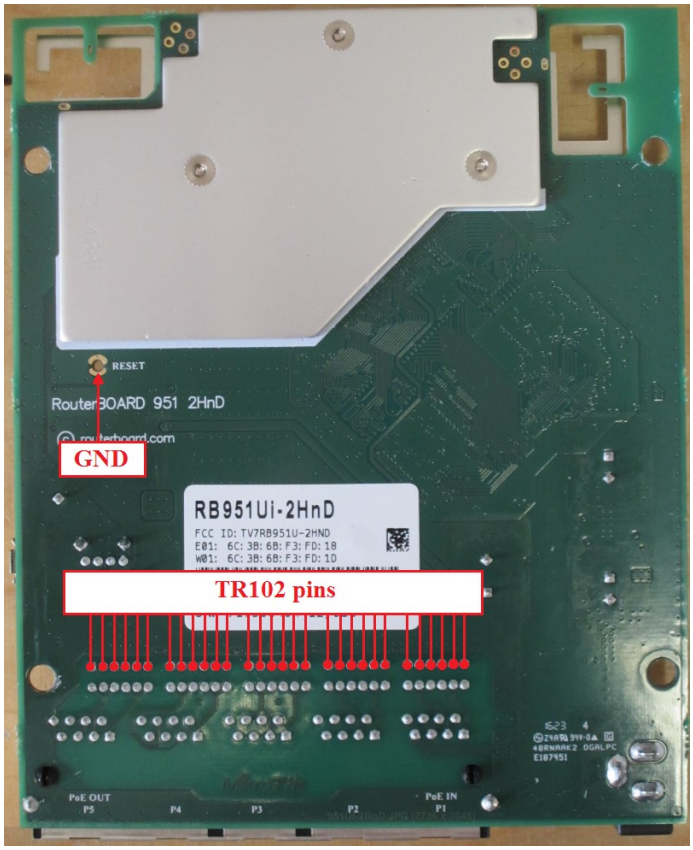
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J101 connector (in the each Ethernet ports).

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.

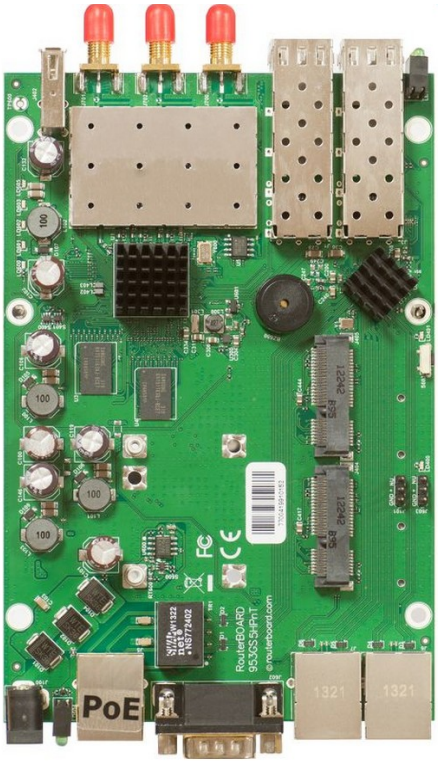


Picture 80



Picture 81

RB953GS-5HnT



Picture 82

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D101, D102, D104. Location of diodes on the board you can see in the picture 83. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 84.

Voltage drop value should be in the range from 0,42V to 0,48V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J6, J7 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.

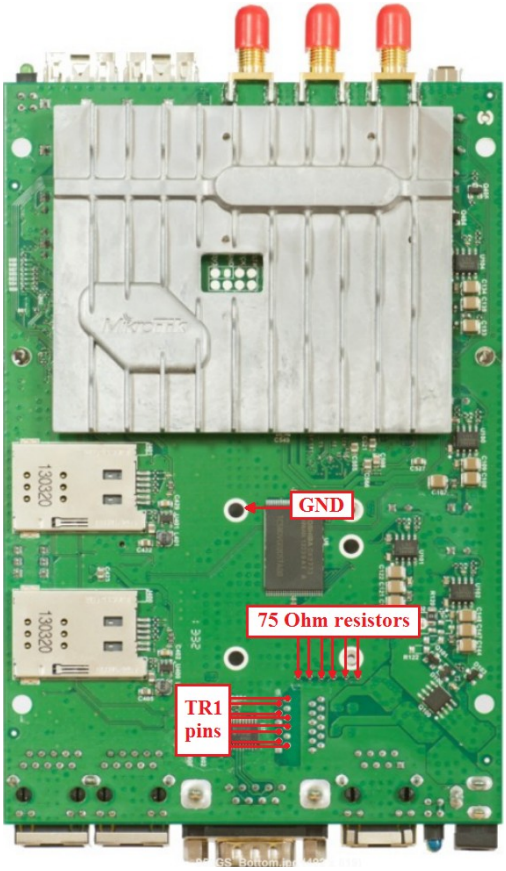
Checking 75 Ohm termination resistors resistance

Check resistors R36, R38, R39, R42, R44, R45 resistance value.

It should be 75 Ohm +/- 1%. Location of resistors on the board you can see in the picture 84.



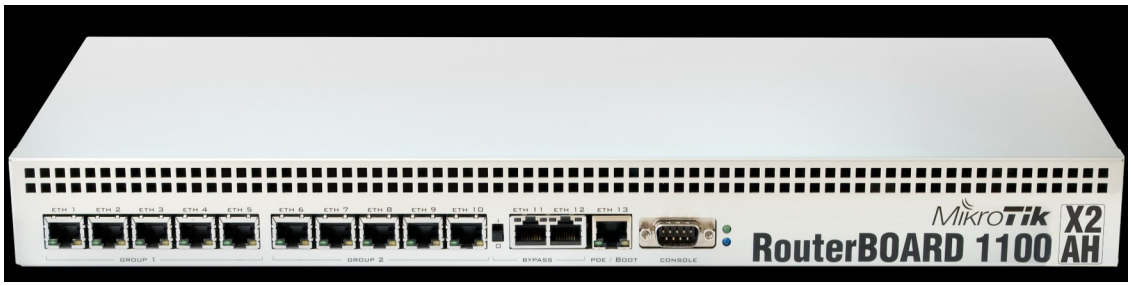
Picture 83



Picture 84

1100 series RouterBoards

RB1100AHx2

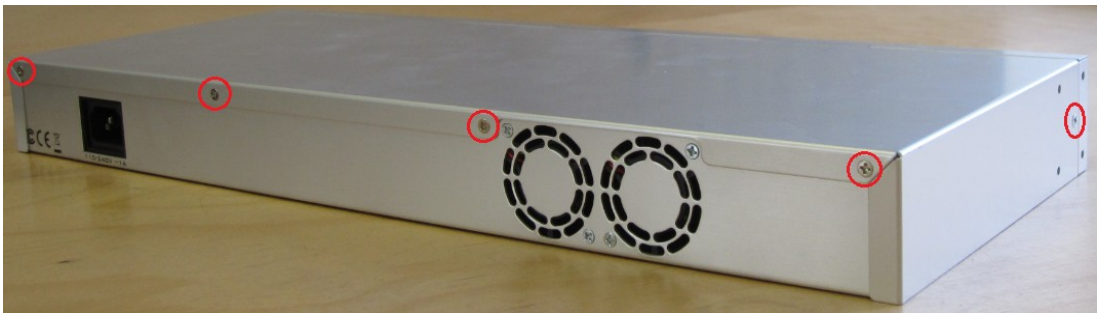


Picture 85

Disassembling information

Step 1:

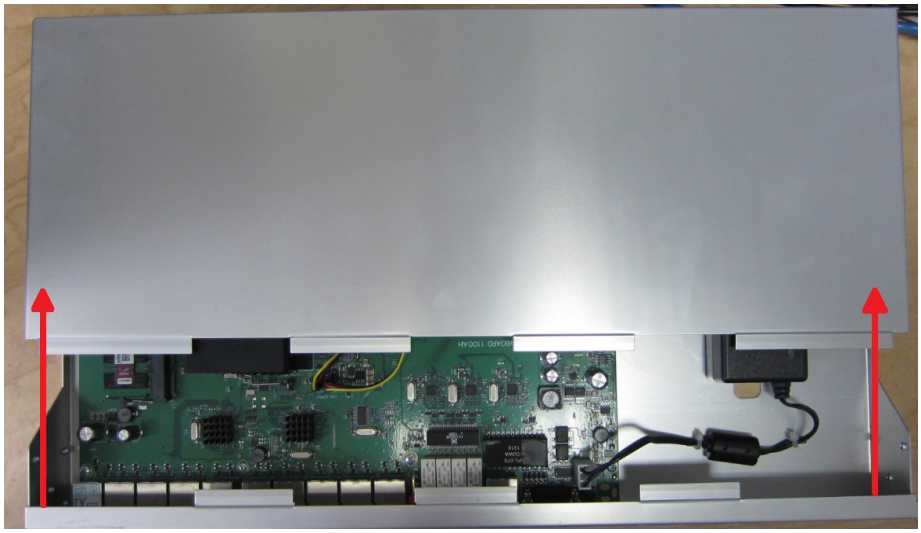
Unscrew 6 screws (4 screws behind of the board case and 1 screw on the each side of the board case) using PH2 screwdriver. Location of the screws you can see in the picture 86.



Picture 86

Step 2:

Pull the cover away from you, see picture 87.



Picture 87

Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D1101 and diodes bridges D1102, D1105. Location of diodes on the board you can see in the picture 88. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop between diode arrays D501, D503, D605, D607 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 89.

Voltage drop value should be in the range from 0,3V to 0,34V. Voltage drop measurement method is described on page 25.

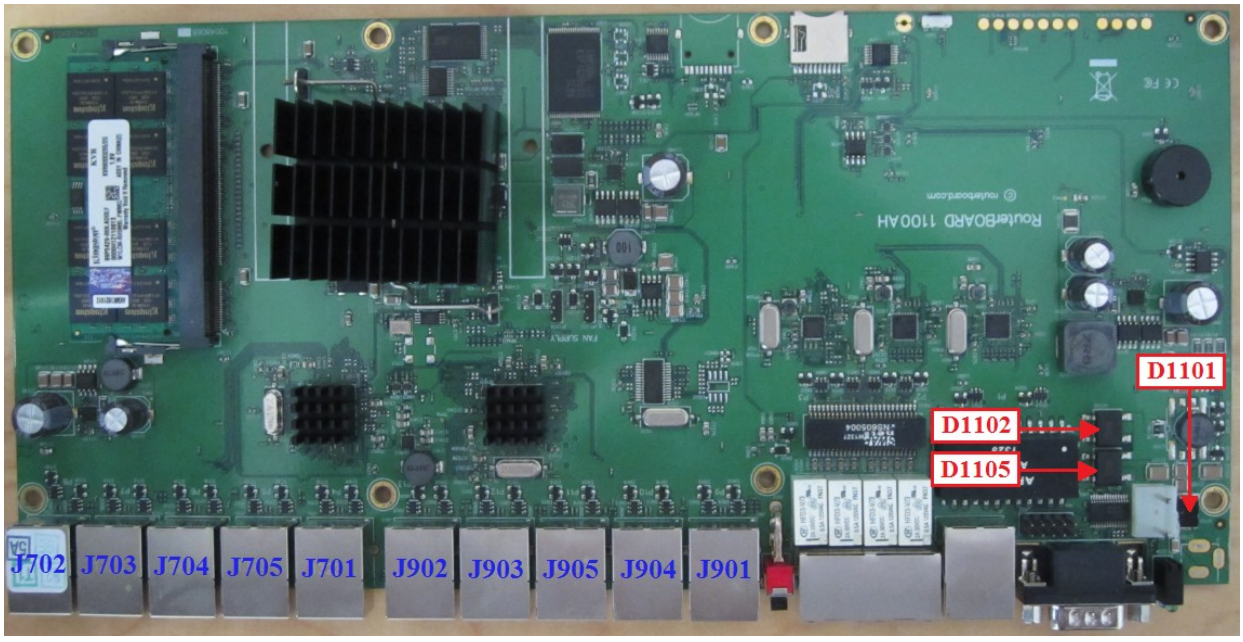
Then check voltage drop value between diode arrays D601, D603, D901, D904, D913, D917, D919, D915, D911, D909, D907, D905, D703, D701, D719, D717, D715, D713, D711, D709, D707, D705 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 89.

Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.

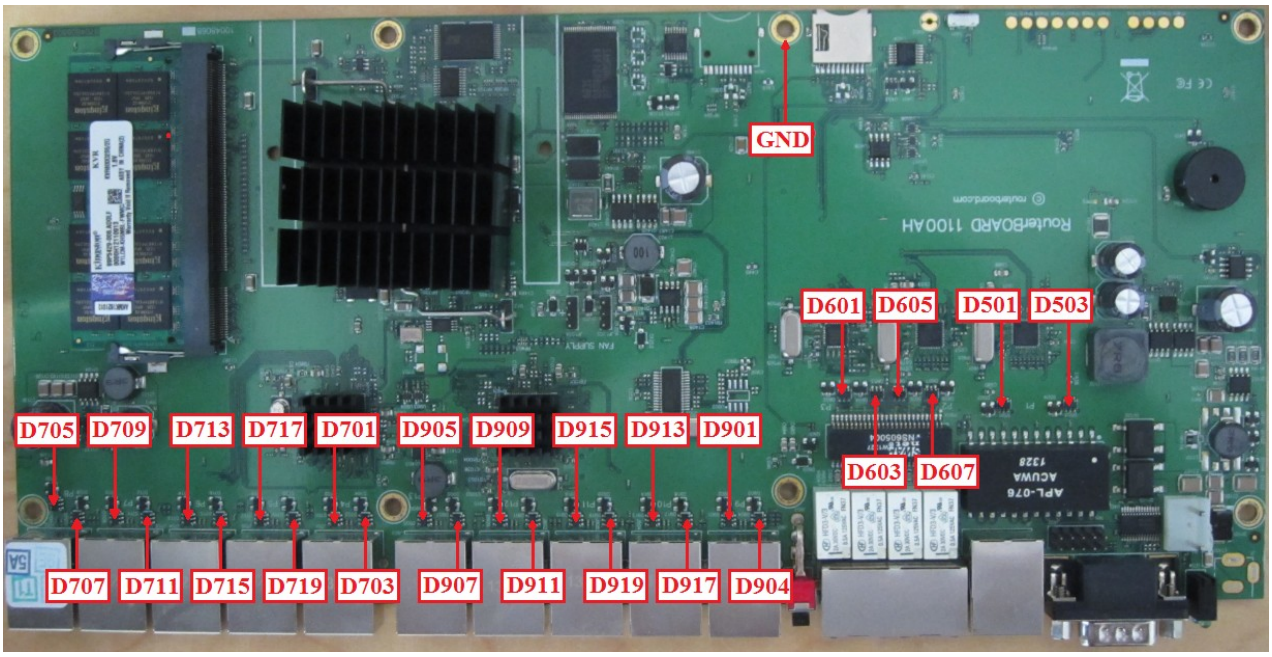
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J701 - J705, J901 - J905 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 88


GND
D601
D605
D501
D503
D705
D709
D713
D717
D701
D905
D909
D915
D913
D901
D603
D607
D707
D711
D715
D719
D703
D907
D911
D919
D917
D904

Picture 89

RB1100AHx4 Dude Edition

RB1100AHx4



Picture 90

Disassembling information

Disassembly method of the board is the same as the RB1100AHx2 board. Disassembly method is described on page 91.

Checking procedure for over-voltage

Checking Schottky diodes and diode bridge

Check Schottky diodes D1, D4, D11-D15 and diode bridge D9. Location of diodes on the board you can see in the picture 91. Schottky diode quality measurement method is described on page 23.

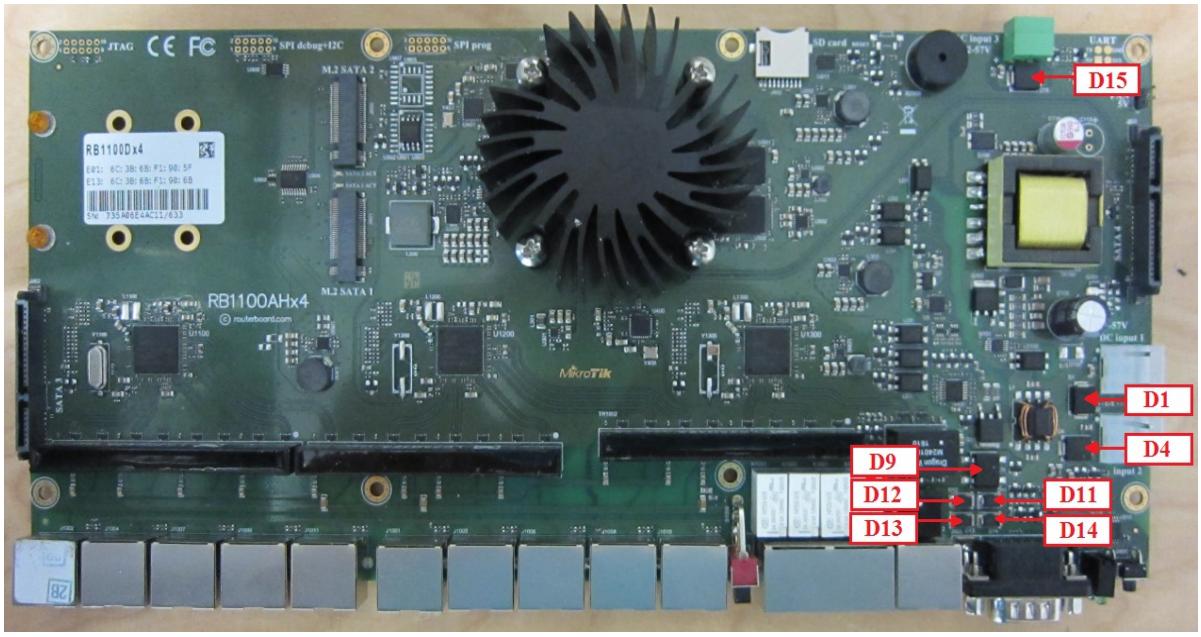
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1000-TR1002 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 92.

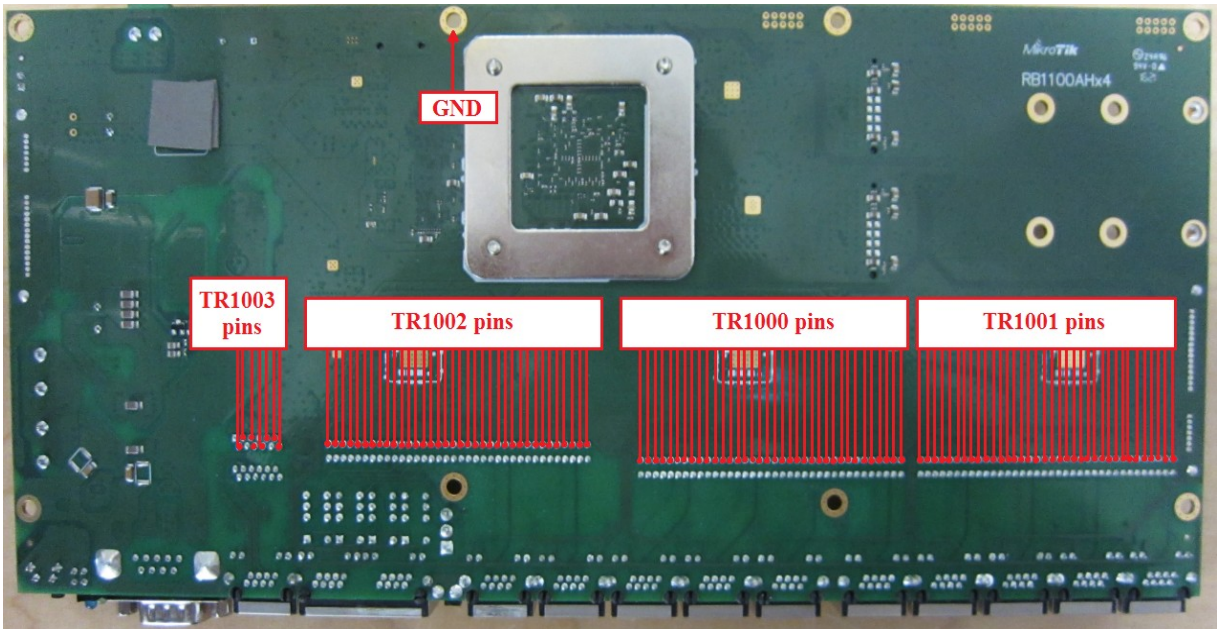
Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.

Check voltage drop value between transformer TR1003 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 92.

Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.



Picture 91



Picture 92

2000 series RouterBoards

RB2011iL-IN

RB2011iL-RM

RB2011iLS-IN

RB2011UiAS-IN

RB2011UiAS-RM

RB2011UiAS-2HnD-IN

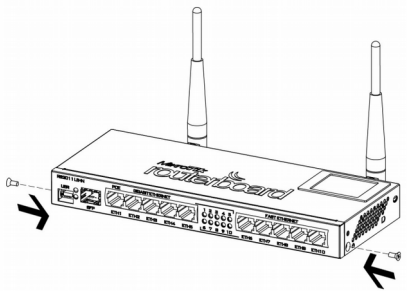


Picture 93

Indoor 2011 series RouterBoard Disassembling information

Step 1:

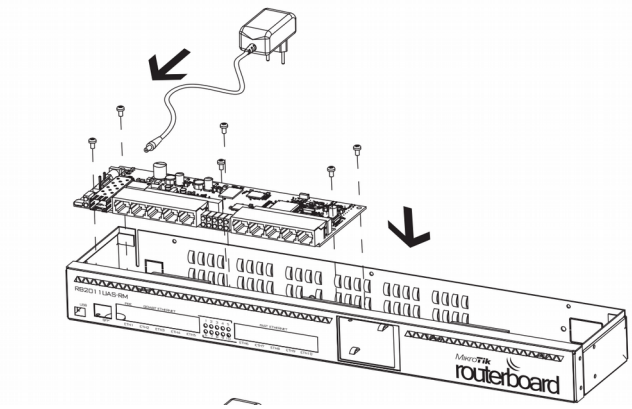
Unscrew 2 screws on each side of board case using PH2 screwdriver. Location of the screws you can see in the picture 94.



Picture 94

Step 2:

Unscrew 6 screws which fasten PCB to routerboard case. Location of the screws you can see in the picture 95.

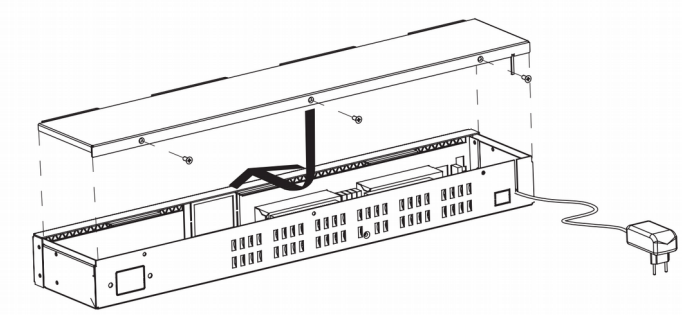


Picture 95

Rackmount 2011 series RouterBoard Disassembling information

Step 1:

Unscrew 3 screws from the back of the routerboard case using PH2 screwdriver and then pull the cover towards you. Location of the screws you can see in the picture 96.



Picture 96

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same for all types of RB2011 boards.

Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D2 and diodes bridges D4, D6. Location of diodes on the board you can see in the picture 97. Diodes quality measurement method is described on page 23. In rare cases depending on the multimeter used bridges D4 and D6 can give value of 1..2V instead of OL. In such cases the quality of diode bridges can be determined by extended measurements described on page 24.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between transformer TR101 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 98.

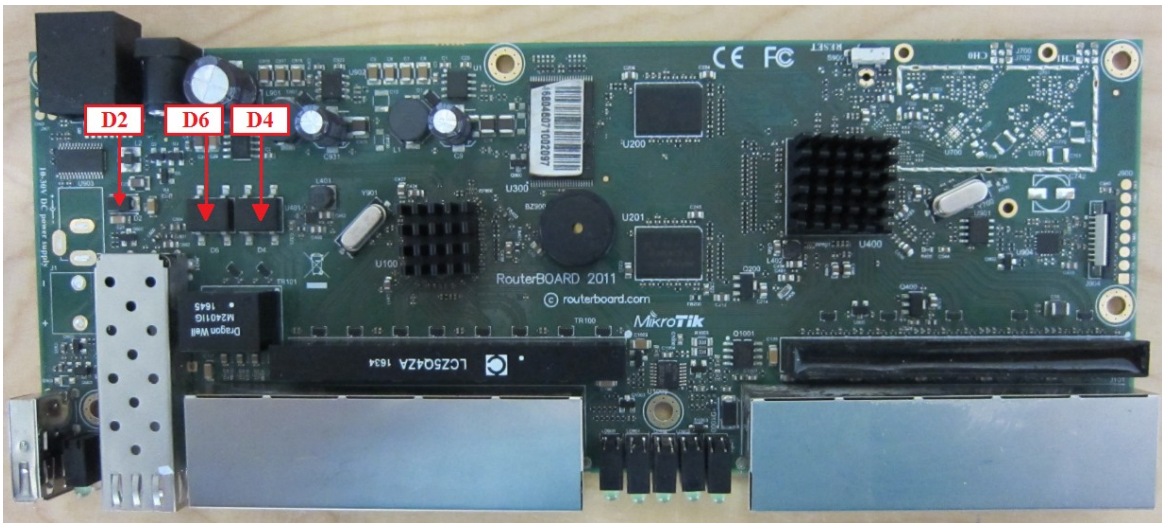
Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

Check voltage drop value between transformer TR100 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 98.

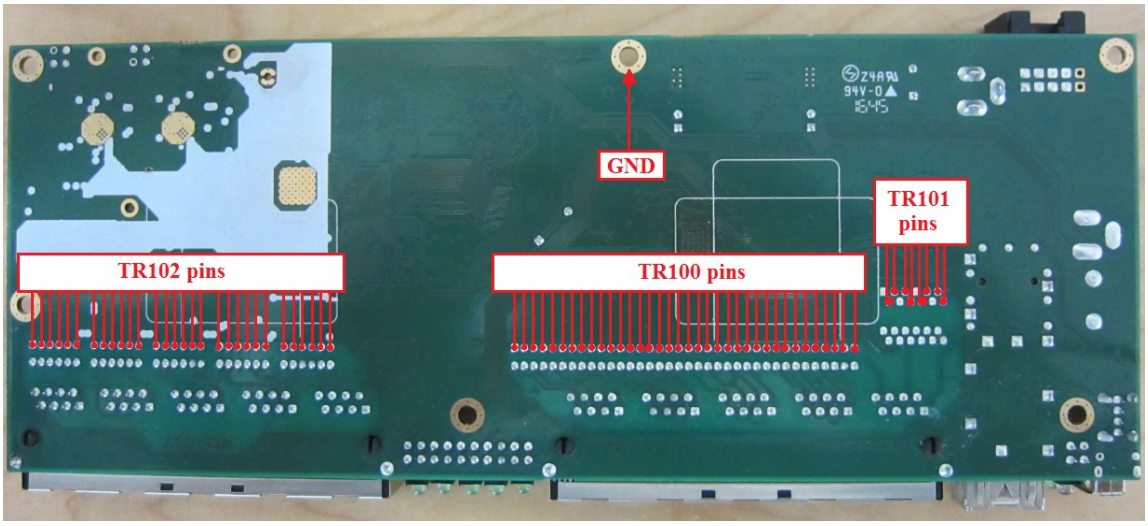
Voltage drop value should be in the range from 0,36V to 0,42V. Voltage drop measurement method is described on page 25.

Check voltage drop value between transformer TR102 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 98.

Voltage drop value should be in the range from 0,3V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 97



Picture 98

3000 series RouterBoards

RB3011UiAS-RM

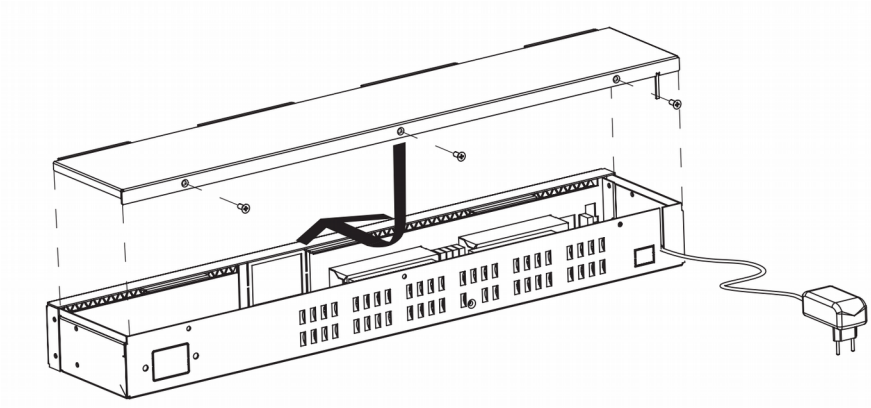


Picture 99

Disassembling information

Step 1:

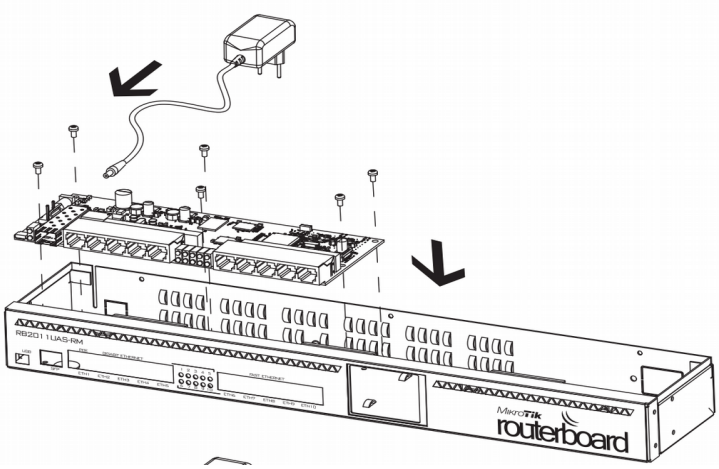
Unscrew 3 screws from the back of the routerboard case using PH2 screwdriver and then pull the cover towards you. Location of the screws you can see in the picture 100.



Picture 100

Step 2:

Unscrew 6 screws which fasten PCB to routerboard case. Location of the screws, see picture 101.



Picture 101

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D2, D6, D600. Location of diodes on the board you can see in the picture 102. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Transformer TR1101 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 103.

Voltage drop value should be in the range from 0,4V to 0,46V. Voltage drop measurement method is described on page 25.

Check voltage drop value between Transformer TR1100, TR1200 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 103.

Voltage drop value should be in the range from 0,34V to 0,4V. Voltage drop measurement method is described on page 25.

Check voltage drop value between transformer TR1200 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 103.

Voltage drop value should be in the range from 0,34V to 0,4V. Voltage drop measurement method is described on page 25.

Check voltage drop value between transformer TR1201 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 103.

Voltage drop value should be in the range from 0,4V to 0,46V. Voltage drop measurement method is described on page 25.

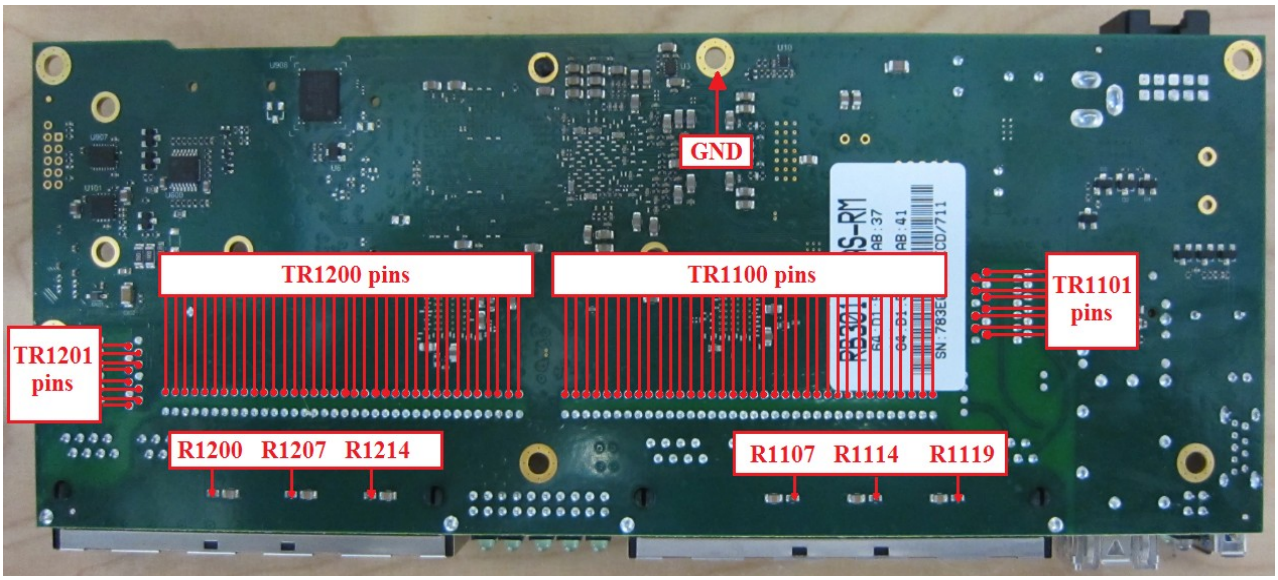
Checking 75 Ohm termination resistors resistance

Check resistors R1200, R1207, R1214, R1107, R1114, R1119 resist ance value.

It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 103.



Picture 102



Picture 103

4000 series RouterBoards

RB4011iGS+RM

RB4011iGS+5HacQ2HnD-IN

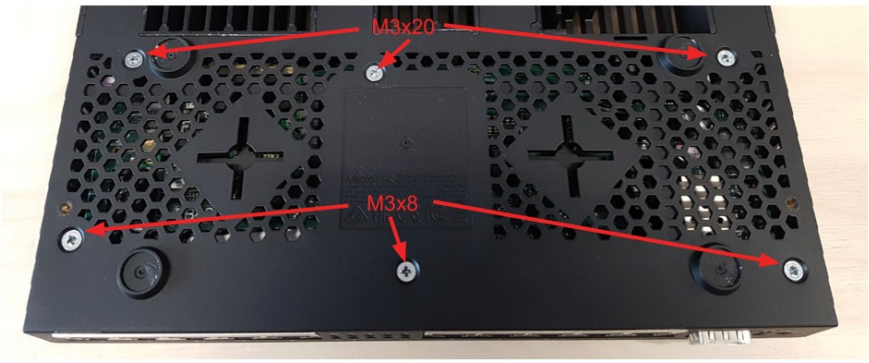


Picture 104

Disassembling information

Step 1:

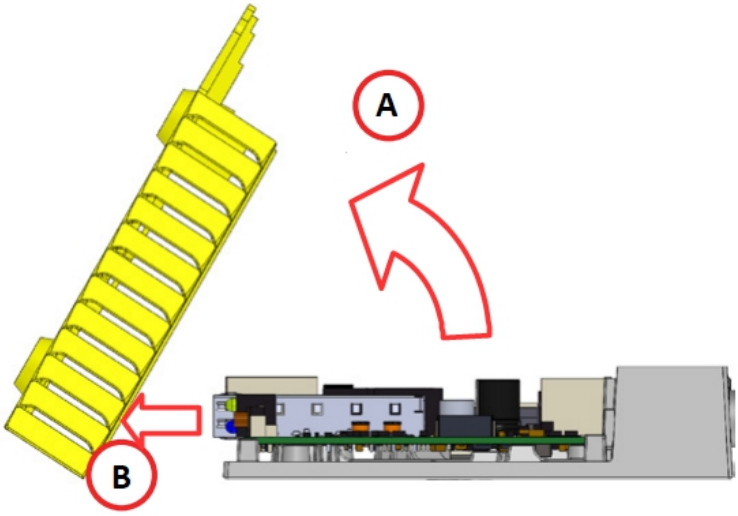
Unscrew 6 screws from the back of the routerboard case using PH2 screwdriver. Location of the screws you can see in the picture 105.



Picture 105

Step 2:

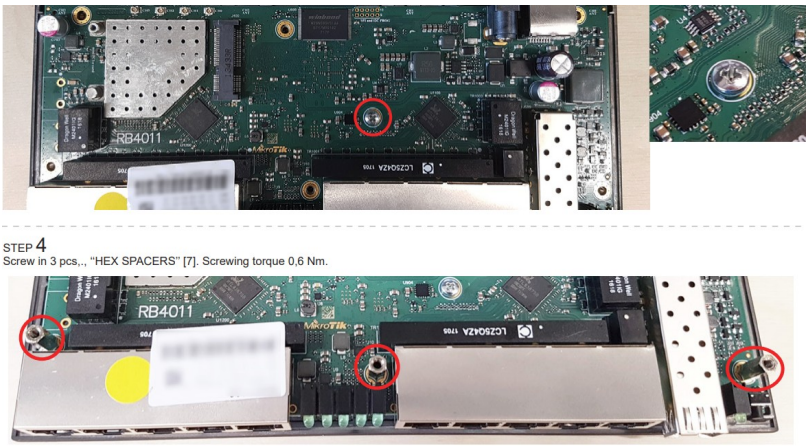
Lift the plastic cover according to picture 106.



Picture 106

Step 3:

Undo 3 hexagonal threaded spacers and 1 screw according to picture 107.



Picture 107

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D11, D1 and diode bridge D5. Location of diodes on the board you can see in the picture 108. Schottky diodes quality measurement method is described on page 23.

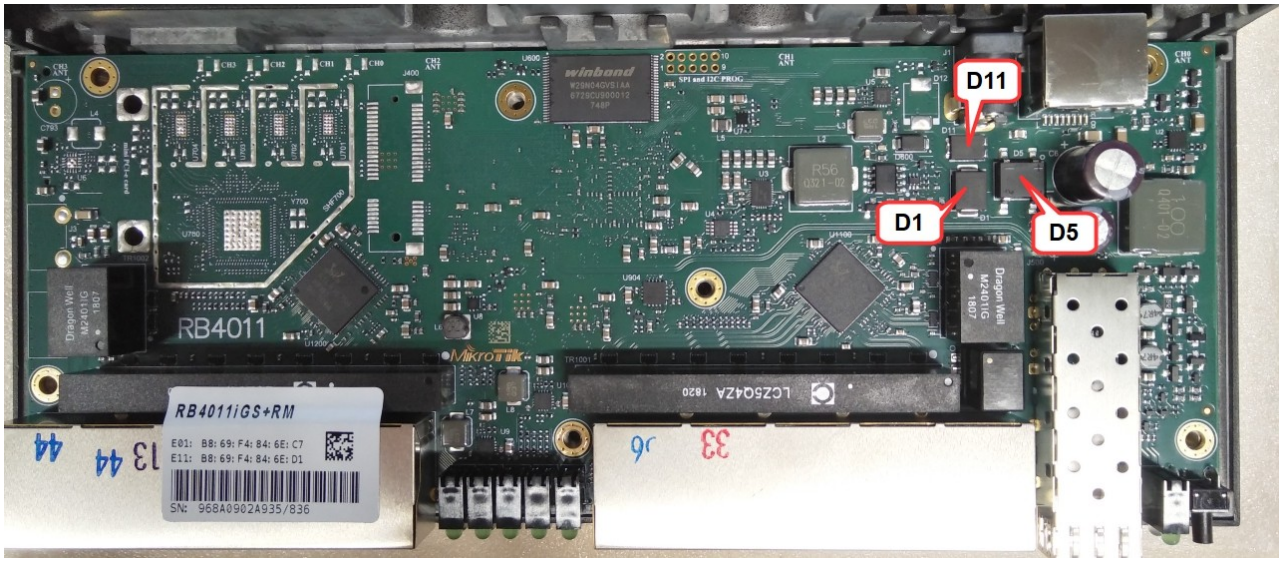
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Transformer TR1003 and TR1002 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 109.

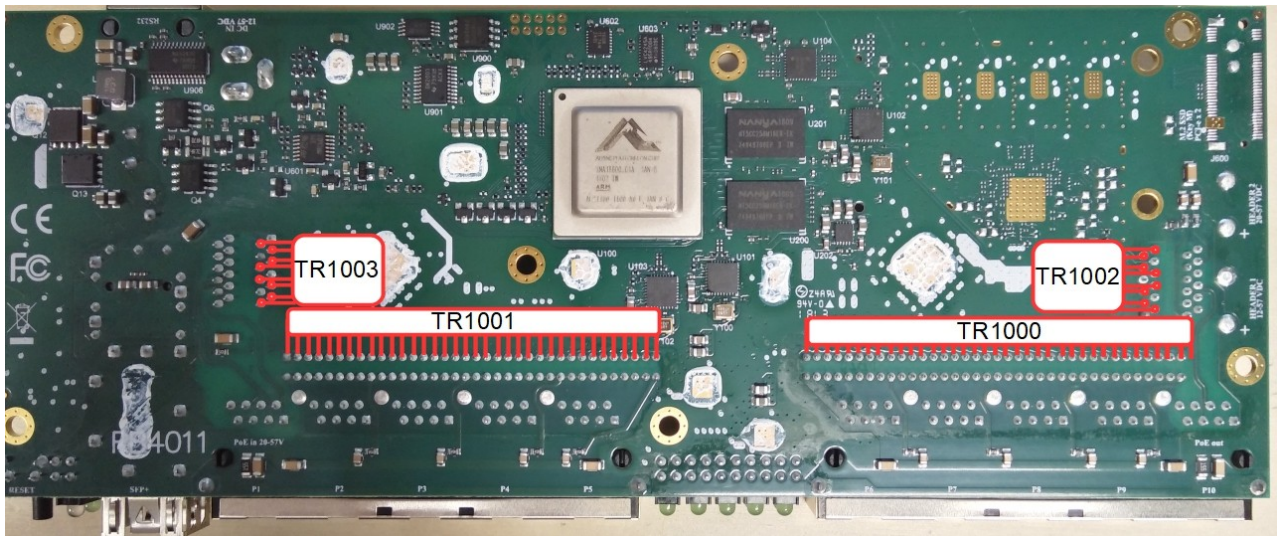
Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.

Check voltage drop value between Transformer TR1001, TR1000 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 109.

Voltage drop value should be in the range from 0,34V to 0,4V. Voltage drop measurement method is described on page 25.



Picture 108



Picture 109

BaseBox series RouterBoards

BaseBox 2 (912UAG-2HPnD-OUT)

BaseBox 5 (912UAG-5HPnD-OUT)



Picture 110

Disassembling information

Step 1:

Remove the sticker from connector, see picture 111.



Picture 111

Step 2:

Unstick 2 screws stickers from the BaseBox case base, see picture 112.



Picture 112

Step 3:

Unscrew the case base from the board holder by torque T8 screwdriver.

Location of 2 screws you can see in the picture 113.



Picture 113

Step 4:

Take out the case base from the board holder, see picture 114.



Picture 114

Checking procedure for over-voltage

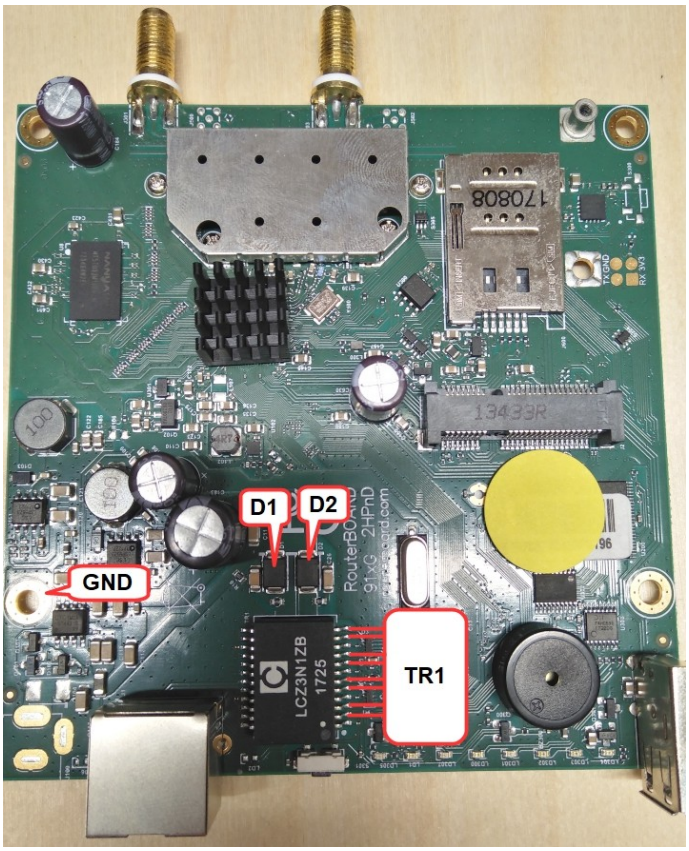
Checking Schottky diode and diodes bridges

Check Schottky diodes D1, D2. Location of diodes on the board you can see in the picture 115. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between TR1 and Ground. Test points on the transformer pins are marked with red dots, see picture 115.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 115

BaseBox 6 (RB912UAG-6HPnD-OUT)

Disassembling information

Disassembly method of the board is the same as the BaseBox 2 board. Disassembly method is described on page 107.

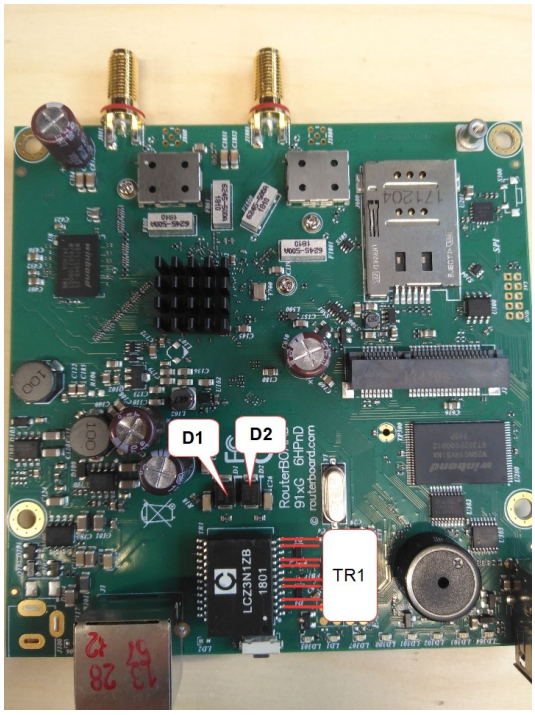
Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D1, D2. Location of diodes on the board you can see in the picture 116. Diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between TR1 and Ground. Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

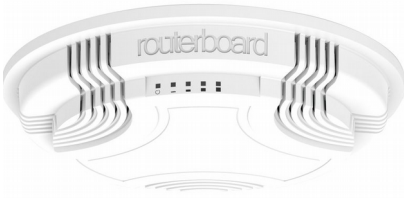


Picture 116

cAP series RouterBoards

cAP (cAP2nD)

v1



Picture 117

v2



Picture 118

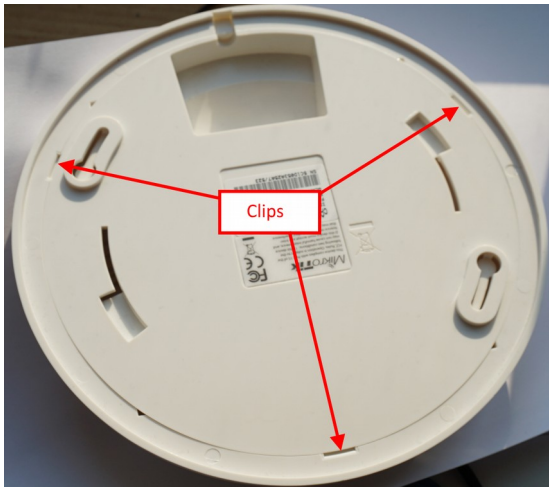
Disassembling information

v1 Step 1:

Push the router edge around clips to open the case, see pictures 119-120.



Picture 119



Picture 120

v1 Step 2:

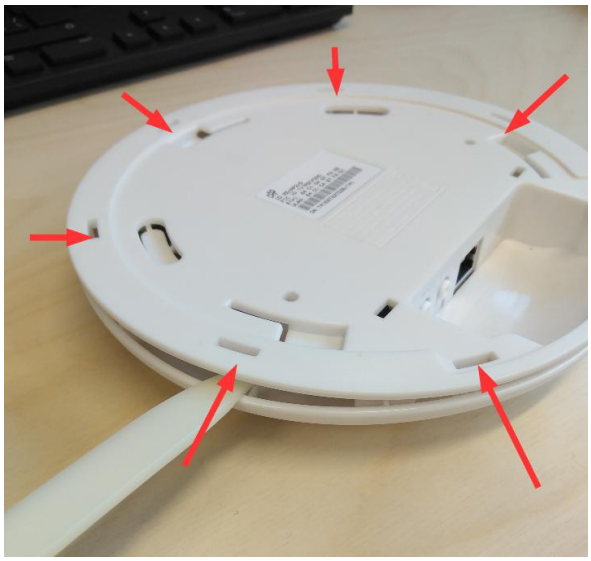
Remove cover and take out the board from case, see picture 121.



Picture 121

v2 Step 1:

Push the clips from outside and at the same time lift the case up. Work this way around for all 6 clips as shown in picture 122.



Picture 122

v2 Step 2:

Unscrew 2 mounting screws as shown in picture 123.



Picture 123

Checking procedure for over-voltage

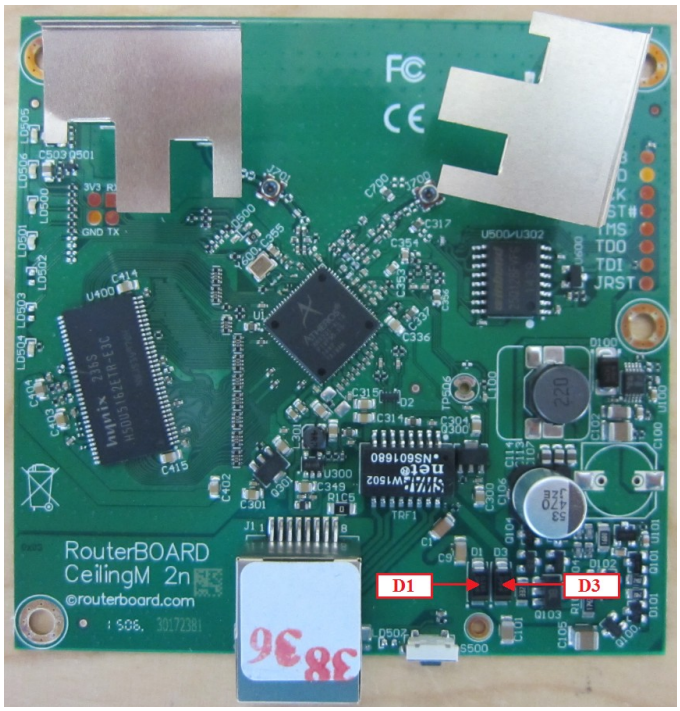
v1 Checking Schottky diodes

Check Schottky diodes D1, D3. Location of diodes on the board you can see in the picture 124. Schottky diodes quality measurement method is described on page 23.

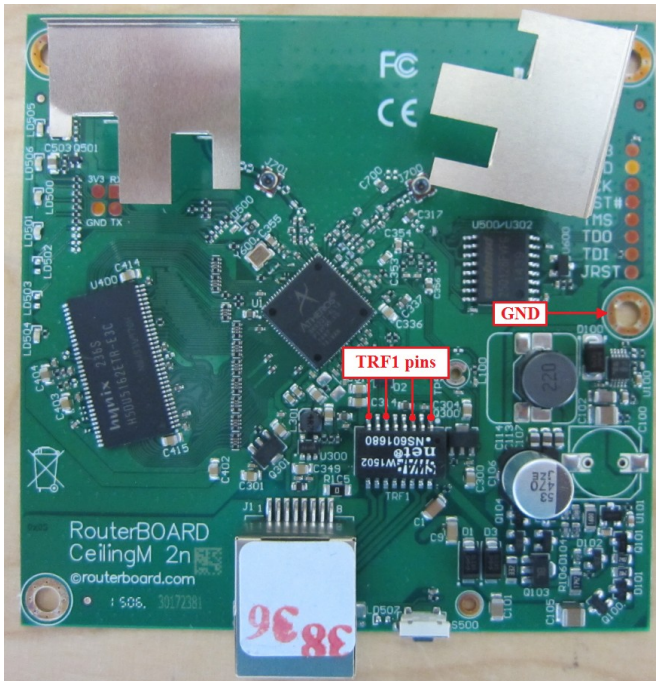
v1 Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet Transformer TRF1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 125.

Voltage drop value should be in the range from 0,37V to 0,42V. Voltage drop measurement method is described on page 25.



Picture 124



Picture 125

Checking procedure for over-voltage

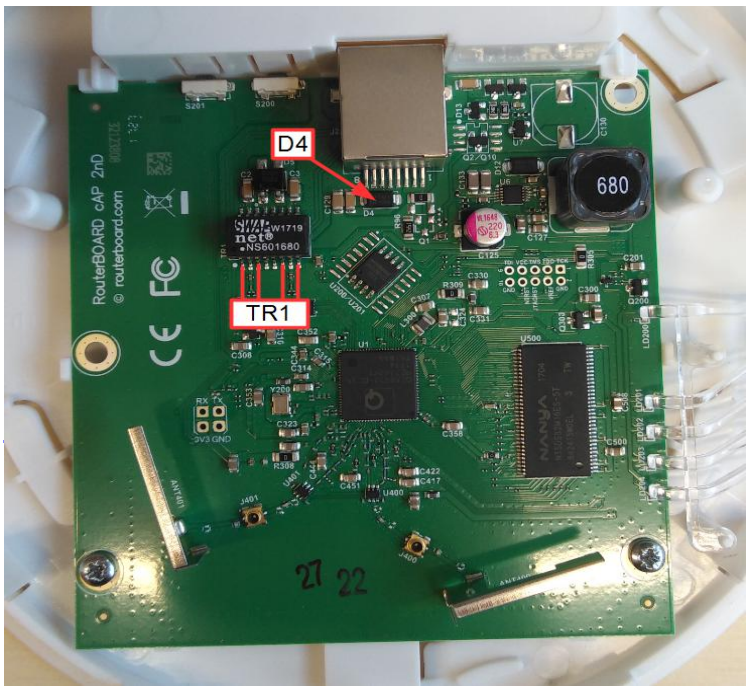
v2 Checking Schottky diodes

Check Schottky diodes D4. Location of diode on the board you can see in the picture 126. Schottky diodes quality measurement method is described on page 23.

v2 Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet Transformer TRF1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 126.

Voltage drop value should be in the range from 0,37V to 0,40V. Voltage drop measurement method is described on page 25



Picture 126

cAP lite (cAP L-2nD)

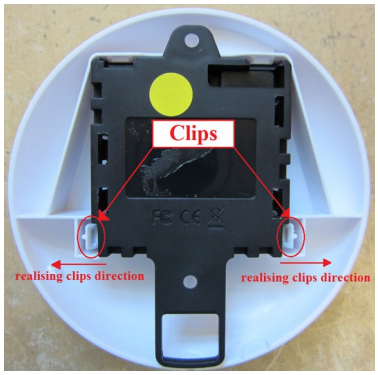


Picture 127

Disassembling information

Step 1:

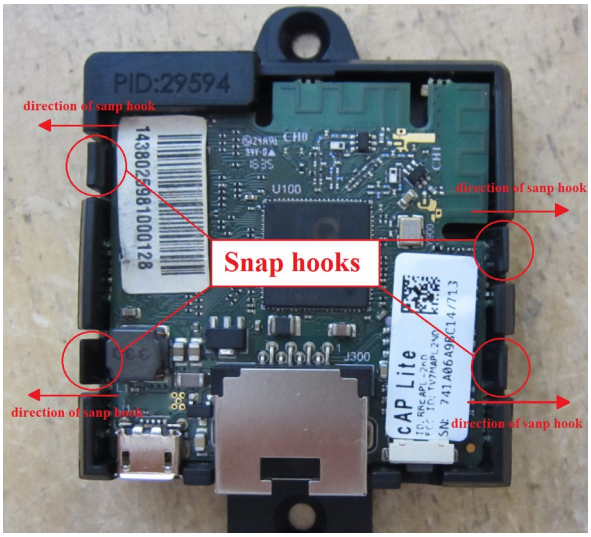
Move the clips in the opposite direction from the fixed board and pull the black plastic housing towards you. Location of the clips you can see in the picture 128.



Picture 128

Step 2:

Gently release 4 sanp hooks and pull out PCB from the MapL-Base case. Location of the sanp hooks you can see in the picture 129.


PID:29594
direction of snap hook
direction of snap hook
Snap hooks
direction of snap hook
direction of snap hook
cAP Lite
Picture 129

Checking procedure for over-voltage

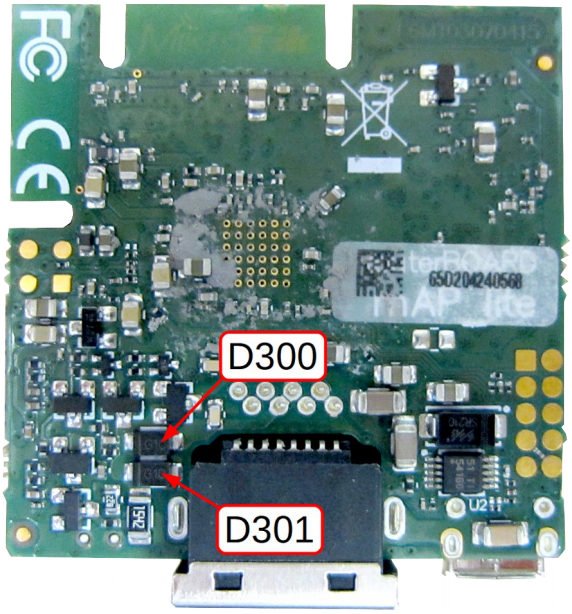
Checking Schottky diode

Check Schottky diodes D300, D301 on the board bottom layer, see picture 130. Schottky diode quality measurement method is described on page 23.

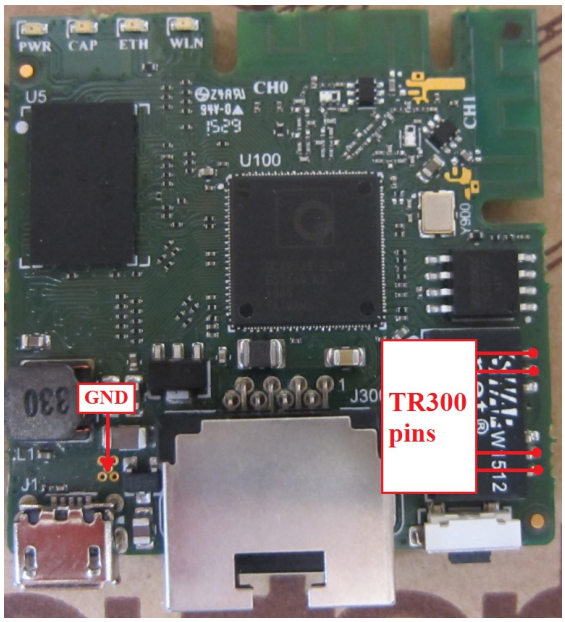
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the Ethernet transformer pins are marked with red dots, see picture 131.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 130



Picture 131

cAP ac (RBcAPGi-5acD2nD)



Picture 132

Disassembling information

Step 1:

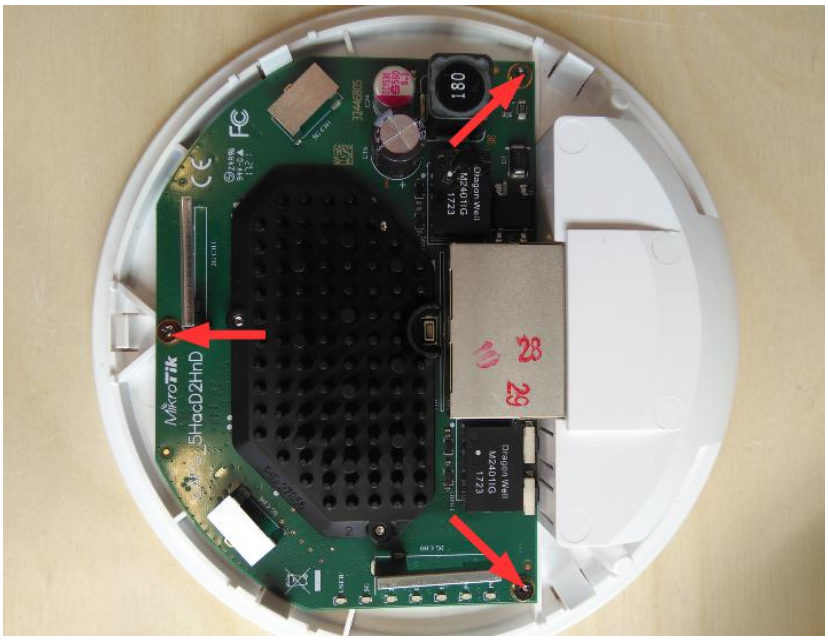
Push the clips from outside and at the same time lift the case up. Work this way around for all 5 clips as shown in picture 133.



Picture 133

Step 2:

Unscrew 3 mounting screws as shown in picture 134.

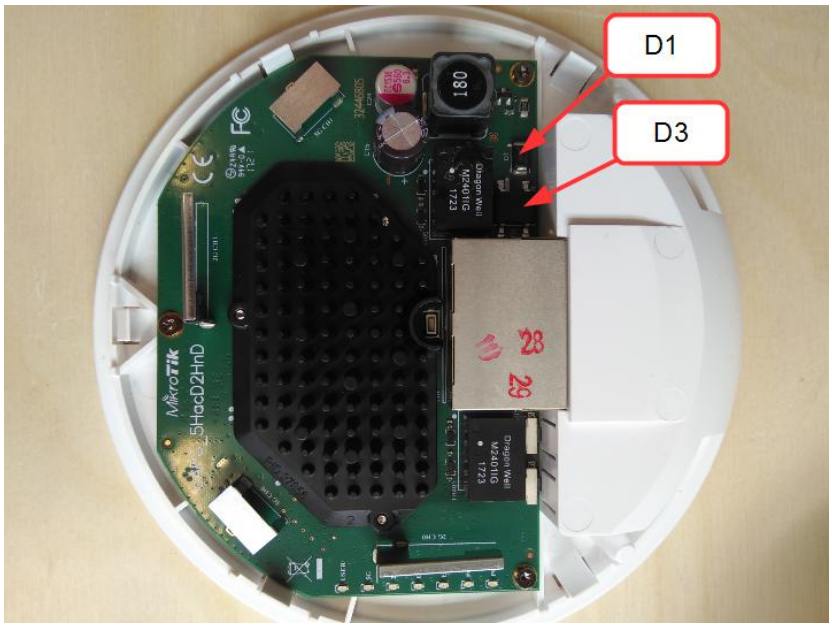


Picture 134

Checking procedure for over-voltage

Checking Schottky diodes

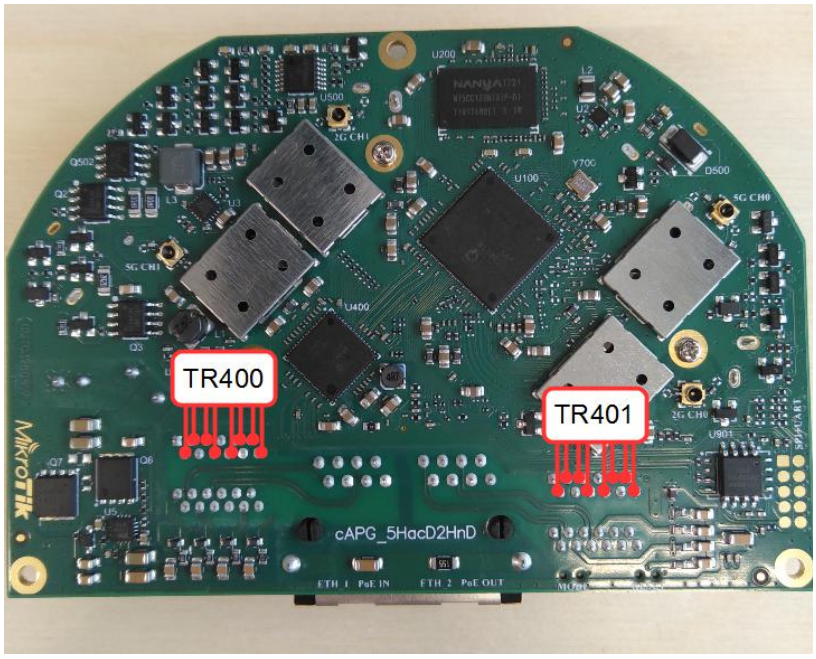
Check Schottky diodes D1 and diode bridge D3. Location of diodes on the board you can see in the picture 135. Schottky diodes quality measurement method is described on page 23



Picture 135

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR401, TR400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 136. Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 136

Cloud Core Router 1009 series RouterBoards

CCR1009-7G-1C-PC

CCR1009-7G-1C-1S+

CCR1009-7G-1C-1S+PC

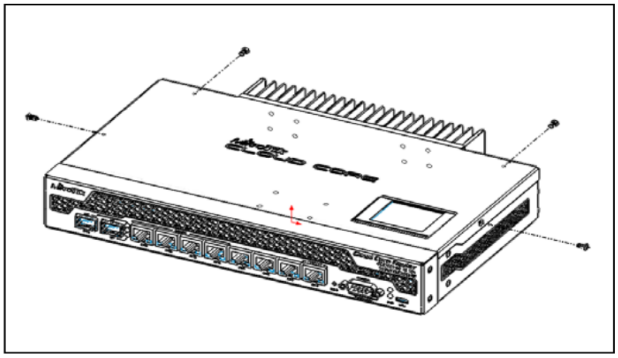


Picture 137

Disassembling information

Step 1:

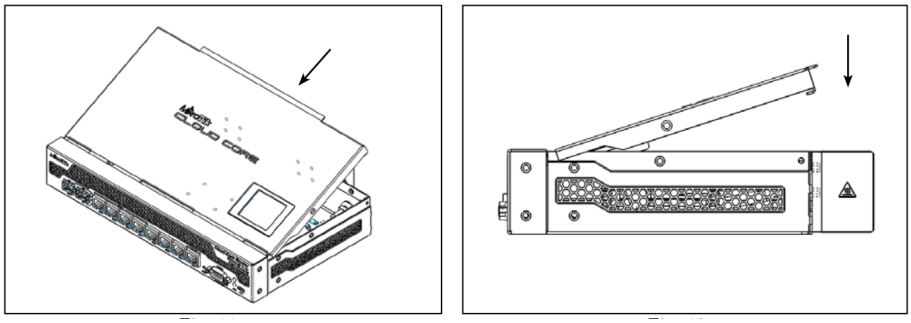
Unscrew 4 screws using PH2 screwdriver. Location of screws you can see in the picture 138.



Picture 138

Step 2:

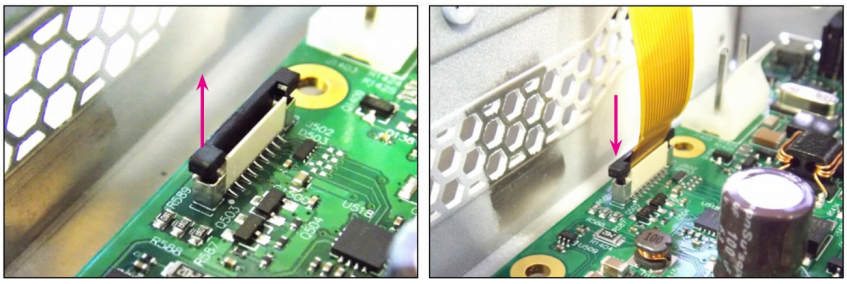
Carefully take off the cover as showed in the picture 139. Do not damage the LCD flex cable.



Picture 139

Step 3:

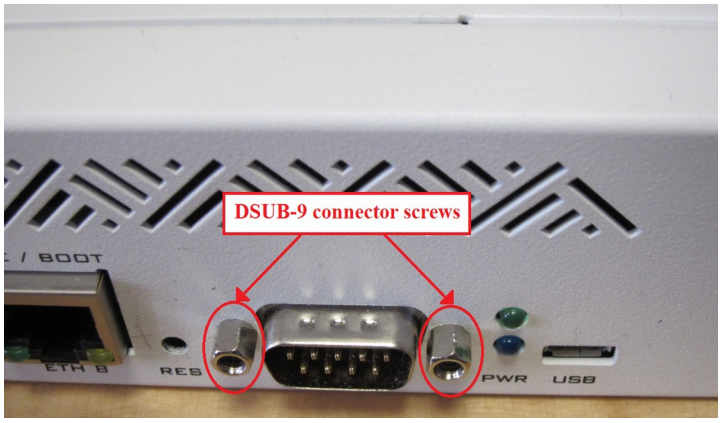
Gently lift the latch vertically upward and take out LCD flex cable from FPC connector as showed in the picture 140. Do not damage the FPC connector locking drawer.



Picture 140

Step 4:

Detach a male DSUB-9 connector from board case unscrewed 2 screws. Location of the screws you can see in the picture 141.



Picture 141

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1401-D1403, D1405. Location of diodes on the board you can see in the picture 142. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR6 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 143.

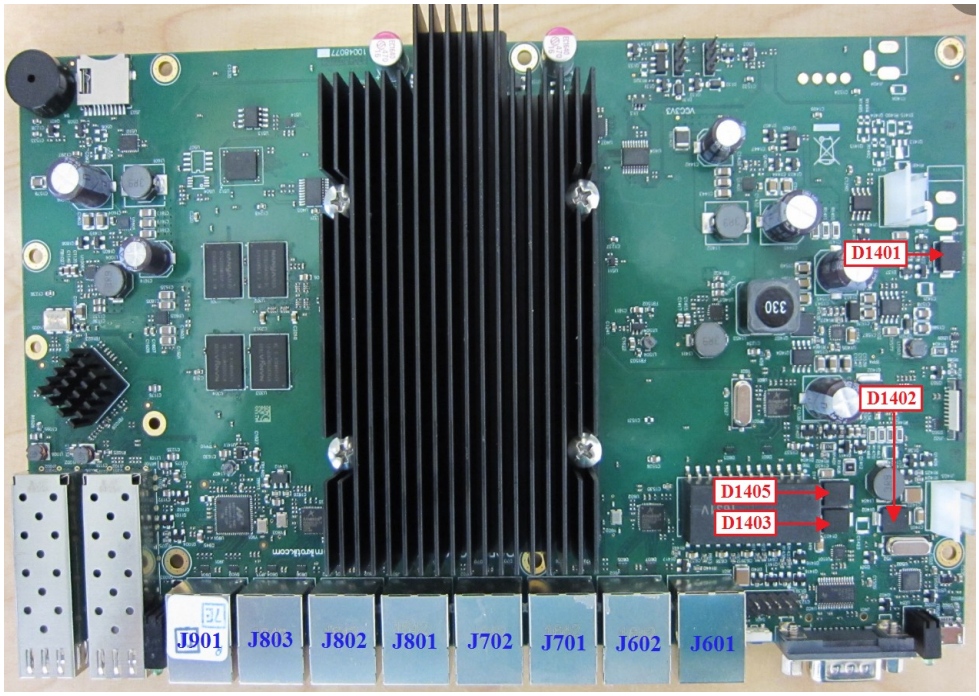
Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

Check voltage drop value between RJ-45 connectors J602, J701, J702, J801, J802, J803 and ground. Test points are shown in picture 144. Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.

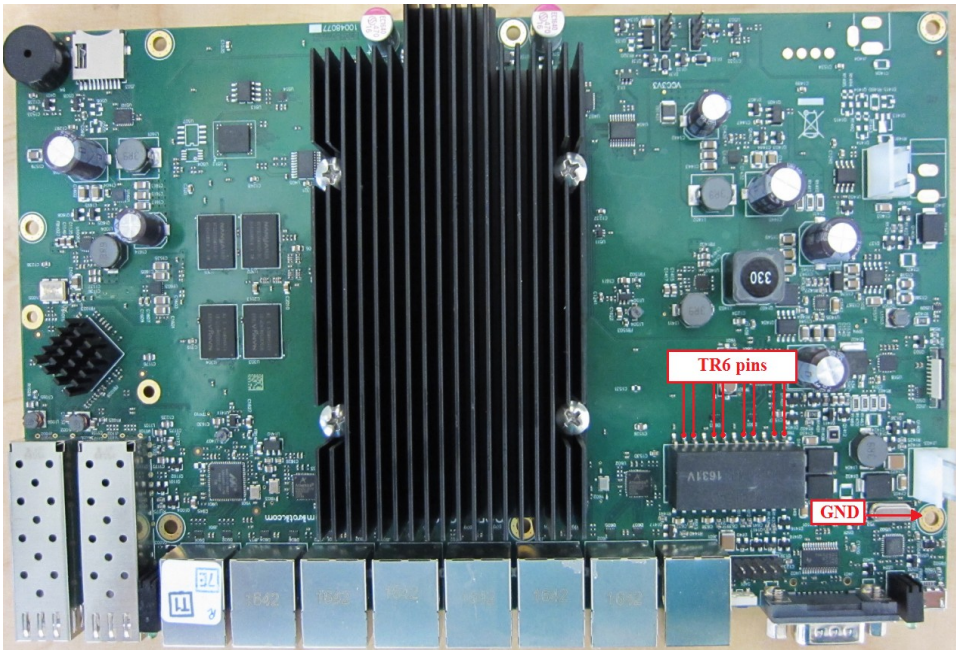
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J602, J701, J702, J801-J803, J901 connectors.

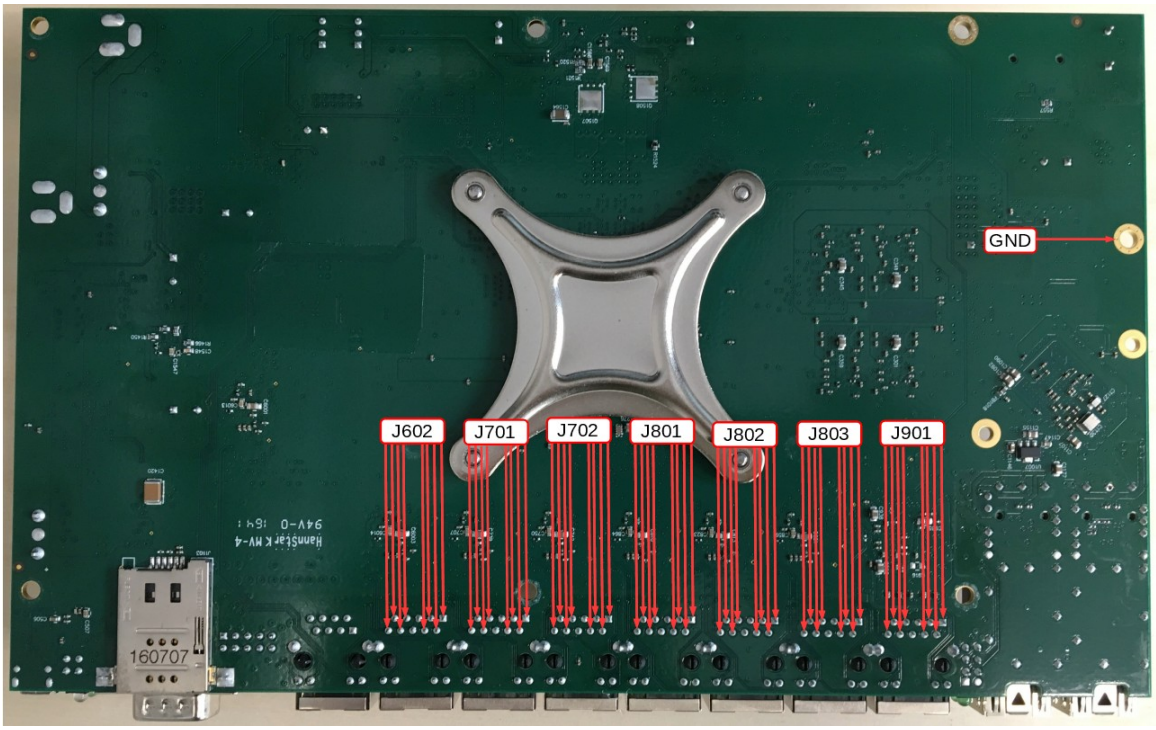
Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 142

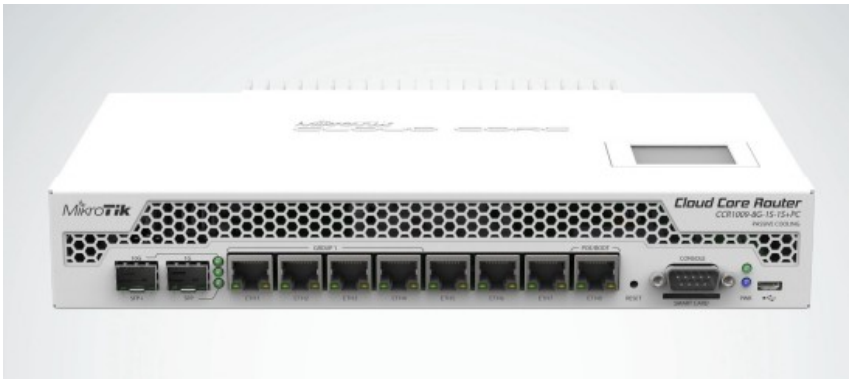


Picture 143



Picture 144

CCR1009-8G-1S-1S+



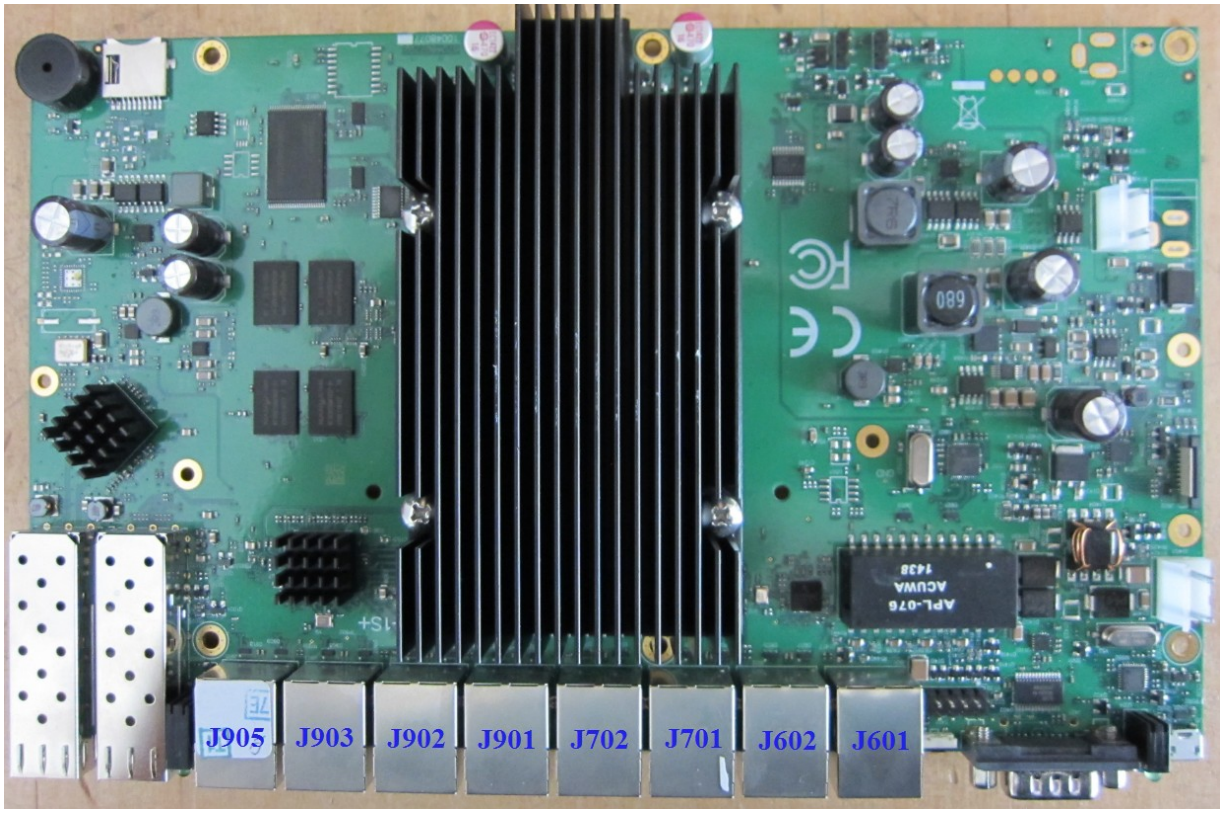
Picture 145

Disassembling information

Disassembly method of the board is the same as the CCR1009-7G board. Disassembly method is described on page 123.

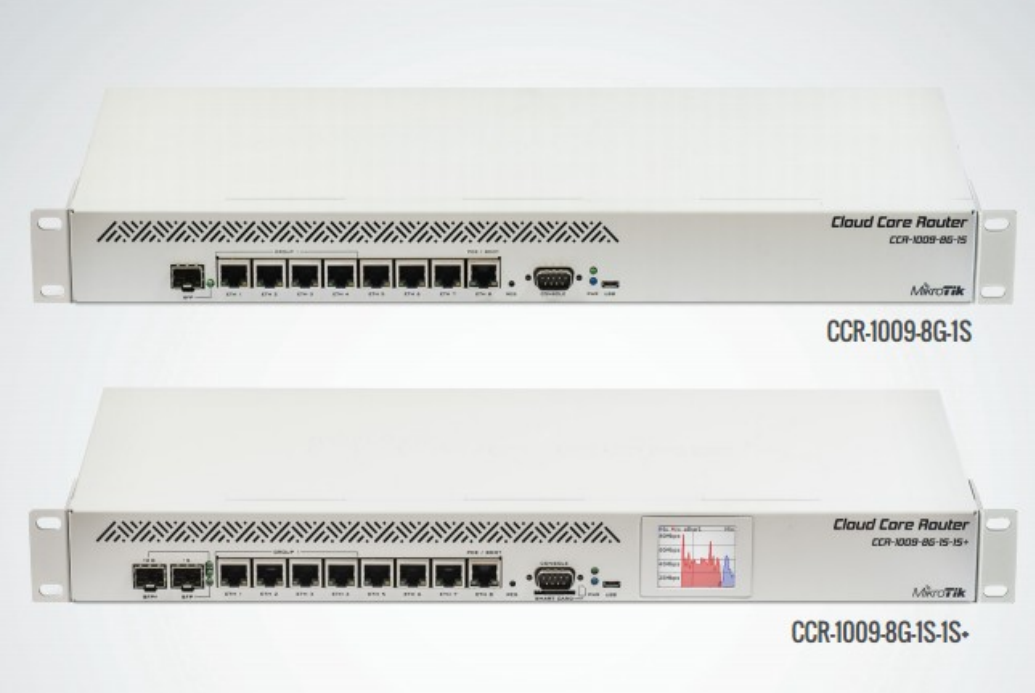
Checking procedure for over-voltage

Over-voltage testing procedure and the layout of the components (with exception of Ethernet ports reference numbers, see picture 146) on the board is the same as for CCR1009-7G boards, see on page 124.



Picture 146

CCR1009-8G-1S



Picture 147

Disassembling information

Step 1:

Unscrew 7 screws (5 screws on the board case backside and 1 screw from the each side of board case) using PH2 screwdriver. Location of screws see in the picture 148.



Picture 148

Step 2:

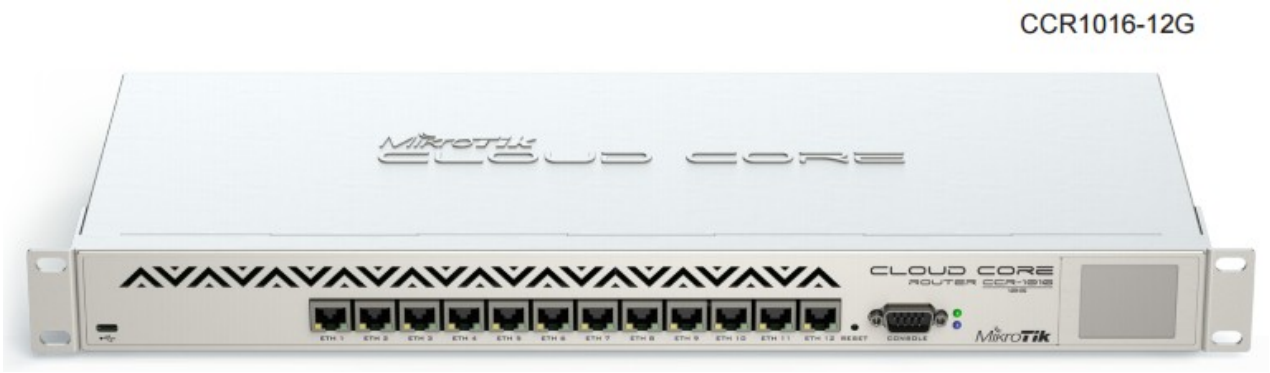
Take off the cover.

Checking procedure for over-voltage

Over-voltage testing procedure and the layout of the components (with exception of Ethernet ports reference numbers, see picture 146) on the board is the same as for CCR1009-7G boards, see on page 124.

Cloud Core Router 1016 series RouterBoards

CCR1016-12G



Picture 149

Disassembling information

Disassembly method of the board is the same as the CCR1009-8G-1S board. Disassembly method is described on page 128.

Checking procedure for over-voltage

Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode arrays D115, D117, D111, D113, D105, D107, D101, D103, D905, D907, D901, D903, D805, D807, D801, D803, D705, D707, D701, D703, D605, D607 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 150.

Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.

For diode arrays D601, D603 pin#1 and Ground voltage drop value should be in the range from 0,44V to 0,48V

Checking voltage drop value between Ethernet transformer pins and Ground

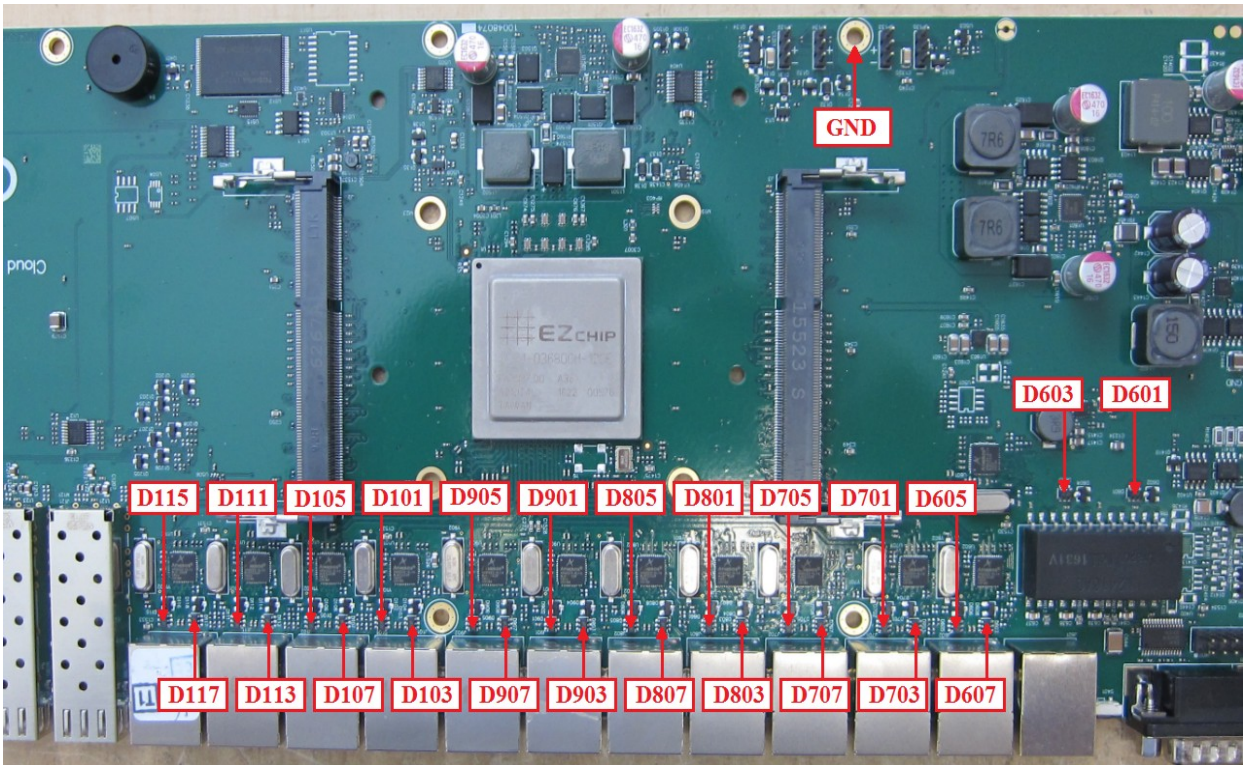
Check voltage drop value between Ethernet transformer TR6 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 151.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

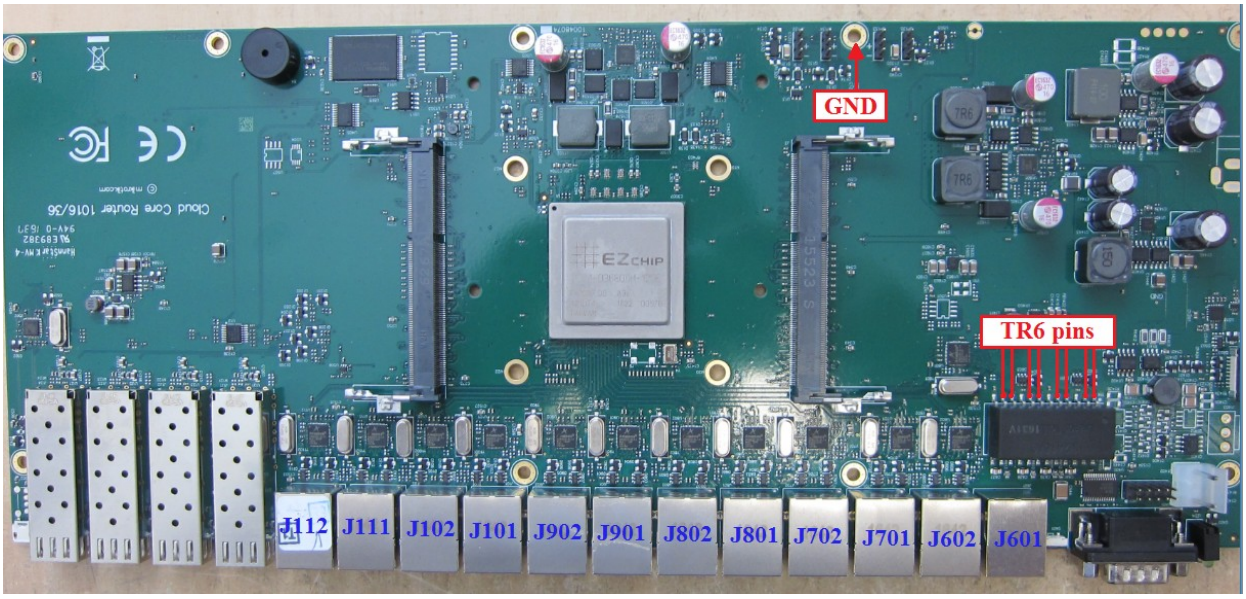
Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J602, J701, J702, J801, J802, J901, J902, J101, J102, J111, J112 connectors.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 150



Picture 151

CCR1016-12G rev2



Picture 152

Disassembling information

Disassembly method of the board is the same as the CCR1036-8G-2S+ rev2 board.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet built in transformer pins and Ground

Check voltage drop value between Ethernet built in transformer pins and Ground. Test points on the RJ-45 pins are marked with red dots, see picture 153.

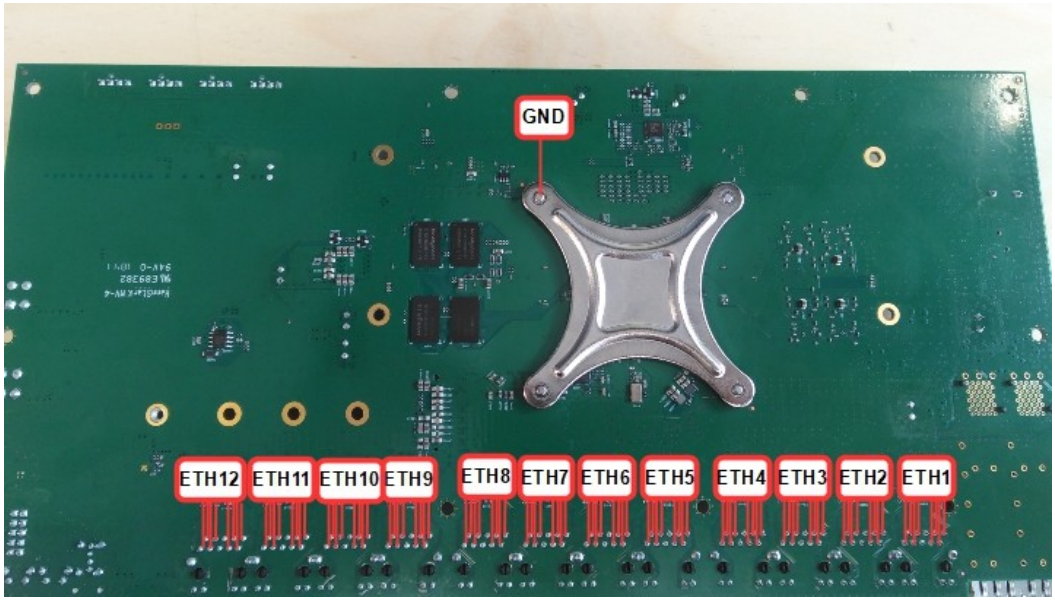
Voltage drop value should be in the range from 0,37V to 0,41V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

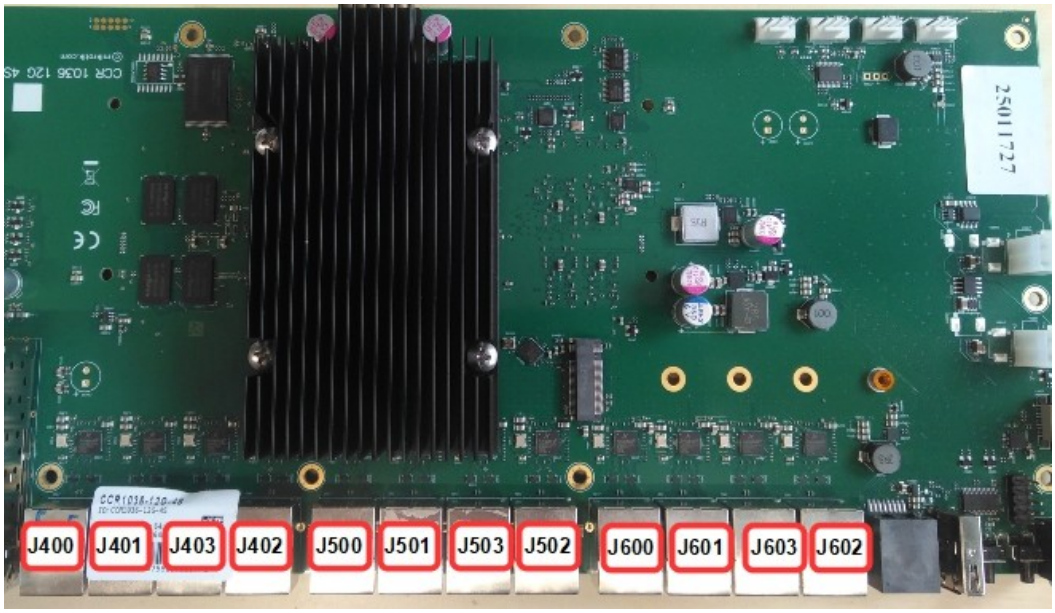
Check termination resistors resistance in J400 - J602 connector. RJ-45 placement is shown in picture 154.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%.

Measurement method is described on page 26.



Picture 153



Picture 154

CCR1016-12S-1S+

CCR1016-12S-1S+ rev2



Picture 155

Checking procedure for over-voltage

Not required to do over-voltage test

Cloud Core Router 1036 series RouterBoards

CCR1036-8G-2S+

CCR1036-8G-2S+EM



Picture 156

Disassembling information

Disassembly method of the board is the same as the CCR1009-8G board. Disassembly method is described on page 128.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR6 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 157.

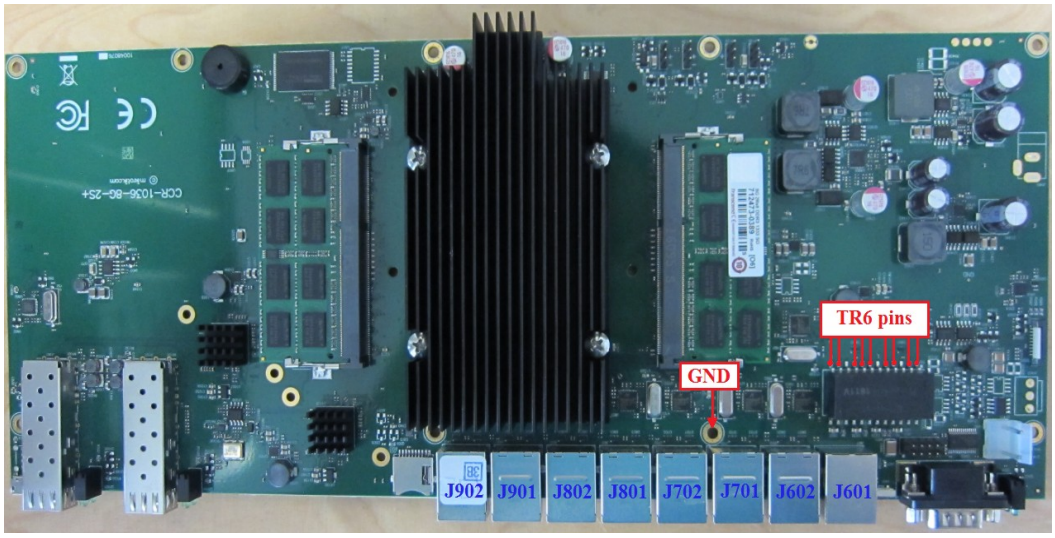
Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J602, J701, J702, J801, J802, J901, J902 connector.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%.

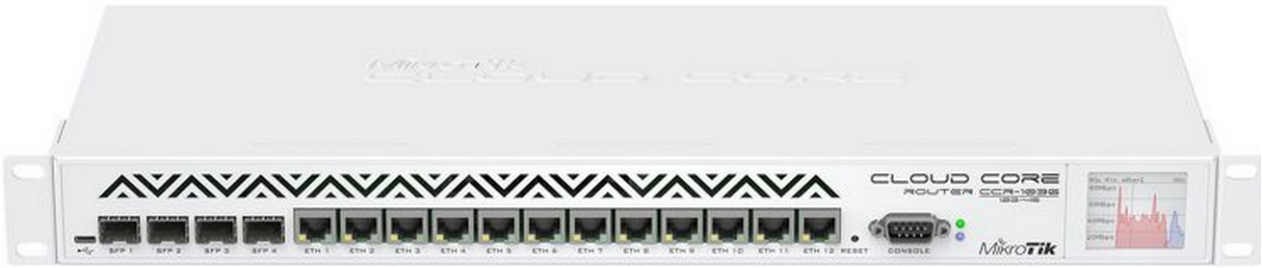
Measurement method is described on page 26.



Picture 157

CCR1036-12G-4S

CCR1036-12G-4S-EM



Picture 158

Disassembling information

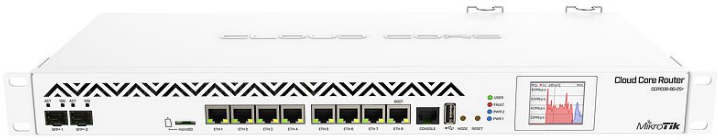
Disassembly method of the board is the same as the CCR1016-12G board. Disassembly method is described on page 128.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for CCR1016-12G board, see on page 129.

CCR1036-8G-2S+ rev2

CCR1036-8G-2S+EM r2



Picture 159

Disassembling information

Step 1:

Unscrew 6 screws using PH2 screwdriver. Location of screws you can see in the picture 160.

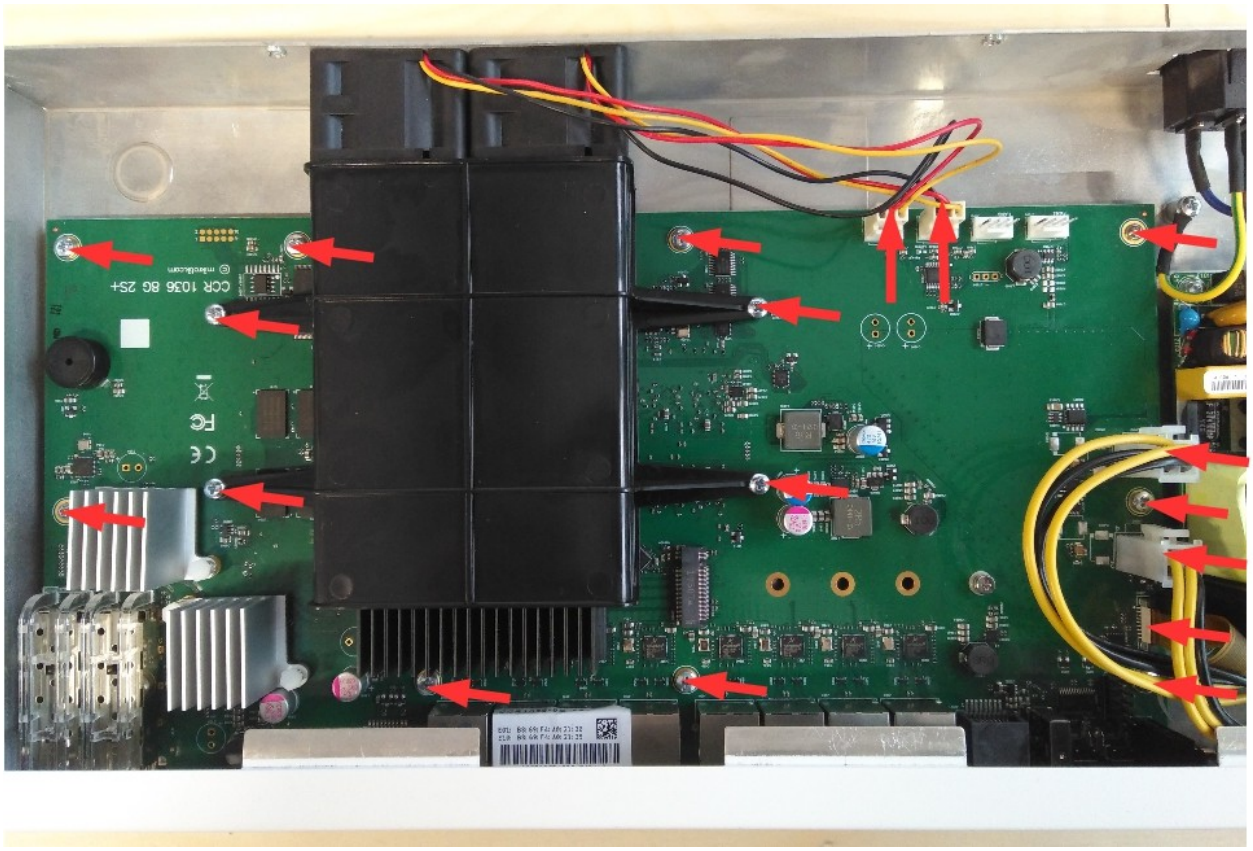


Picture 160

Step 2:

Take off the cover, unscrew all screws using Philips srew driver and unplug FAN, power supply and LCD connectors as showed in the picture 161. Do not damage the LCD flex cable.

Warning! Unplug all AC power cords and wait couple of minutes for open-frame power supply units to discharge their capacitors and then start working on unplugging and undoing screws.



Picture 161

Checking procedure for over-voltage

Checking voltage drop value between Ethernet built in transformer pins and Ground

Check voltage drop value between Ethernet built in transformer pins and Ground. Test points on the RJ-45 pins are marked with red dots, see picture 162.

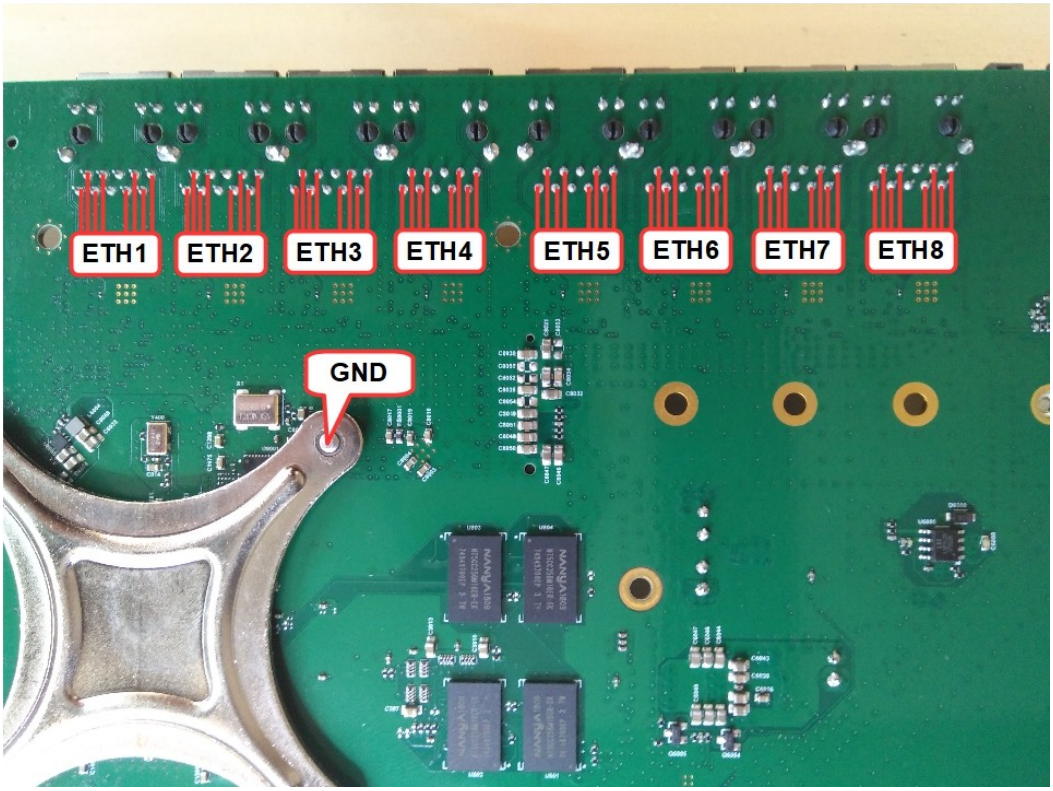
Voltage drop value should be in the range from 0,37V to 0,41V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

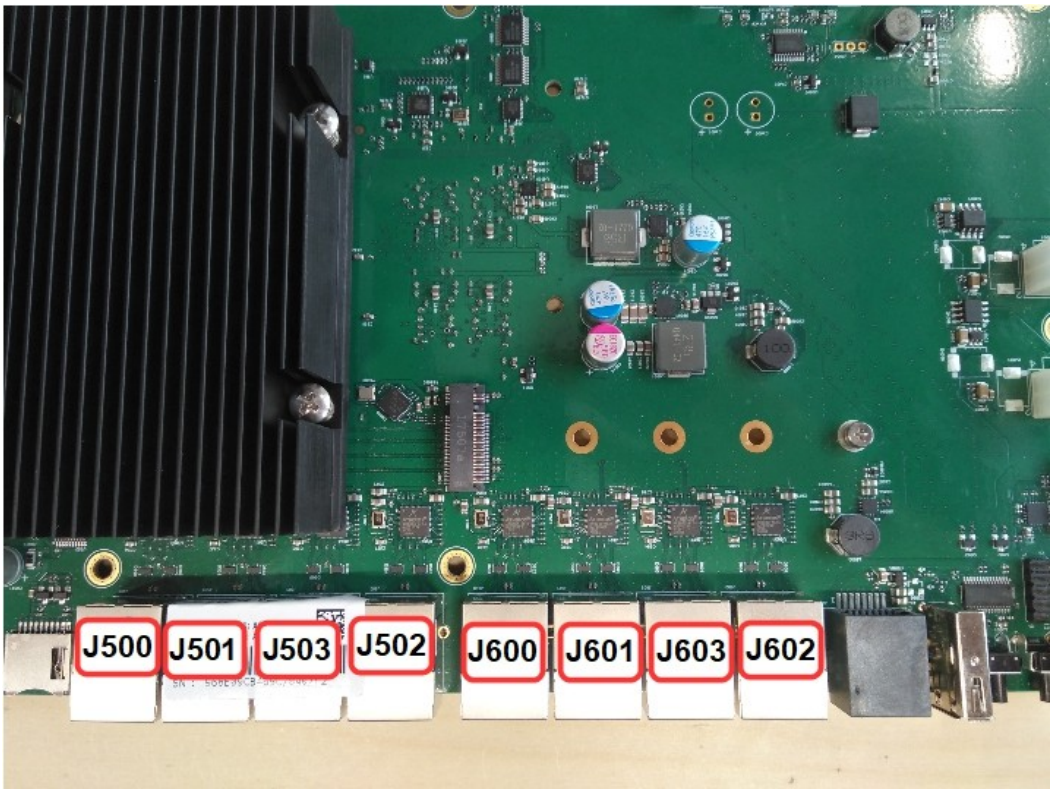
Check termination resistors resistance in J500, J501, J502, J503, J600, J601, J602, J603 connector. RJ-45 placement is shown in picture 163.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%.

Measurement method is described on page 26.



Picture 162



Picture 163

CCR1036-12G-4S_rev2

CCR1036-12G-4S-EM_rev2



Picture 164

Disassembling information

Disassembly method of the board is the same as the CCR1036-8G-2S+-r2 board.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet built in transformer pins and Ground

Check voltage drop value between Ethernet built in transformer pins and Ground. Test points on the RJ-45 pins are marked with red dots, see picture 165.

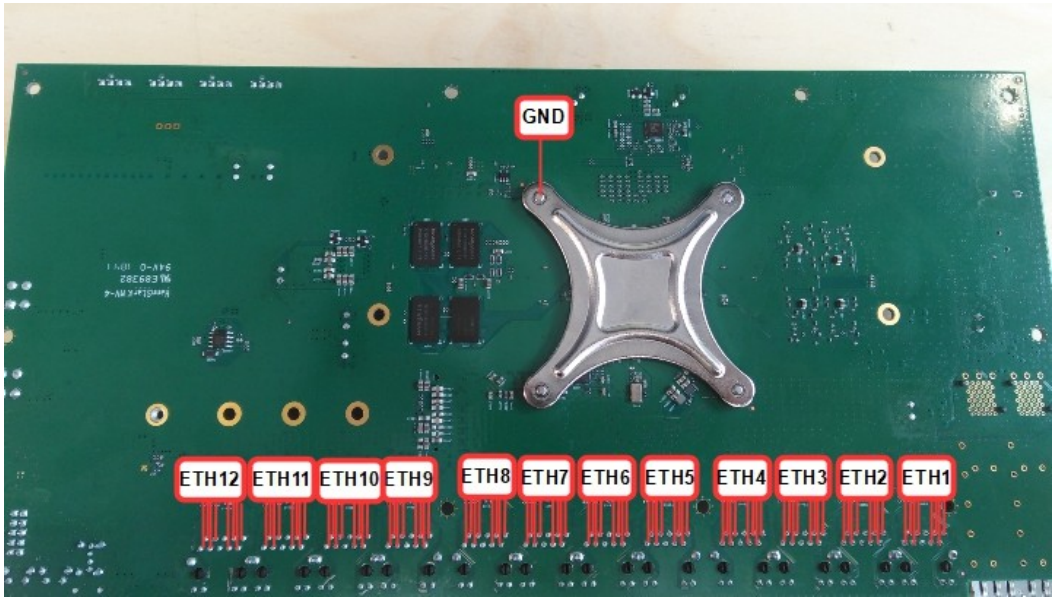
Voltage drop value should be in the range from 0,37V to 0,41V. Voltage drop measurement method is described on page 25.

Checking termination resistors resistance in RJ-45 connector

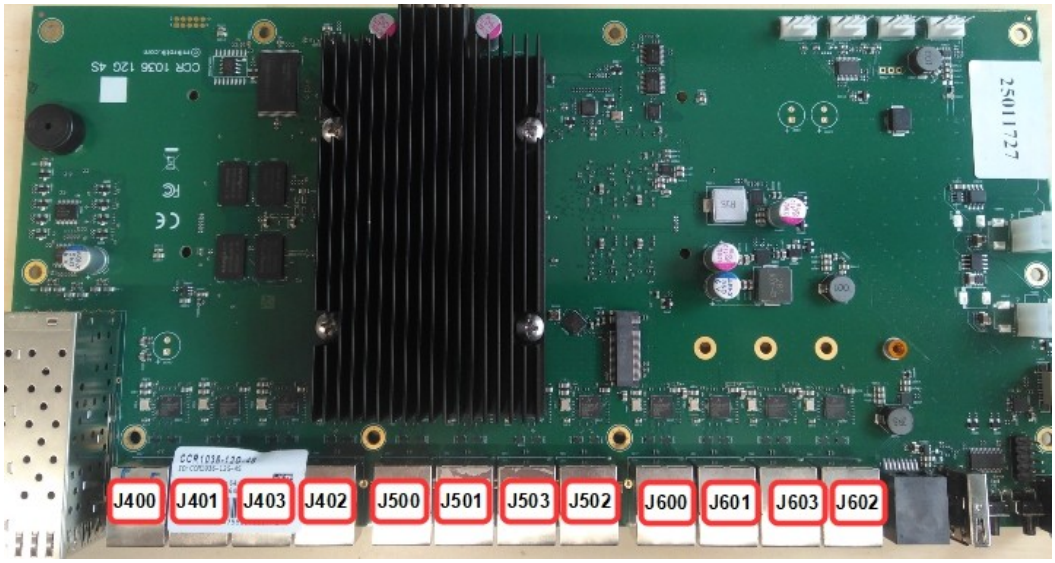
Check termination resistors resistance in J400 - J602 connector. RJ-45 placement is shown in picture 166.

Resistance value between Rx and Tx line must be 150 Ohm +/-4%.

Measurement method is described on page 26.



Picture 165



Picture 166

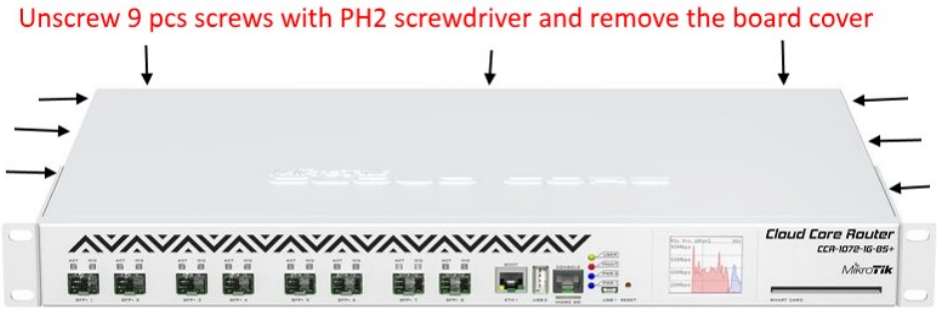
Cloud Core Router 1072 series RouterBoards

CCR1072-1G-8S+



Picture 167

Disassembling information

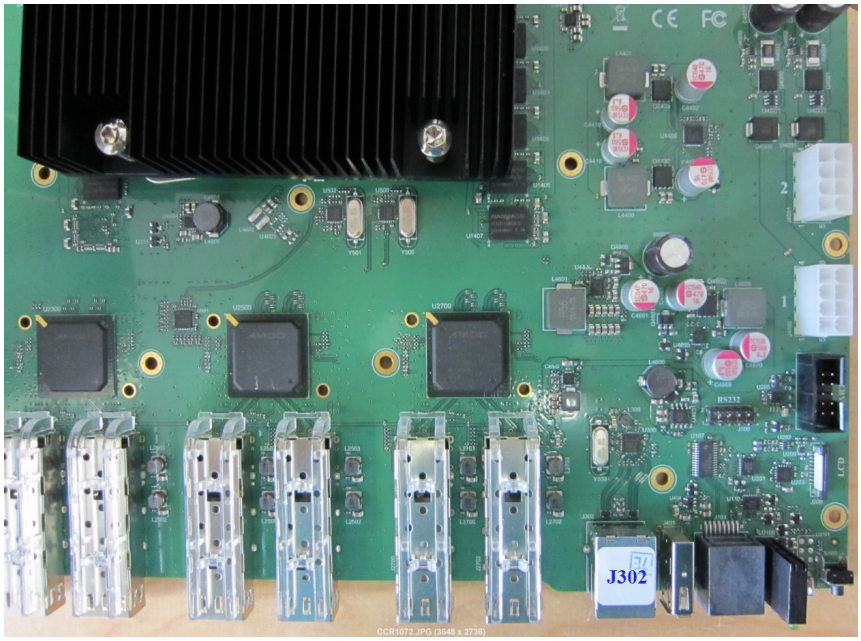


Picture 168

Checking procedure for over-voltage

Checking termination resistors resistance in RJ-45 connector

Check termination resistors resistance in J302 connector. Resistance value between Rx and Tx line must be 150 Ohm +/-4%. Measurement method is described on page 26.



Picture 169

Cloud Core Router 2004 series RouterBoards

CCR2004-1G-12S+2XS



Picture 170

Disassembling information

Step 1:

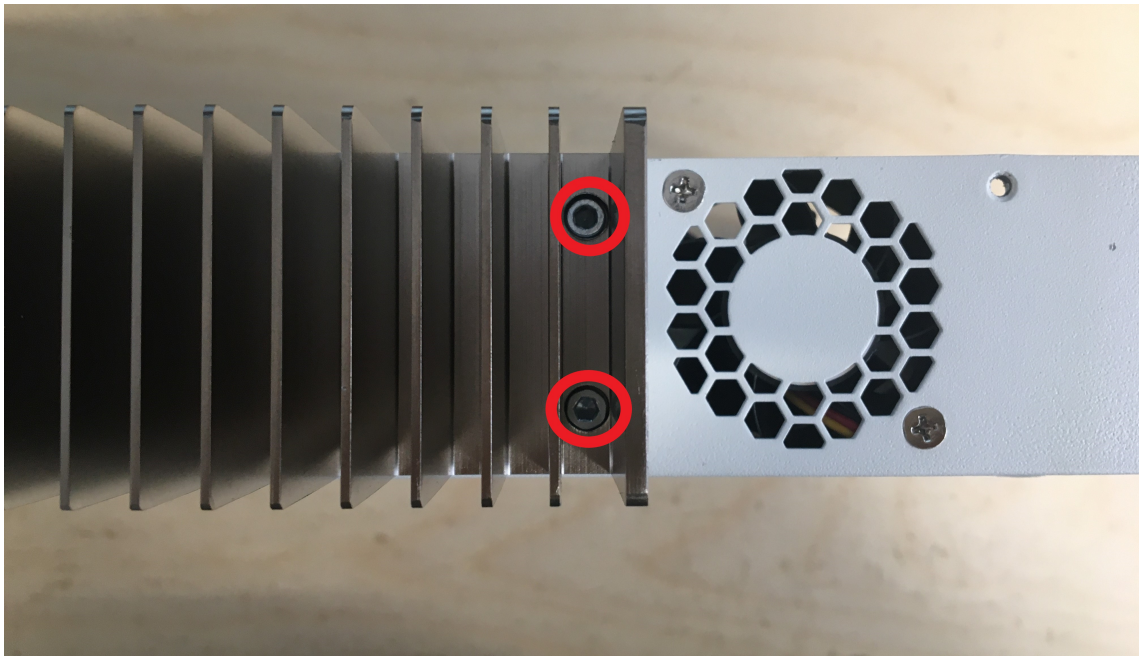
Using Phillips PH2 or similar unsrew all screws shown in picture 171.



Picture 171

Step 2:

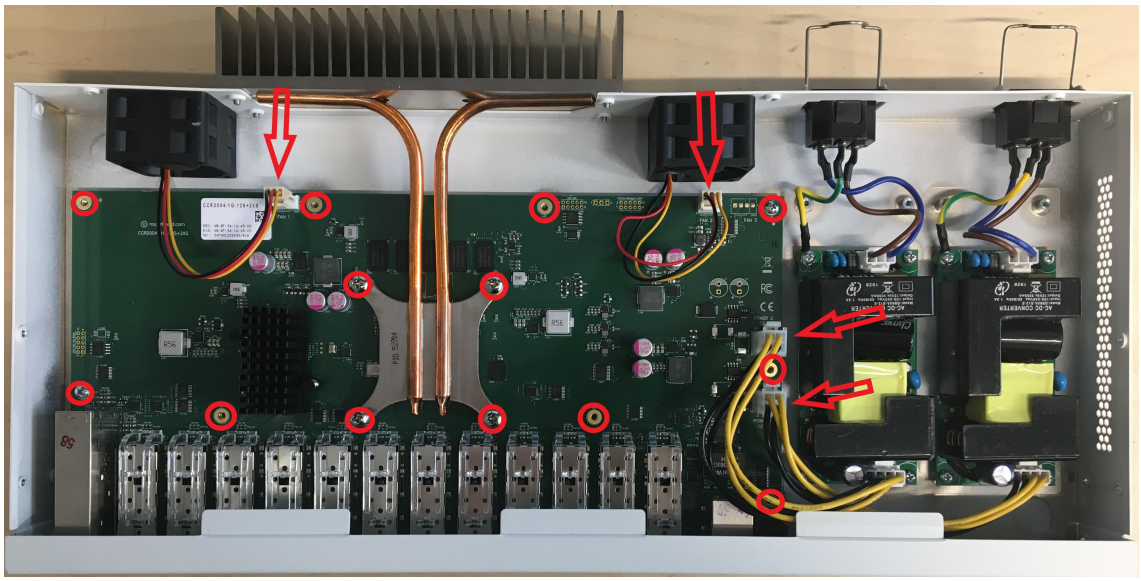
Using Torx 10 screwdriver release heat sink from the case; location of bolts is shown in picture 172 (total 4 bolts).



Picture 172

Step 3:

Using Phillips PH1 or similar unscrew all the screws, unplug fans and PSU power cables as shown in picture 173



Picture 173

Checking procedure for over-voltage

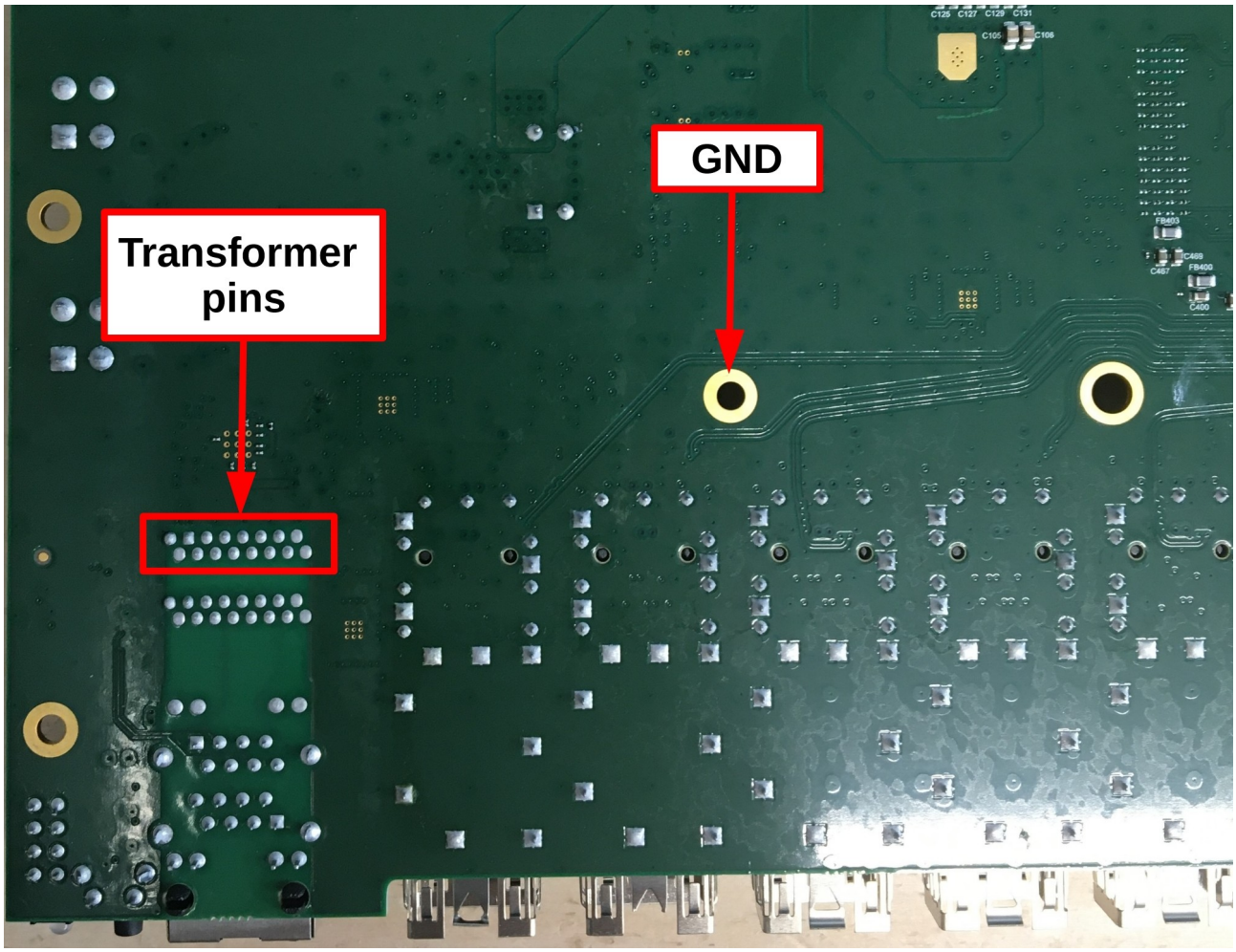
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer pins and GND. Test points are marked in picture 174.

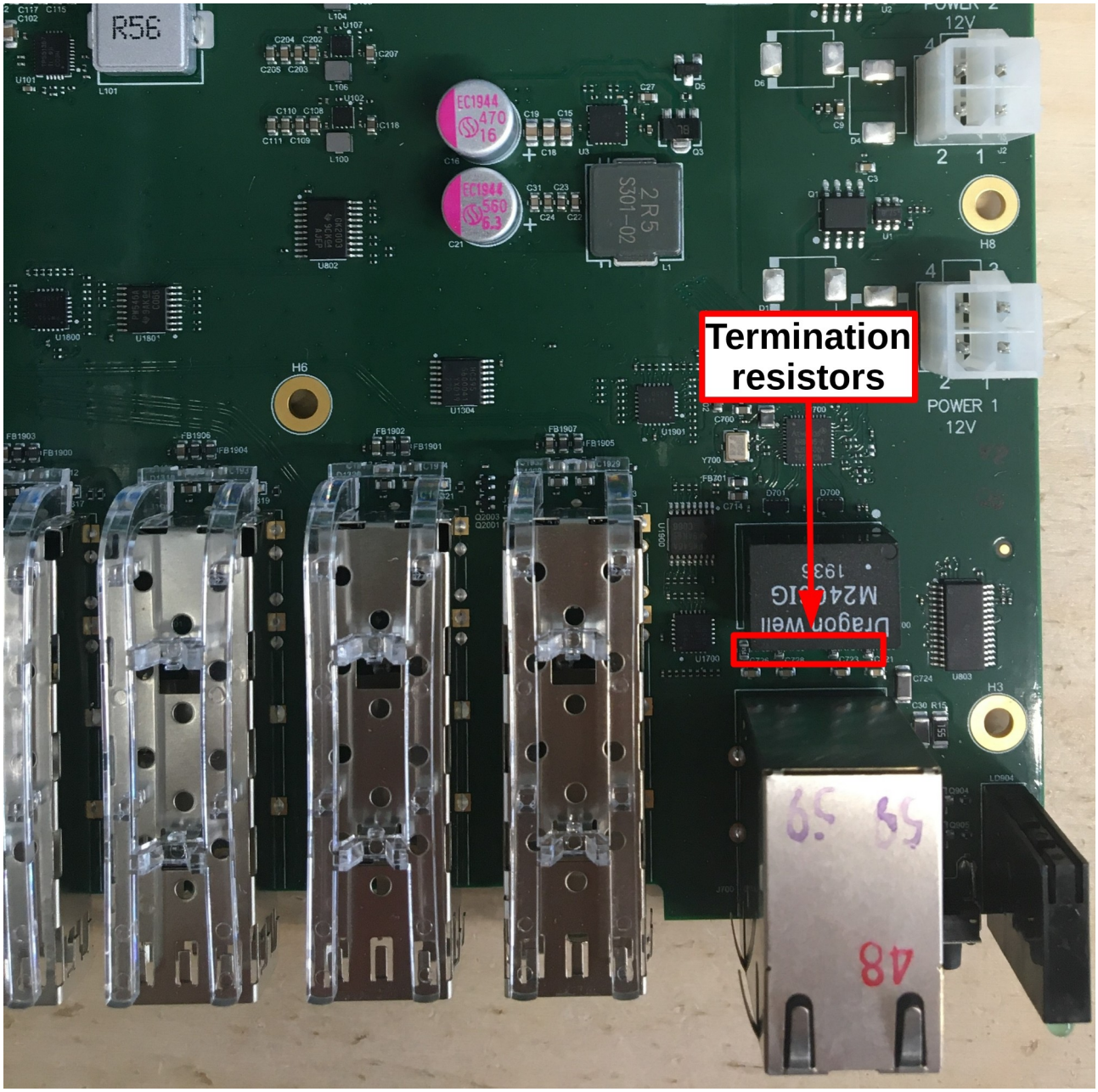
Voltage drop value should be in the range from 0,34V to 0,44V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check value of each termination resistor. It should be approximately 75 Ohms. Location of resistors is shown in picture 175.



Picture 174



Picture 175

Cloud Router Switch 100 series RouterBoards

FiberBox (CRS105-5S-FB)



Picture 176

Disassembling information

Step 1:

Unscrew 3 mounting screws using screwdriver. Location of screws you can see in the picture 177.



Picture 177

Step 2:

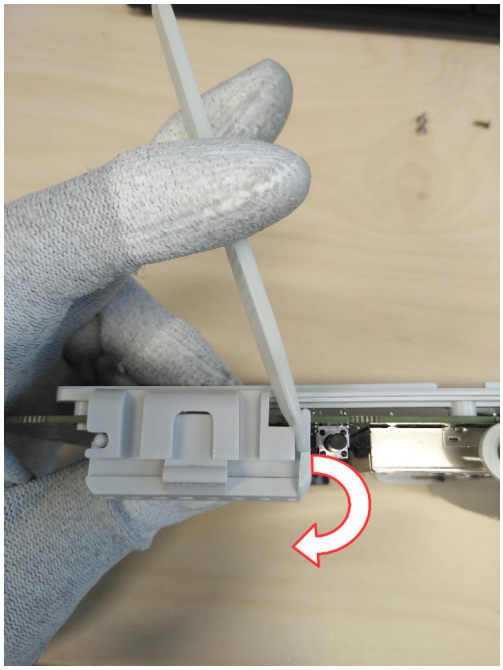
Gently pull cover the direction arrows are pointing in the following picture.



Picture 178

Step 3:

To remove LEDs cover make a movement as shown in the following picture.

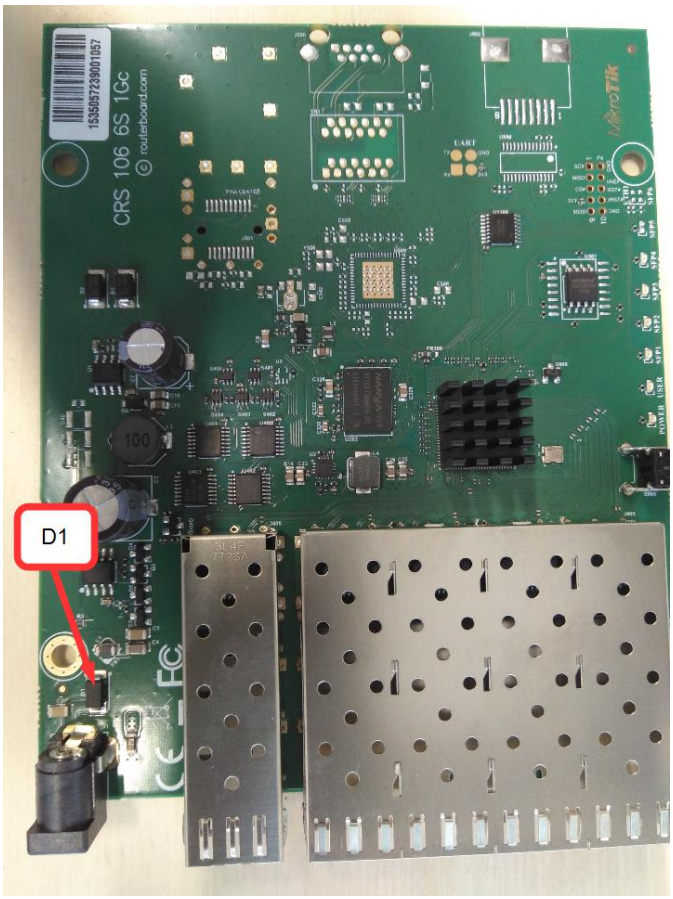


Picture 179

Checking procedure for over-voltage

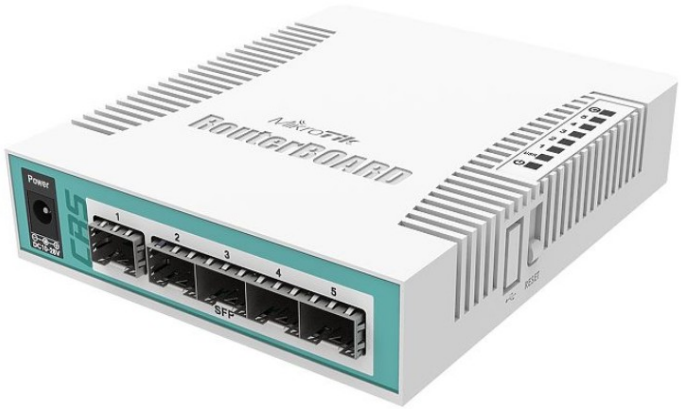
Checking Schottky diodes

Check Schottky diode D1. Location of diodes on the board you can see in the picture 180. Schottky diodes quality measurement method is described on page 23.



Picture 180

CRS106-1C-5S



Picture 181

Disassembling information

Disassembly method of the board is the same as the RB260GSP board. Disassembly method is described on page 32.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1, D3. Location of diodes on the board you can see in the picture 182. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

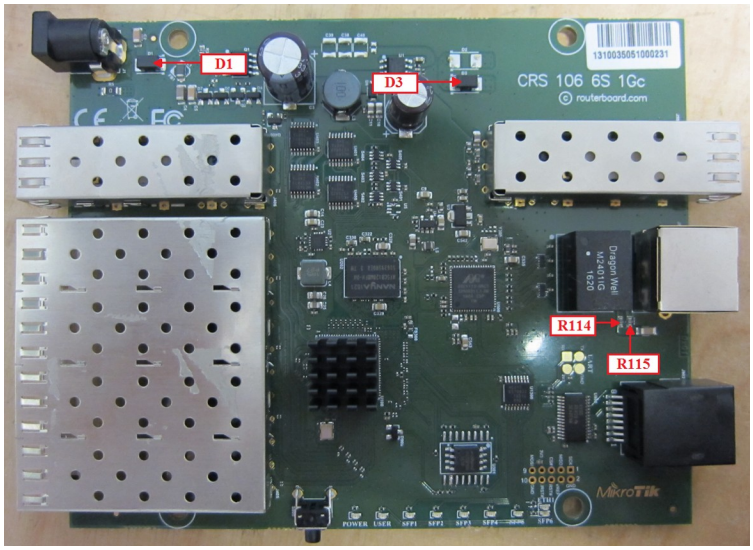
Check voltage drop value between Ethernet transformers TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 183.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors R514, R115 resistance value. It should be 75 Ohm +/-1%.

Location of resistors on the board you can see in the picture 183.



Picture 182



Picture 183

CRS109-8G-1S-2HnD-IN

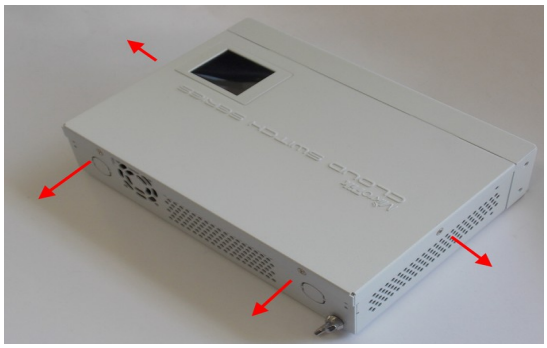


Picture 184

Disassembling information

Step 1:

Unscrew 4 screws using PH2 screwdriver. Location of screws you can see in the picture 185.



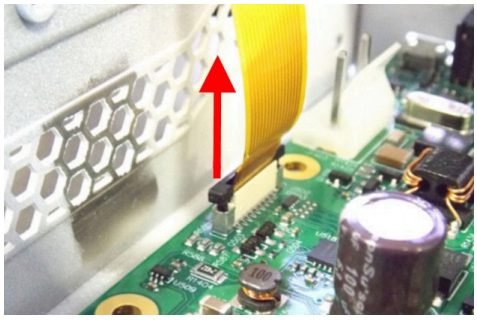
Picture 185

Step 2:

Carefully take off the cover. Do not damage the LCD flex cable.

Step 3:

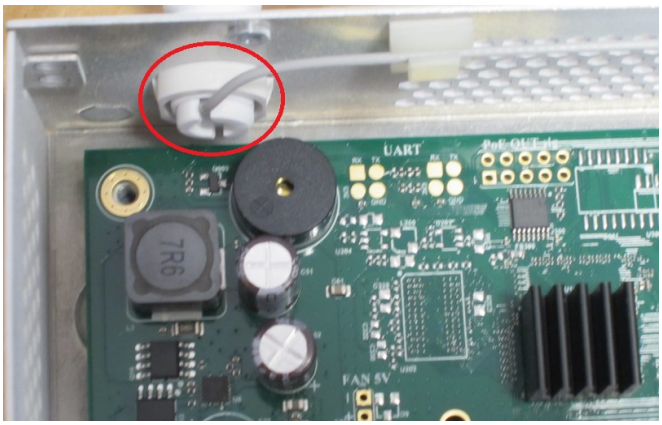
Gently lift the latch vertically upward and take out LCD flex cable from FPC connector as showed in the picture 186. Do not damage the FPC connector locking drawer.



Picture 186

Step 4:

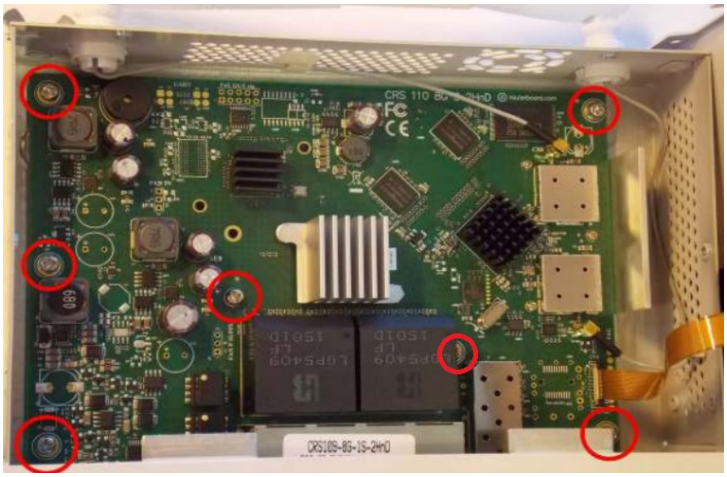
Move both antenna cables into a special holes as showed in the picture 187.



Picture 187

Step 5:

Unscrew 7 screws which fasten PCB to the case, Location of the screws you can see in the picture 188.



Picture 188

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D2, D3, D5, D11, D16, D17. Location of diodes on the board you can see in the picture 189. Schottky diodes quality measurement method is described on page 23.

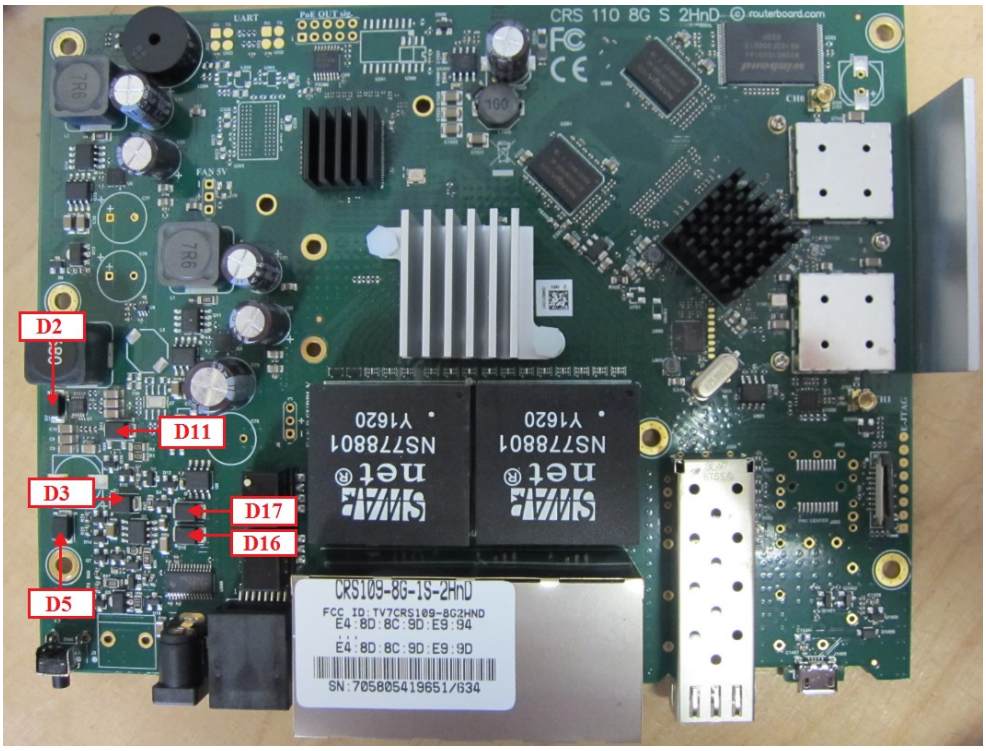
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1200, TR1201 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 190.

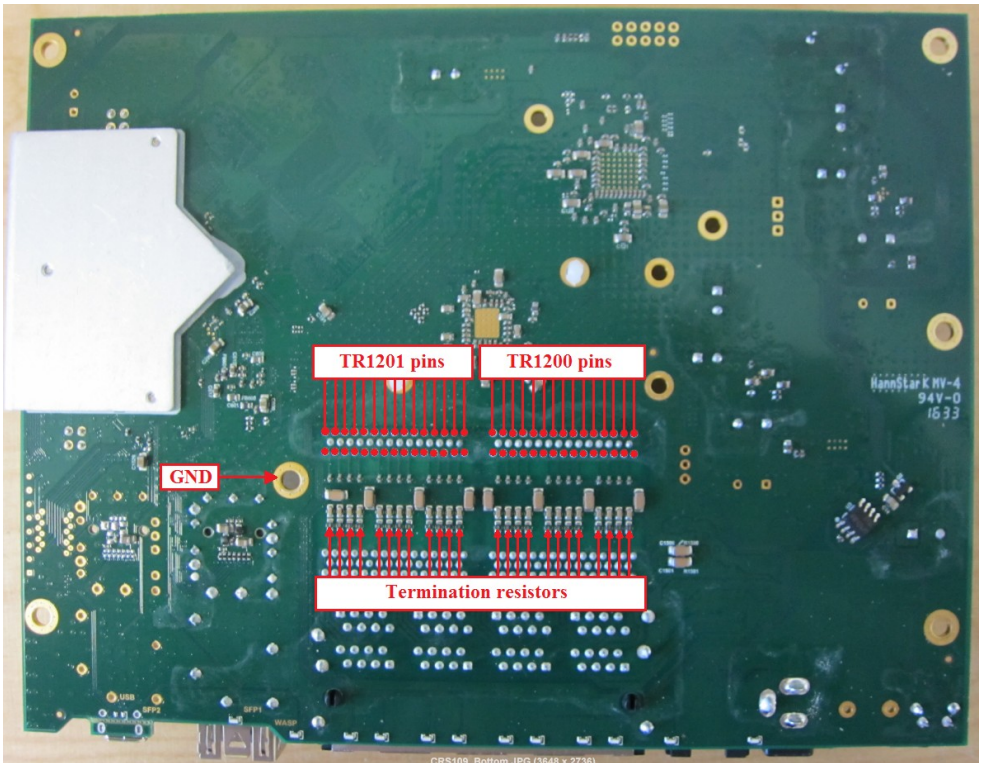
Voltage drop value should be in the range from 0,4V to 0,43V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors resistance value. It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 190.



Picture 189



Picture 190

CRS112-8G-4S-IN



Picture 191

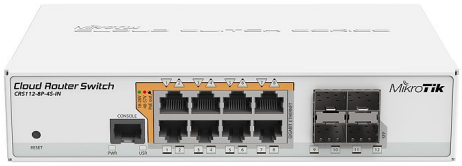
Disassembling information

Disassembly method of the board is the same as the CRS109-8G board. Disassembly method is described on page 153.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for CRS109-8G board, see on page 154.

CRS112-8P-4S



Picture 192

Disassembling information

Disassembly method of the board is the same as the CRS109-8G board. Disassembly method is described on page 153.

Checking procedure for over-voltage

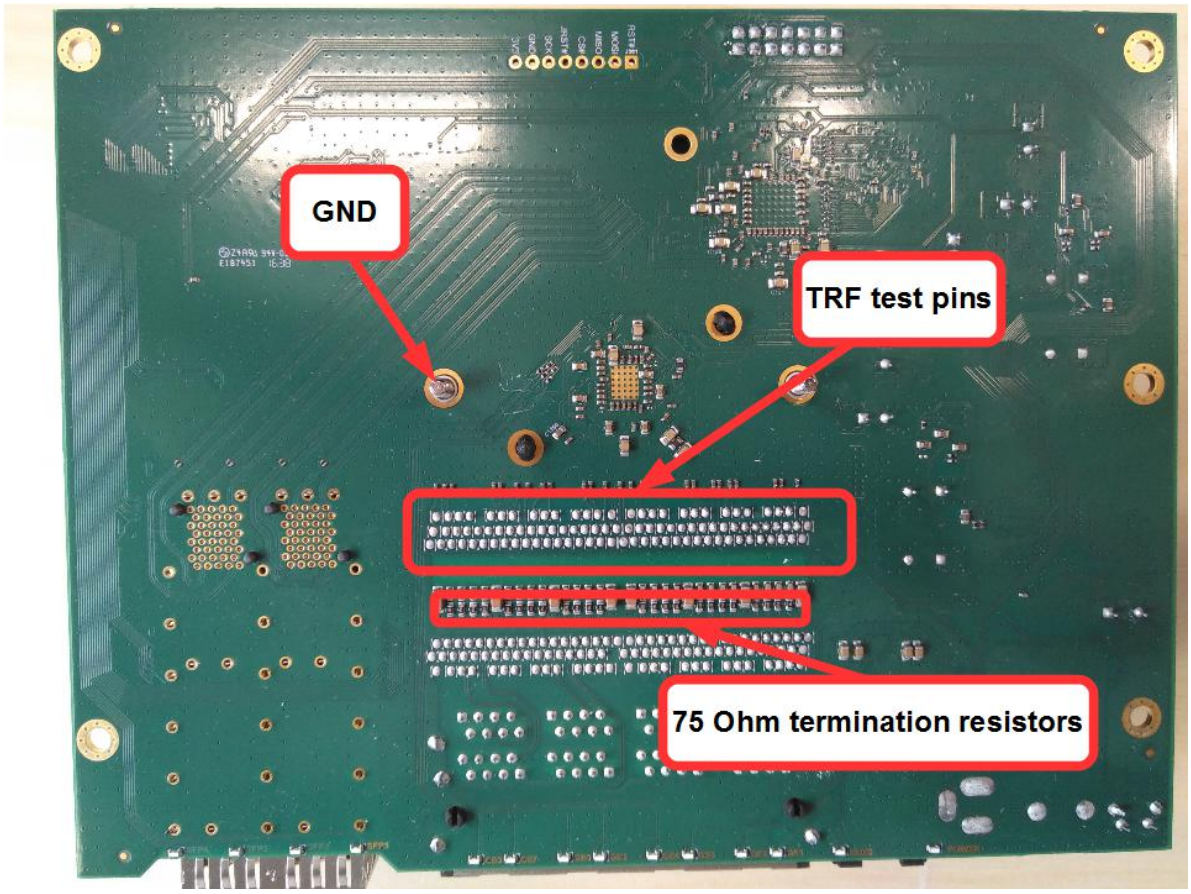
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1200, TR1201 pins and Ground. Test points on the transformers pins are highlighted and can be seen in picture 194. Note that the view for transformer pins are from the bottom for necessary of measurement.

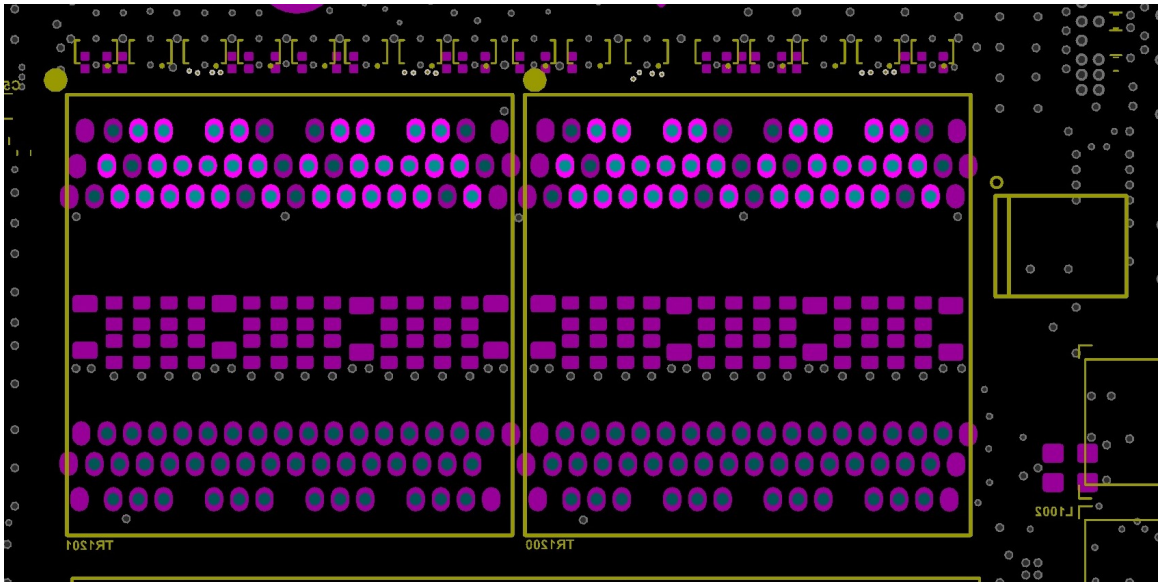
Voltage drop value should be in the range from 0,38V to 0,45V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors resistance value. It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 193.



Picture 193



Picture 194

CRS125-24G-1S-IN



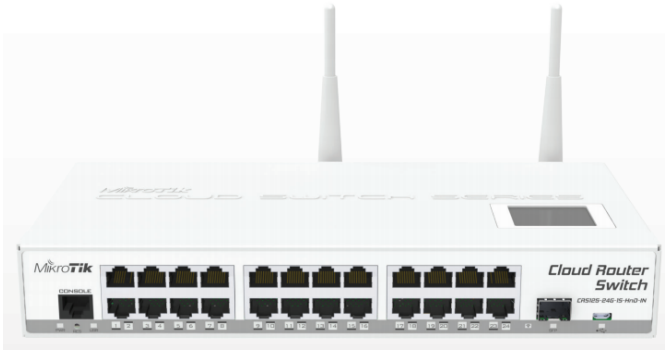
Picture 195

CRS125-24G-1S-RM



Picture 196

CRS125-24G-1S-2HnD-IN



Picture 197

Disassembling information

Step 1:

Unscrew 5 screws (3 screws behind board case and 1 screw on the side of the board case). Location of the screws you can see in the picture 198.



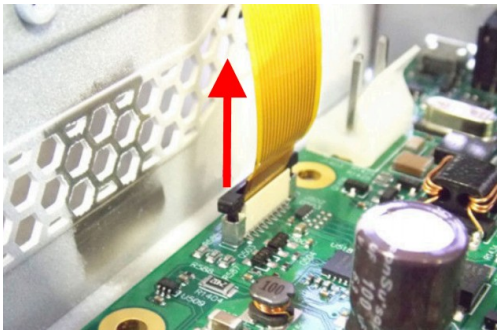
Picture 198

Step 2:

Carefully take off the cover. Do not damage the LCD flex cable.

Step 3:

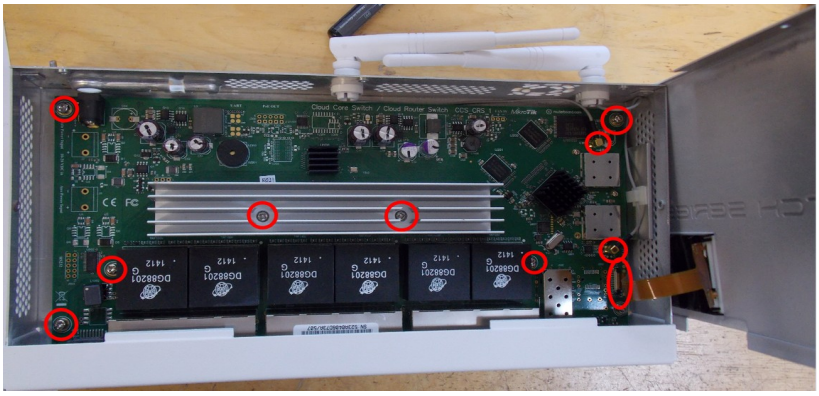
Gently lift the latch vertically upward and take out LCD flex cable from FPC connector as showed in the picture 199. Do not damage the FPC connector locking drawer.



Picture 199

Step 4:

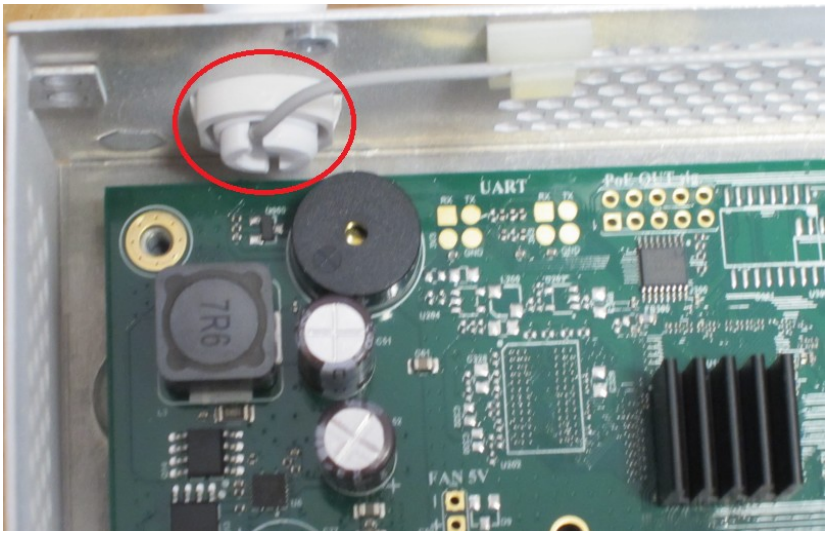
Unscrew 8 screws which fasten PCB to the case. Location of the screws see in the picture 200.



Picture 200

Step 5:

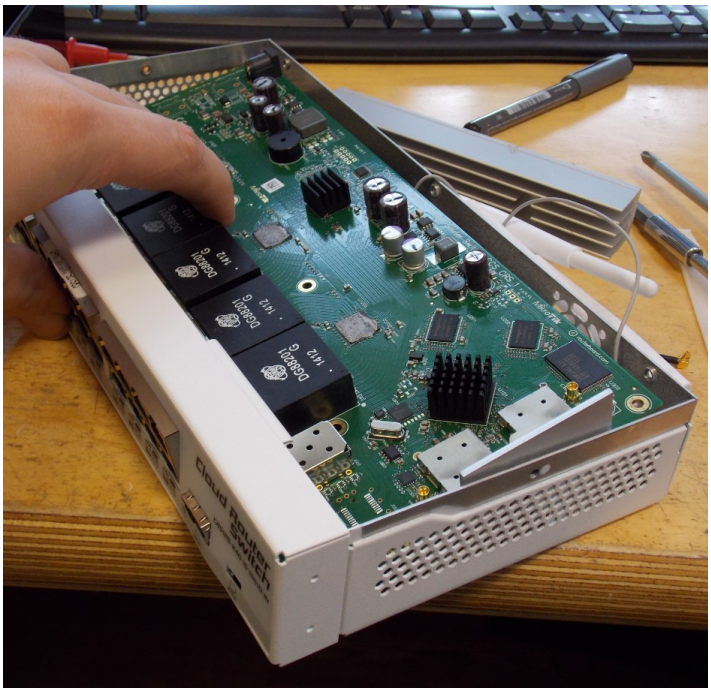
Move both antenna cables into a special holes, see picture 201.



Picture 201

Step 6:

Move out PCB from the case, see picture 202.



Picture 202

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1, D5, D6 (or D1, D5 for some CRS125 versions). Location of diodes on the board you can see in the picture 203. Schottky diodes quality measurement method is described on page 23.

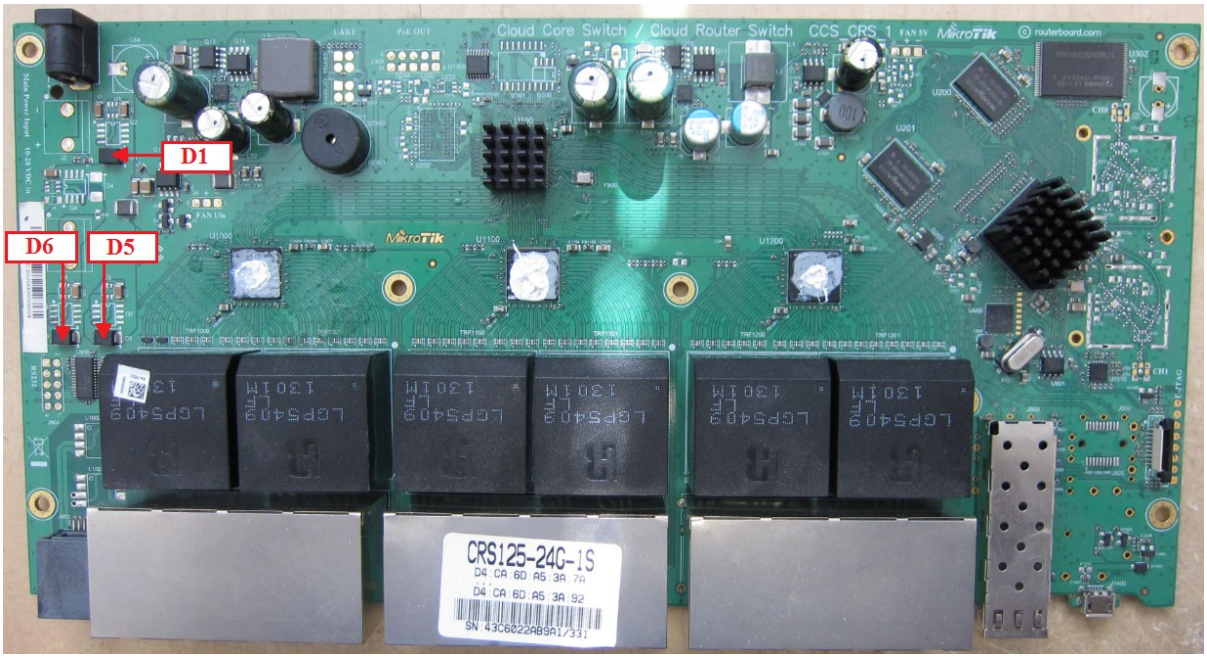
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TRF1000, TRF1001, TRF1100, TRF1101, TRF1200, TRF1201 pins and Ground. Test points on the transformers pins are marked with red dots, see picture 204.

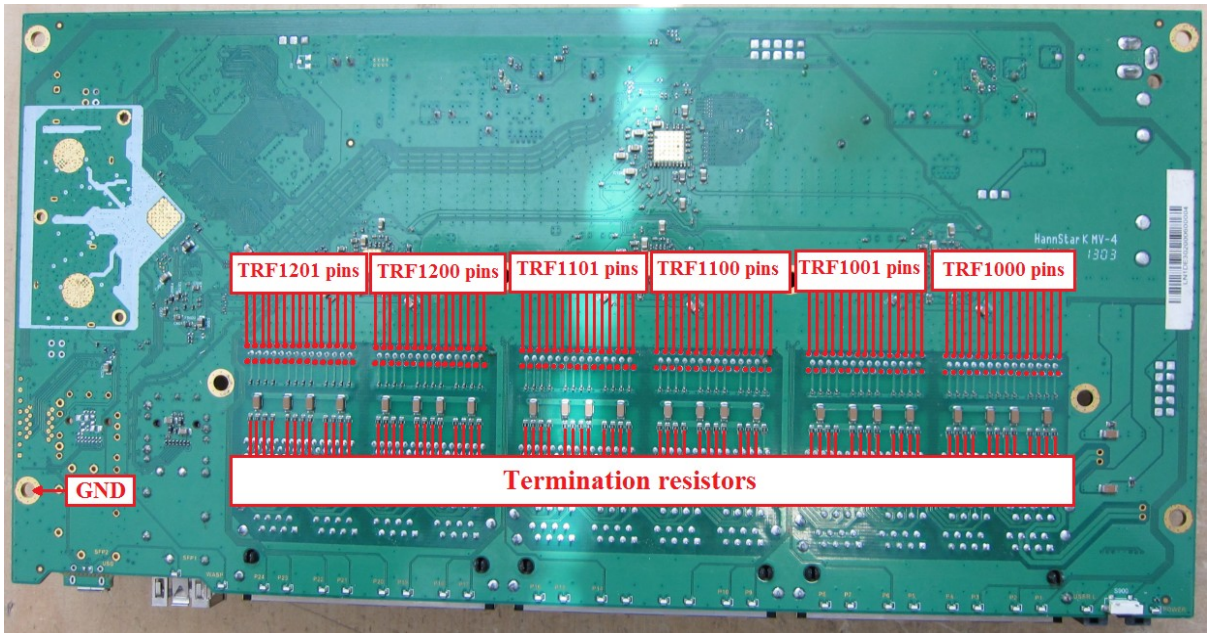
Voltage drop value should be in the range from 0,38V to 0,44V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors resistance value. It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 204.



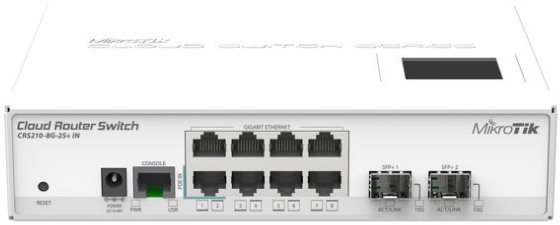
Picture 203



Picture 204

Cloud Router Switch 200 series RouterBoards

CRS210-8G-2S+IN



Picture 205

Disassembling information

Disassembly method of the board is the same as the CRS109-8G board. Disassembly method is described on page 153.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for CRS109-8G board, see on page 154.

CRS212-1G-10S-1S+IN



Picture 206

Disassembling information

Disassembly method of the board is the same as the CRS109-8G board. Disassembly method is described on page 153.

Checking procedure for over-voltage

Checking Schottky diode

Check Schottky diode D5. Location of diode on the board you can see in the picture 207. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

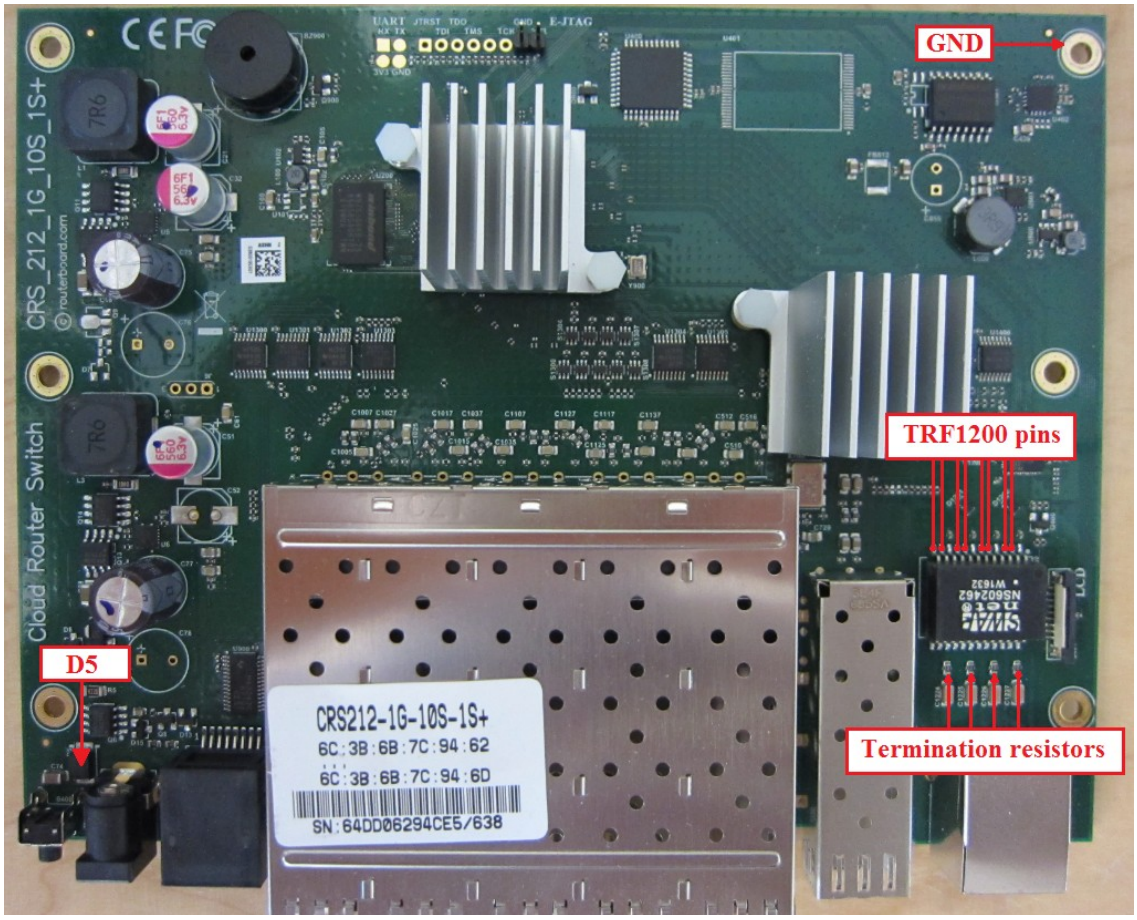
Check voltage drop value between Ethernet transformer TRF1200 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 207.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors R1215-R1218 resistance value. It should be 75 Ohm +/-1%.

Location of resistors on the board you can see in the picture 207.


GND
TRF1200 pins
Termination resistors
D5
CRS212-1G-10S-1S+
6C:3B:6B:7C:94:62
6C:3B:6B:7C:94:6D
SN:64DD06294CE5/638
CRS_212_1G_10S_1S+
Cloud Router Switch

Picture 207

CRS226-24G-2S+RM



Picture 208

Disassembling information

Disassembly method of the board is the same as the CRS125-24G-1S-2HnD board. Disassembly method is described on page 160.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1, D4, D5. Location of diodes on the board you can see in the picture 209. Schottky diode quality measurement method is described on page 23.

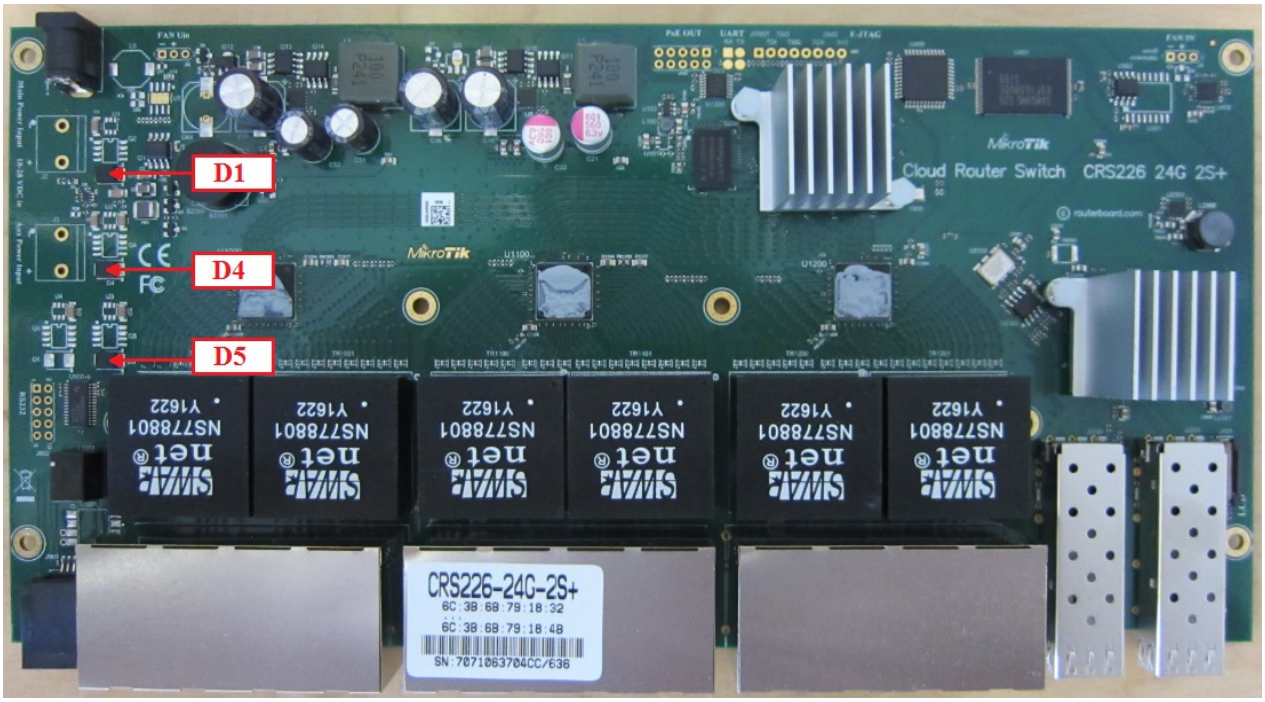
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformers TR1000, TR10001, TR1100, TR1101, TR1200, TR1201 pins and Ground. Test points on the transformers pins are marked with red dots, see picture 210.

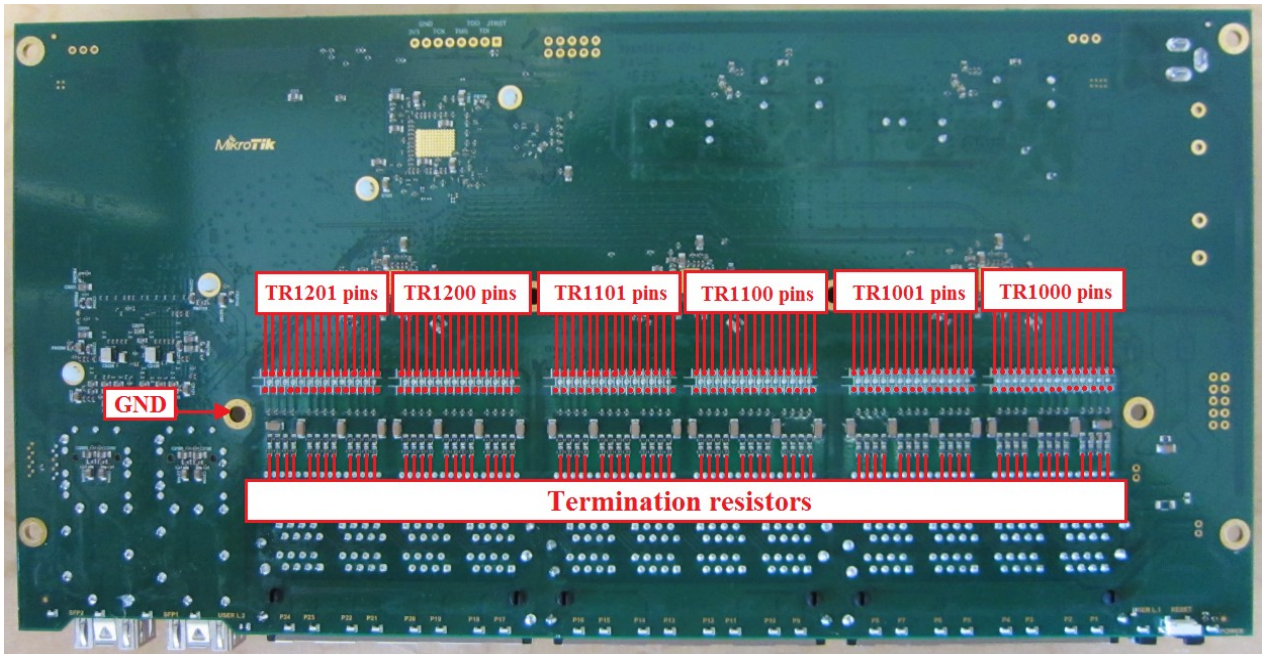
Voltage drop value should be in the range from 0,4V to 0,45V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check termination resistors resistance value. It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 210.



Picture 209



Picture 210

Cloud Router Switch 300 series RouterBoards

CRS305-1G-4S+IN



Picture 211

Disassembling information

Step 1:

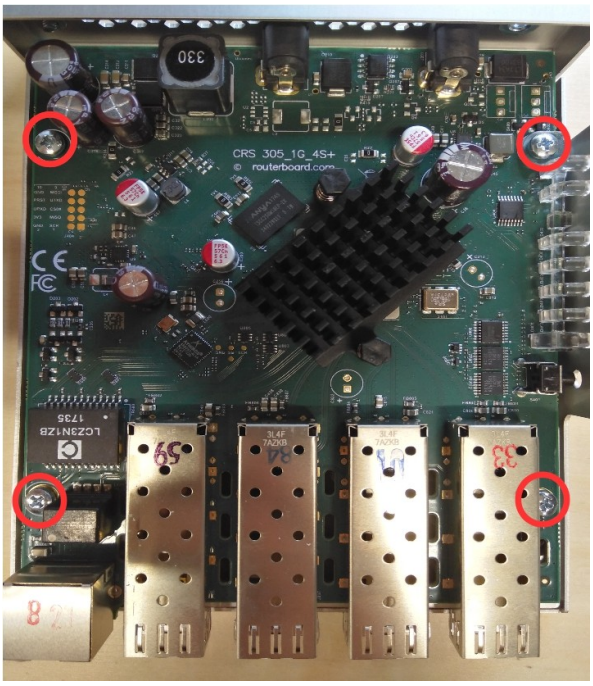
Unscrew 4 screws which are holding the case cover with a Phillips screwdriver and remove cover. Location of the screws is shown in picture 212.



Picture 212

Step 2:

Unscrew 4 screws which are holding the PCB with a phillips screwdriver. Location of the screws is shown in picture 213.



Picture 213

Checking procedure for over-voltage

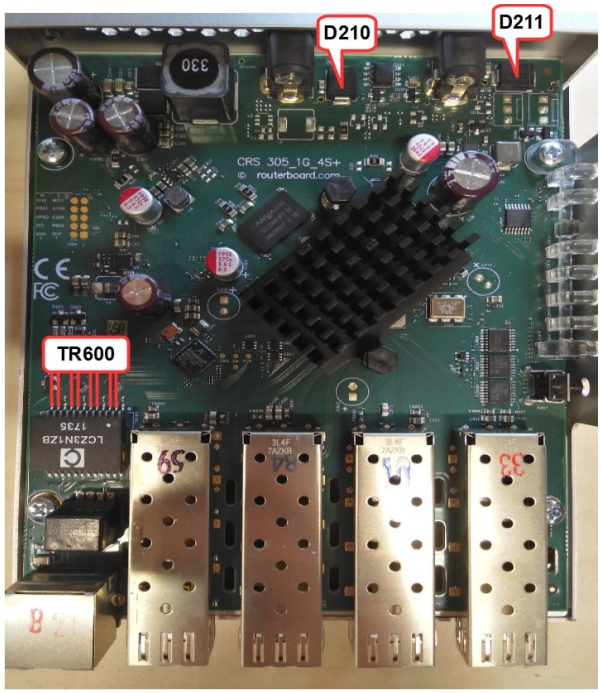
Checking Schottky diodes

Check Schottky diodes D210, D211, D204 and diode bridge D206. Location of diodes on the board you can see in the picture 214 and 215. Schottky diodes quality measurement method is described on page 23.

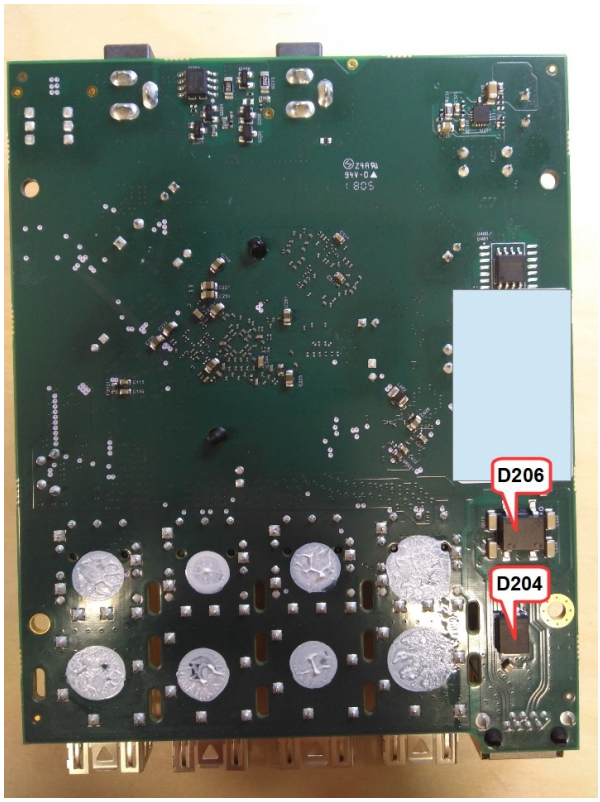
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR600 pins and Ground.
Test points on the transformer pins are marked in picture 214.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.

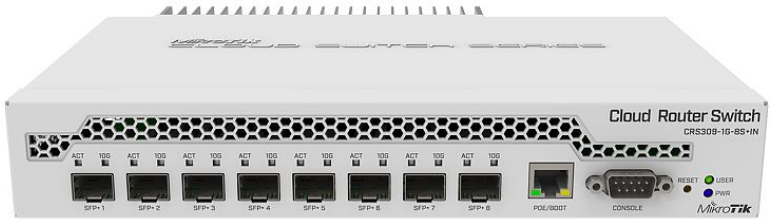


Picture 214



Picture 215

CRS309-1G-8S+IN

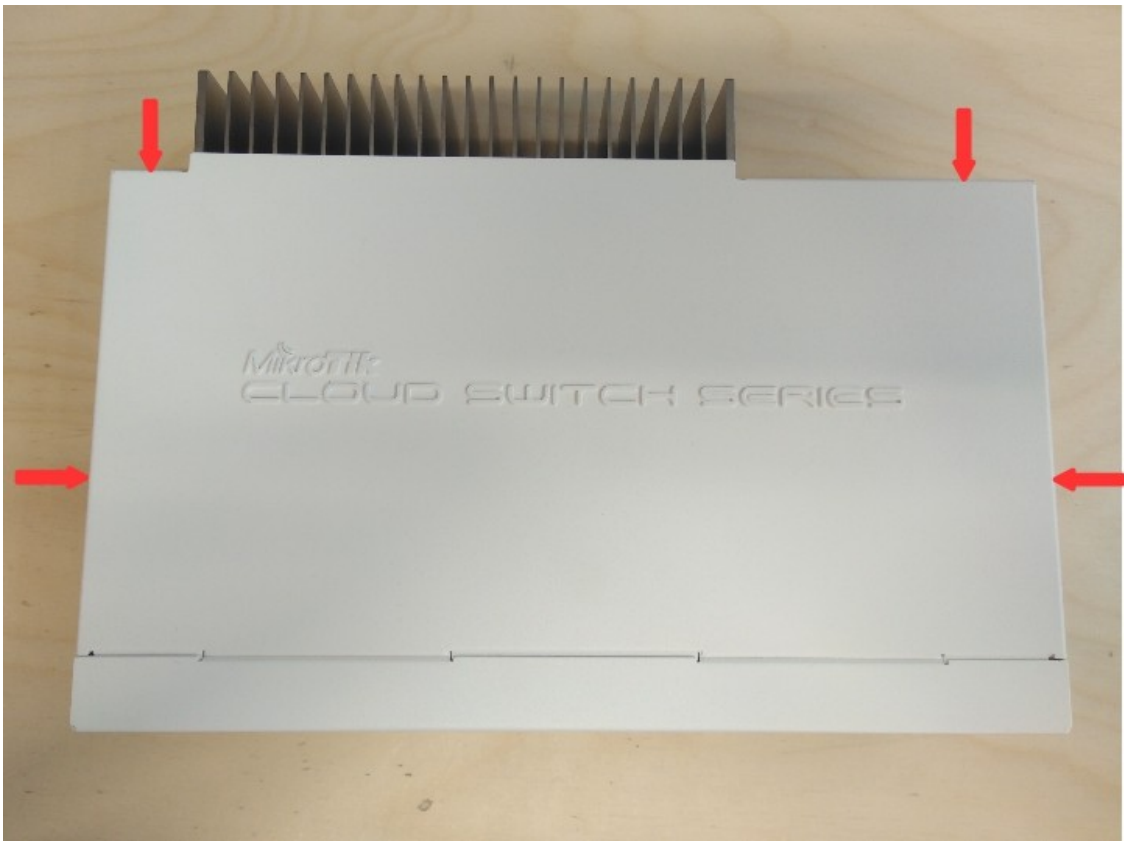


Picture 216

Disassembling information

Step 1:

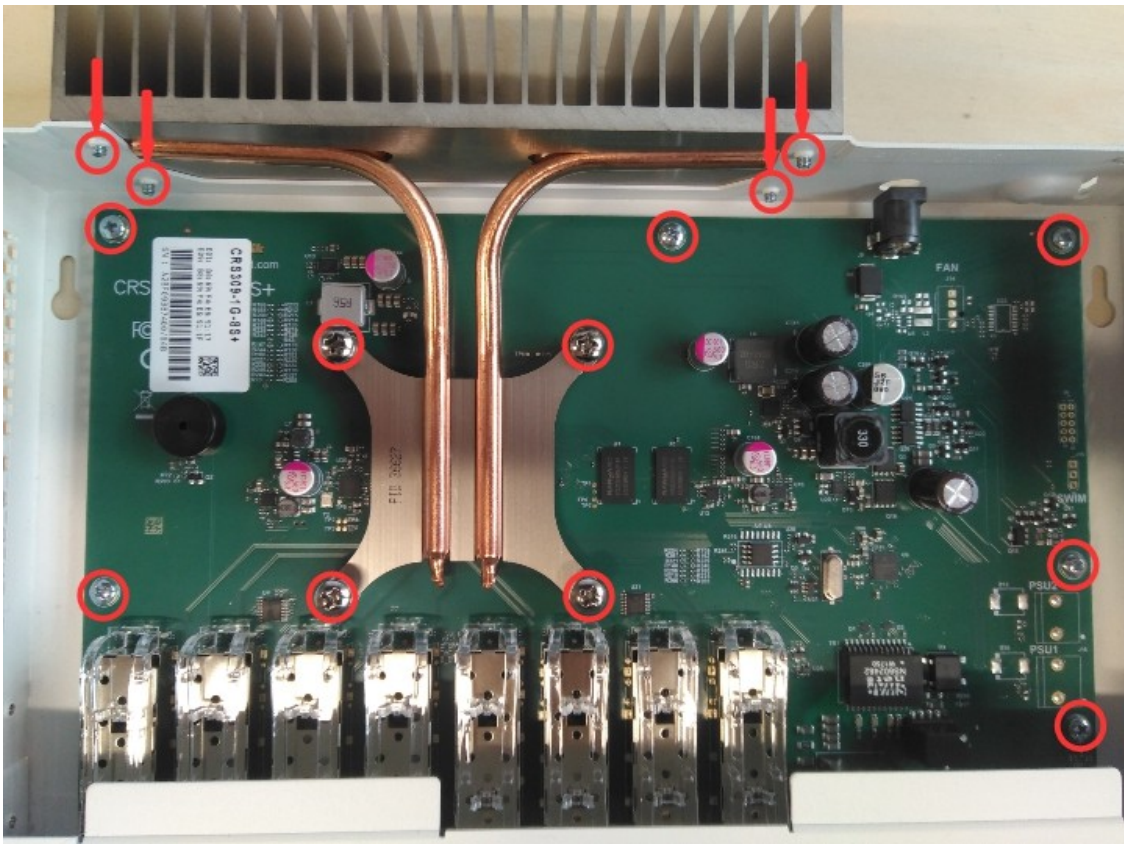
Unscrew 4 screws which are holding the case cover with a Phillips screwdriver and remove cover. Location of the screws is shown in picture 217.



Picture 217

Step 2:

Unscrew 6 screws that are holding the PCB with a Phillips screwdriver, 4 screws that holds CPU heat sink and 4 screws from the side of board using 2.5 mm HEX key. Location of the screws is shown in picture 218.



Picture 218

Checking procedure for over-voltage

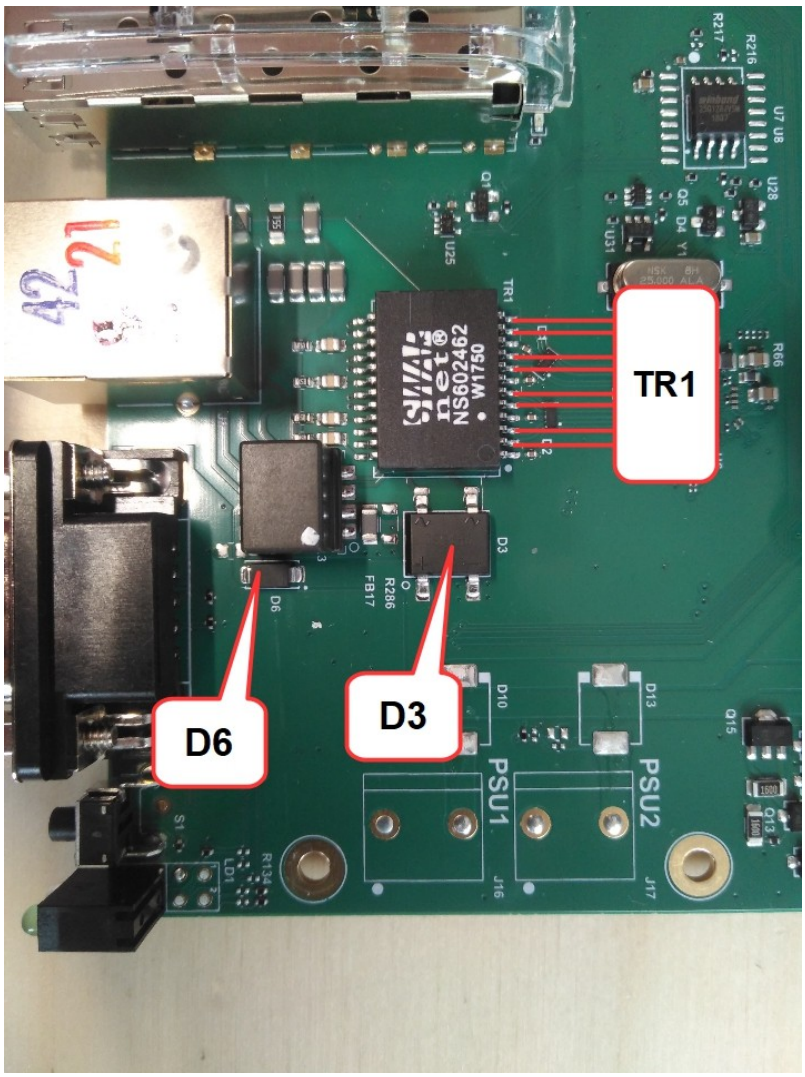
Checking Schottky diodes

Check Schottky diodes D6 and diode bridge D3. Location of diodes on the board you can see in the picture 219 and 220. Schottky diodes quality measurement method is described on page 23.

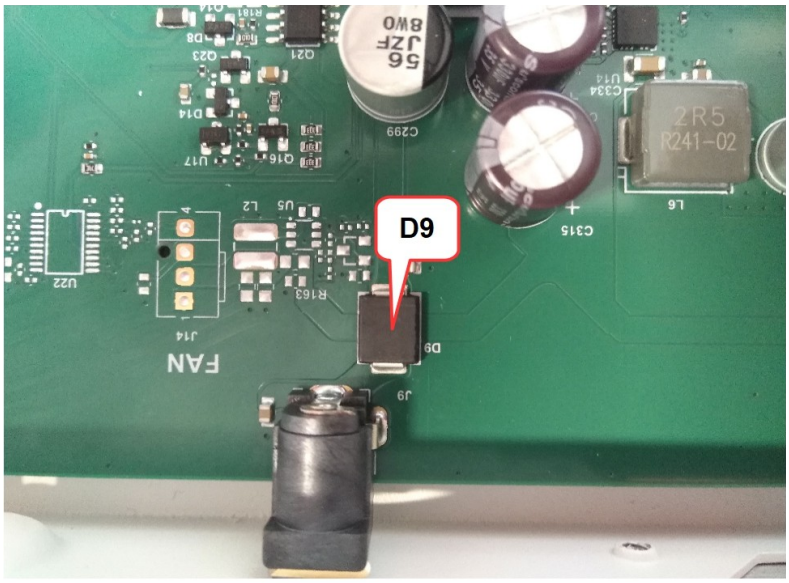
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1 pins and Ground.
Test points on the transformer pins are marked in picture 219.

Voltage drop value should be in the range from 0,37V to 0,41V. Voltage drop measurement method is described on page 25.



Picture 219



Picture 220

CRS312-4C+8XG+RM



Picture 221

Checking procedure for over-voltage

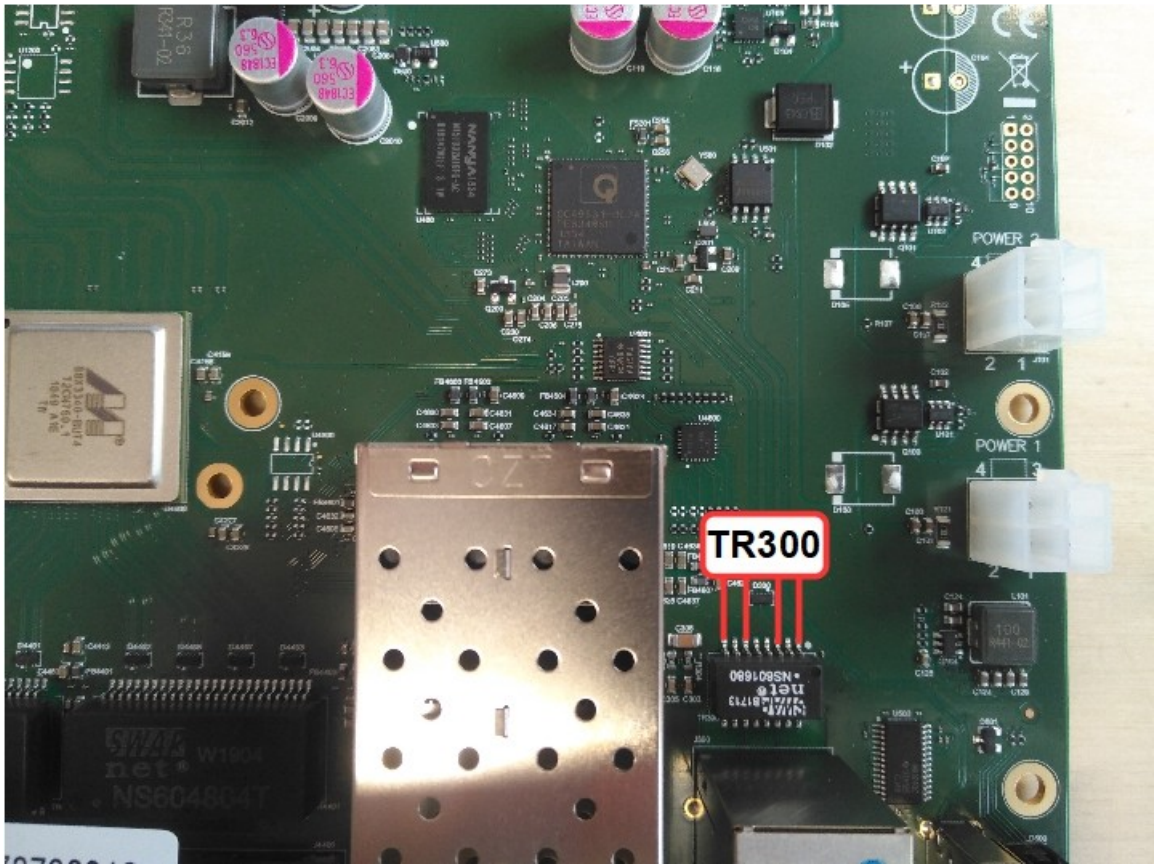
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR300 and pins and Ground. Test points on the transformer pins are marked in picture 222.

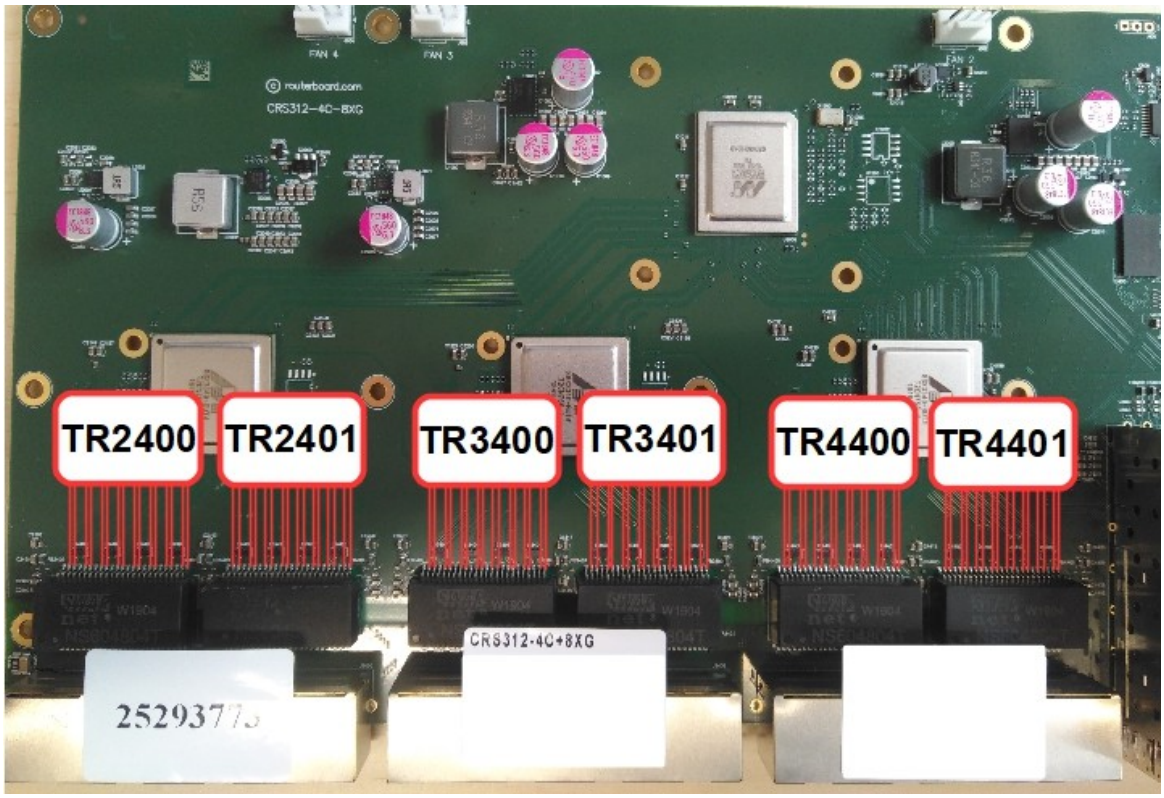
Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.

Check voltage drop value between Ethernet transformers TR2400, TR2401, TR3400, TR3401, TR4400, TR4401 and pins and Ground. Test points on the transformer pins are marked in picture 223.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 222



Picture 223

CRS317-1G-16S+RM

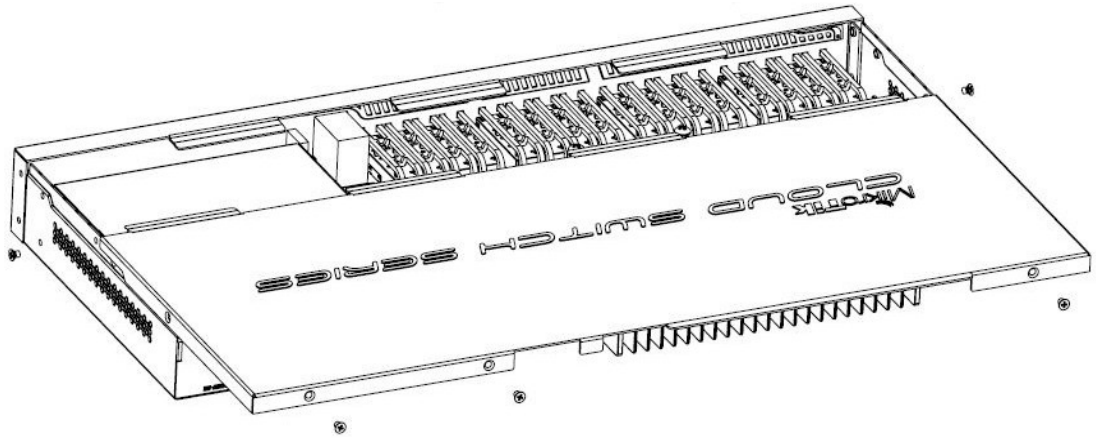


Picture 224

Disassembling information

Step 1:

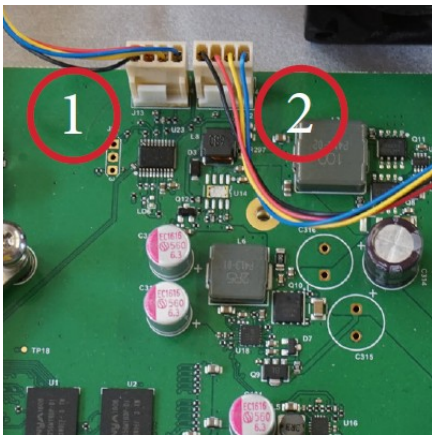
Unscrew 5 screws which are holding the case cover with a phillips screwdriver and remove cover. Location of the screws is shown in picture 225.



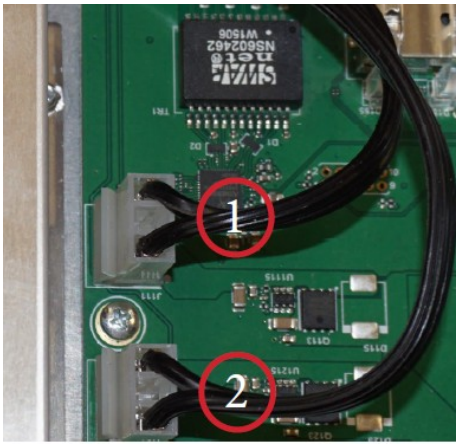
Picture 225

Step 2:

Unplug FAN and power cables from PCB marked in pictures 226 and 227 (1 and 2).



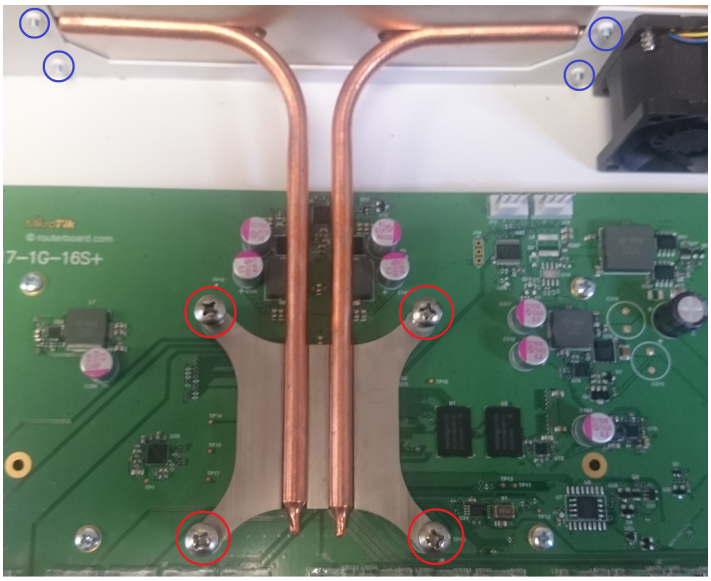
Picture 226



Picture 227

Step 3:

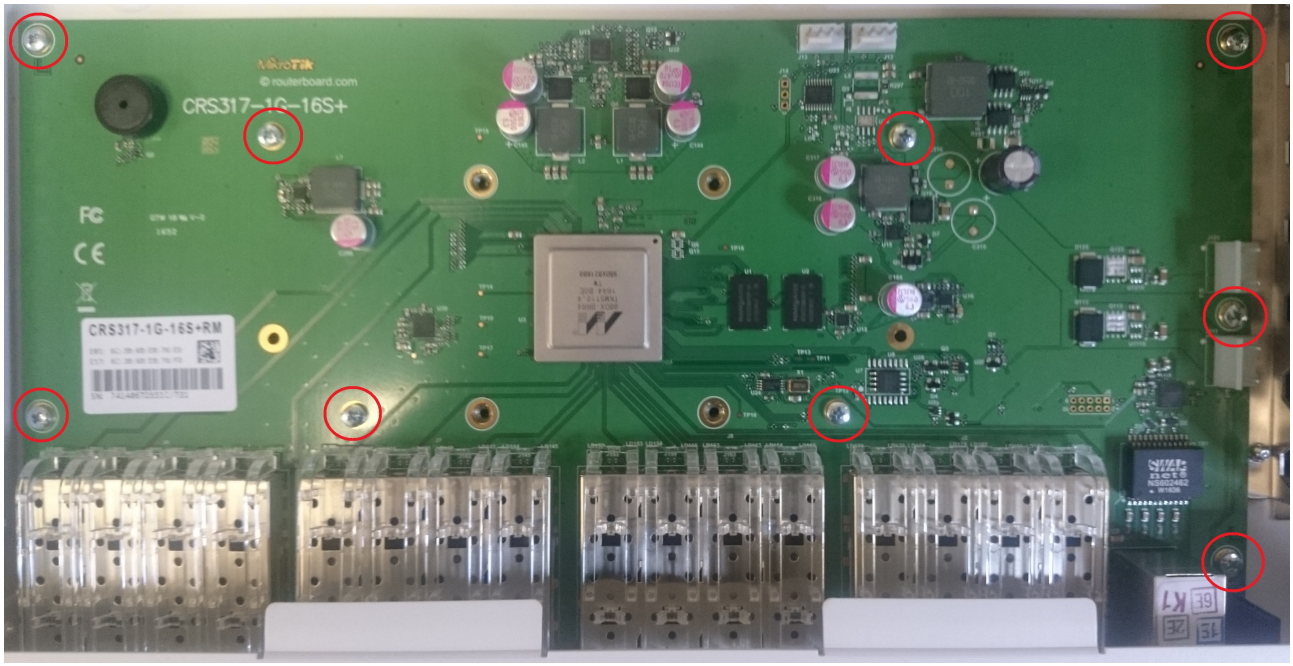
Unscrew 4 screws holding heat sink platform on CPU (marked red) and 4 screws holding heat sink itself to the case (marked blue) shown in picture 228 and remove heat sink assembly.



Picture 228

Step 4:

Unscrew all 9 screws holding PCB down (picture 229) and remove PCB from its case.



Picture 229

Checking procedure for over-voltage

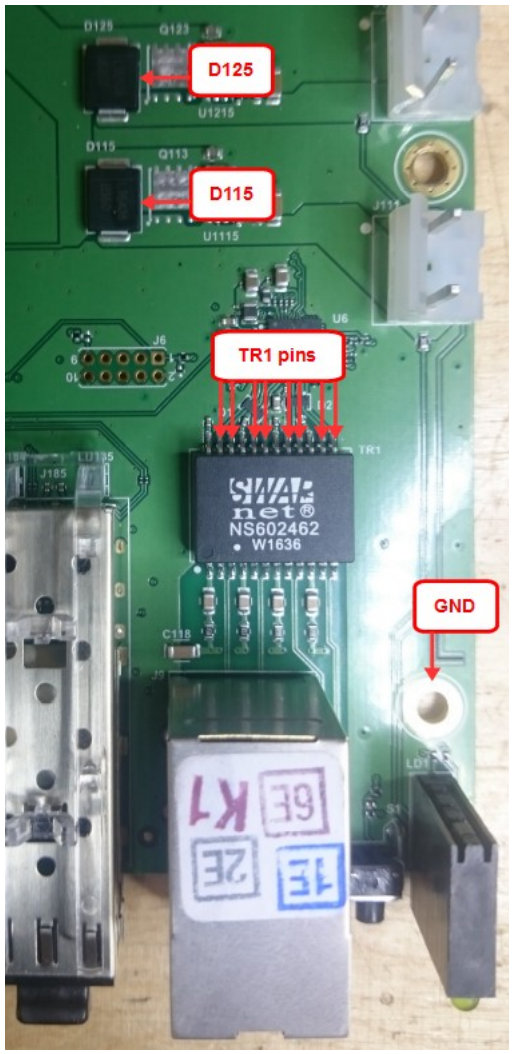
Checking Schottky diodes

Check Schottky diodes D115, D125. Location of diodes on the board you can see in the picture 230. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1 pins and Ground.
Test points on the transformer pins are marked in picture 230.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 230

netPower 15FR (CRS318-1Fi-15Fr-2S)



Picture 231

Disassembling information

Step 1:

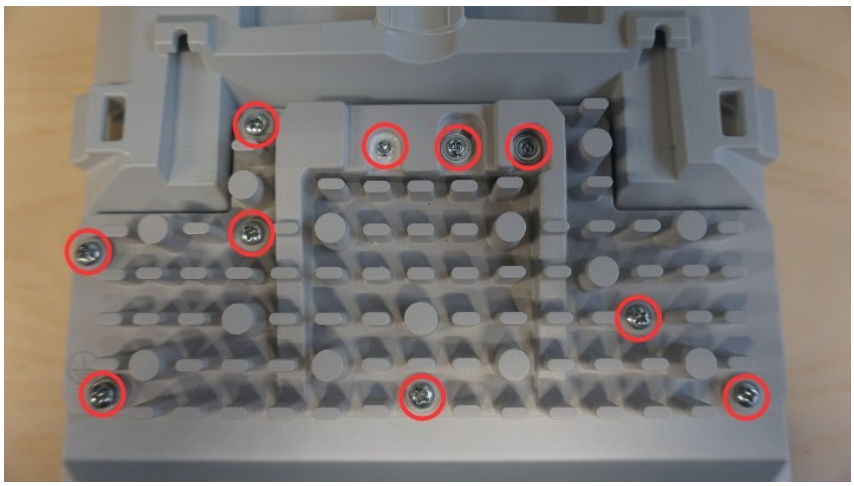
Unscrew “captive screw”. Location of the screw you can see in the picture 232.



Picture 232

Step 2:

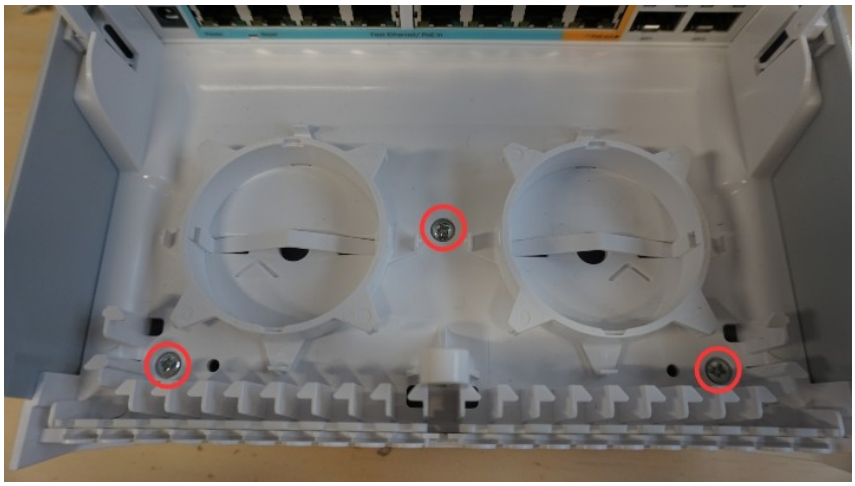
Unscrew all screws shown in picture 233 using PH1 or PH2 screwdriver.



Picture 233

Step 3:

Unscrew all screws shown in picture 234 using PH2 screwdriver.



Picture 234

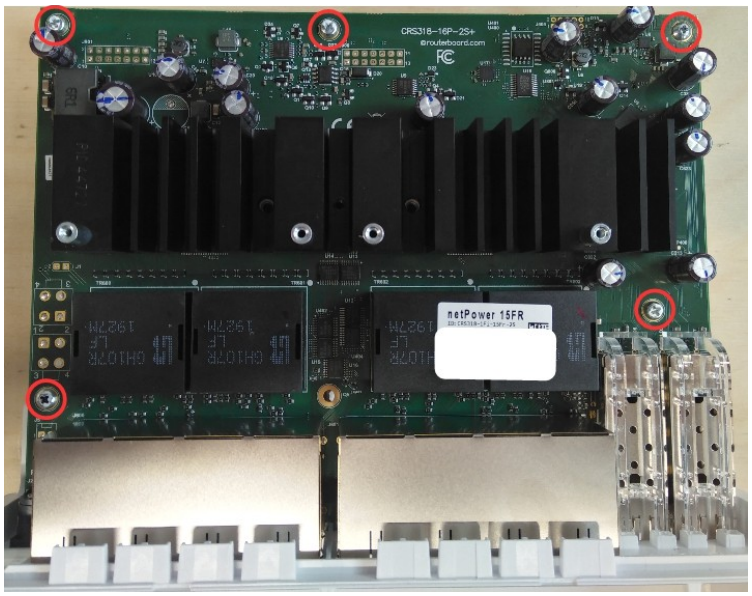
Step 4:

Press the side parts as shown in picture 235 and take the cover off.



Picture 235

Unscrew all screws shown in picture 236 using PH1 or PH2 screwdriver.



Picture 236

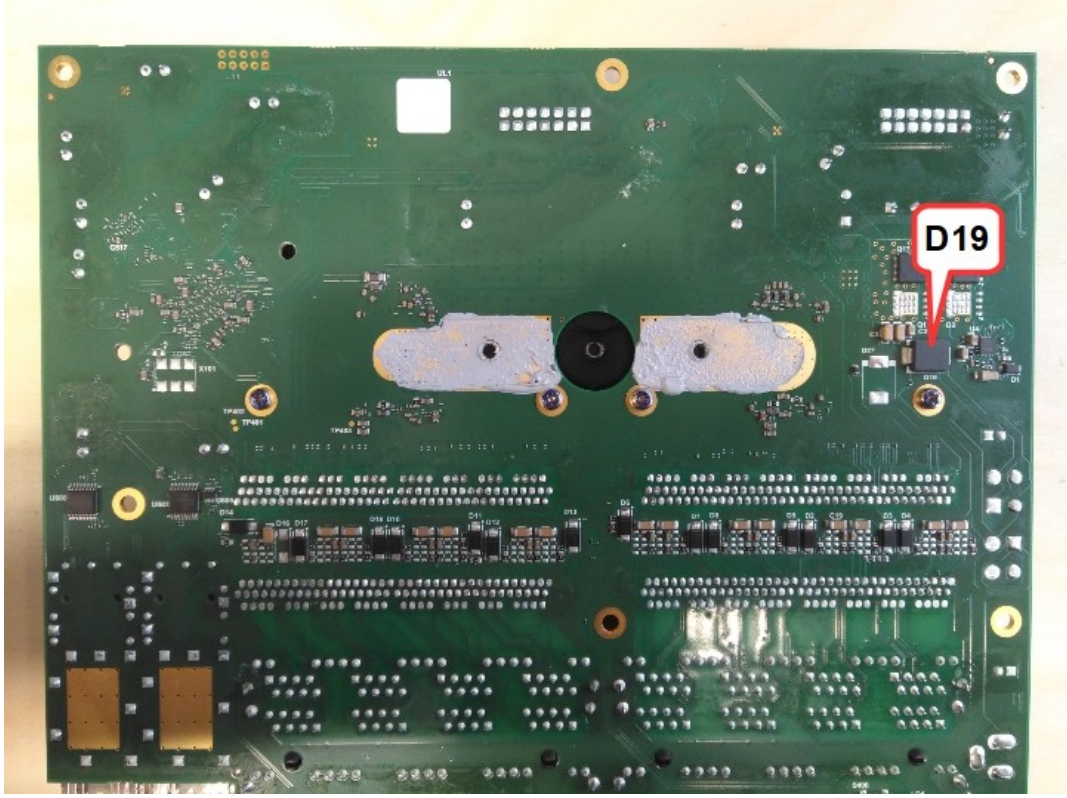
Checking procedure for over-voltage

Checking Schottky diodes

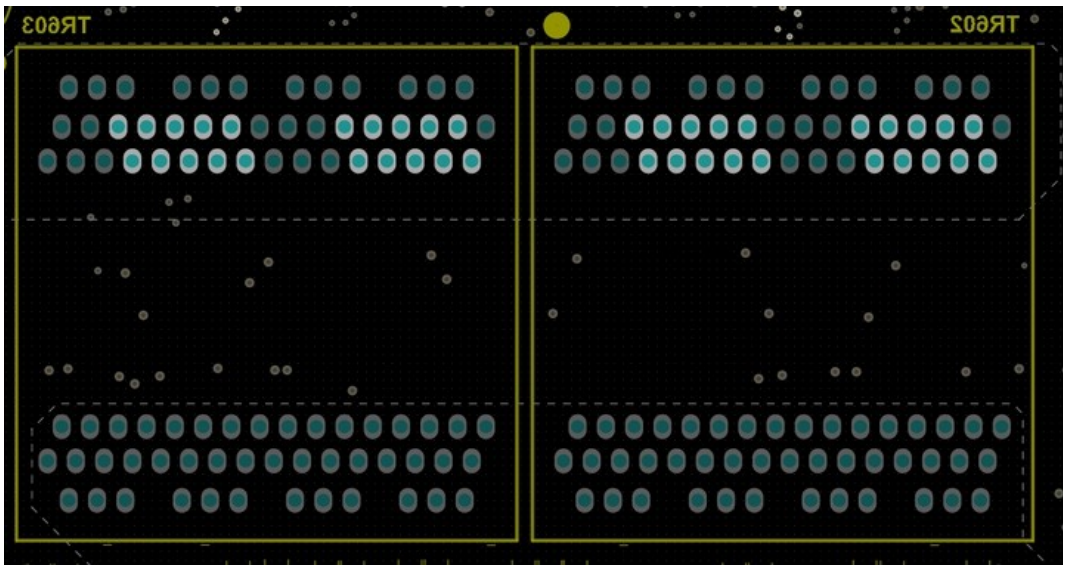
Check Schottky diodes D19. Location of diodes on the board you can see in the picture 237. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR600, TR601, TR602, TR603 pins and Ground. All PCB mounting holes are connected to Ground.
Test points on the transformer pins are marked in picture 238. Voltage drop value should be in the range from 0,26V to 0,30V. Voltage drop measurement method is described on page 25.



Picture 237



Picture 238

netPower 16P (CRS318-16P-2S+OUT)



Picture 239

Disassembling information

Step 1:

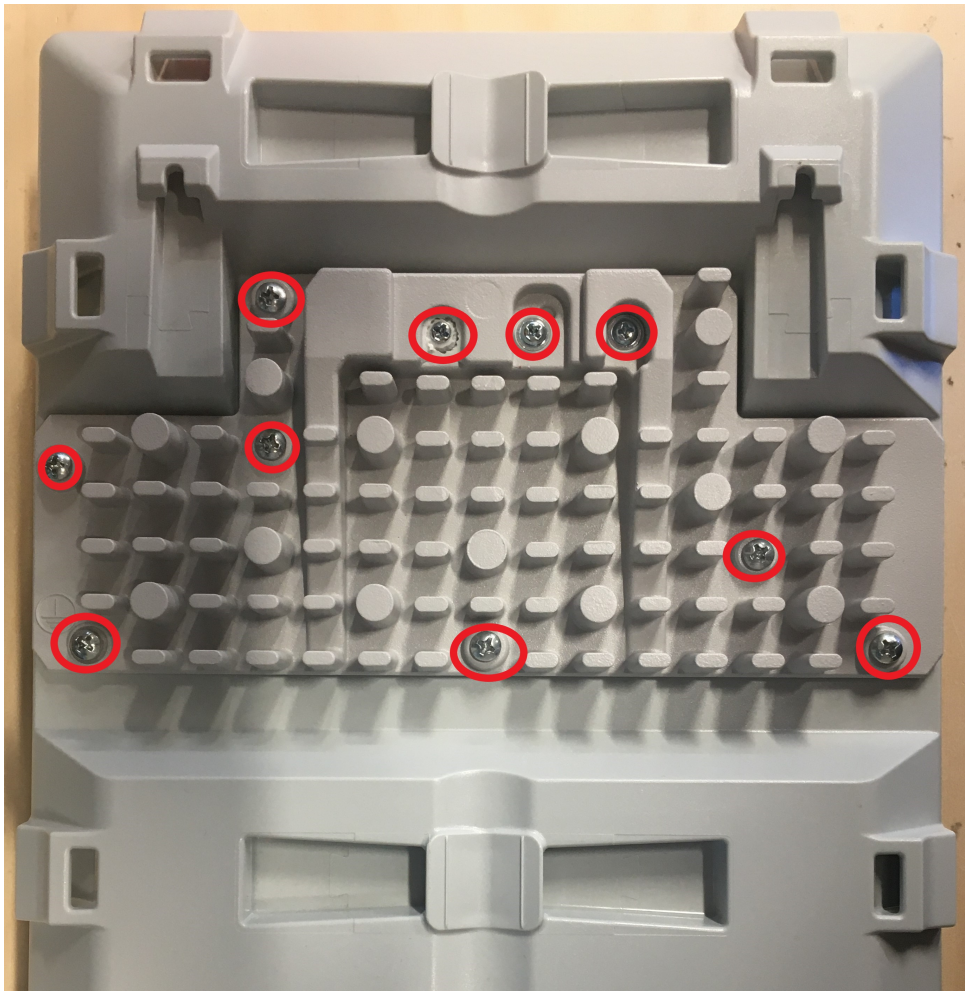
Unscrew “captive screw”. Location of the screw you can see in the picture 240.



Picture 240

Step 2:

Unscrew all screws shown in picture 241 using PH1 or PH2 screwdriver.



Picture 241

Step 3:

Unscrew all screws shown in picture 242 using PH2 screwdriver and remove the heat sink.



Picture 242

Step 4:

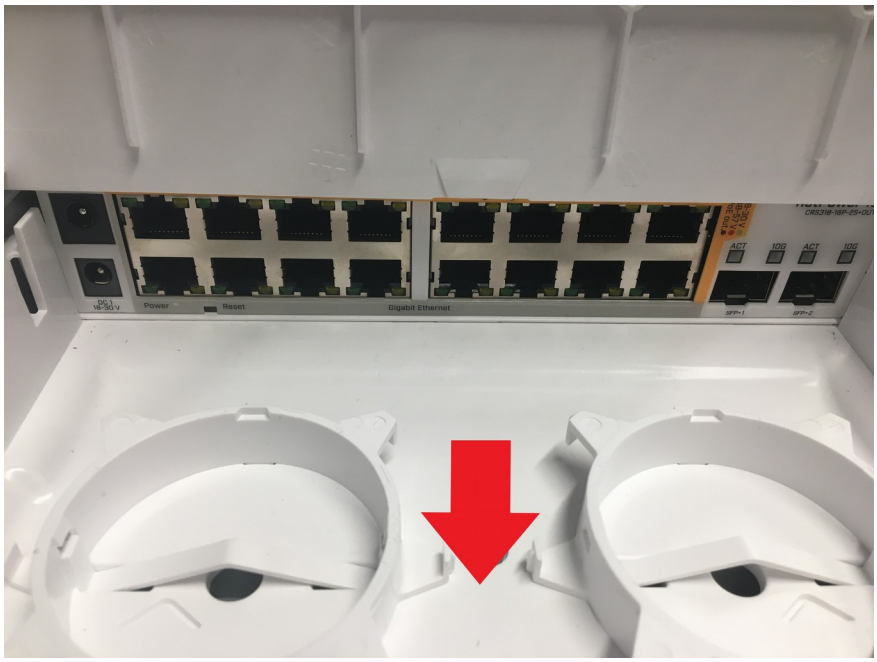
Unscrew all screws shown in picture 243 using PH2 screwdriver and remove the heat sink.



Picture 243

Step 5:

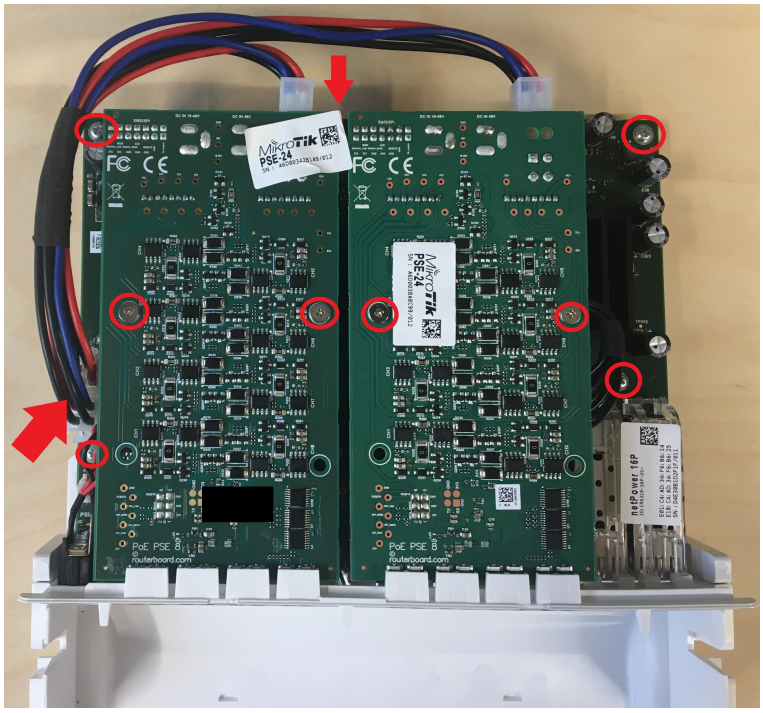
Take off the PCB from the case pulling the front plastic as shown in picture 244.



Picture 244

Step 5:

Unscrew all the screws, unplug POE power cables and remove both PSE-24 PCBs as shown in picture 245.



Picture 245

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes shown in picture 246. Schottky diodes quality measurement method is described on page 23.

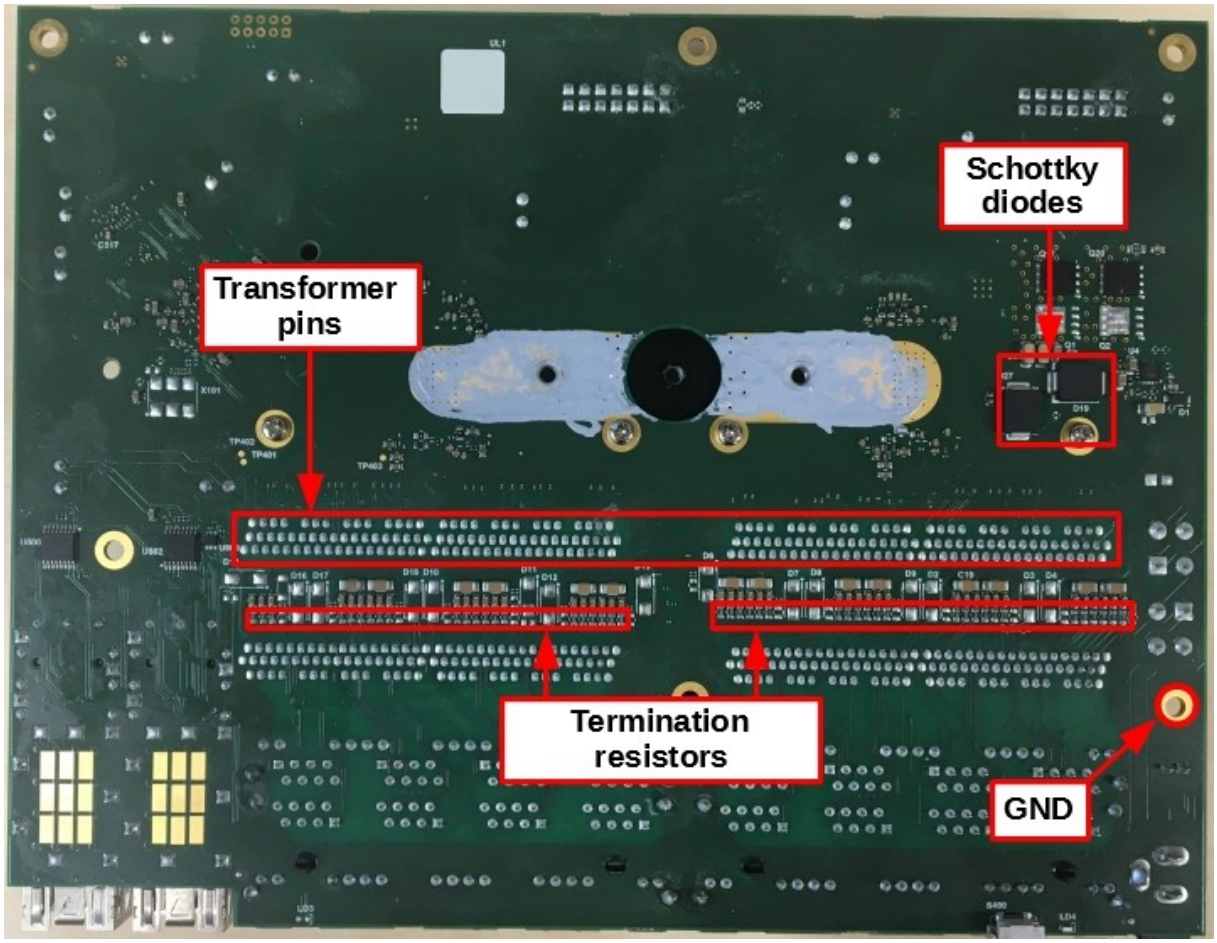
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between each Ethernet transformer pin and GND. Test points are shown in picture 246.

Voltage drop value should be no less than 0.2V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check value of each termination resistor. It should be approximately 75 Ohms. Location of resistors are shown in picture 246.



Picture 246

CRS326-24G-2S+IN



Picture 247

Disassembling information

Step 1:

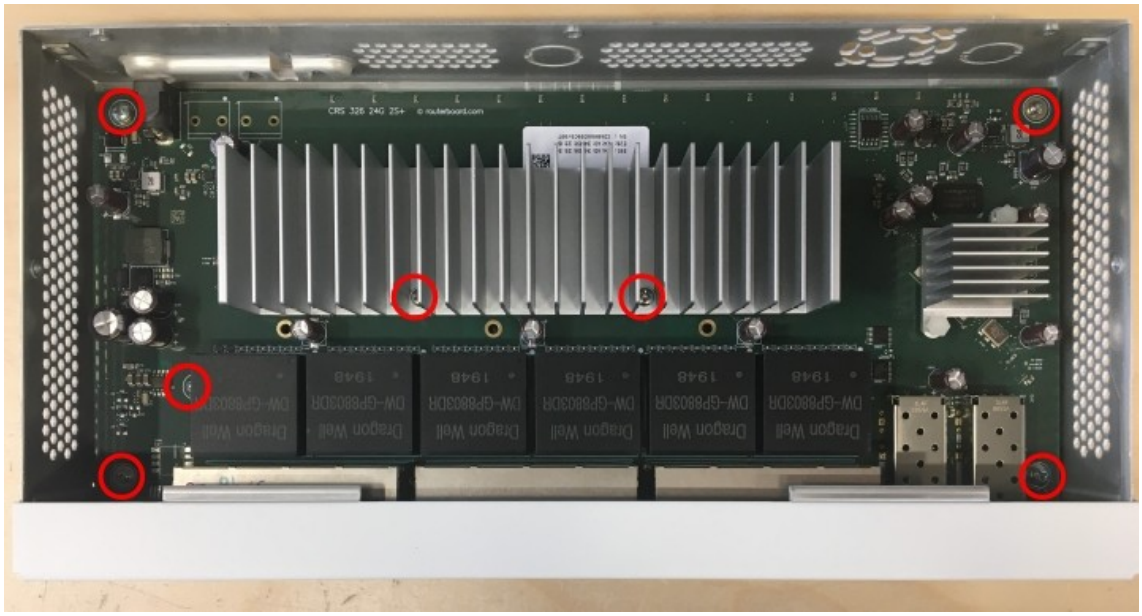
Using Phillips PH2 or similar unscrew all the screws from cover as shown in picture 248.



Picture 248

Step 2:

Using Phillips PH1 or similar unscrew all the screws marked in picture 249.



Picture 249

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diode marked in picture 250. Schottky diodes quality measurement is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop between ethernet transformer pins and GND marked in picture 251. Voltage drop across the pins should not be below 0.25V.

Voltage drop measurement method is described on page 25.

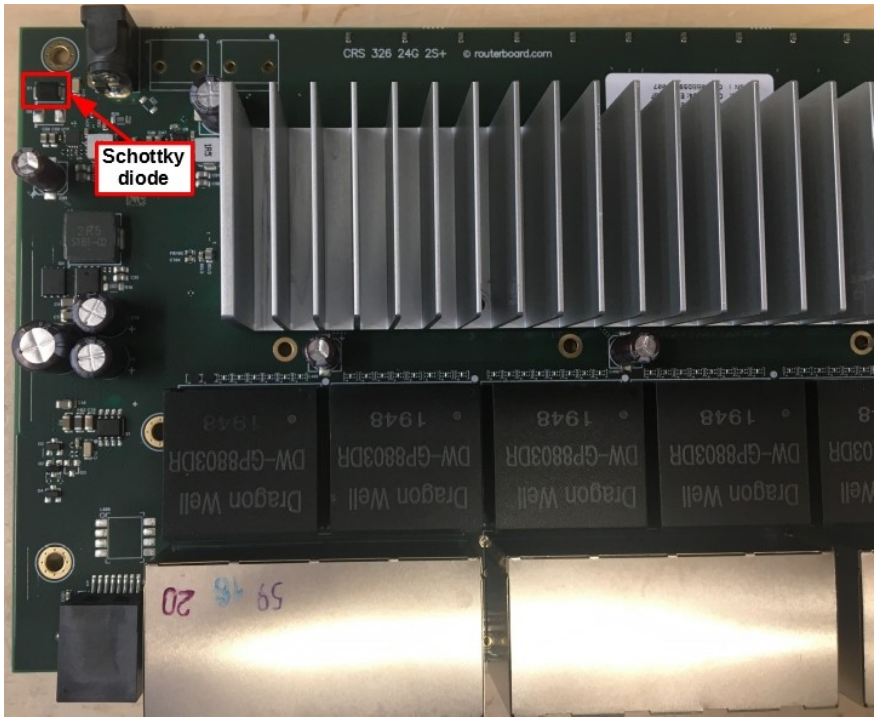
Checking 75 Ohm termination resistors resistance

Check the resistance of termination resistors marked in picture 251. The value should be approximately 75 Ohms.

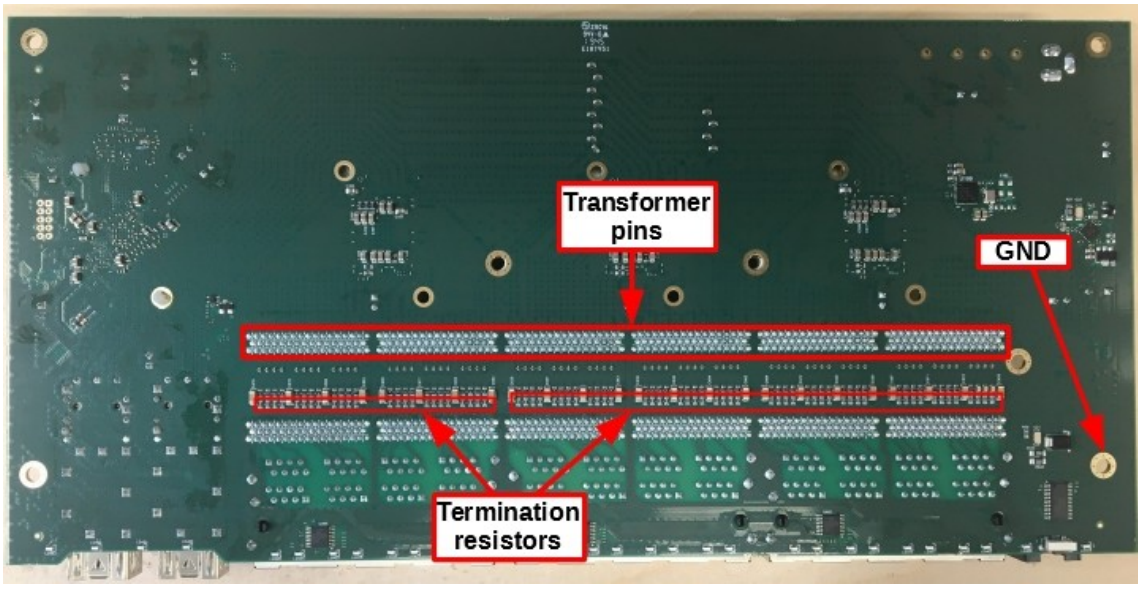
Measurement method is described on page 26.

Checking 0R resistors

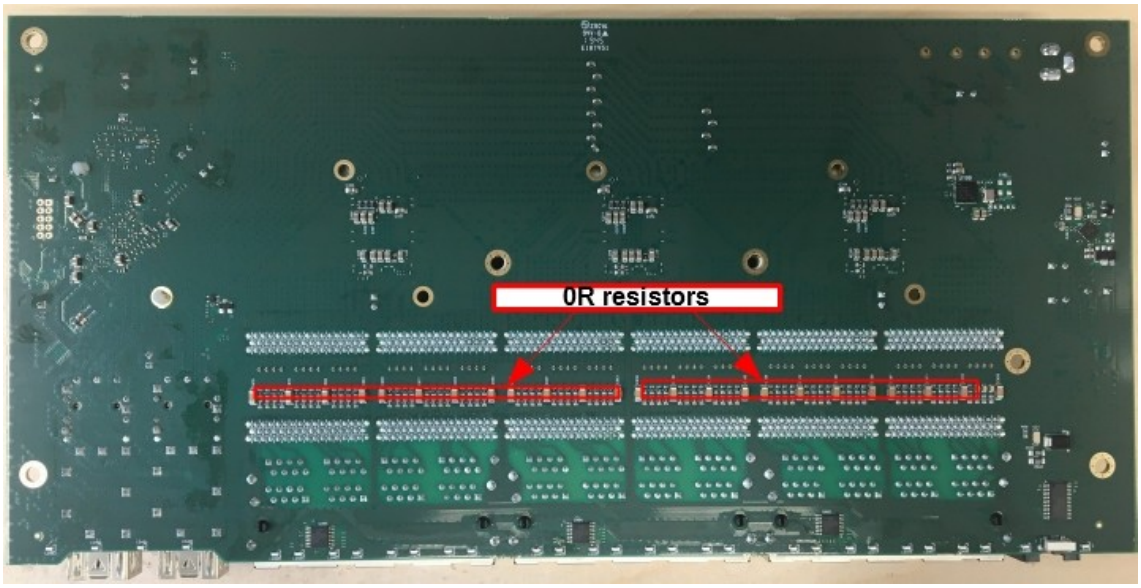
Check each 0R resistor value marked in picture 252. Resistor value should be 0 Ohms (short circuit). If the measured value significantly exceeds 0 Ohms, then the board is considered as damaged.



Picture 250



Picture 251



Picture 252

CRS326-24G-2S+RM



Picture 253

Disassembling information

Disassembly method of the board is the same as the CRS125-24G-1S-2HnD board. Disassembly method is described on page 160.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for CSS326-24G-2S+RM board, see on page 135.

CRS326-24S+2Q+RM



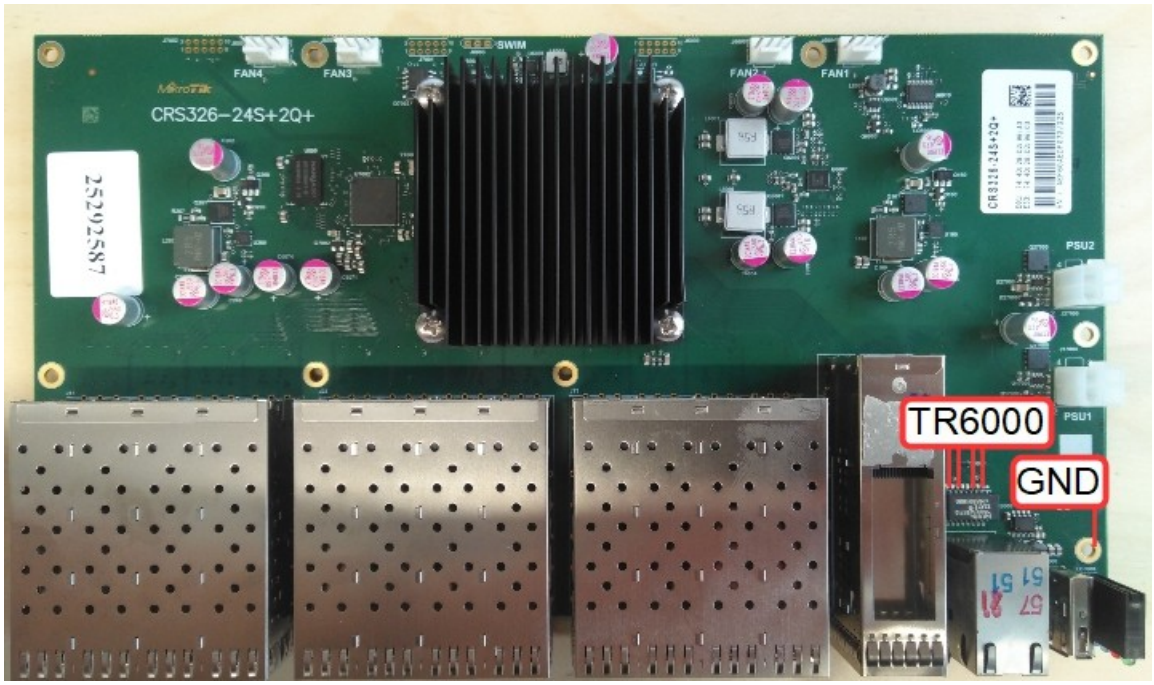
Picture 254

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformers pins and Ground

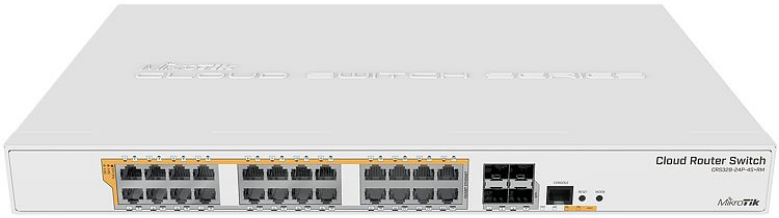
Check voltage drop value between Ethernet transformers TR6000 pins and Ground (every mounting hole is connected to GND). Test points on the transformers pins are highlighted, see picture 255.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 255

CRS328-24P-4S+RM

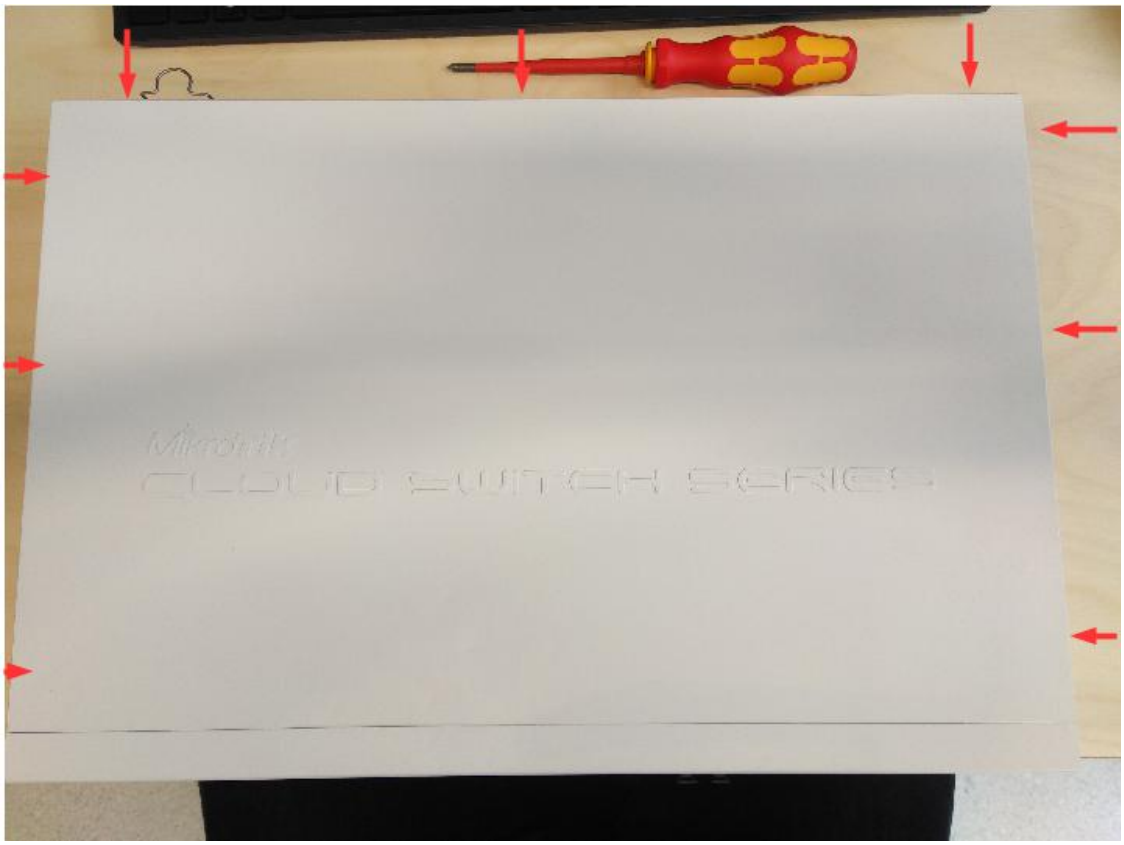


Picture 256

Disassembling information

Step 1:

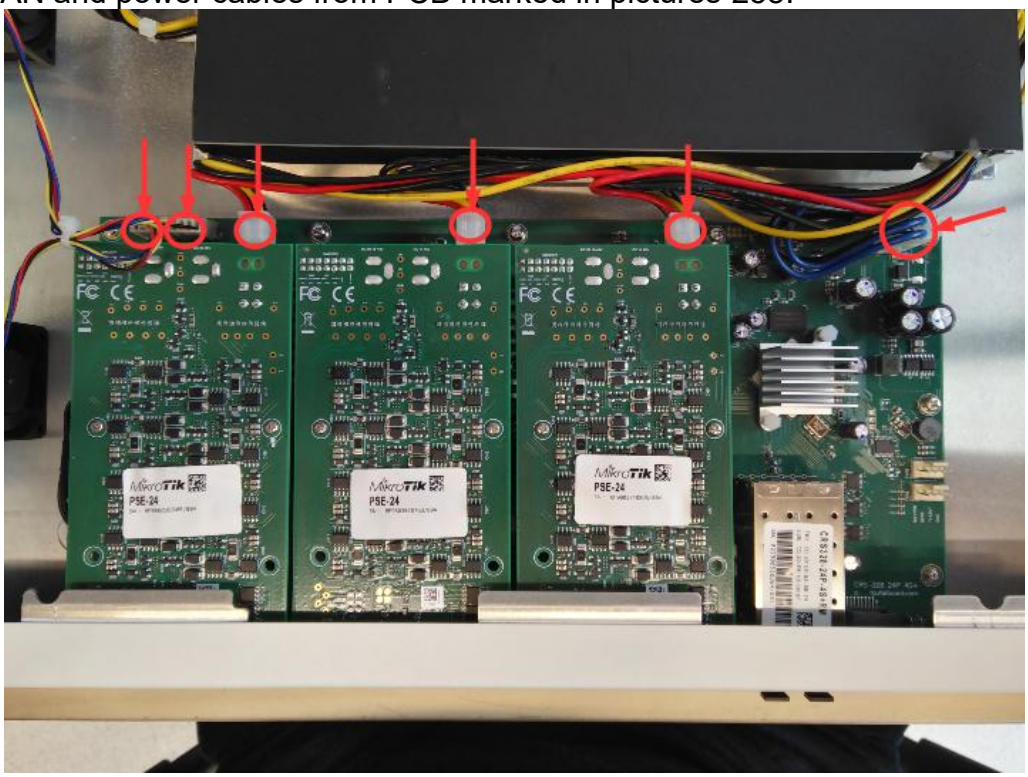
Unscrew 9 screws which are holding the case cover with a Phillips screwdriver and remove cover. Location of the screws is shown in picture 257.



Picture 257

Step 2:

Unplug FAN and power cables from PCB marked in pictures 258.



Picture 258

Step 3:

Unscrew 9 screws which are holding the PCB with a PH1 screwdriver and take out the PCB. Location of the screws is shown in picture 259.



Picture 259

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1. Location of diodes on the board you can see in the pictures 260. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

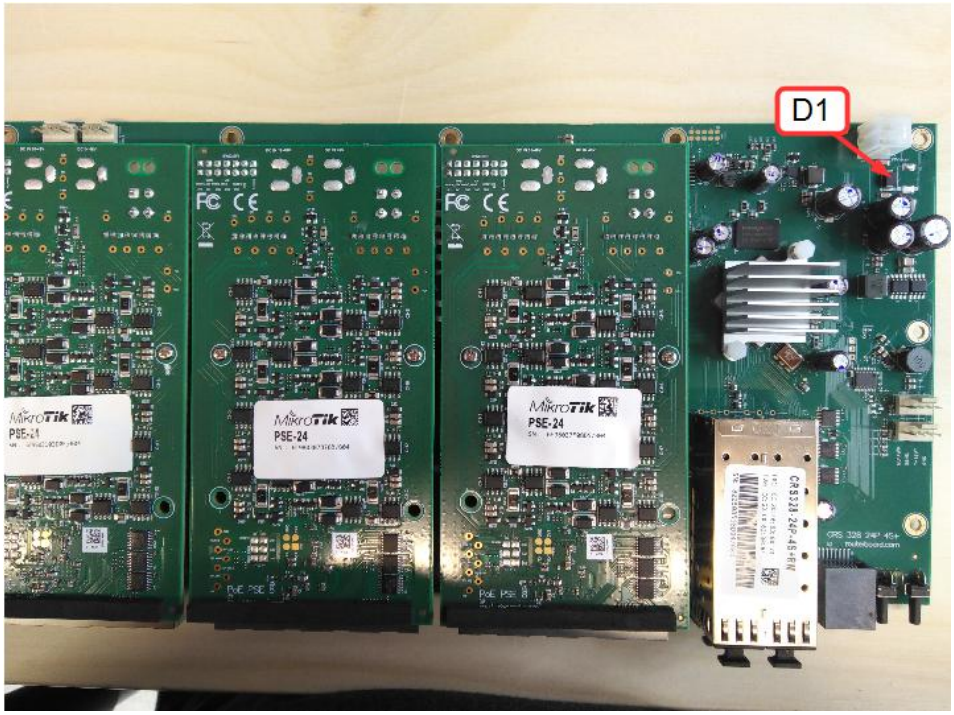
Check voltage drop value between Ethernet transformers TR600-TR605 pins and Ground (every mounting hole is connected to GND). Test points on the transformers pins are highlighted, see picture 261. Close up of test pins are visible in picture 262. Note that the view is from downside of PCB.

Voltage drop value should be in the range from 0,28V to 0,31V and from 0,58V to 0,61V. Voltage drop measurement method is described on page 25.

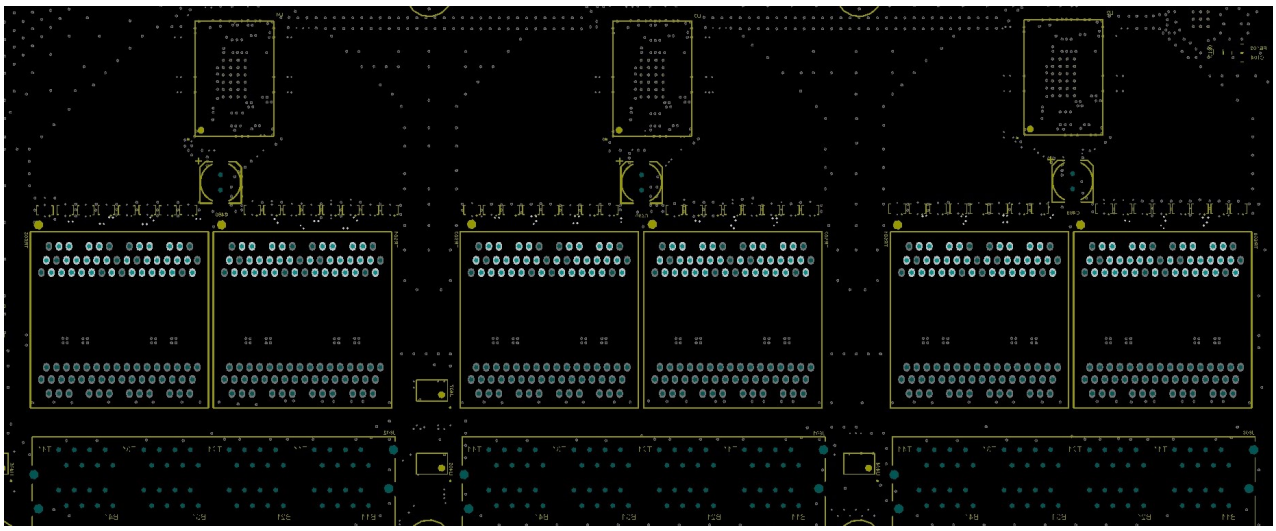
Checking 75 Ohm termination resistors resistance

Check resistors resistance value. It should be 75 Ohm +/-1%.

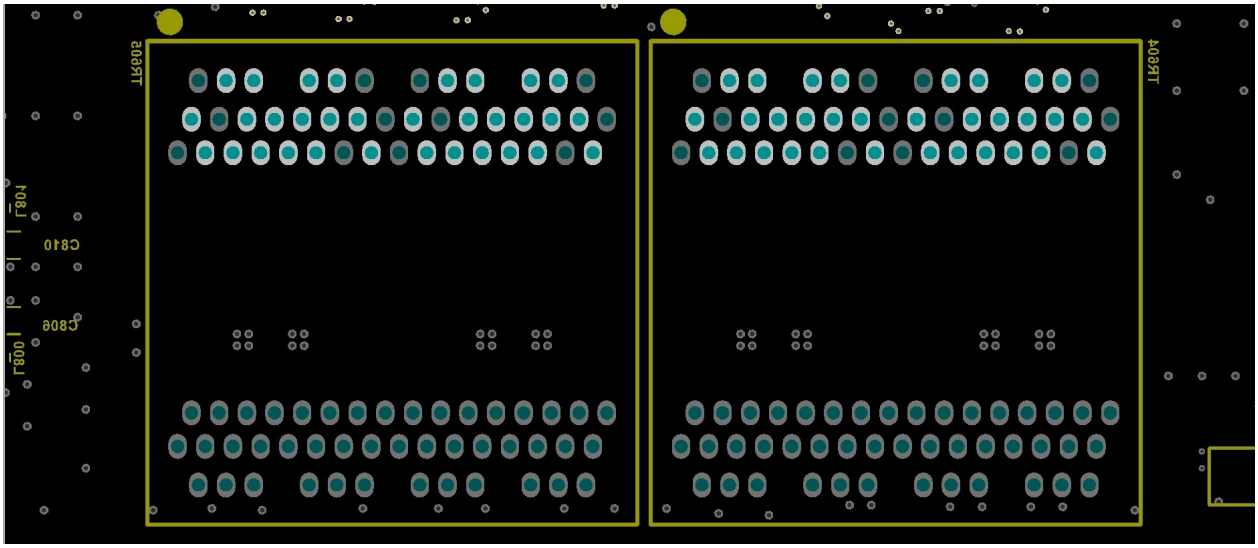
Location of resistors on the board you can see in the picture 263.



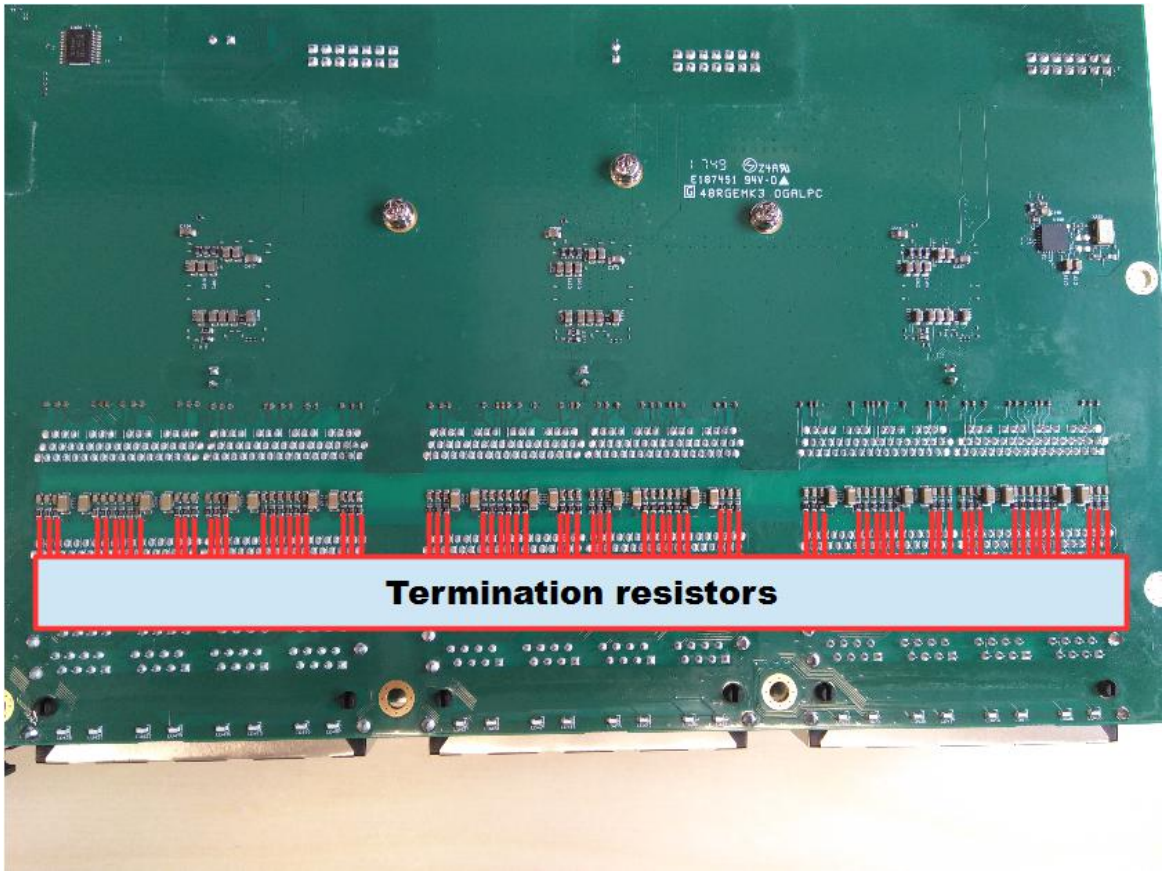
Picture 260



Picture 261



Picture 262



Picture 263

CRS328-4C-20S-4S+RM



Picture 264

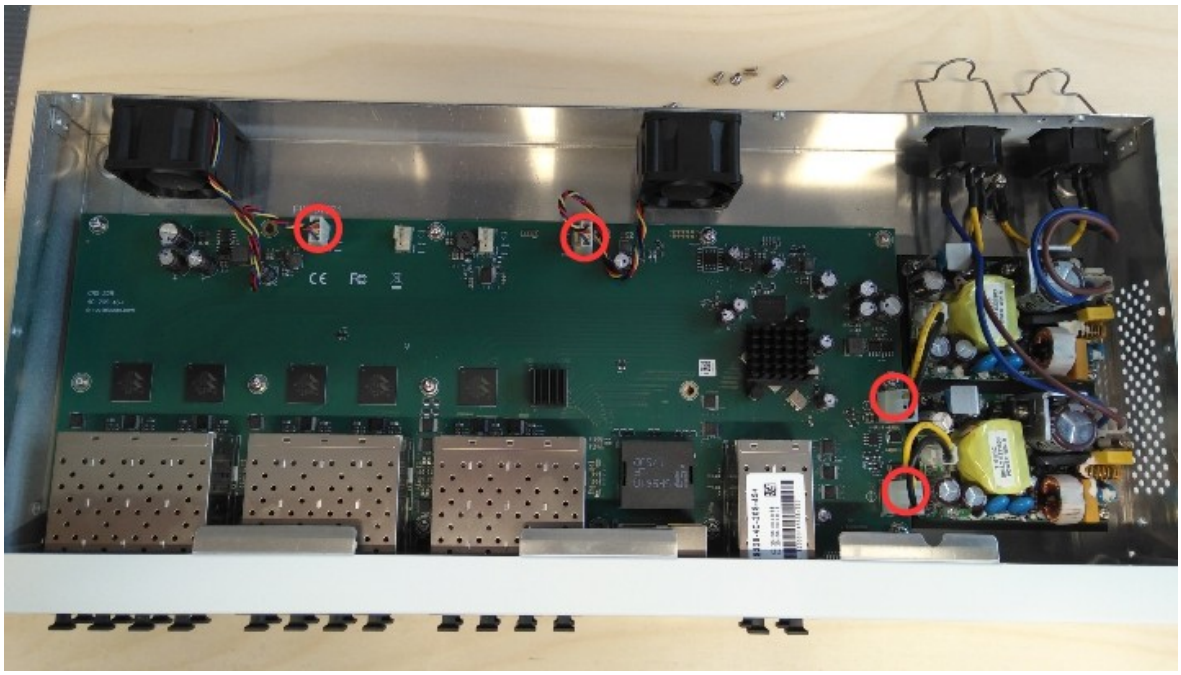
Disassembling information

Step 1:

Unscrew 5 screws which are holding the case cover with a Phillips screwdriver and remove cover.

Step 2:

Unplug FAN and power cables from PCB marked in pictures 265.



Picture 265

Step 3:

Unscrew 12 screws which are holding the PCB with a PH1 screwdriver and take out the PCB.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformers pins and Ground

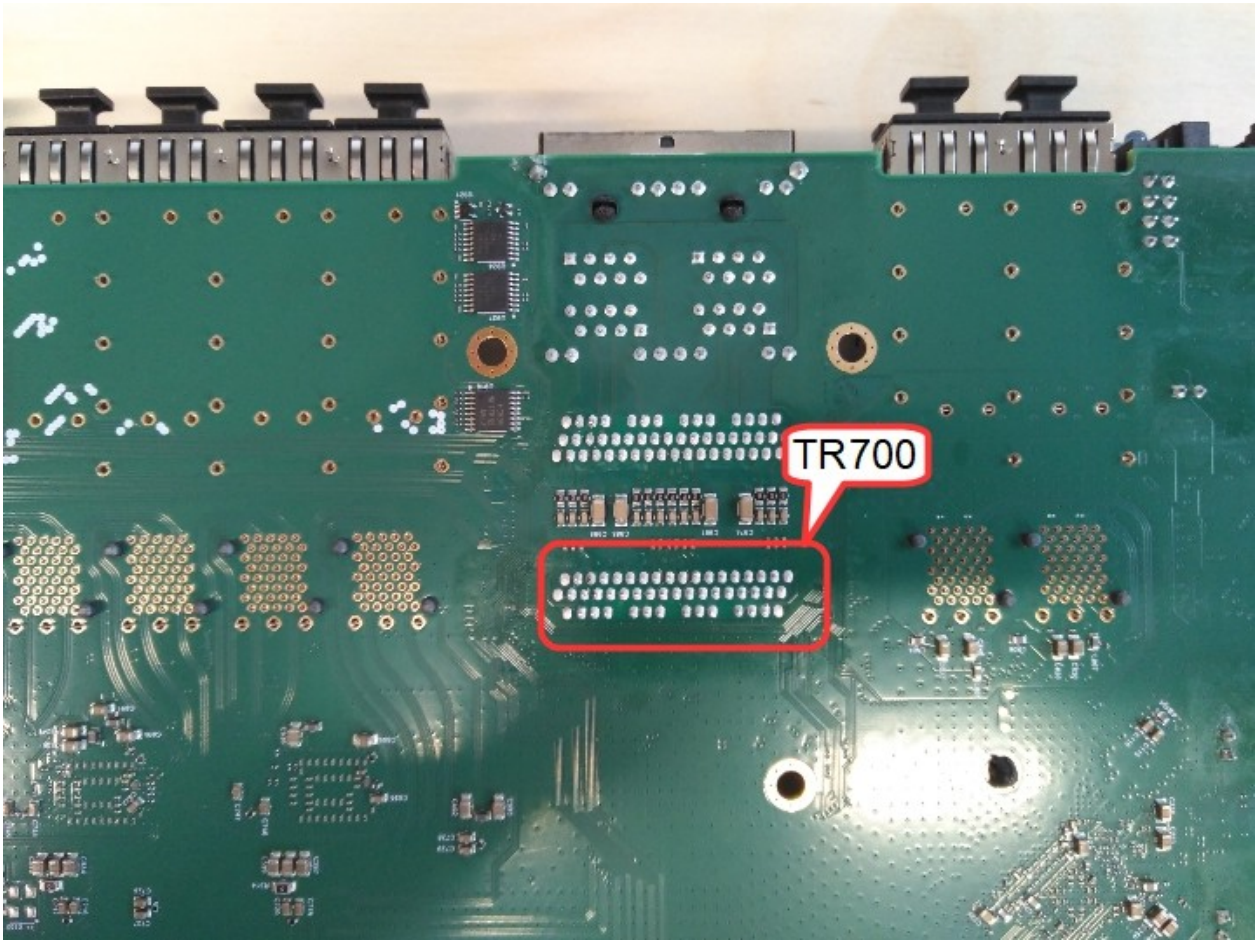
Check voltage drop value between Ethernet transformers TR700 pins and ground (every mounting hole is connected to GND). Test points on the transformers pins are highlighted, see picture 266. Close up of test pins are visible in picture 267. Note that the view is from downside of PCB.

Voltage drop value should be in the range from 0,26V to 0,30V or from 0,56V to 0,60V. Voltage drop measurement method is described on page 25.

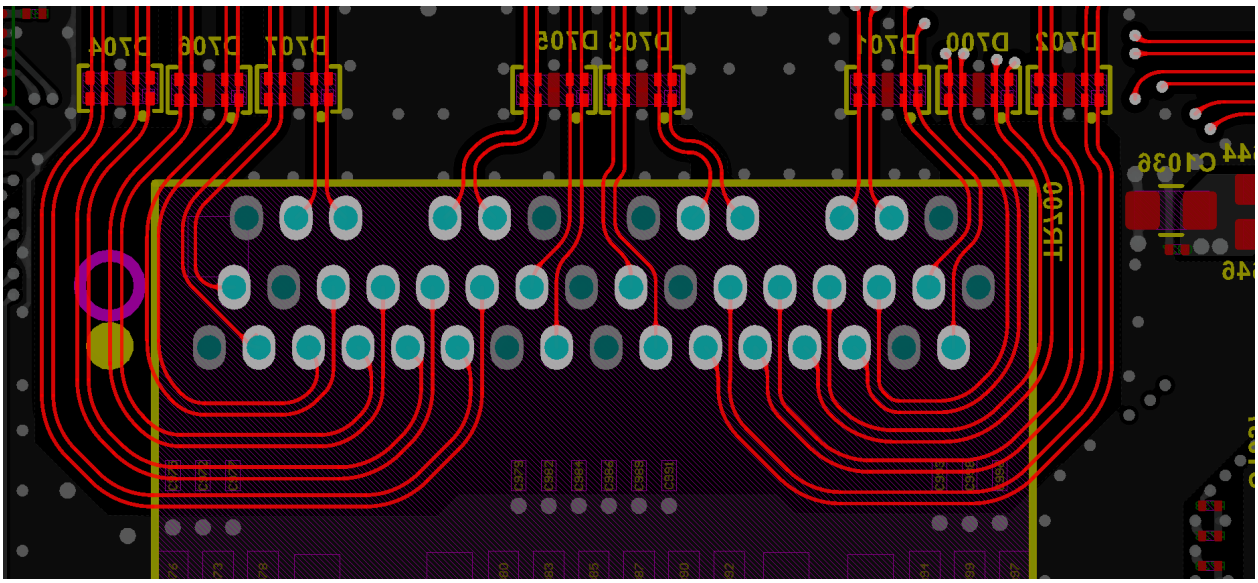
Checking 75 Ohm termination resistors resistance

Check resistors resistance value. It should be 75 Ohm +/-1%.

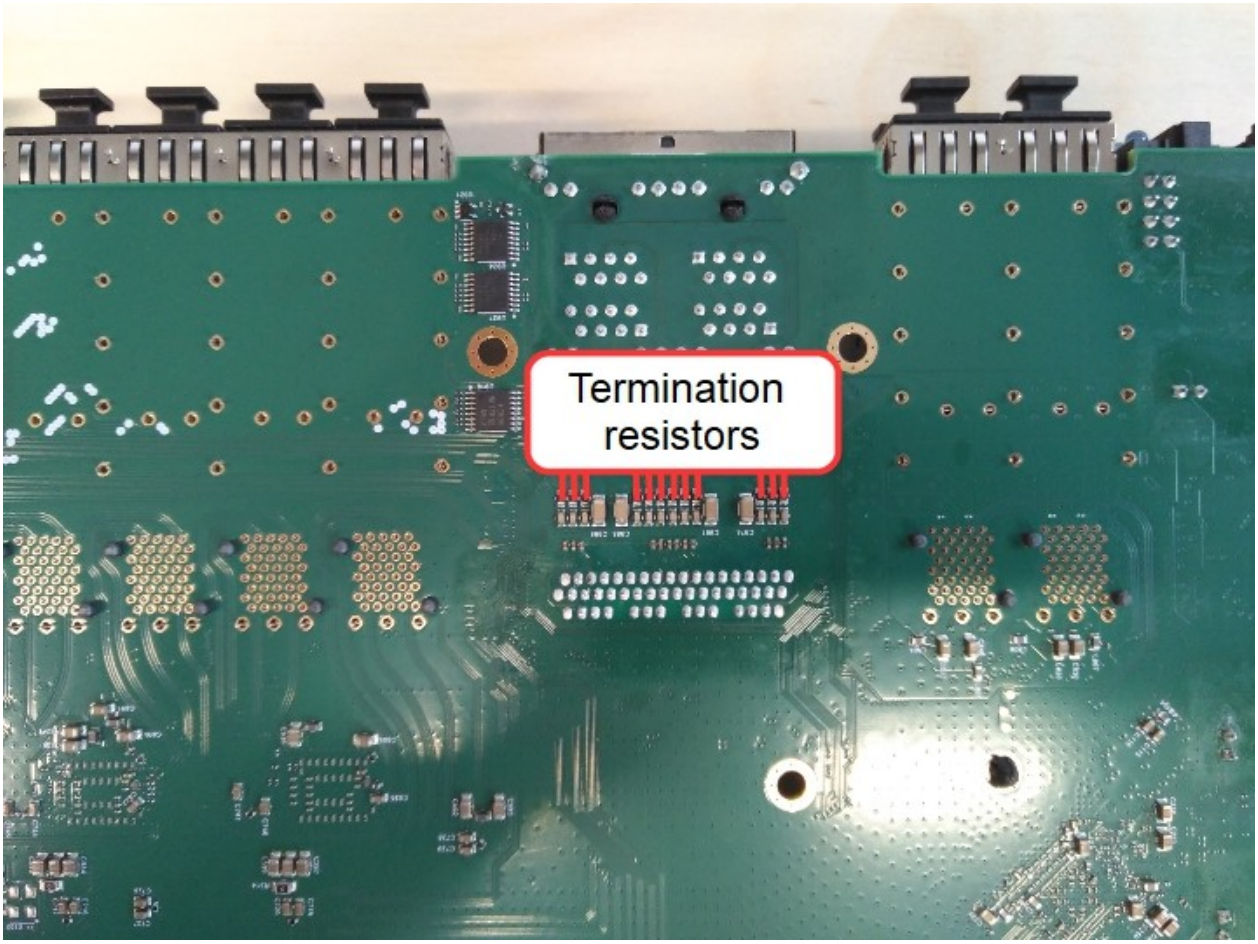
Location of resistors on the board you can see in the picture 268.



Picture 266



Picture 267



Picture 268

CRS354-48P-4S+2Q+RM



Picture 269

Disassembling information

Step 1:

Using Phillips type (PH2) screwdriver unscrew 2 screws on top, 3 screws on the right side and 3 screws on the left side.



Picture 270



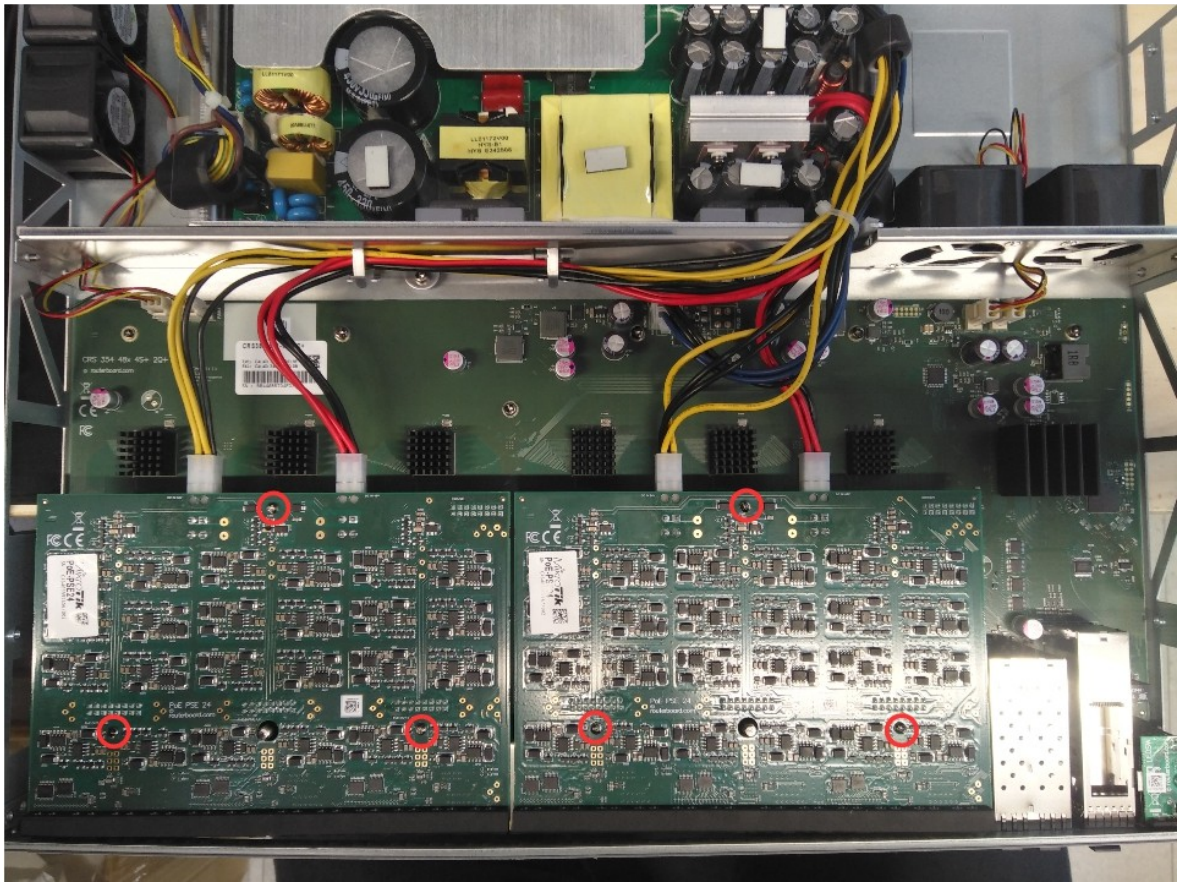
Picture 271



Picture 272

Step 2:

Unplug Power cables connected to PoE PCB. Using Phillips screwdriver remove all screws from the PoE PSE-24 card. Location of screws are marked with red circles in Picture 273.



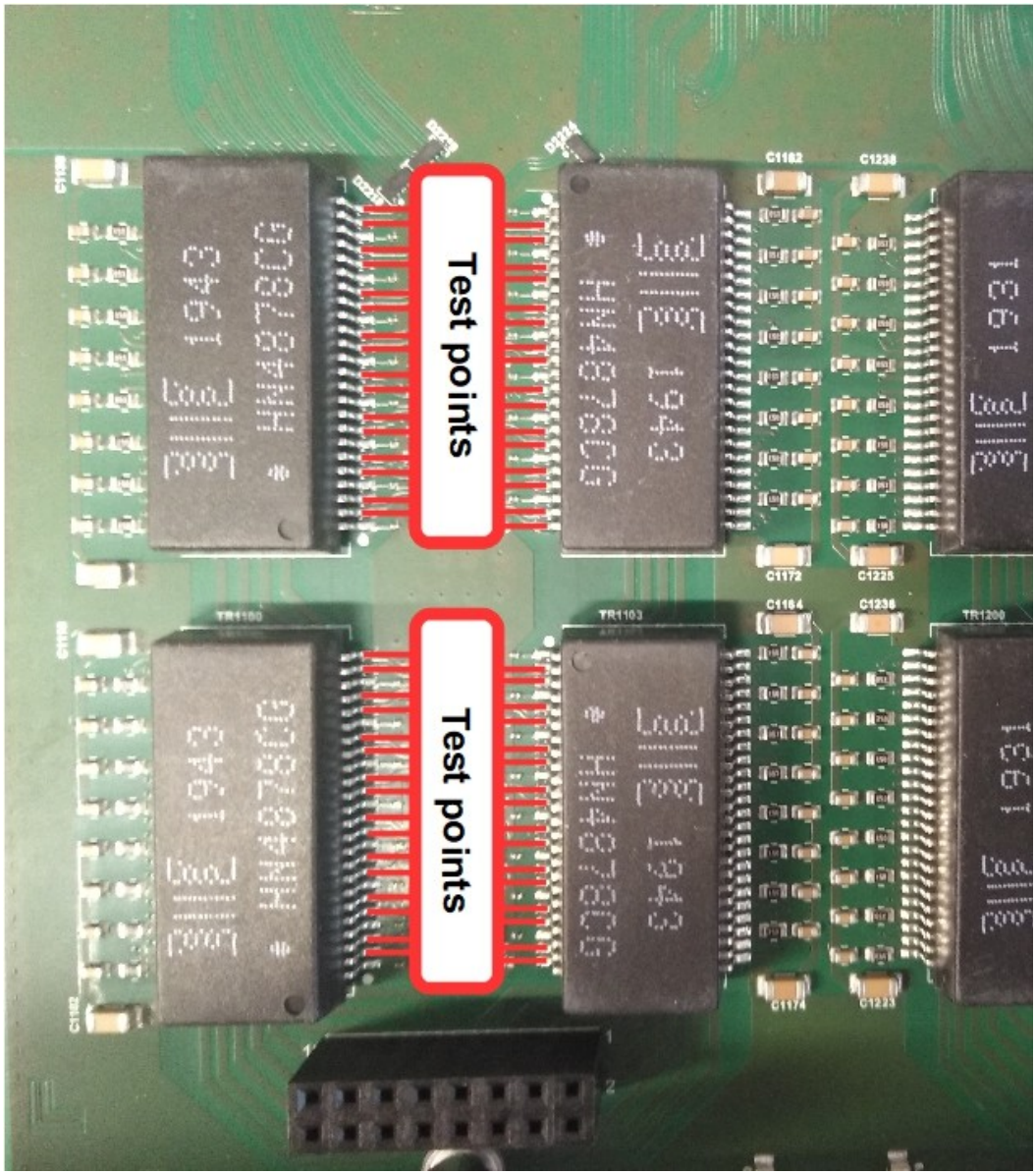
Picture 273

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between all Ethernet transformers pins and ground (every mounting hole is connected to GND). Test points on the transformers pins are in picture 274.

Voltage drop value should be in the range from 0,35V to 0,39V or from 0,50V to 0,54V. Voltage drop measurement method is described on page 25.



Picture 274

CRS354-48G-4S+2Q+RM



Picture 275

Disassembling information

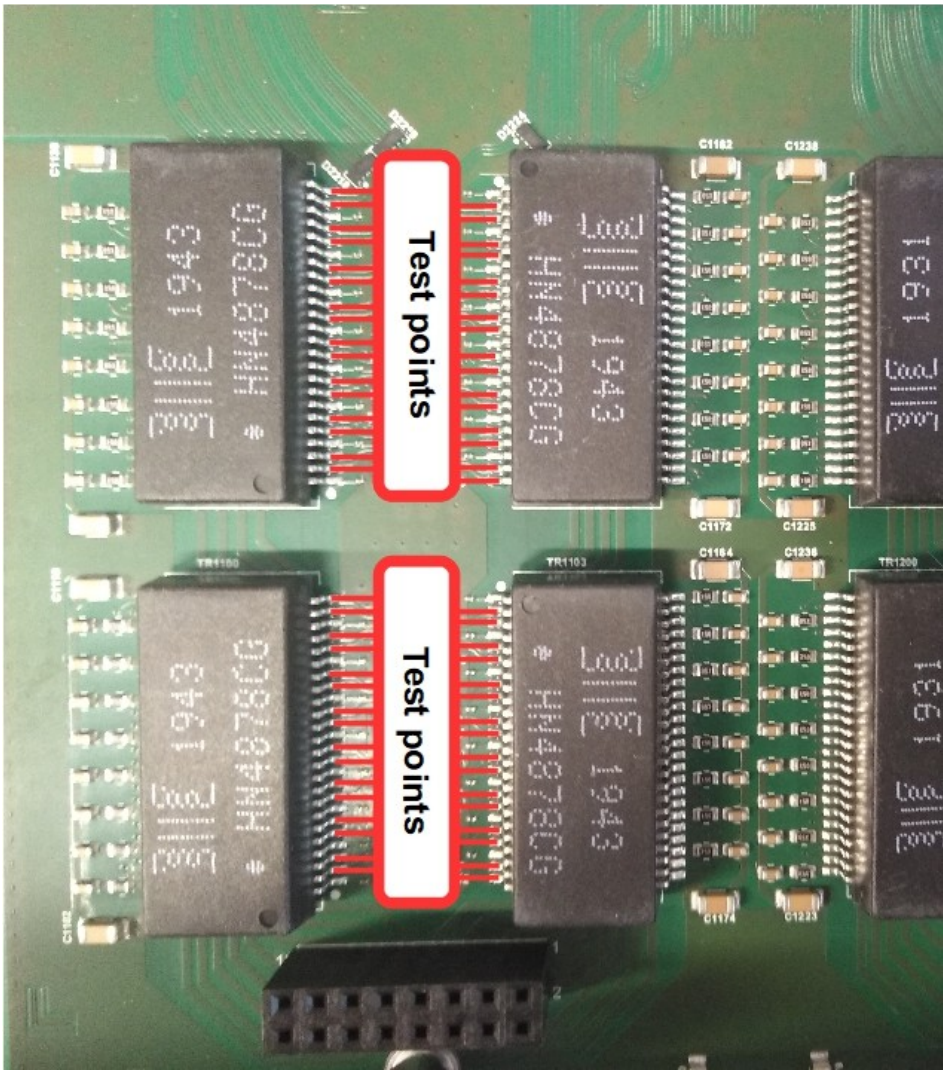
Disassembling manual is the same as for CRS354-48P-4S+2Q+RM except the PoE PSE-24 PCB is missing.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between all Ethernet transformers pins and ground (every mounting hole is connected to GND). Test points on the transformers pins are in picture 276.

Voltage drop value should be in the range from 0,35V to 0,39V or from 0,50V to 0,54V. Voltage drop measurement method is described on page 25.



Picture 276

Cloud Smart Switch 300 series RouterBoards

CSS326-24G-2S+RM



Picture 277

Disassembling information

Disassembly method of the board is the same as the CRS125-24G-1S-2HnD board. Disassembly method is described on page 160.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1, D9. Location of diodes on the board you can see in the pictures 278,279. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR600-TR605 pins and Ground. Test points on the transformers pins are marked with red dots, see picture 279.

Voltage drop value should be in the range from 0,3V to 0,6V. Voltage drop measurement method is described on page 25.

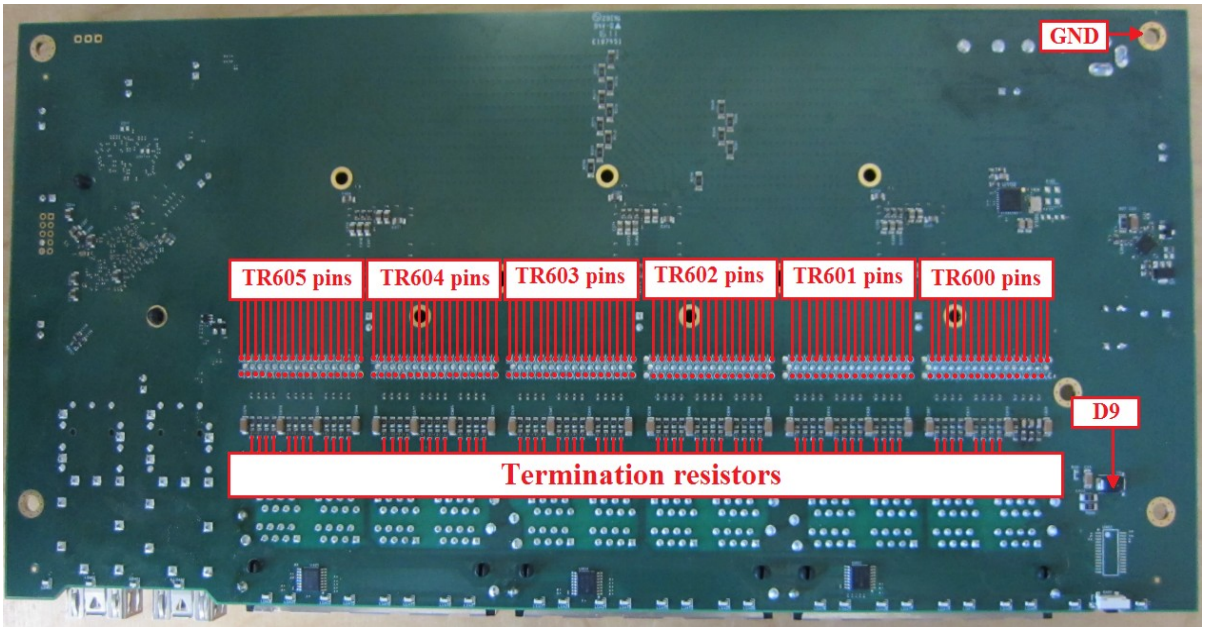
Checking 75 Ohm termination resistors resistance

Check resistors resistance value. It should be 75 Ohm +/-1%.

Location of resistors on the board you can see in the picture 279.



Picture 278



Picture 279

Cloud Smart Switch 600 series RouterBoards

netPower Lite 7R (CSS610-1Gi-7R-2S+)



Picture 280

Disassembling information

Disassembly method of the board is similar to the *netPower 15FR (CRS318-1Fi-15Fr-2S)* board. Disassembly method is described on page 180.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes marked in picture 281. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

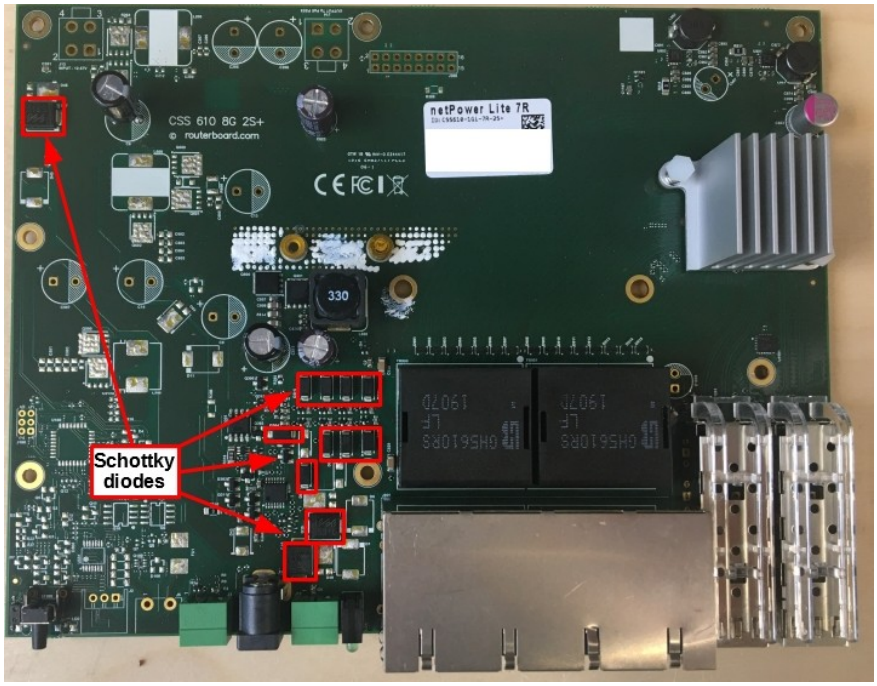
Check voltage drop value between GND and transformer pins marked in picture 282. Use golden coloured mounting holes as GND reference point. Voltage drop for each pin should not be below 0.3V.

Checking 75 Ohm termination resistors resistance

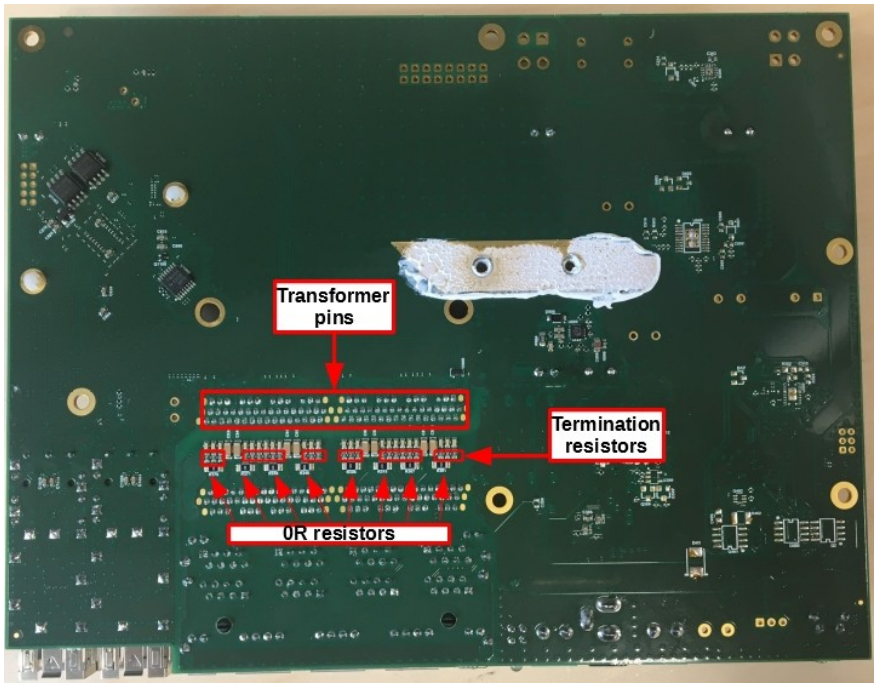
Check each termination resistor marked in picture 282. Resistors value should be approximately 75 Ohms.

Checking 0R resistors

Check each 0R resistor value marked in picture 282. Resistor value should be 0 Ohms (short circuit). If the measured value significantly exceeds 0 Ohms, then the board is considered as damaged.

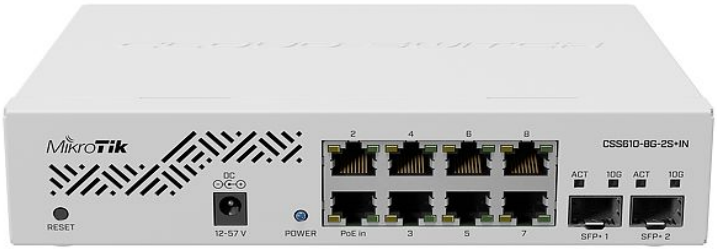


Picture 281



Picture 282

CSS610-8G-2S+IN

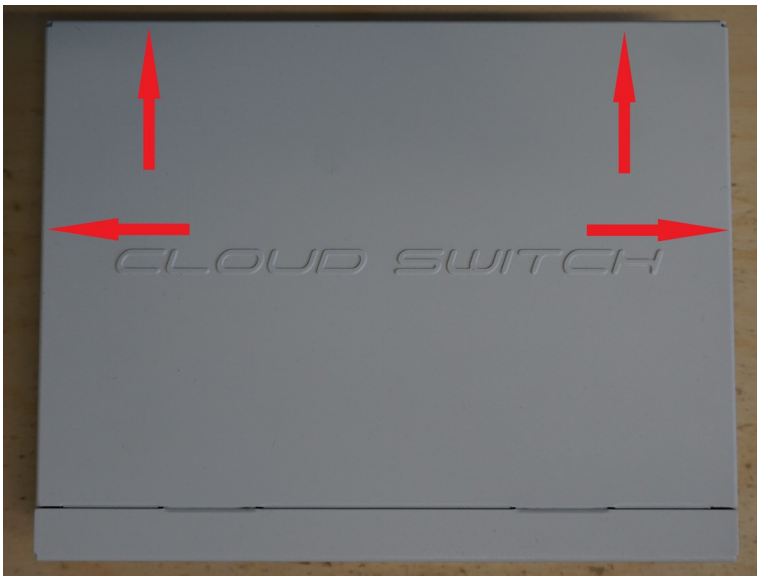


Picture 283

Disassembling information

Step 1:

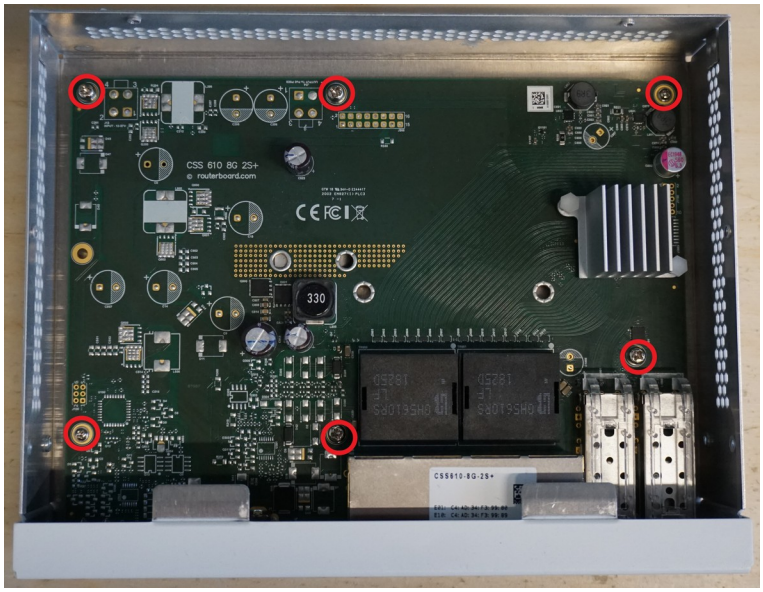
Unscrew the screws marked in picture 284 and remove the cover.



Picture 284

Step 2:

Unscrew the screws marked in picture 285 and take the PCB of the case.



Picture 285

Checking procedure for over-voltage

Checking Schottky diodes

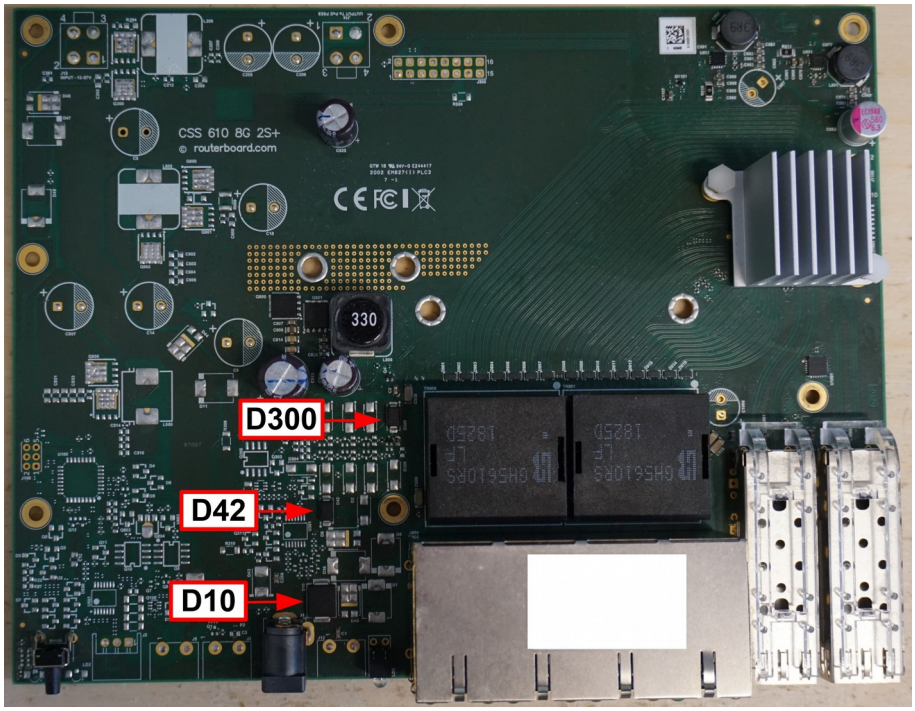
Check Schottky diodes D10, D42, D300, marked in picture 286. Quality measurement method of Schottky diodes is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

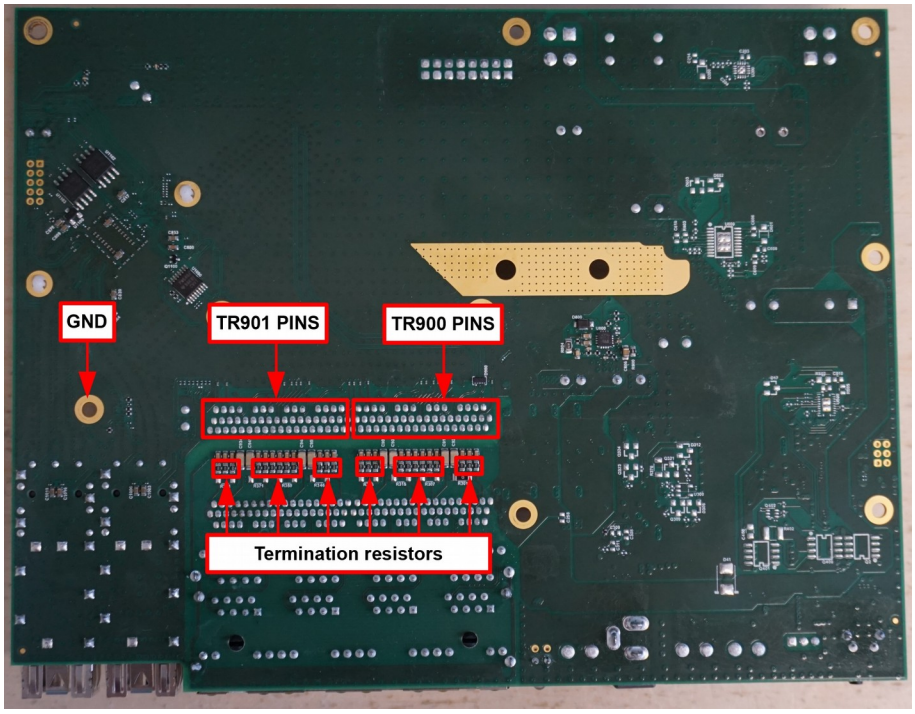
Check voltage drop value between GND and each transformer pin (TR900, TR901) marked in picture 287. Use golden coloured mounting holes as GND reference point. Voltage drop for each pin should not be below 0.3V.

Checking 75 Ohm termination resistors resistance

Check each termination resistor marked in picture 287. Value of resistors should be approximately 75 Ohms.



Picture 286



Picture 287

Disc series RouterBoards

Disc Lite 5 (RBDisc-05nD)

Disc Lite 5 ac (RBDiscG-5acD)

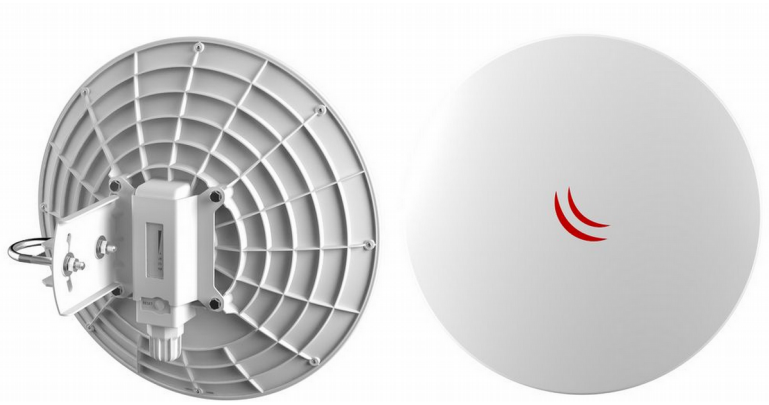


Picture 288

Without checking board for over-voltage test please use the RMA system at your distributor account and start a warranty process precise “Problem” and “Problem description”.

DynaDish series RouterBoards

DynaDish 5 (DynaDish G-5HacD)

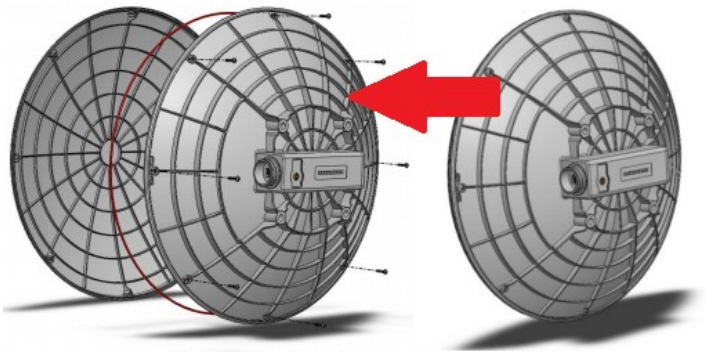


Picture 289

Disassembling information

Step 1:

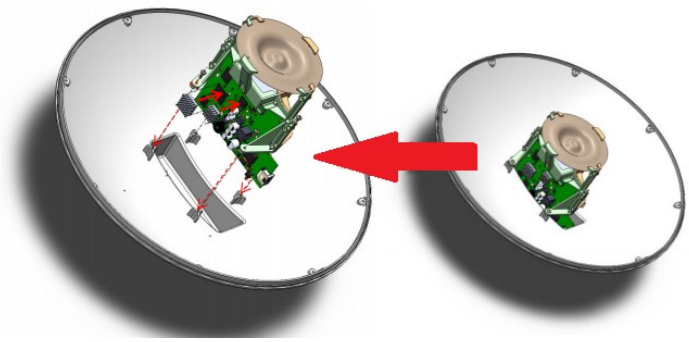
Unscrew 8 screws by torque TX10 screwdriver and remove the antenna cover as shown in the picture 290.



Picture 290

Step 2:

Unscrew 4 screws by TX10 screwdriver and remove the board from the antenna construction as shown in the picture 291.



Picture 291

Checking procedure for over-voltage

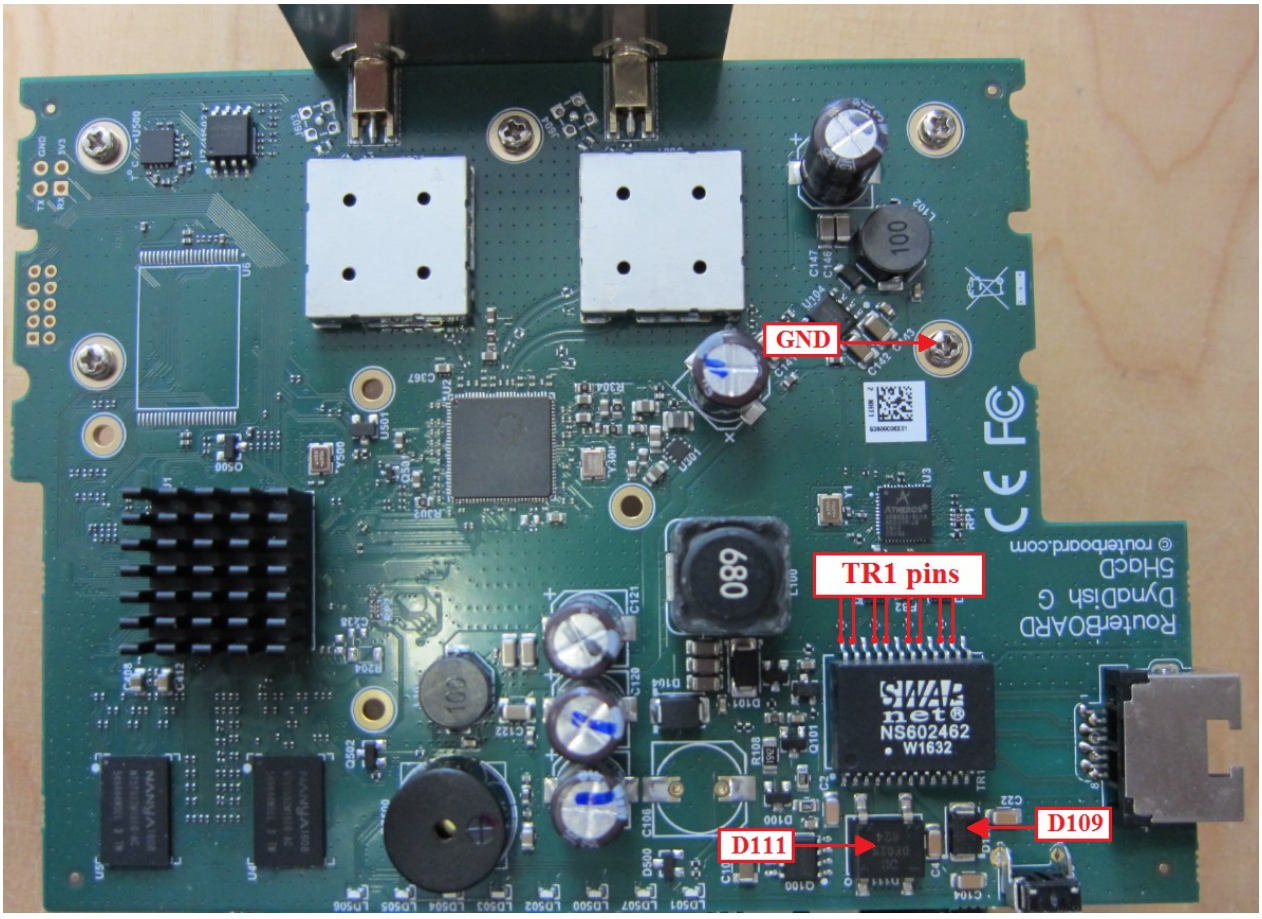
Checking Schottky diode and diode bridge

Check Schottky diode D109 and diode bridge D111. Location of diodes on the board you can see in the picture 292. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 292.

Voltage drop value should be in the range from 0,42V to 0,46V. Voltage drop measurement method is described on page 25.



Picture 292

DynaDish 6 (DynaDish G-6HnD)

Disassembling information

Disassembly method of the board is the same as the **DynaDish5**.

Checking procedure for over-voltage

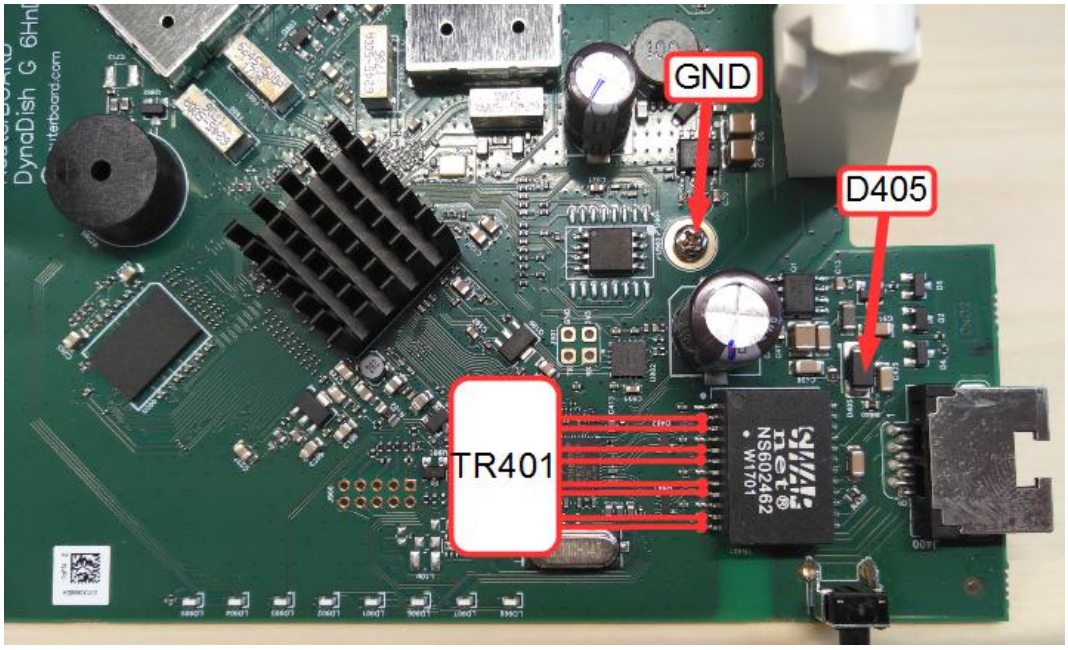
Checking Schottky diode and diode bridge

Check Schottky diode D405. Location of diodes on the board you can see in the picture 293. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 293.

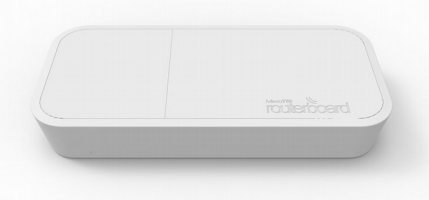
Voltage drop value should be in the range from 0,43V to 0,47V. Voltage drop measurement method is described on page 25.



Picture 293

FTC series RouterBoards

FTC11

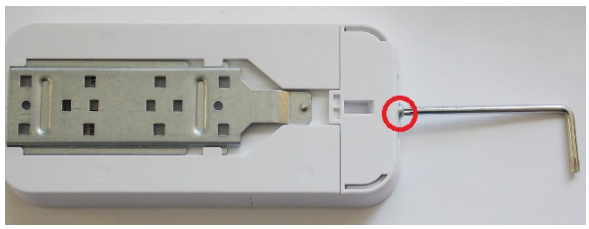


Picture 294

Disassembling information

Step 1:

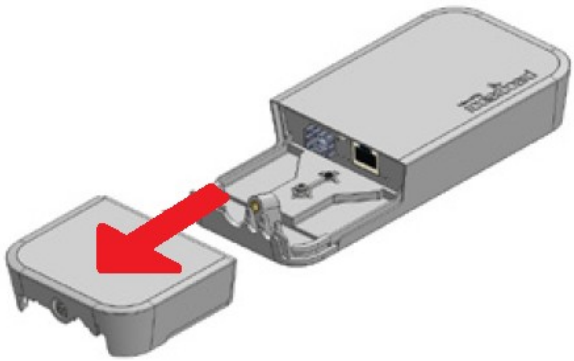
Unscrew “captive screw” by screwdriver. Location of the screw you can see in the picture 295.



Picture 295

Step 2:

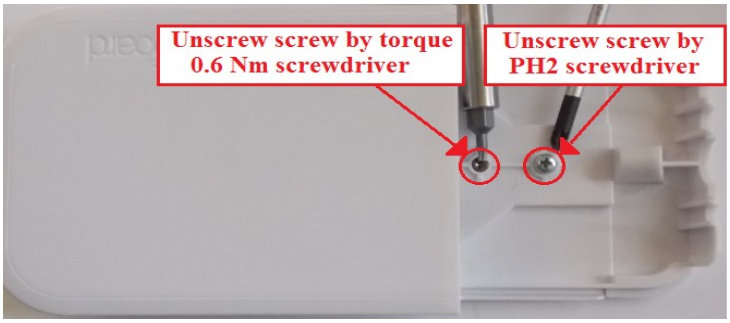
Remove cover from the RBFTC-Base case, see picture 296.



Picture 296

Step 3:

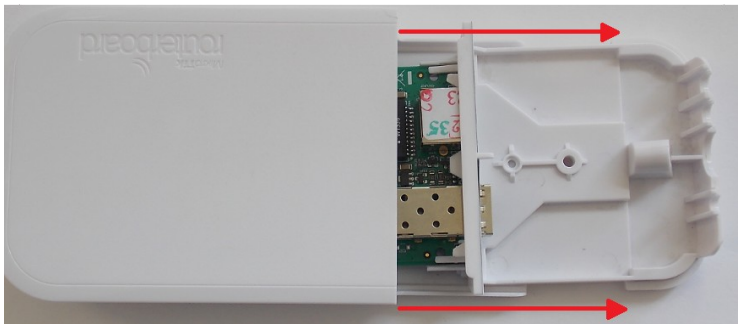
Unscrew 2 screws which fix RBFTC-Base with RBFTC-BHLD cover. Location of the screw you can see in the picture 297.



Picture 297

Step 4:

Take off the cover with board, see picture 298.



Picture 298

Checking procedure for over-voltage

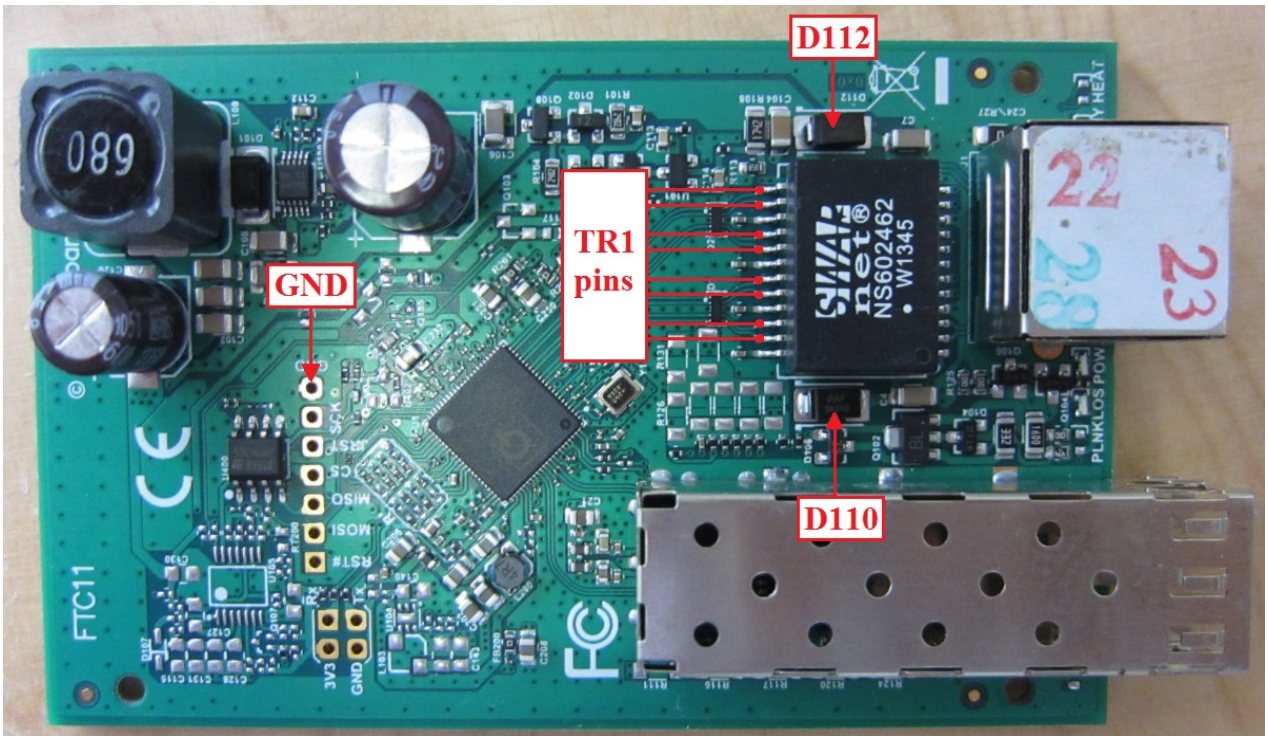
Checking Schottky diodes

Check Schottky diodes D110, D112. Location of diodes on the board you can see in the picture 299. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 299.

Voltage drop value should be in the range from 0,40V to 0,46V. Voltage drop measurement method is described on page 25.


D112
TR1
pins
GND
D110
089
NS602462
W1345
FTC11
MISO
MOSI
RST#
3V3
GND

Picture 299

Groove series RouterBoards

Groove 52 (Groove 52HPn)

Groove A 52 (Groove A-52HPn)



Picture 300

Disassembling information

Step 1:

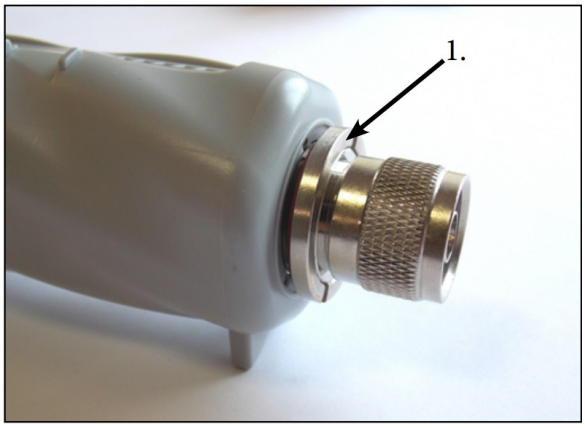
Unscrew Groove plastic case cover from Groove plastic case base. Junction is marked with red circle, see picture 301.



Picture 301

Step 2:

Unscrew the nut ring from N plug connector, see picture 302.



Picture 302

Step 3:

Take out the board from the Groove plastic case base, see picture 303.



Picture 303

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 304.

Voltage drop value should be in the range from 0,48V to 0,52V. Voltage drop measurement method is described on page 25.



Picture 304

Checking Schottky diodes

Check Schottky diode D301. Diode location is shown in picture 305. Schottky diode measurement is described on page 23. Typical forward voltage of D301 is 0,315V.



Picture 305

Groove 52 ac (Groove G-52HPacn)

Groove A 52 ac (Groove GA-52HPacn)



Picture 306

Disassembling information

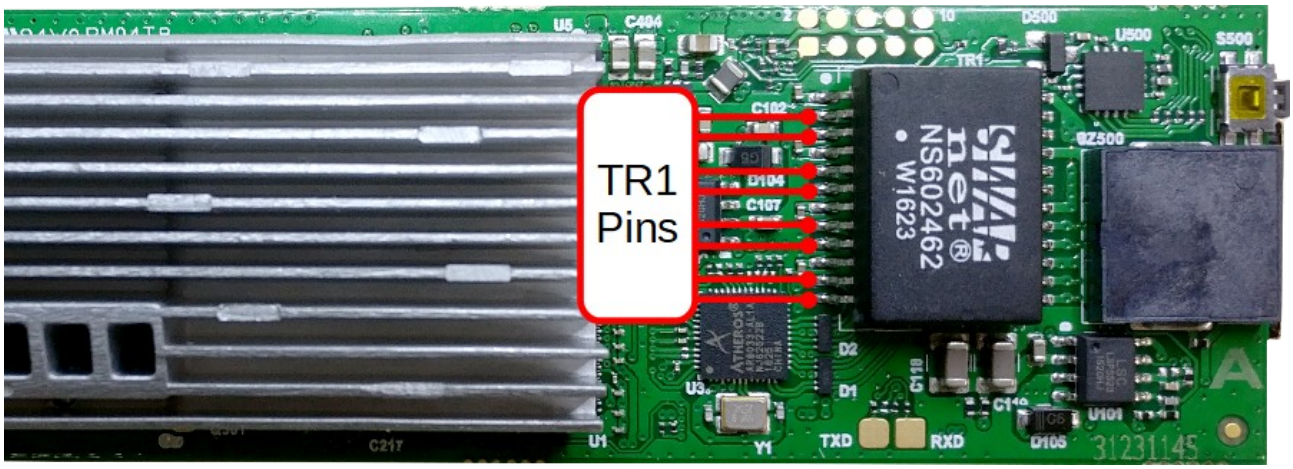
Disassembly method of the board is the same as the Groove 52. Disassembly method is described on page 223.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 307.

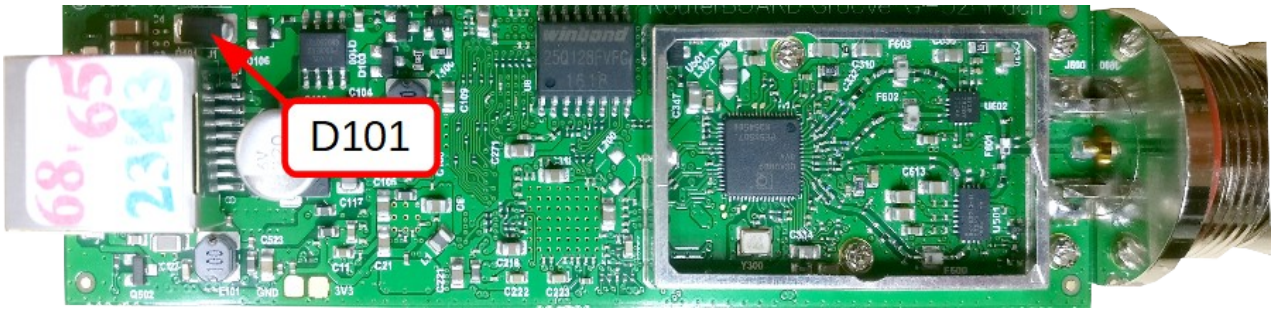
Voltage drop value should be in the range from 0,40V to 0,60V. Voltage drop measurement method is described on page 25.



Picture 307

Checking Schottky diodes

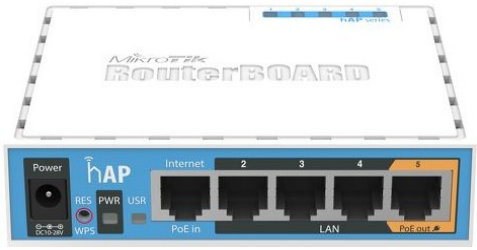
Check Schottky diode D11. Diode location is shown in picture 308. Schottky diode measurement is described on page 23. Typical forward voltage of D101 is 0,2..0,3 V



Picture 308

hAP series RouterBoards

hAP (951Ui-2nD)



Picture 309

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

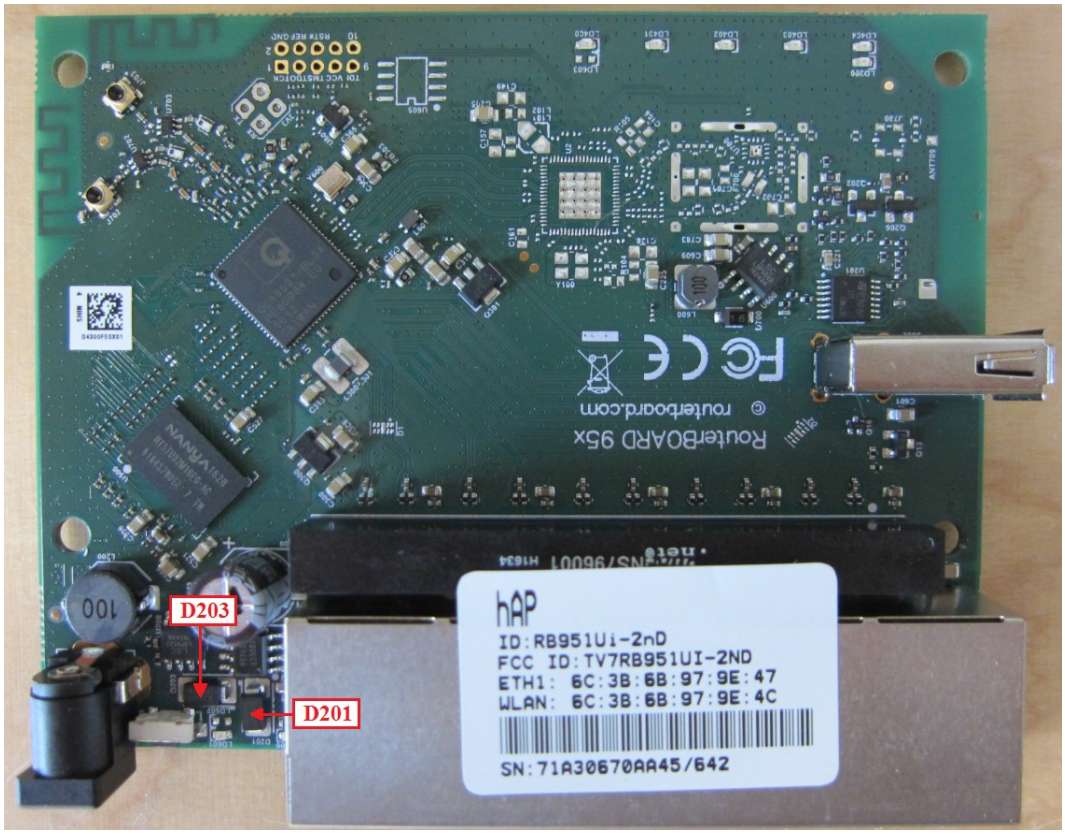
Checking Schottky diodes

Check Schottky diodes D201, D203, D205. Location of diodes on the board you can see in the pictures 310, 311. Schottky diodes quality measurement method is described on page on page 23.

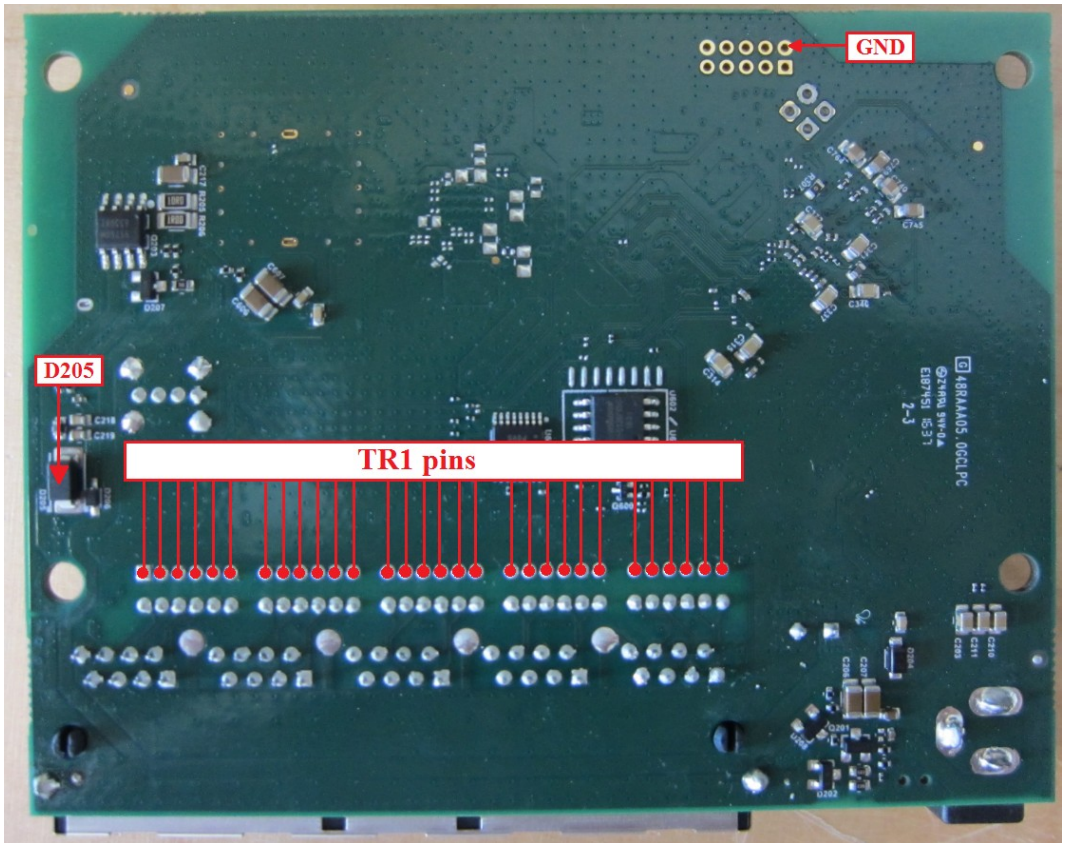
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 311.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 310



Picture 311

hAP ac (962UiGS-5HacT2HnT)



Picture 312

Disassembling information

Step 1:

Take off case back sticker as shown in the picture 313.



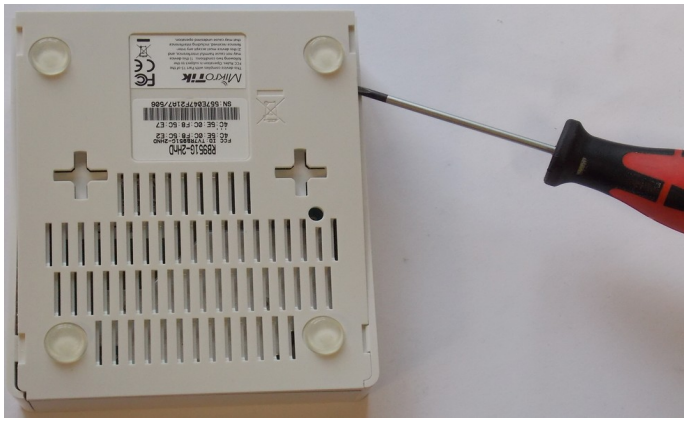
Picture 313

Step 2:

Take off the cover as shown in pictures 314-316.



Picture 314



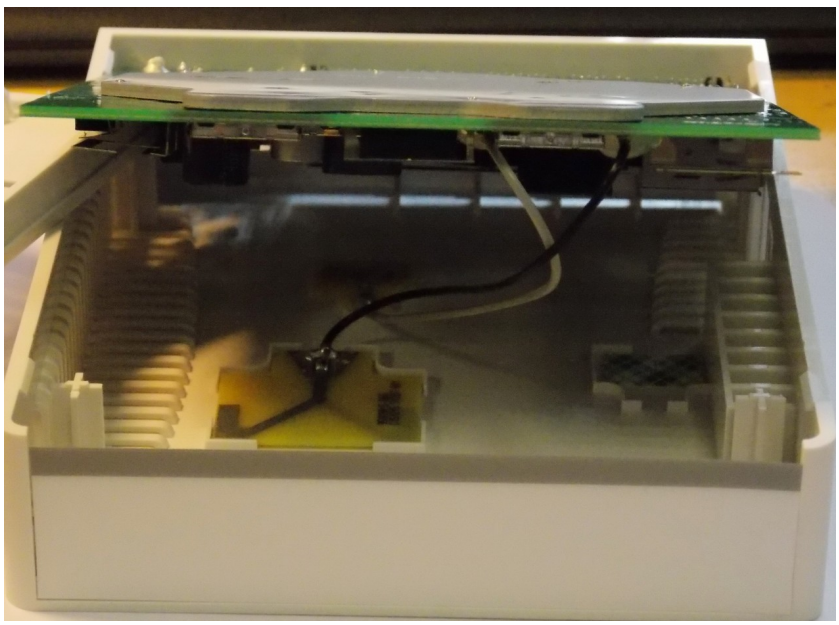
Picture 315



Picture 316

Step 3:

Take out the board from case as shown in the picture 317, you should be very carefully with the attached antenna wires.



Picture 317

Checking procedure for over-voltage

Checking Schottky diodes and diode bridge

Check Schottky diodes D2, D4 and diode bridge D5. Location of diodes on the board you can see in the picture 318. Schottky diode quality measurement method is described on page 23.

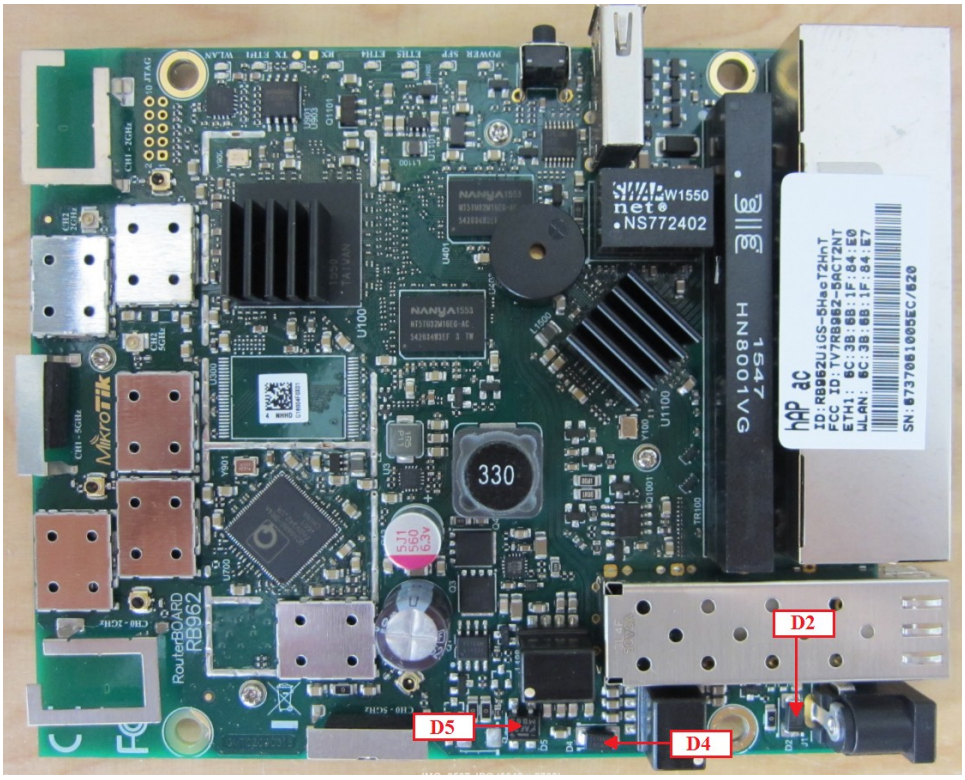
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop between Ethernet transformer TR100 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 319.

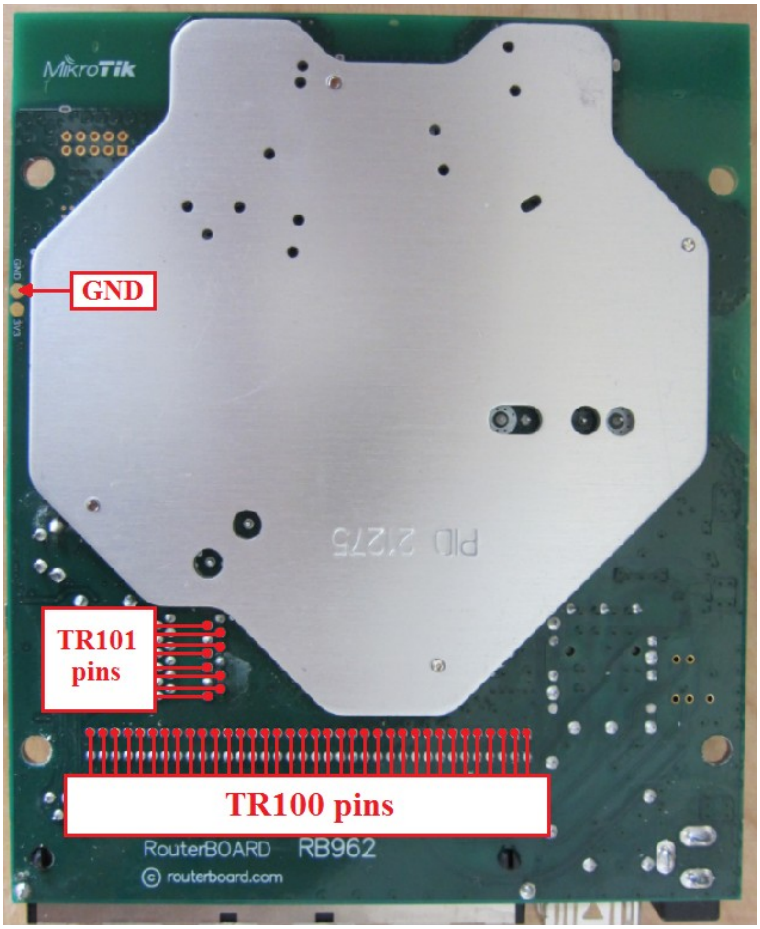
Voltage drop value should be in the range from 0,34V to 0,4V. Voltage drop measurement method is described on page 25.

Check voltage drop between Ethernet transformer TR101 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 319.

Voltage drop value should be in the range from 0,4V to 0,46V. Voltage drop measurement method is described on page 25.



Picture 318


MikroTik
GND
TR101
pins
TR100 pins
RouterBOARD RB962
routerboard.com

Picture 319

hAP ac lite (952Ui-5ac2nD)



Picture 320

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

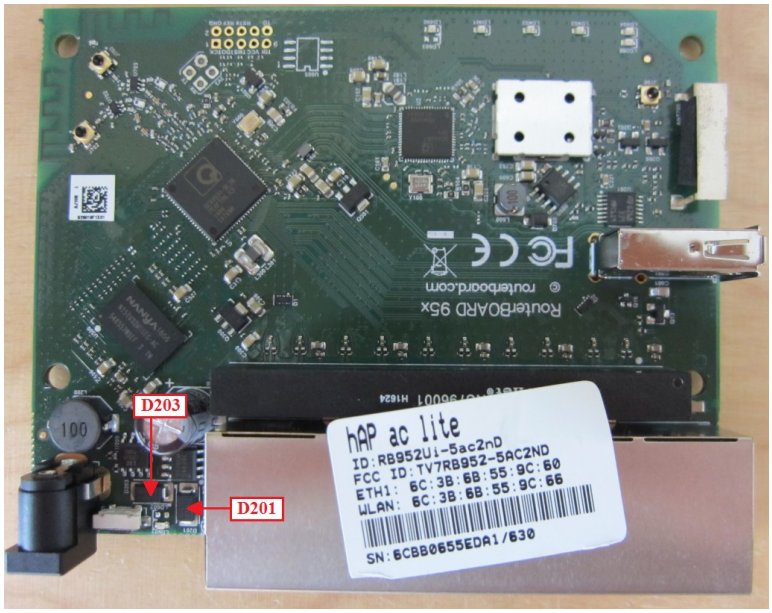
Checking Schottky diodes

Check Schottky diodes D201, D203, D205. Location of diodes on the board you can see in the pictures 321, 322. Schottky diodes quality measurement method is described on page 23.

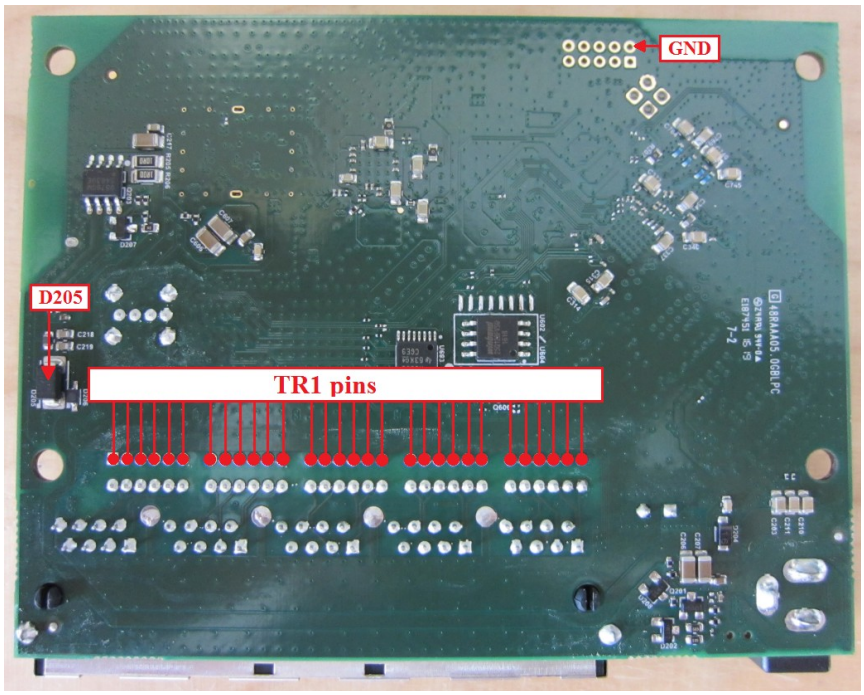
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 322.

Voltage drop value should be in the range from 0,3V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 321



Picture 322

hAP ac lite tower (952Ui-5ac2nD-TC)

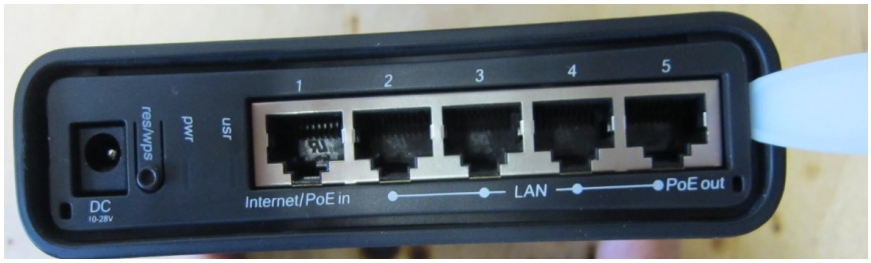


Picture 323

Disassembling information

Step 1:

Gently pull out PCB from the hAP ac lite tower case, see picture 324.



Picture 324

Step 2:

Take out the board from the hAP ac plastic case, see picture 325.



Picture 325

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for hAP ac lite board, see on page 233.

hAP lite (941-2nD-TC)

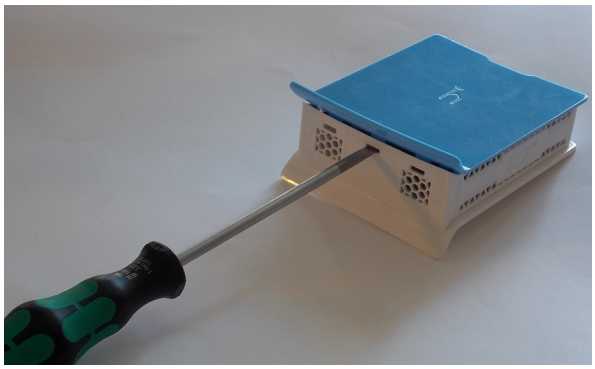


Picture 326

Disassembling information

Step 1:

Put into case cavities a not very hard tool, see picture 327.



Picture 327

Step 2:

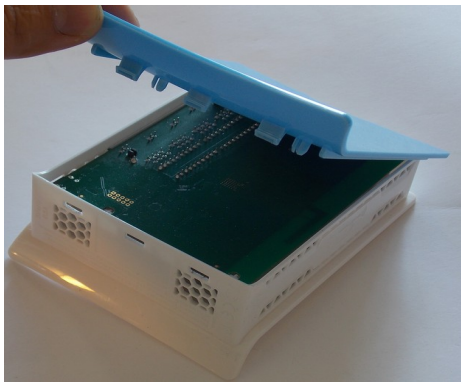
Rotate tool and pull both case parts, see picture 328.



Picture 328

Step 3:

Open front case and take out the board, see picture 329.



Picture 329

Checking procedure for over-voltage

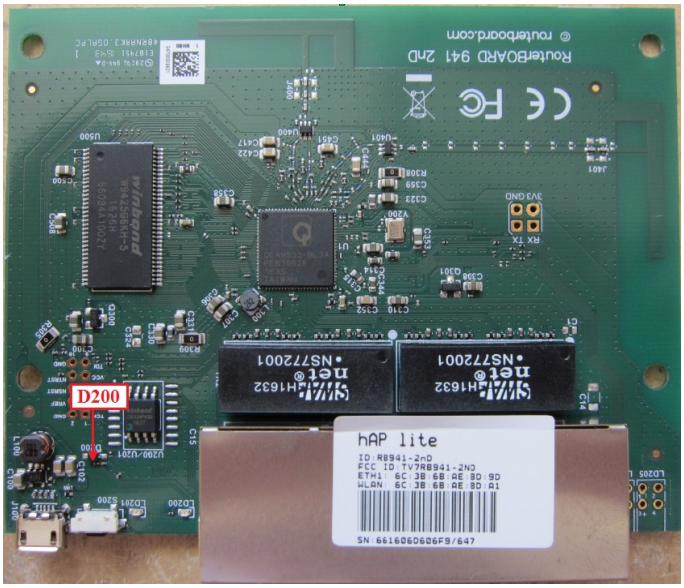
Checking Schottky diode

Check Schottky diode D200. Location of diode on the board you can see in the picture 330. Schottky diode quality measurement method is described on page 23. This board has an exception where a healthy diode shows 0.8V to 2V instead of Open Line, when measured in blocking direction. In addition a 10kOhm value should be confirmed present across the diode, when measured in resistance mode.

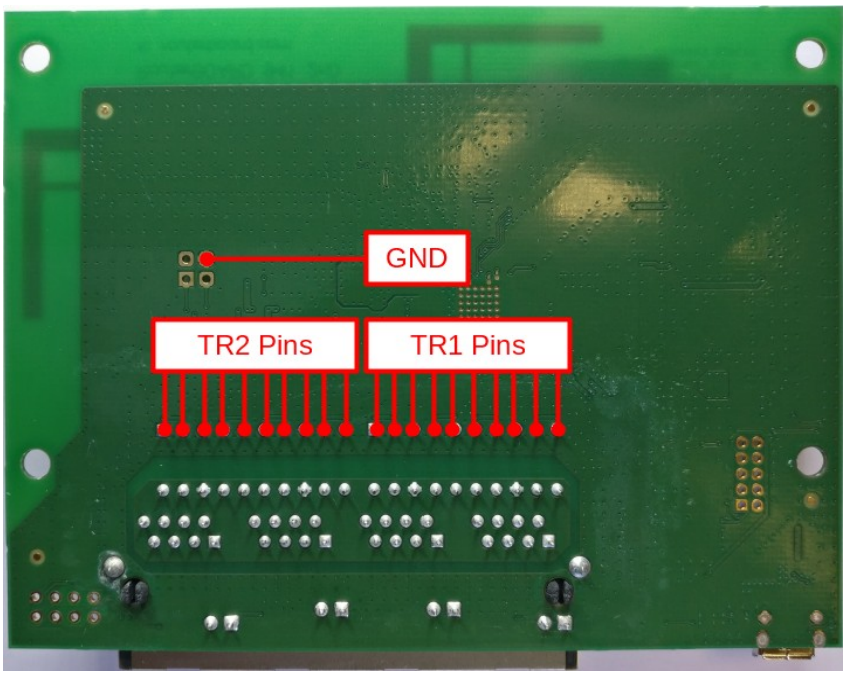
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1, TR2 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 331.

Voltage drop value should be in the range from 0,3V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 330



Picture 331

hAP lite classic (941-2nD)



Picture 332

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for hAP lite board, see on page 238.

hAP mini (931-2nD)

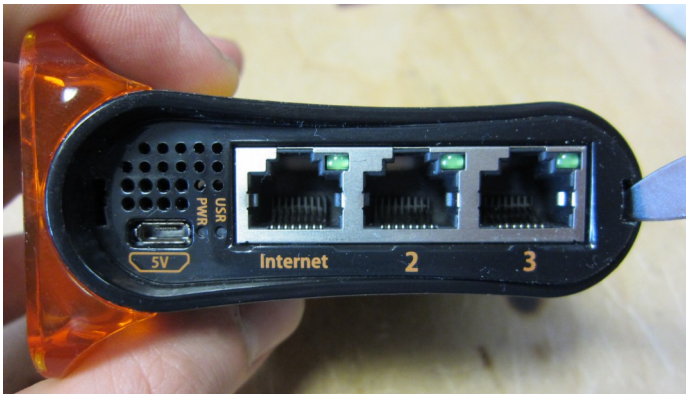


Picture 333

Disassembling information

Step 1:

Gently pull out PCB from the hAP mini case as shown in the picture 334.



Picture 334

Step 2:

Take out PCB from the cover as shown in the picture 335.



Picture 335

Checking procedure for over-voltage

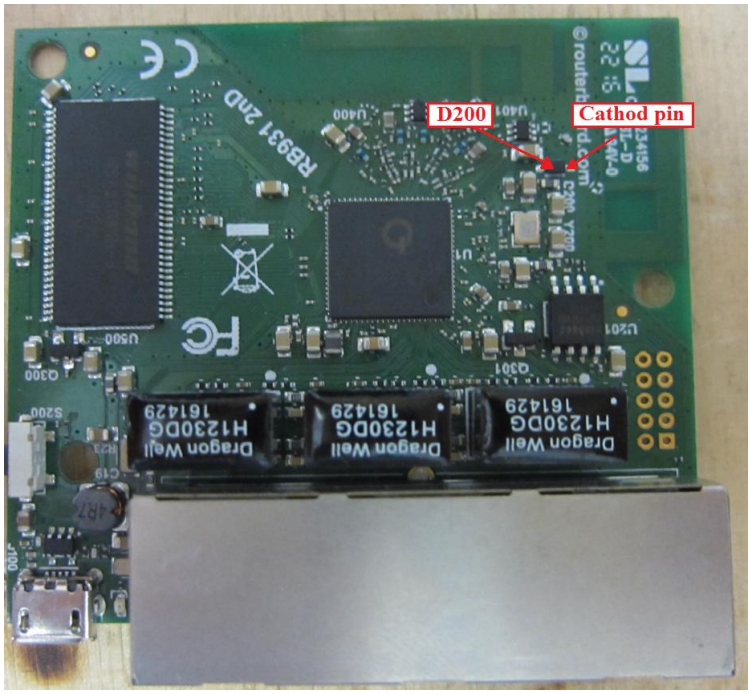
Checking Schottky diode

Check Schottky diode D200. Voltage drop value on the diode should be from 0,870V to 0.950V. Location of diodes on the board you can see in the picture 336. Schottky diode quality measurement method is described on page 23.

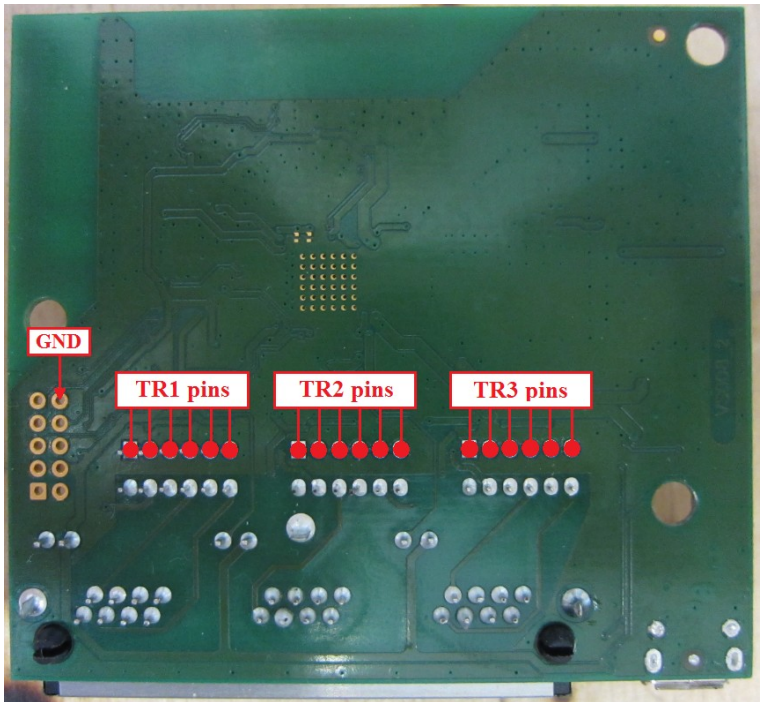
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR1-TR3 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 337.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 336



Picture 337

hAP ac² (RBD52G-5HacD2HnD-TC)



Picture 338

Disassembling information

Disassembling instructions is the same as hAP ac lite tower.

Checking procedure for over-voltage

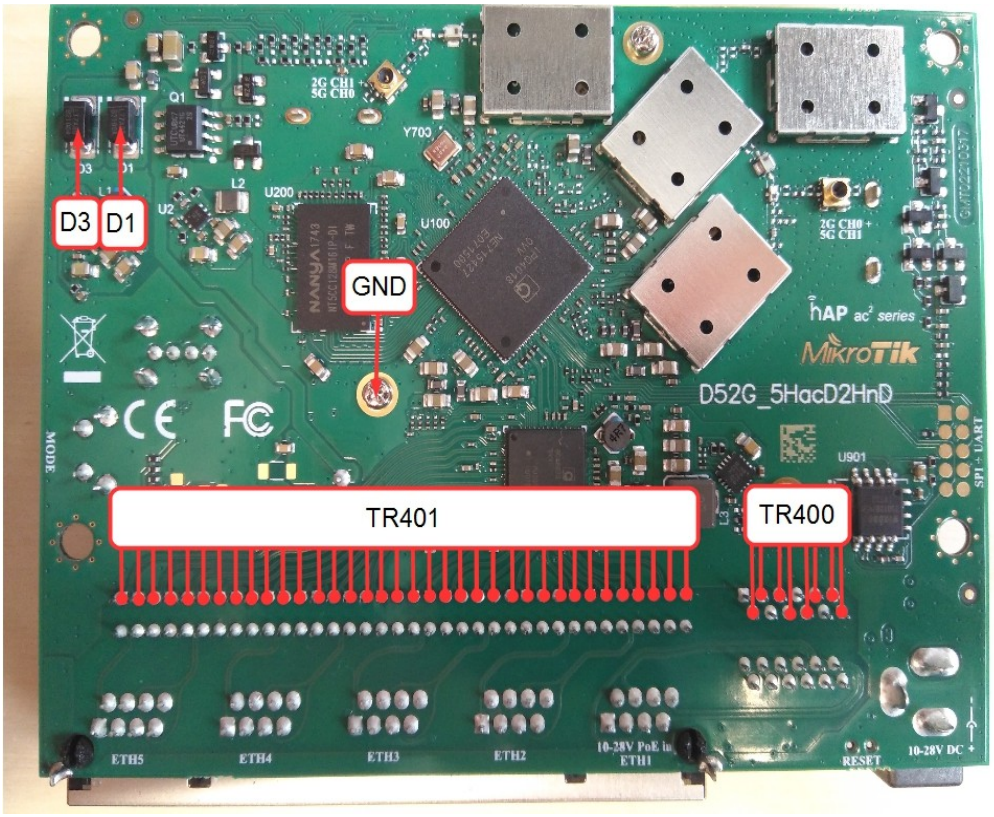
Checking Schottky diode

Check Schottky diode D1, D3. Location of diodes on the board you can see in the picture 339. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR400, TR401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 339.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.


D3
D1
GND
TR401
TR400
D52G_5HacD2HnD
hAP ac² series
MikroTik
MODE
SPI + UART
ETH5
ETH4
ETH3
ETH2
ETH1
RESET
10-28V DC +

Picture 339

hAP ac³ (RBD53GR-5HacD2HnD&R11e-LTE)

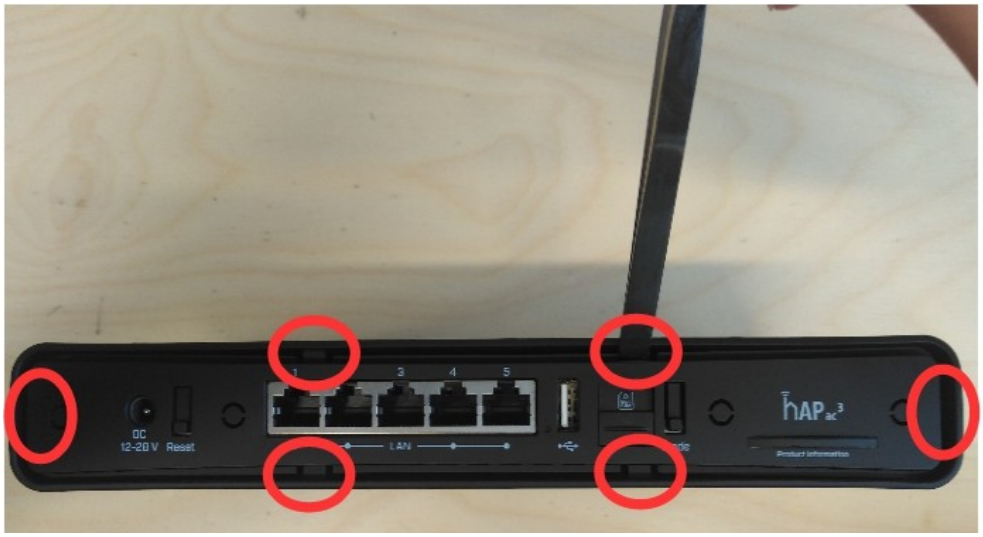


Picture 340

Disassembling information

Step 1:

Press on all the snapfits one by one as shown in the picture 341.



Picture 341

Step 2:

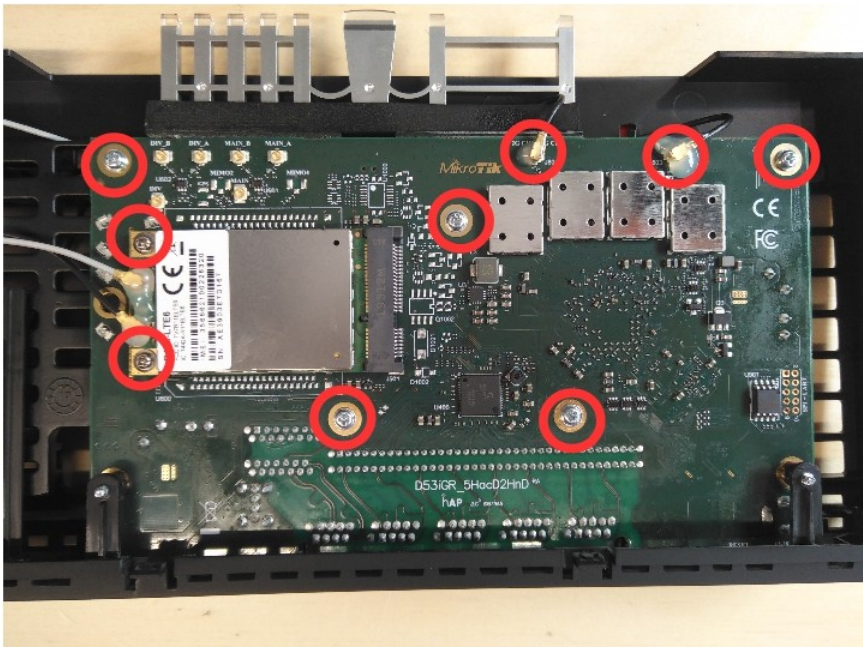
Take out PCB from the cover as shown in the picture 342.



Picture 342

Step 3:

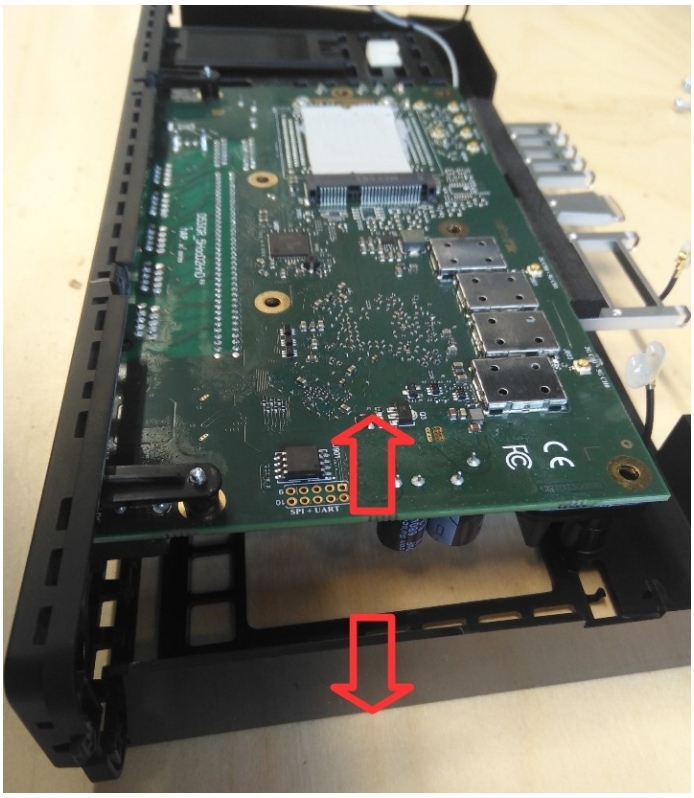
Unscrew all pcb mounting screws using PH1 screwdriver as shown in the picture 343.



Picture 343

Step 4:

Take out PCB from the cover as shown in the picture 344.



Picture 344

Checking procedure for over-voltage

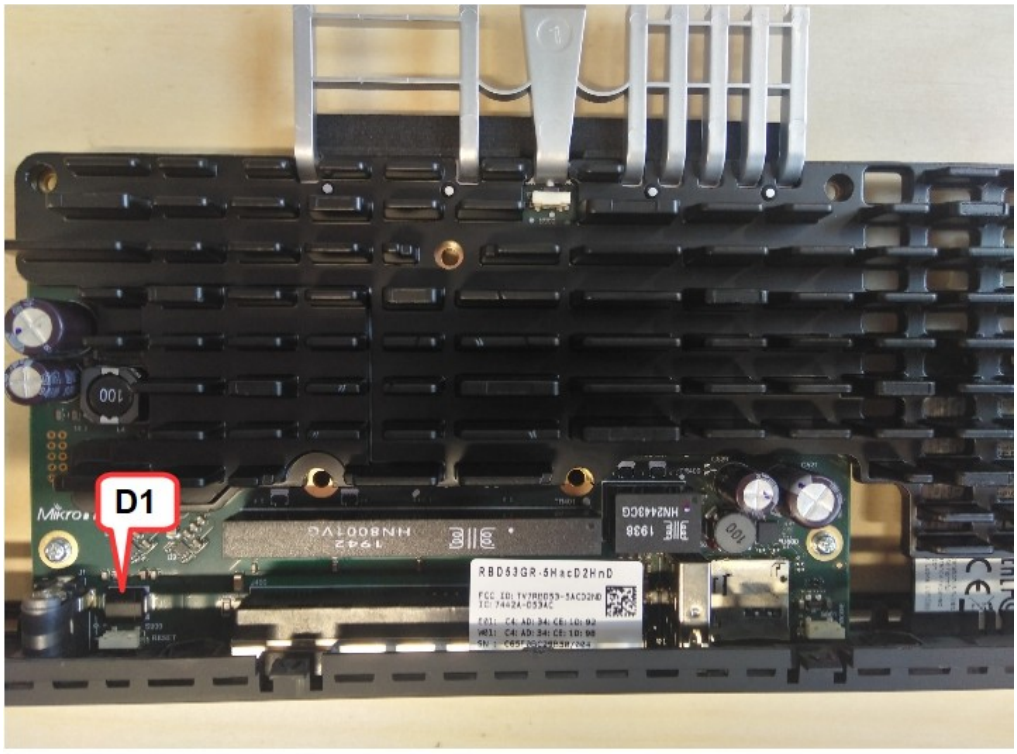
Checking Schottky diode

Check Schottky diode D1. Location of diodes on the board you can see in the picture 345. Schottky diode quality measurement method is described on page 23.

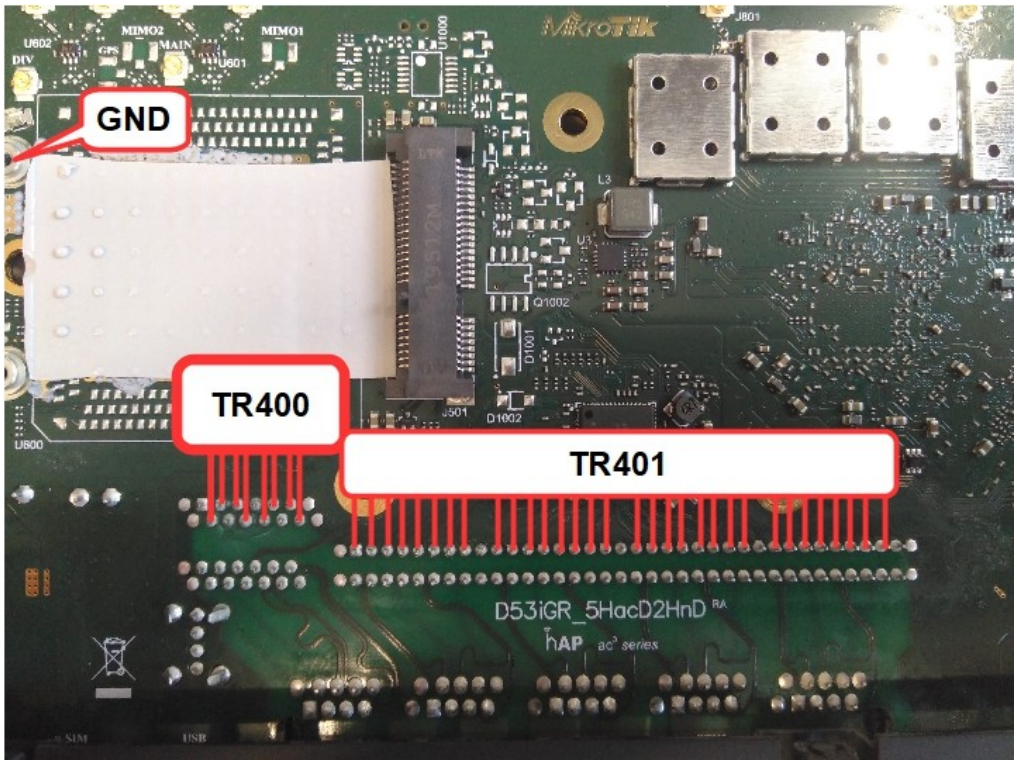
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR400, TR401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 346.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 345



Picture 346

hAP ac³ (RBD53iG-5HacD2HnD)



Picture 347

Disassembling information

Step 1:

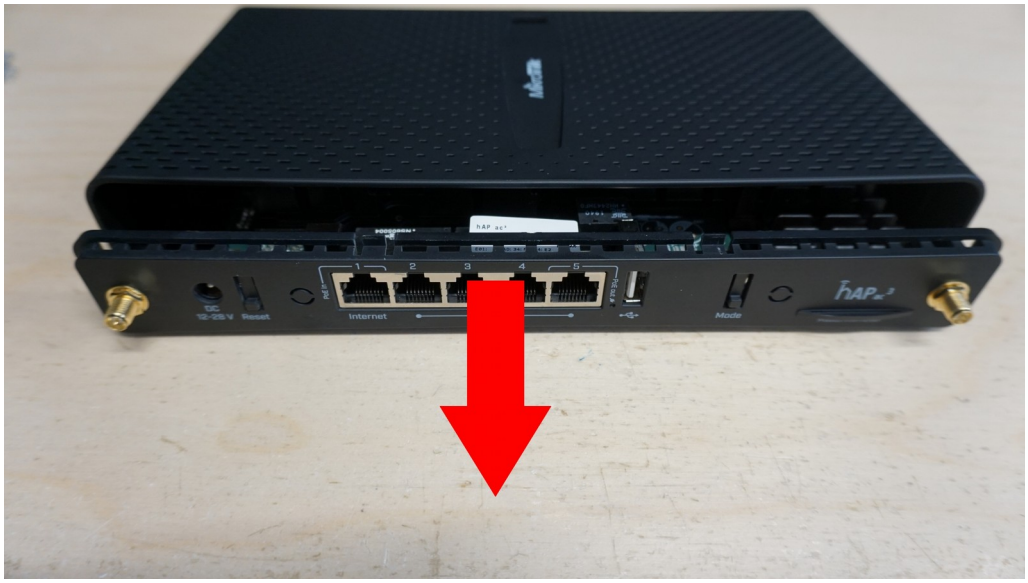
Press on all the snapfits one by one as shown in the picture 348.



Picture 348

Step 2:

Take the routerboard out of case as shown in picture 349.



Picture 349

Checking procedure for over-voltage

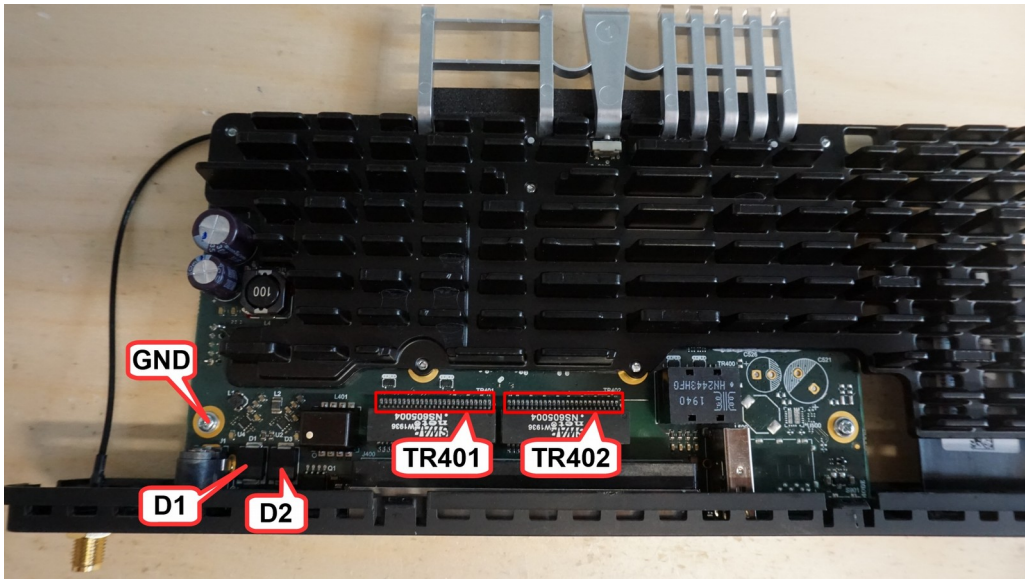
Checking Schottky diode

Check Schottky diode D1 and D3. Location of diodes on the board you can see in the picture 350. Schottky diode quality measurement method is described on page 23.

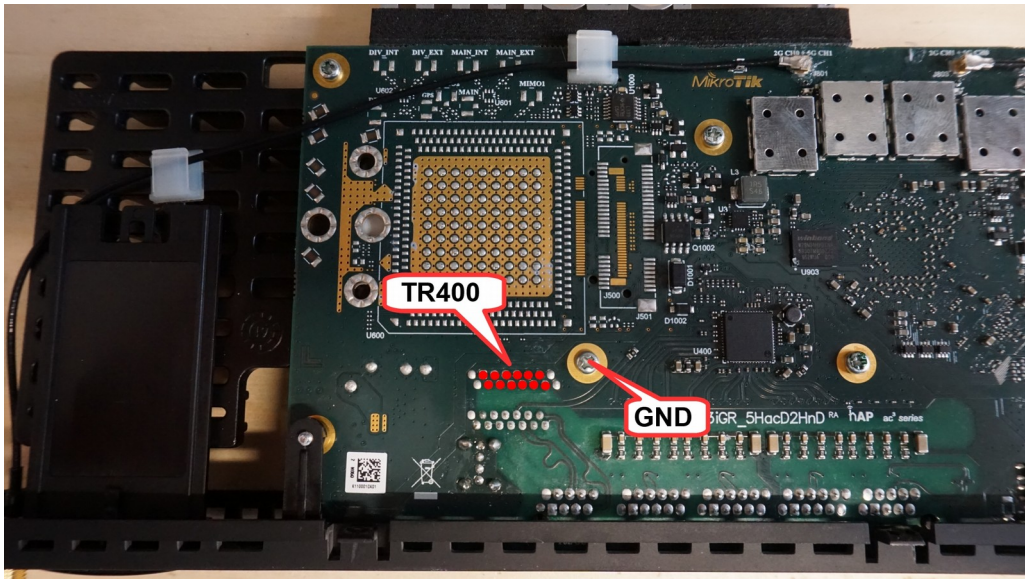
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR401, TR402, TR400 pins and Ground. Test points on the transformer pins are marked in picture 350 and 351.

Voltage drop value should be in the range from 0,32V to 0,44V. Voltage drop measurement method is described on page 25.



Picture 350



Picture 351

hEX series RouterBoards

hEX (750Gr3)



Picture 352

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1, D3. Location of diodes on the board you can see in the picture 353. Schottky diode quality measurement method is described on page 23.

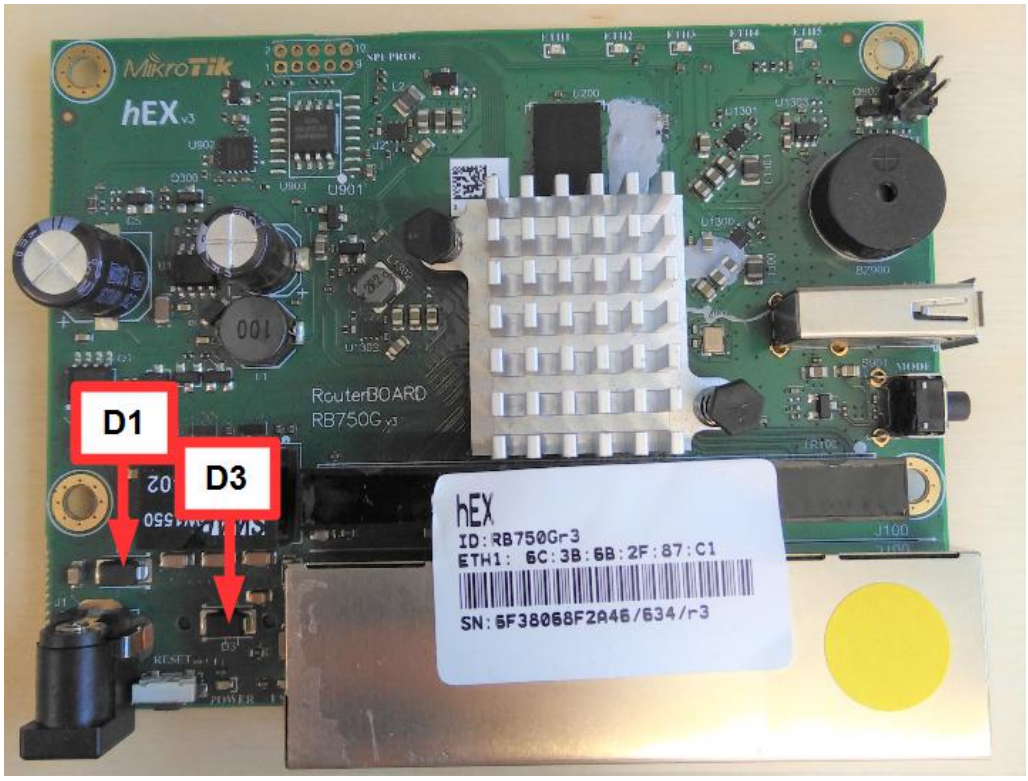
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR100 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 354.

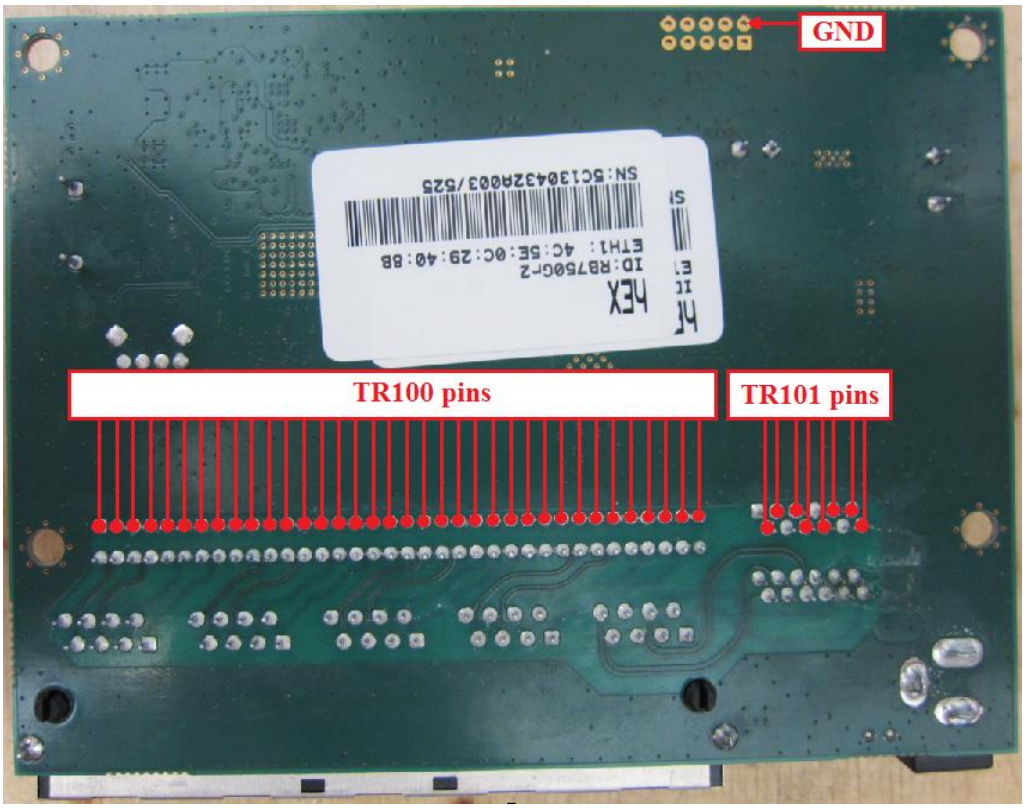
Voltage drop value should be in the range from 0,25V to 0,29V. Voltage drop measurement method is described on page 25.

Check voltage drop value between Ethernet transformer TR101 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 354.

Voltage drop value should be in the range from 0,31V to 0,35V. Voltage drop measurement method is described on page 25.



Picture 353



Picture 354

hEX lite (750r2)



Picture 355

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

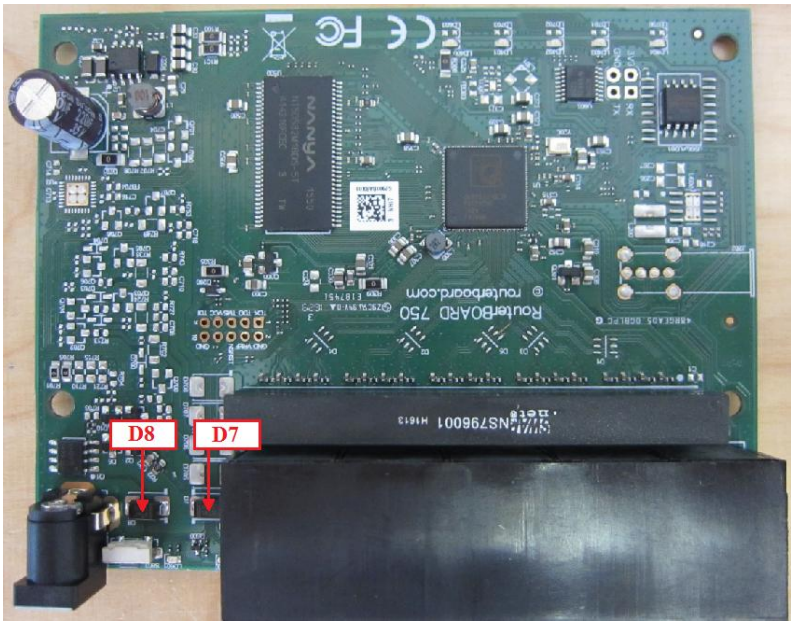
Checking Schottky diodes

Check Schottky diodes D7, D8. Location of diodes on the board you can see in the picture 356. Schottky diodes quality measurement method is described on page 23.

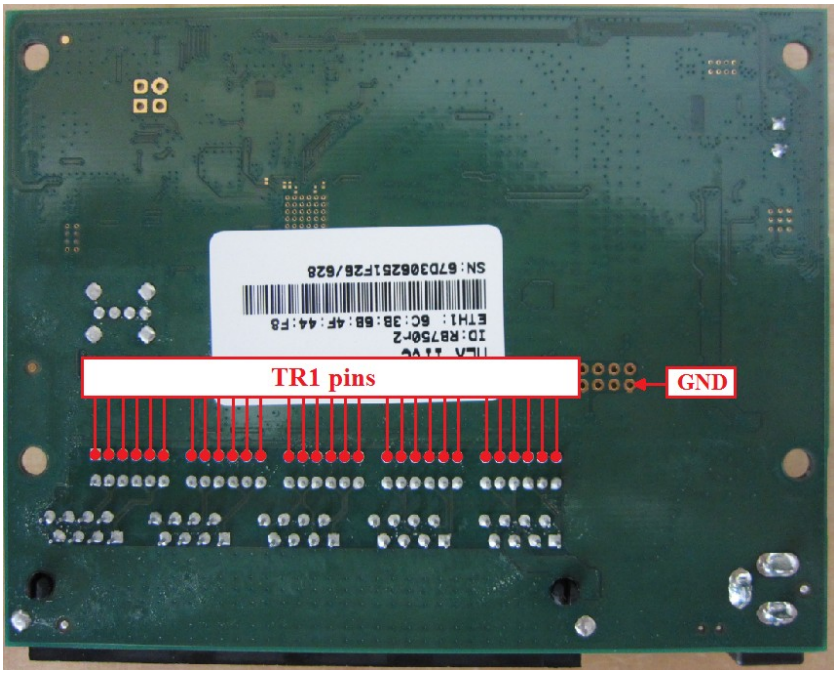
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 357.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.

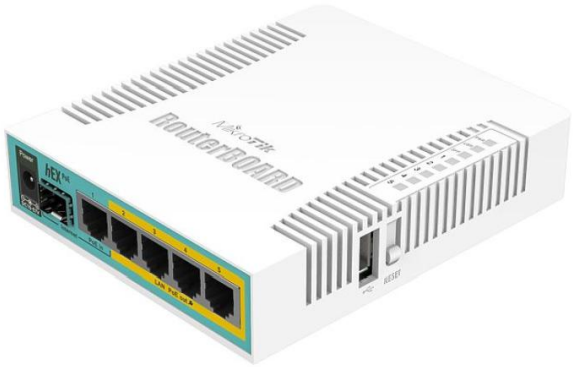


Picture 356



Picture 357

hEX PoE (960PGS)



Picture 358

Disassembling information

Disassembly method of the board is the same as the RB260GSP board. Disassembly method is described on page 32.

Checking procedure for over-voltage

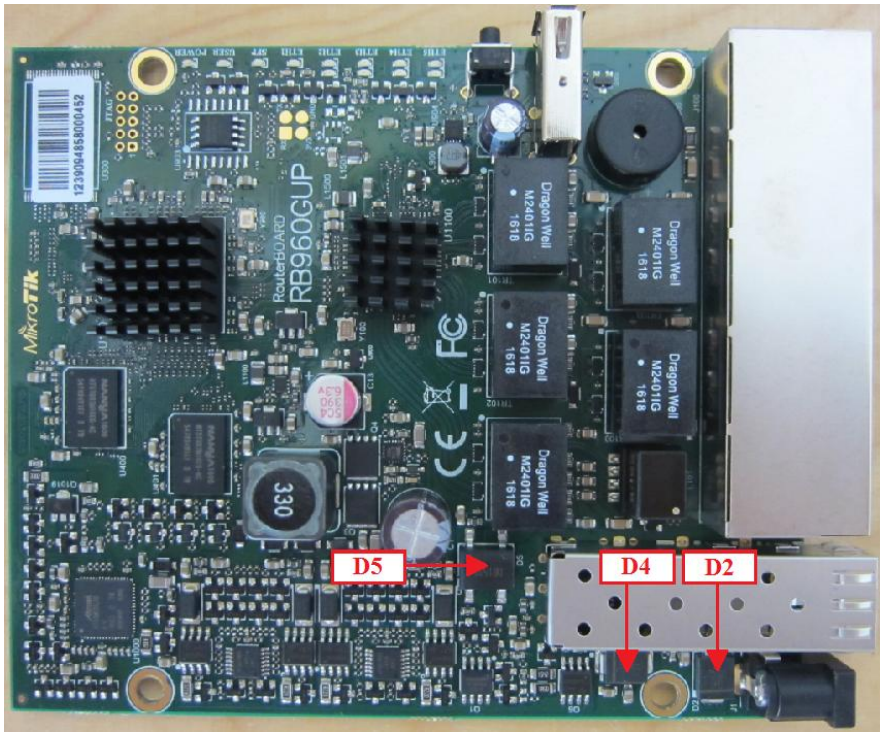
Checking Schottky diodes and diode bridge

Check Schottky diodes D2, D4 and diode bridge D5. Location of diodes on the board you can see in the picture 359. Schottky diode quality measurement method is described on page 23.

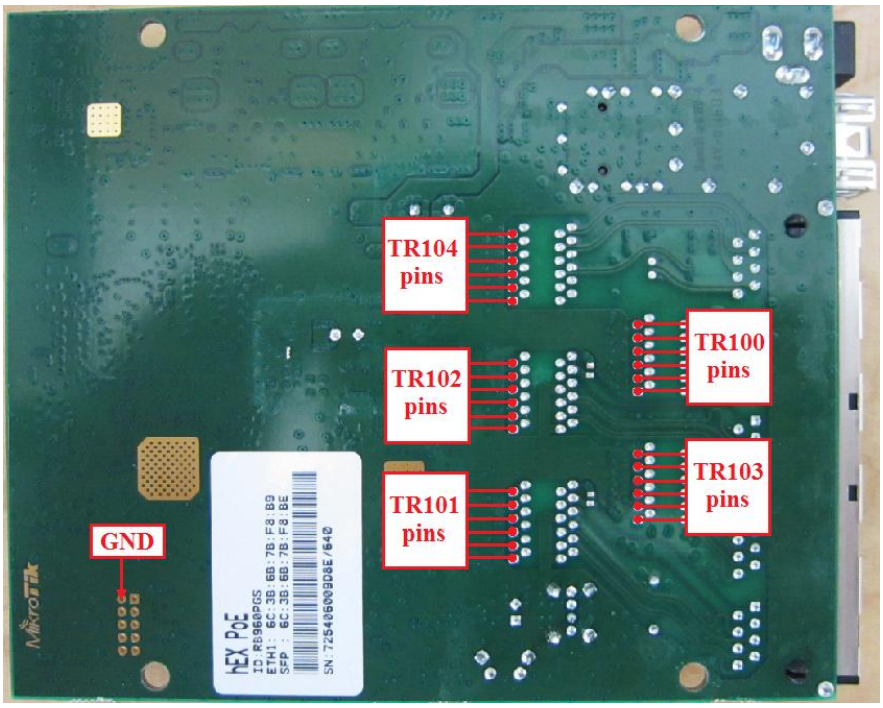
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR100-TR104 pins and Ground. Test points on the transformers pins are marked with red dots, see picture 360.

Voltage drop value should be in the range from 0,40V to 0,46. Voltage drop measurement method is described on page 25.



Picture 359



Picture 360

hEX PoE lite (750UPr2)



Picture 361

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D7, D8, D705-D708. Location of diodes on the board you can see in the picture 362. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

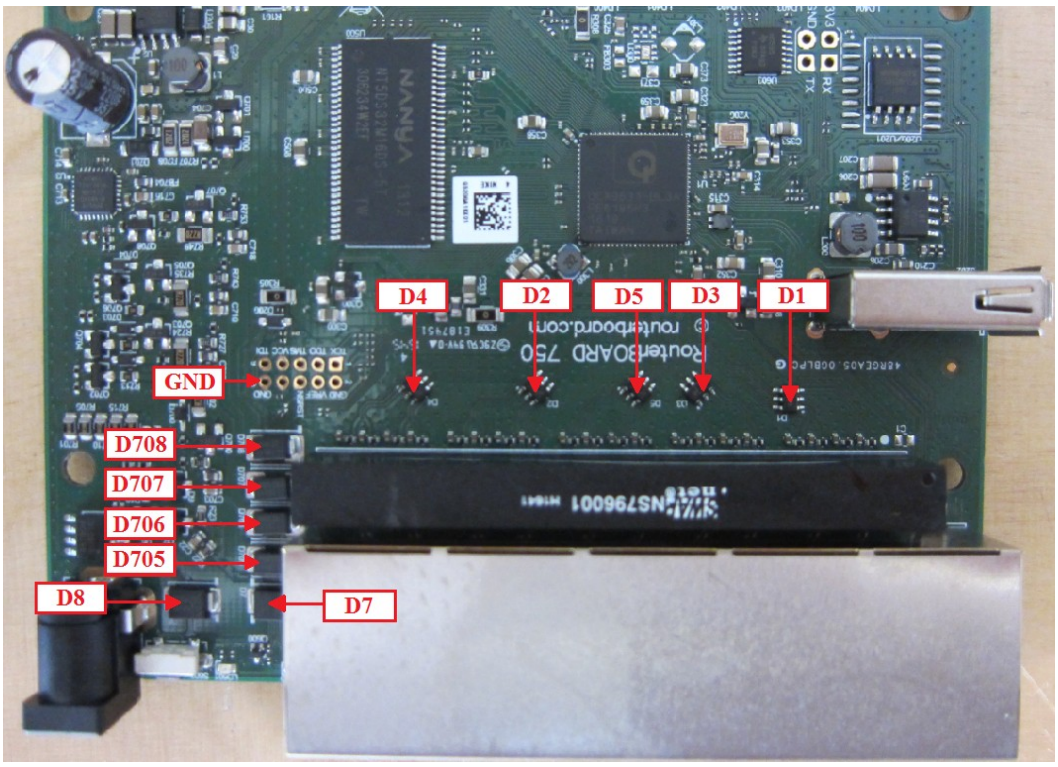
Check voltage drop value between diode array D1-D5 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 363.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.

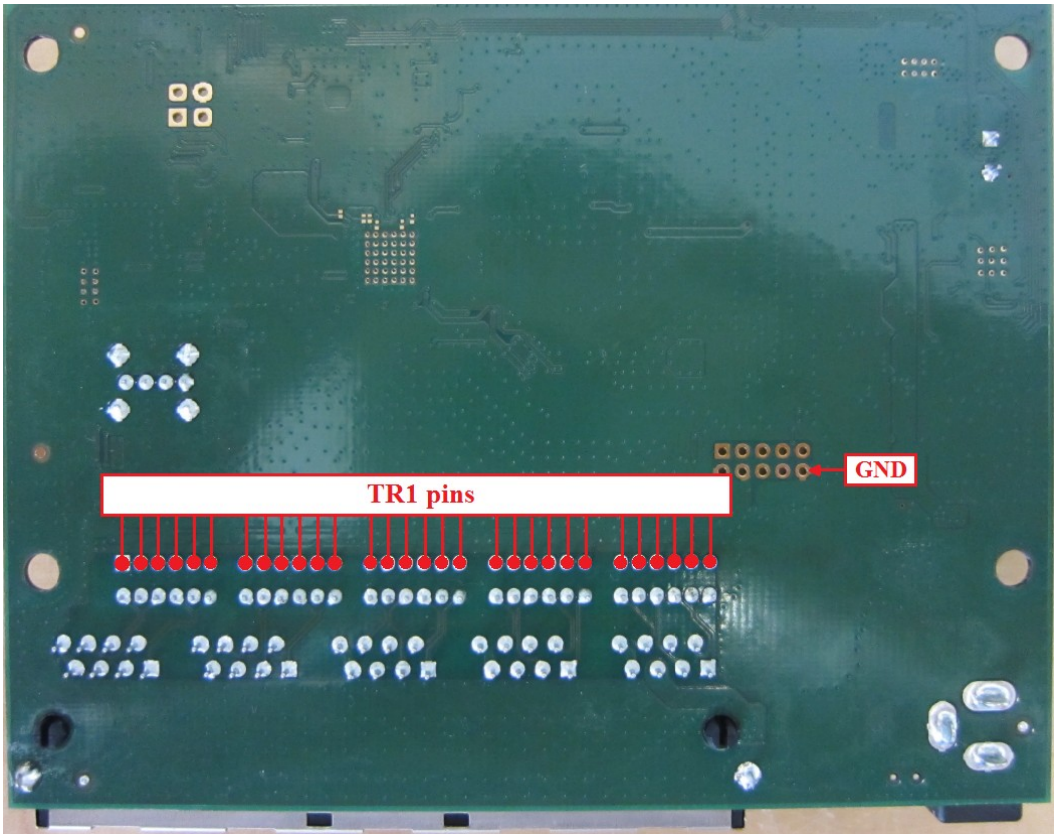
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 363.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 362



Picture 363

hEX S (RB760iGS r4)



Picture 364

Disassembling information

Disassembly method of the board is the same as the RB951-2n board. Disassembly method is described on page 81.

Checking procedure for over-voltage

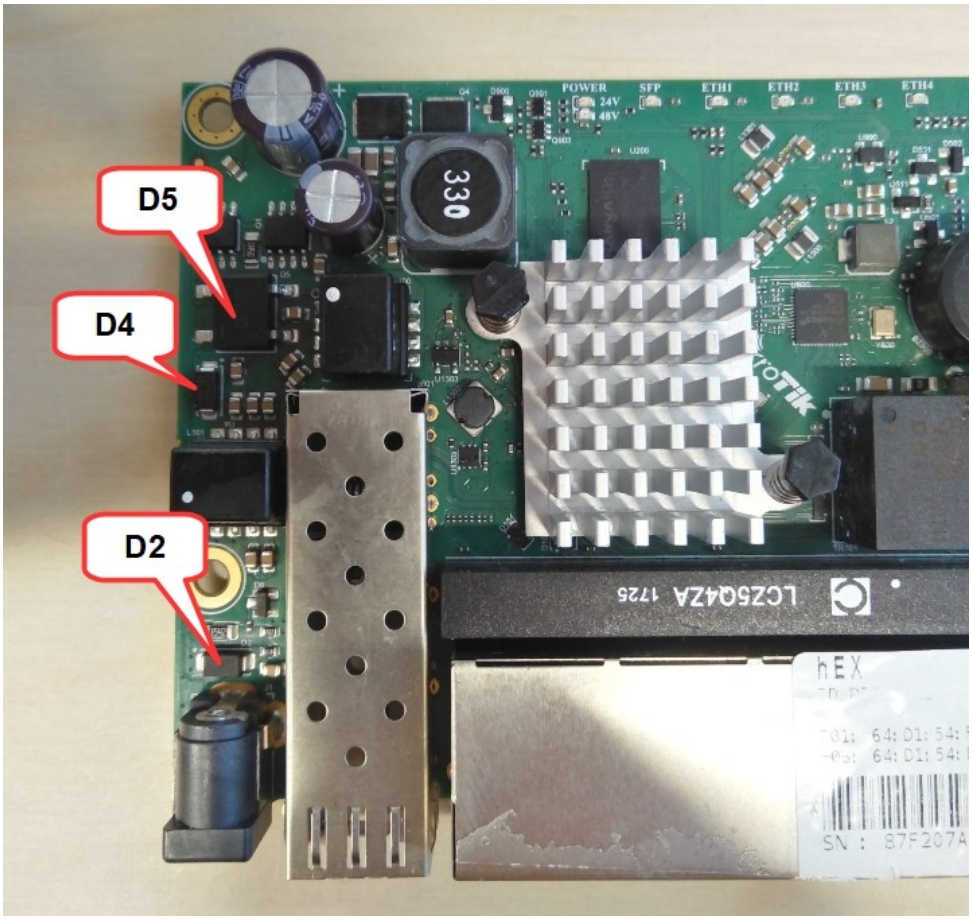
Checking Schottky diodes

Check Schottky diodes D2, D4 and diode bridge D5. Location of diodes on the board you can see in the picture 365. Schottky diode quality measurement method is described on page 23.

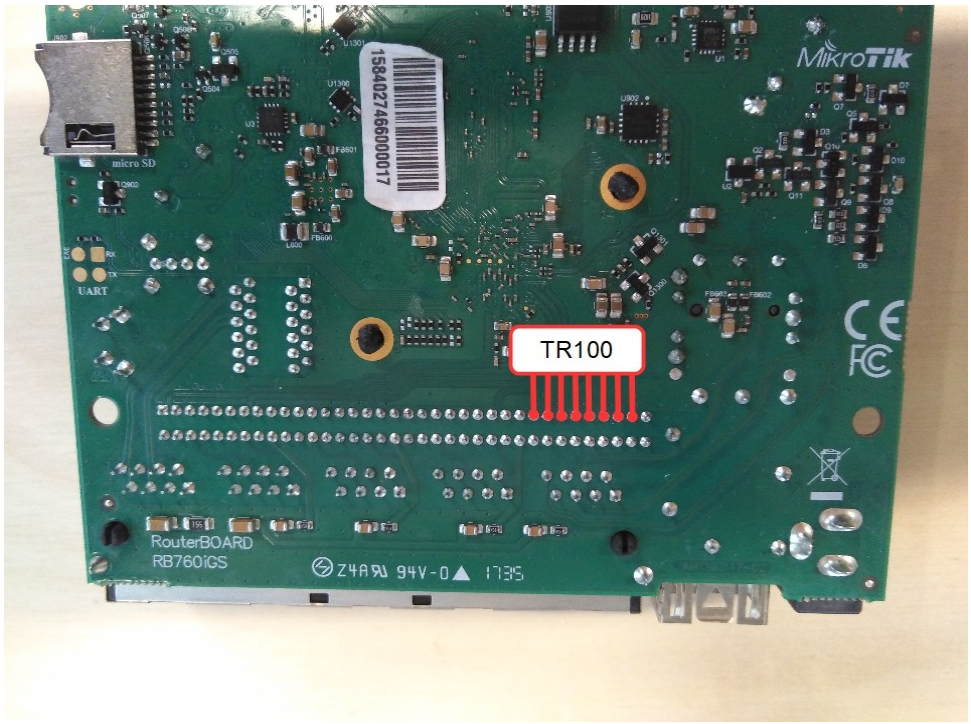
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR100 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 366.

Voltage drop value should be in the range from 0,26V to 0,30V. Voltage drop measurement method is described on page 25.



Picture 365



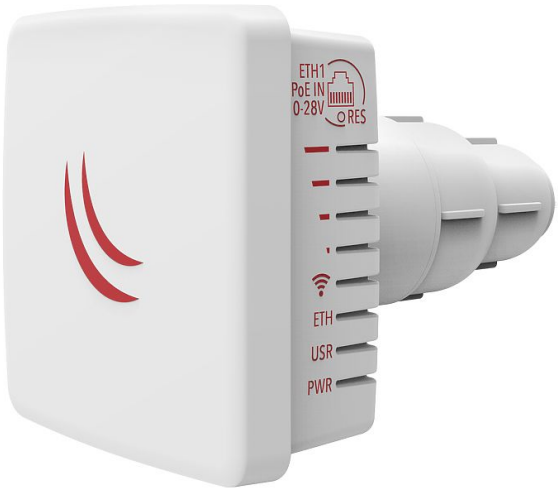
Picture 366

LDF series RouterBoards

LDF 5 (LDF-5nD)

LDF 5 ac (RBLDFG-5acD)

LDF 2 (RBLDF-2nD)



Picture 367

Without checking board for over-voltage test please use the RMA system at your distributor account and start a warranty process with precise “Problem” and “Problem description”.

LHG series RouterBoards

[LHG 5 (RBLHG-5nD)]

[LHG 5 XL (RBLHG-5nD-XL)]

[LHG 2 (RBLHG-2nD)]

[LHG 2 XL (RBLHG-2nD-XL)]

[LHG 5 (RBLHG-5nD)]

[LHG 5 XL (RBLHG-5nD-XL)]

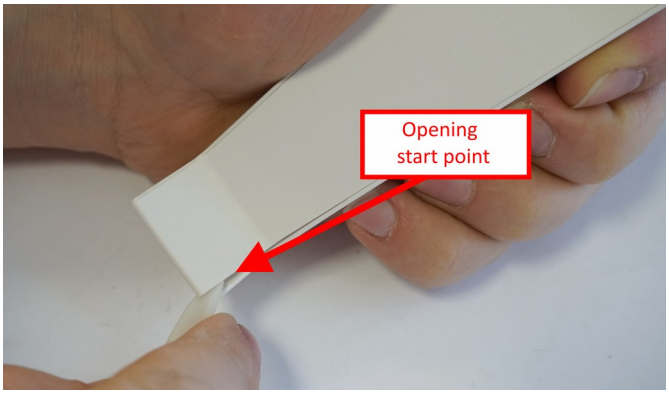


Picture 368

Disassembling information

Step 1:

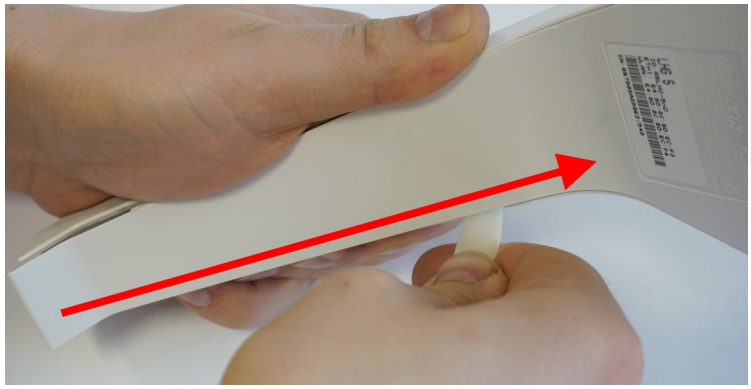
Case opening starts with the short end as shown in the picture 369.



Picture 369

Step 2:

After that push the plastic sticker until the point where case is curly as shown in the picture 370.



Picture 370

Step 3:

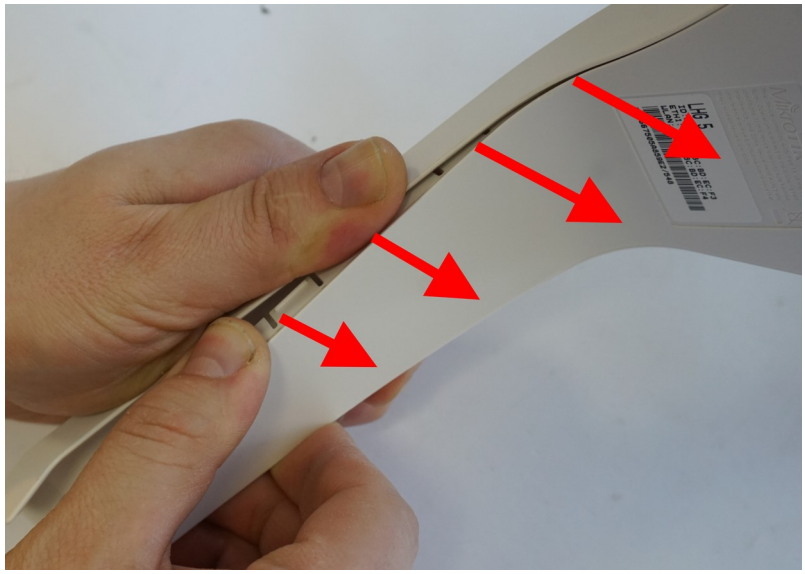
After that just do the same with second half as shown in the picture 371.



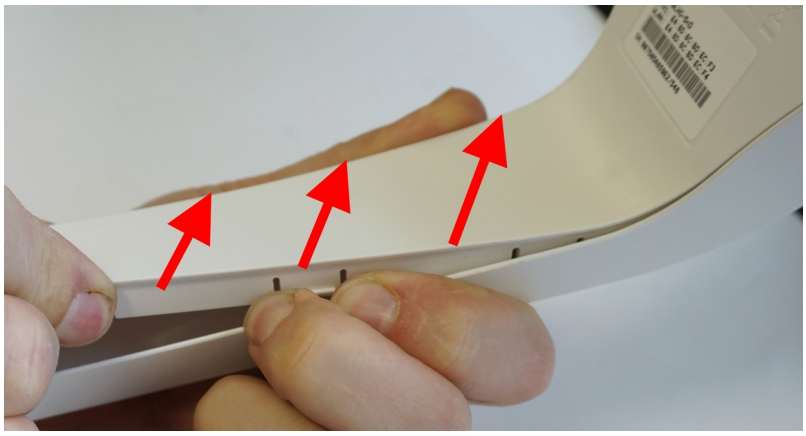
Picture 371

Step 4:

Then take case narrow end and gently push to both sides until cover is taken out as shown in pictures 372-374.



Picture 372



Picture 373



Picture 374

Checking procedure for over-voltage

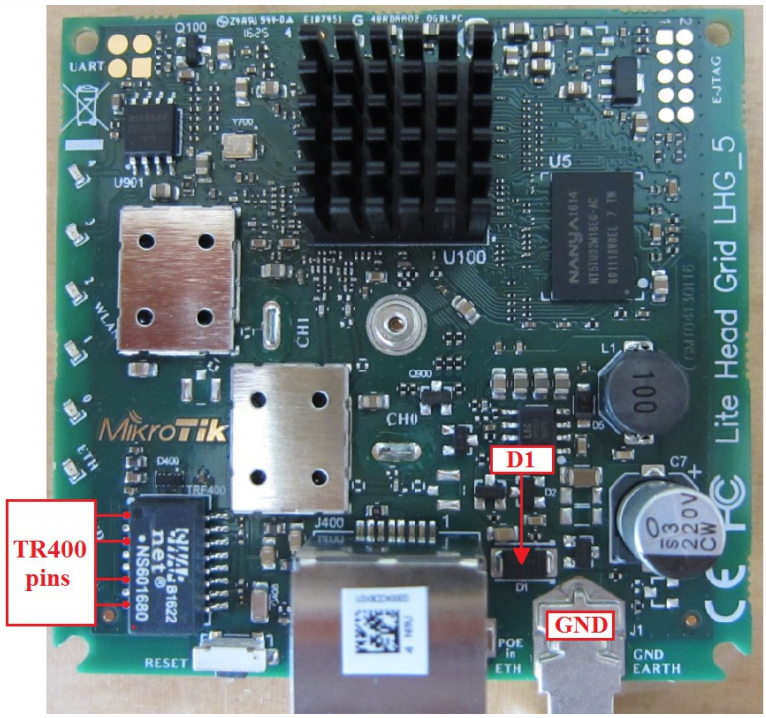
Checking Schottky diode

Check Schottky diode D1. Location of diode on the board you can see in the picture 375. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 375.

Voltage drop value should be in the range from 0,38V to 0,42V. Voltage drop measurement method is described on page 25.



Picture 375

LHG 2 (RBLHG-2nD)

LHG 2 XL (RBLHG-2nD-XL)

Disassembling information

Disassembly method of the board is the same as the LHG 5 board. Disassembly method is described on page 265.

Checking procedure for over-voltage

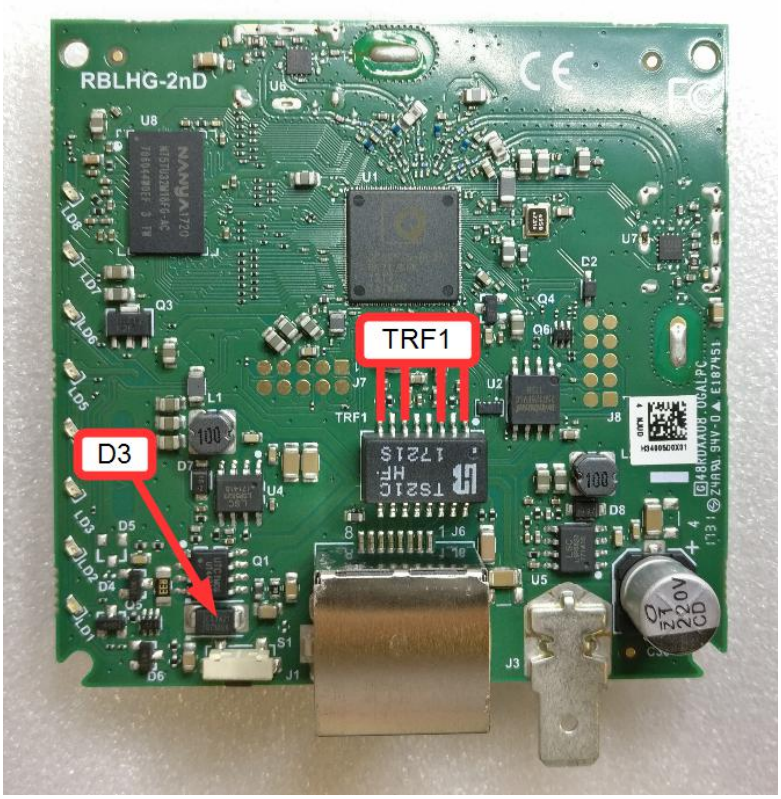
Checking Schottky diode

Check Schottky diode D3. Location of diode on the board you can see in the picture 376. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 376.

Voltage drop value should be in the range from 0,38V to 0,42V. Voltage drop measurement method is described on page 25.



Picture 376

LHG HP5 (LHG-5HPnD)

LHG XL HP5 (LHG-5HPnD-XL)

Disassembling information

Disassembly method of the board is the same as the LHG 5 board. Disassembly method is described on page 265.

Checking procedure for over-voltage

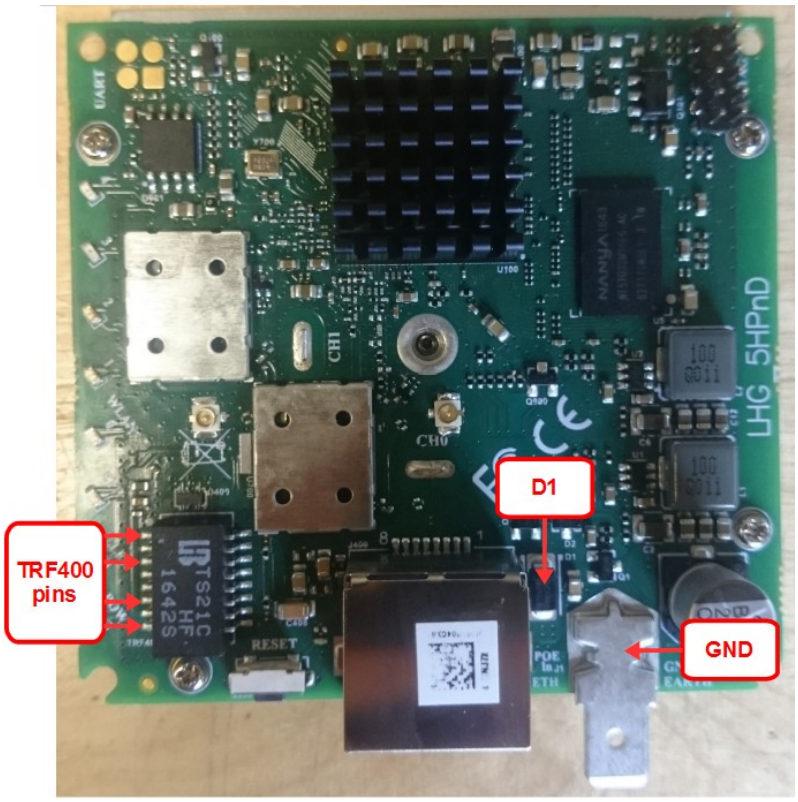
Checking Schottky diode

Check Schottky diode D1. Location of diode on the board you can see in the picture 377. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 377.

Voltage drop value should be in the range from 0,38V to 0,42V. Voltage drop measurement method is described on page 25.



Picture 377

LHG 5 ac (RBLHGG-5acD)

LHG XL 5 ac (RBLHGG-5acD-XL)

Disassembling information

Disassembly method of the board is the same as the LHG 5 board. Disassembly method is described on page 265.

Checking procedure for over-voltage

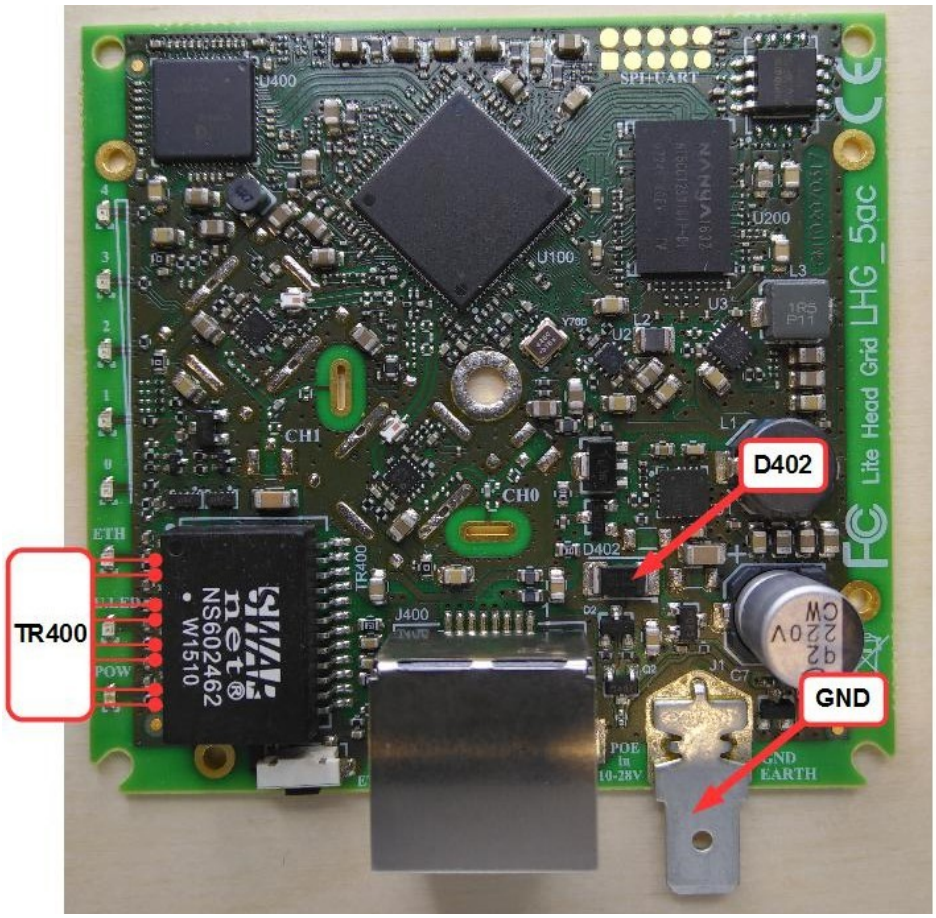
Checking Schottky diode

Check Schottky diode D402. Location of diode on the board you can see in the picture 378. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 378.

Voltage drop value should be in the range from 0,38V to 0,42V. Voltage drop measurement method is described on page 25.



Picture 378

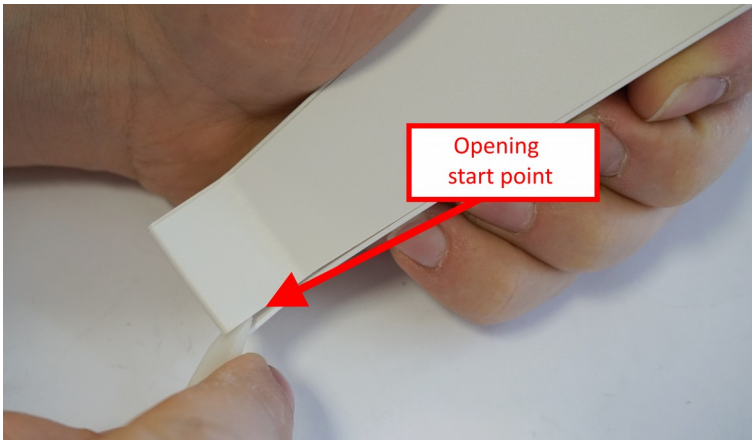
Wireless Wire Dish (RBLHGG-60ad)

LHG 60G (RBLHGG-60ad)

Disassembling information

Step 1:

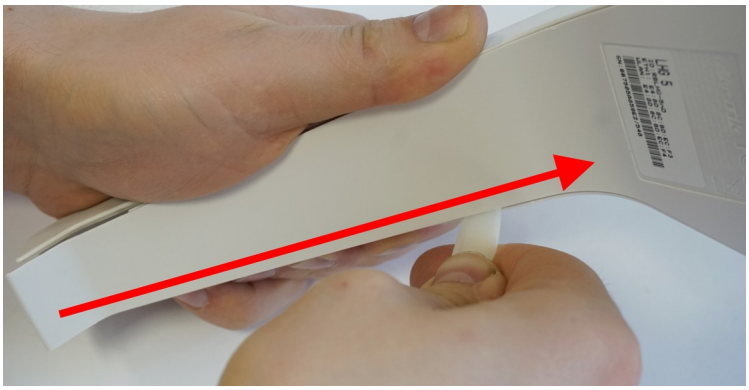
Case opening starts with the short end as shown in the picture 379.



Picture 379

Step 2:

After that push the plastic sticker until the point where case is curly as shown in the picture 380.



Picture 380

Step 3:

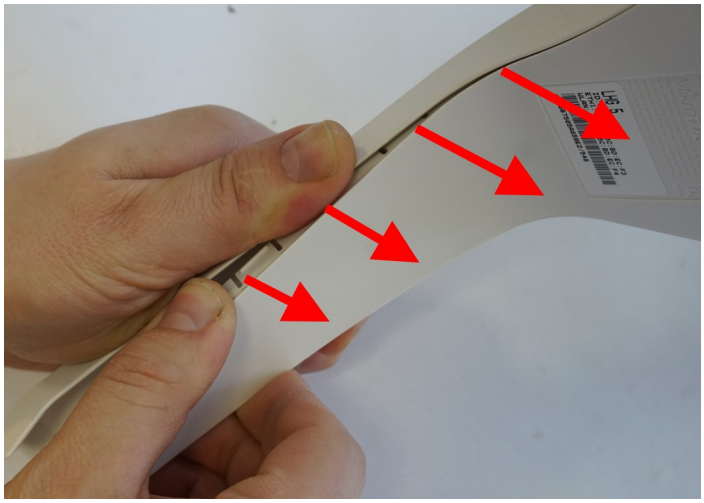
After that just do the same with second half as shown in the picture 381.



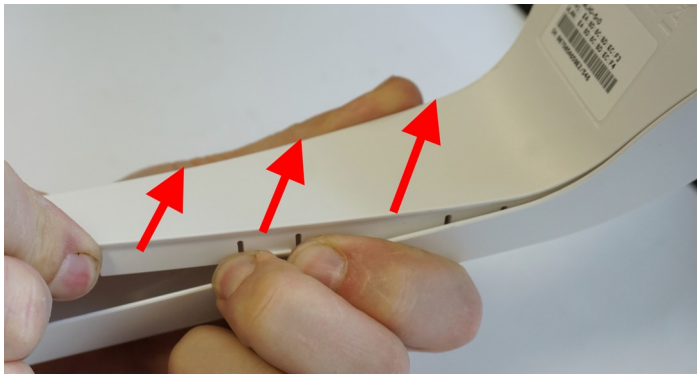
Picture 381

Step 4:

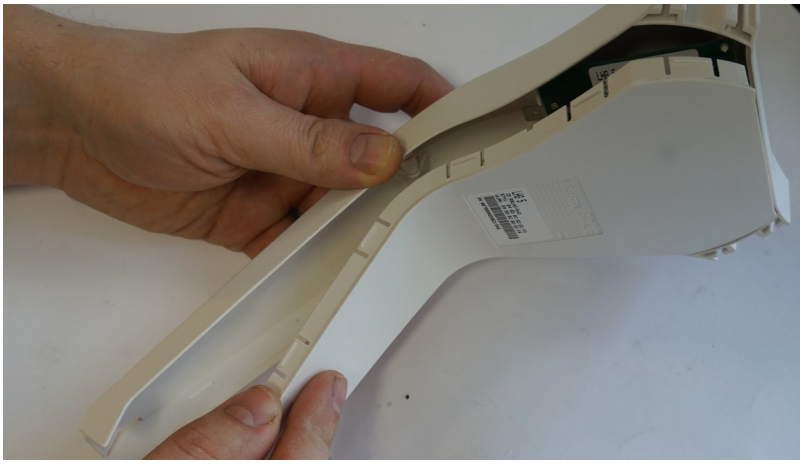
Then take case narrow end and gently push to both sides until cover is taken out as shown in pictures 382-384.



Picture 382



Picture 383



Picture 384

Step 5:

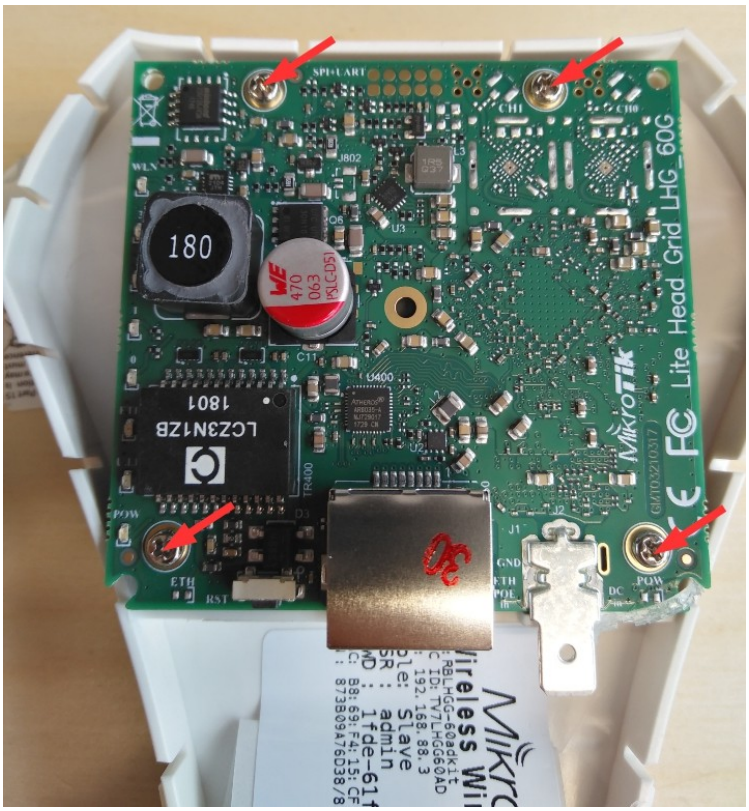
Unscrew 2 heat sink holding screws with TX15 screw driver as shown in the picture 385.



Picture 385

Step 6:

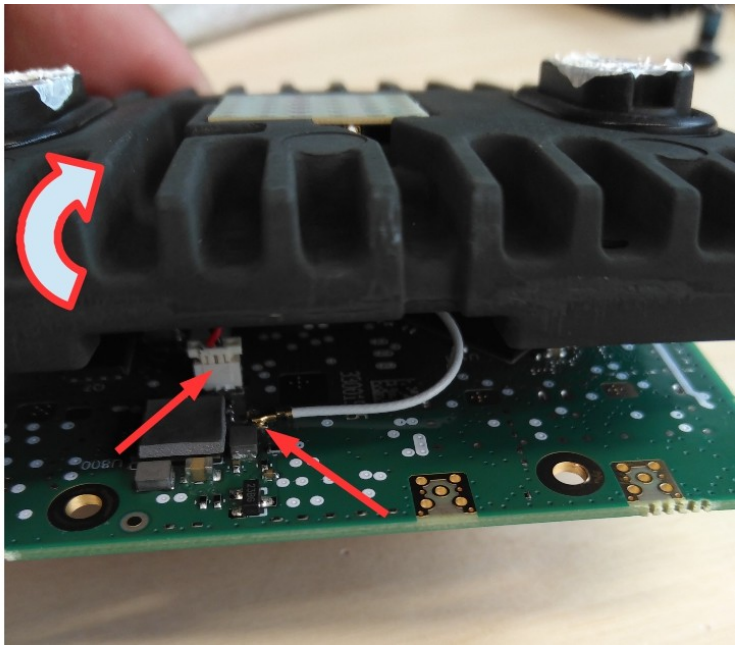
Unscrew 4 PCB mounting screws using Philips screw driver as shown in the picture 386.



Picture 386

Step 7:

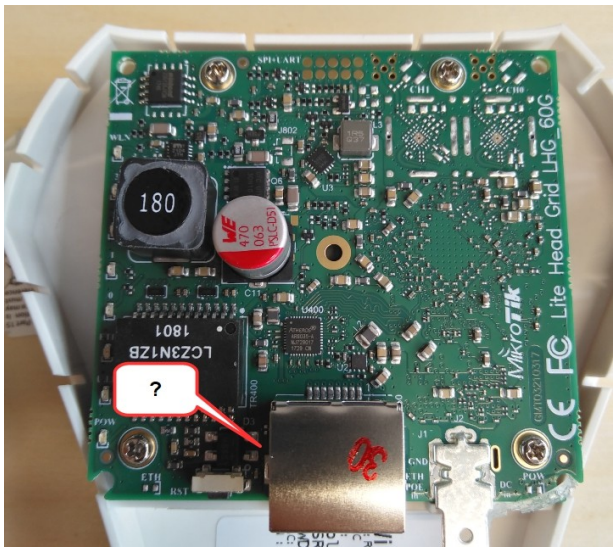
Carefully lift the heat sink and unplug power cord and antena signal wire as shown in the picture 387.



Picture 387

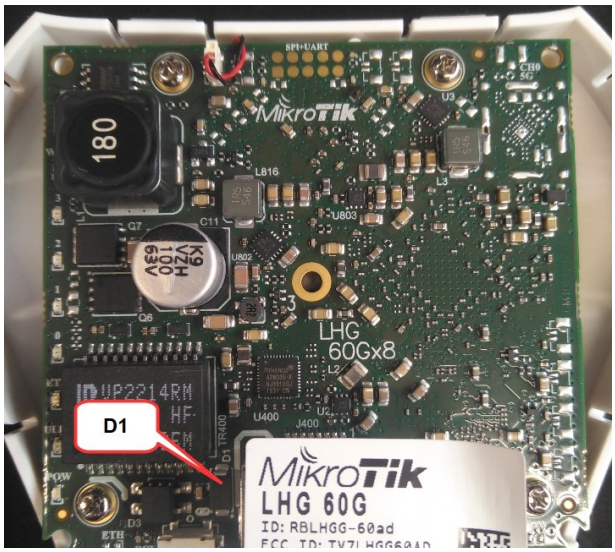
Determine PCB version

Version 1 does not have D1 on top layer, but has on the bottom layer. But for v2 D1 is on the top layer of the PCB.



v1

Picture 388



v2

Picture 389

Checking procedure for over-voltage v1

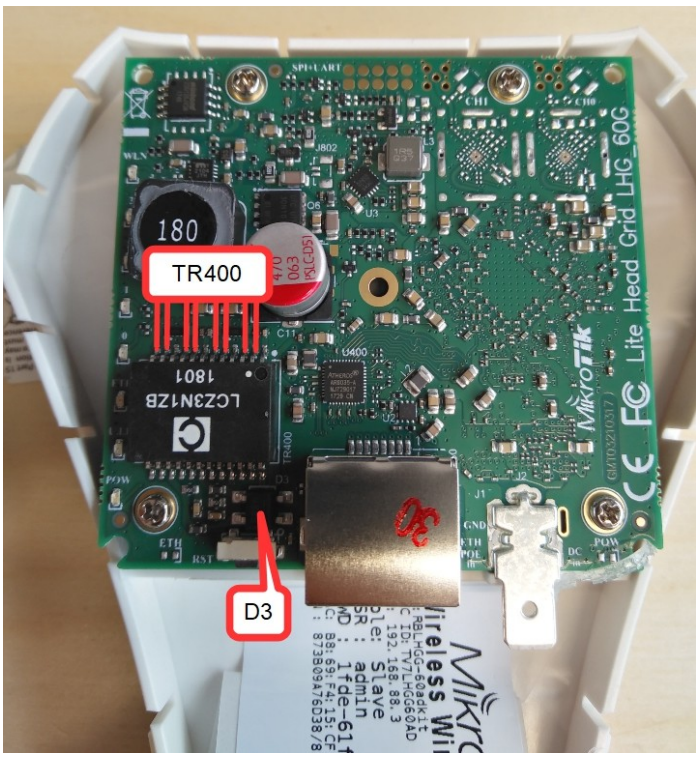
Checking Schottky diode

Check Schottky diode D1 and diode bridge D3. Location of diode on the board you can see in the picture 390 and 391. Schottky diode quality measurement method is described on page 23.

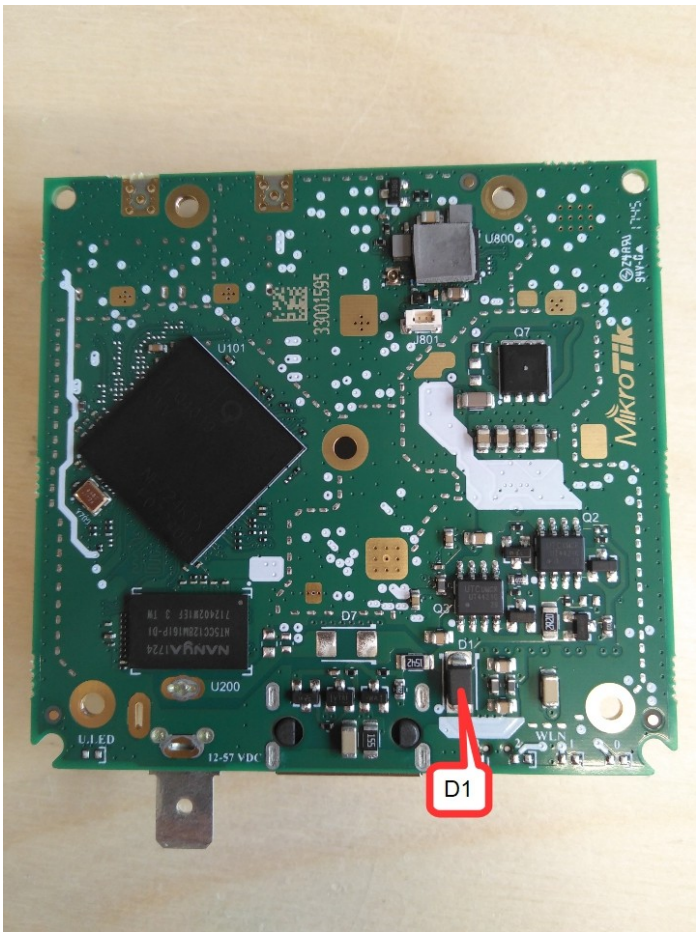
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and ground (note that the ground is connected to every PCB mounting hole). Test points on the transformer pins are marked with red dots, see picture 390.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 390



Picture 391

Checking procedure for over-voltage v2

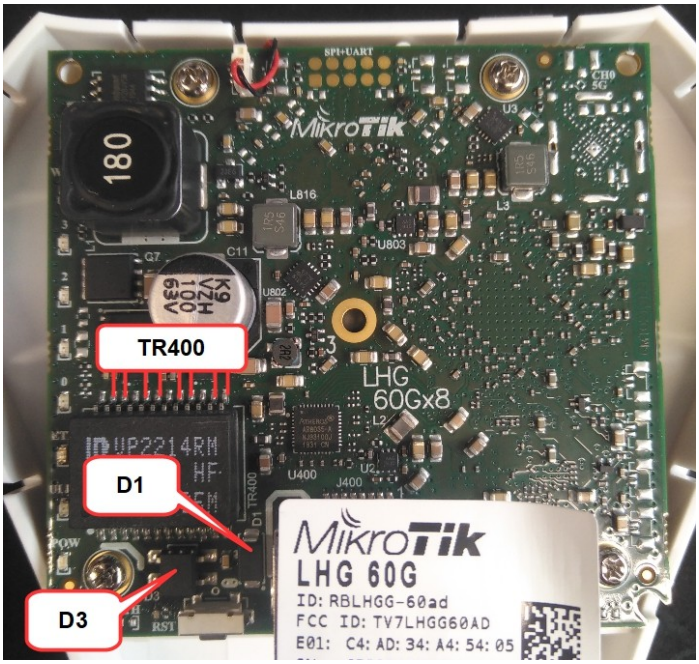
Checking Schottky diode

Check Schottky diode D1 and diode bridge D3. Location of diode on the board you can see in the picture 392. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and ground (note that the ground is connected to every PCB mounting hole). Test points on the transformer pins are marked with red dots, see picture 392.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 392

LHG LTE kit (RBLHGR&R11e-LTE)

LHG LTE kit-US (RBLHGR&R11e-LTE-US)

LHG 4G kit (RBLHGR&R11e-4G)

LHG LTE6 kit (RBLHGR&R11e-LTE6)



Picture 393

Disassembling information

Step 1:

Start by opening both sides of the case as shown in the picture 394.



Picture 394

Step 2:

After that open the cover as shown in the picture 395.



Picture 395

Step 3:

Then just undo 4 PCB mounting screws using TX9 screwdriver 396.



Picture 396

Checking procedure for over-voltage

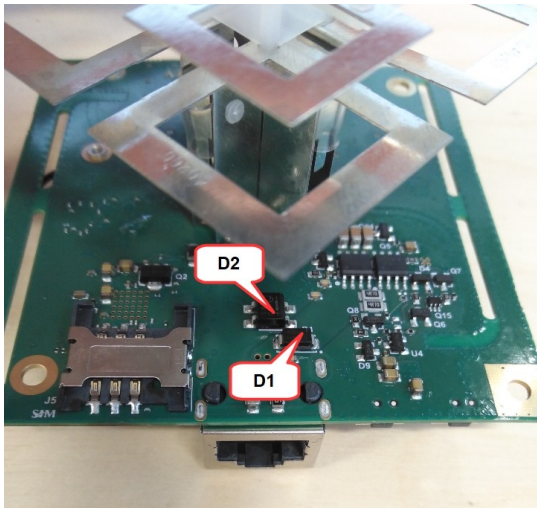
Checking Schottky diode

Check Schottky diode D1 and diode bridge D2. Location of diode on the board you can see in the picture 397. Schottky diode quality measurement method is described on page 23.

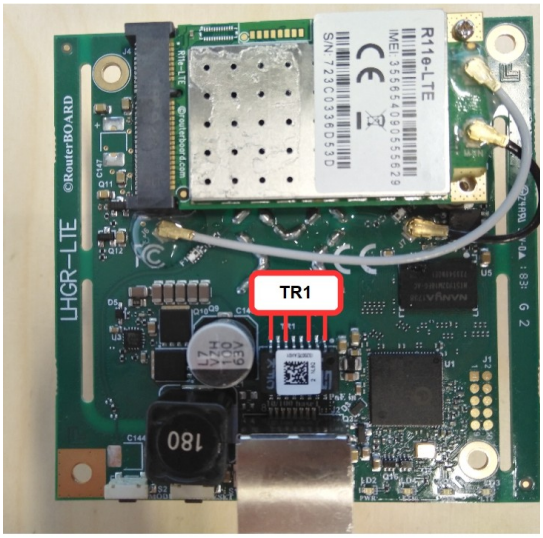
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and ground (note that the ground is connected to every PCB mounting hole). Test points on the transformer pins are marked with red dots, see picture 398.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 397



Picture 398

Checking procedure for over-voltage

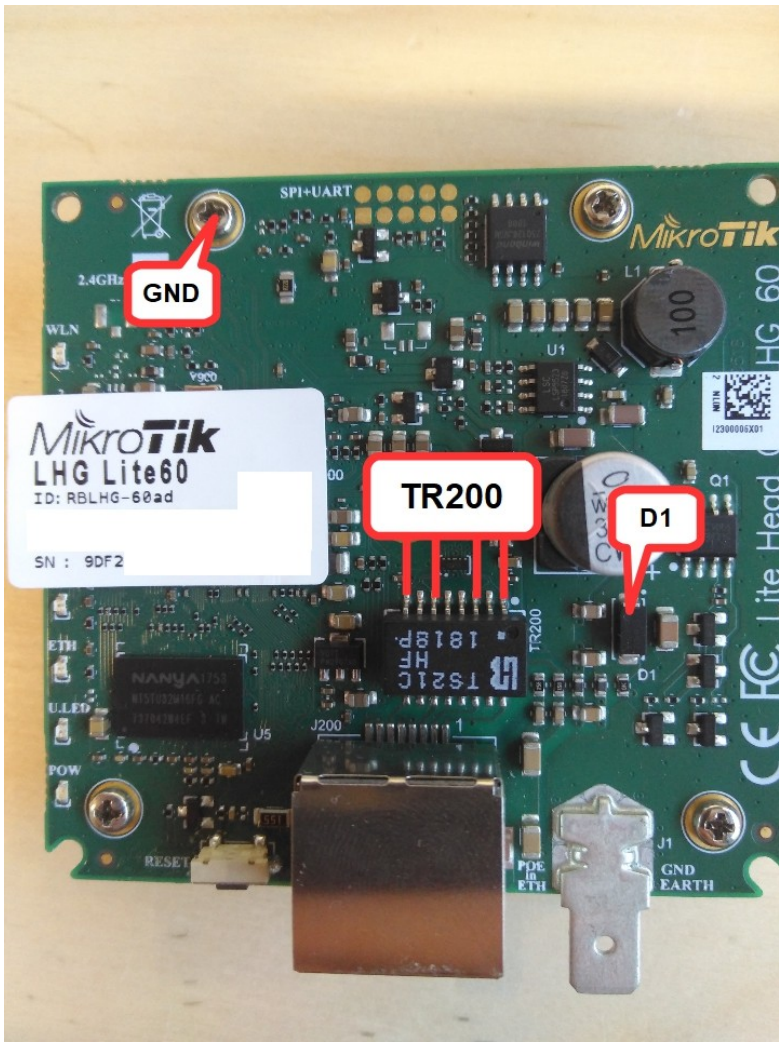
Checking Schottky diode

Check Schottky diode D1. Location of diode on the board you can see in the picture 399. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR200 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 399.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



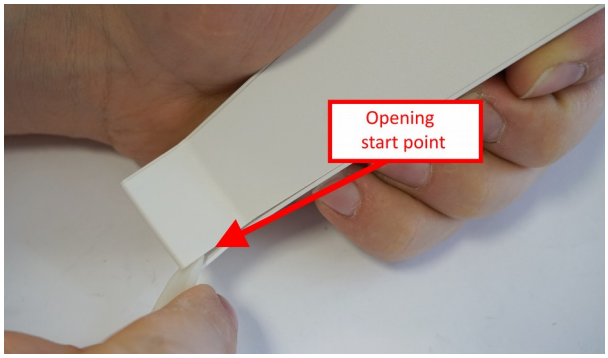
Picture 399

LHG XL 52 ac (RBLHGG-5HPacD2HPnD-XL)

Disassembling information

Step 1:

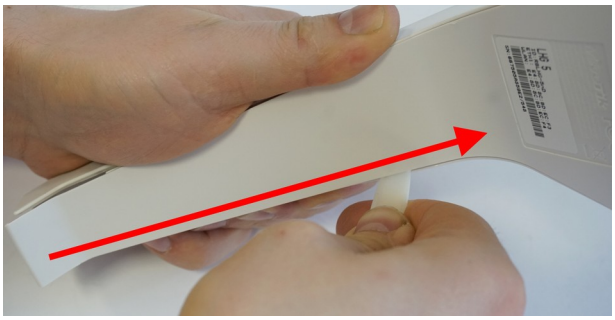
Case opening starts with the short end as shown in the picture 400.



Picture 400

Step 2:

After that push the plastic sticker until the point where case is curly as shown in the picture 401.



Picture 401

Step 3:

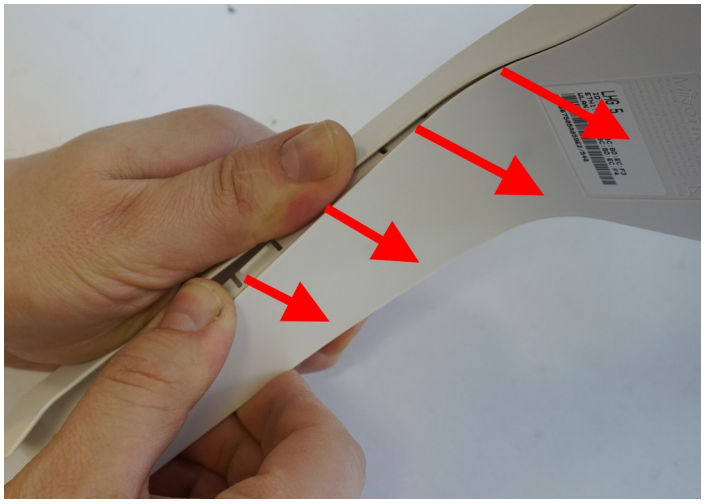
After that just do the same with second half as shown in the picture 402.



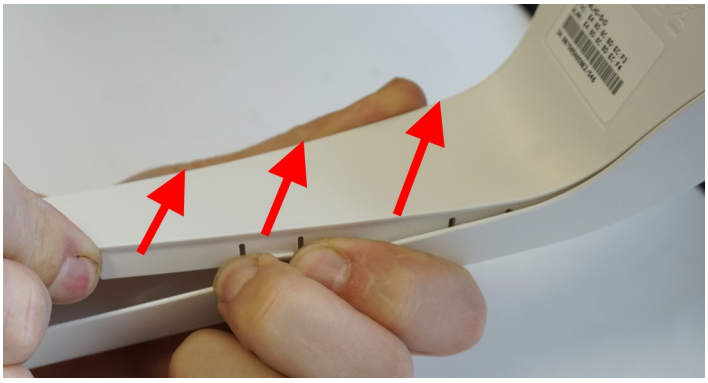
Picture 402

Step 4:

Then take case narrow end and gently push to both sides until cover is taken out as shown in pictures 403-405.



Picture 403



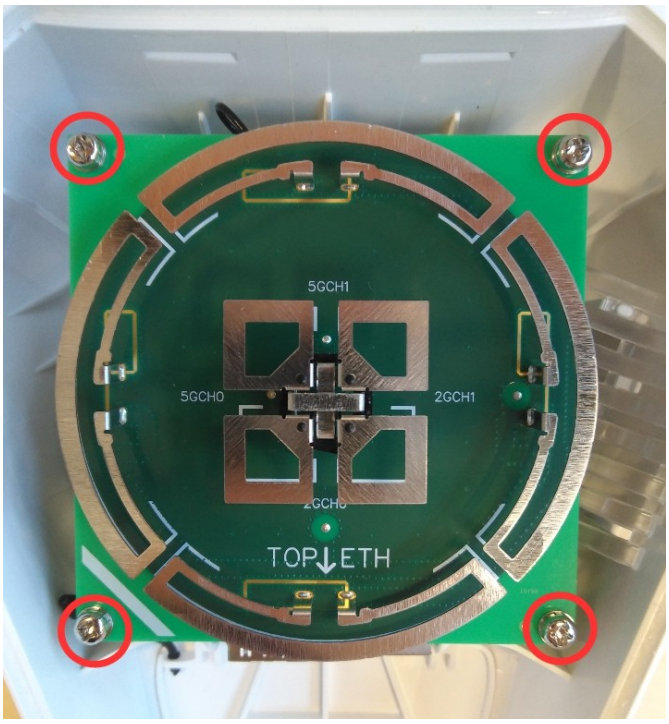
Picture 404



Picture 405

Step 5:

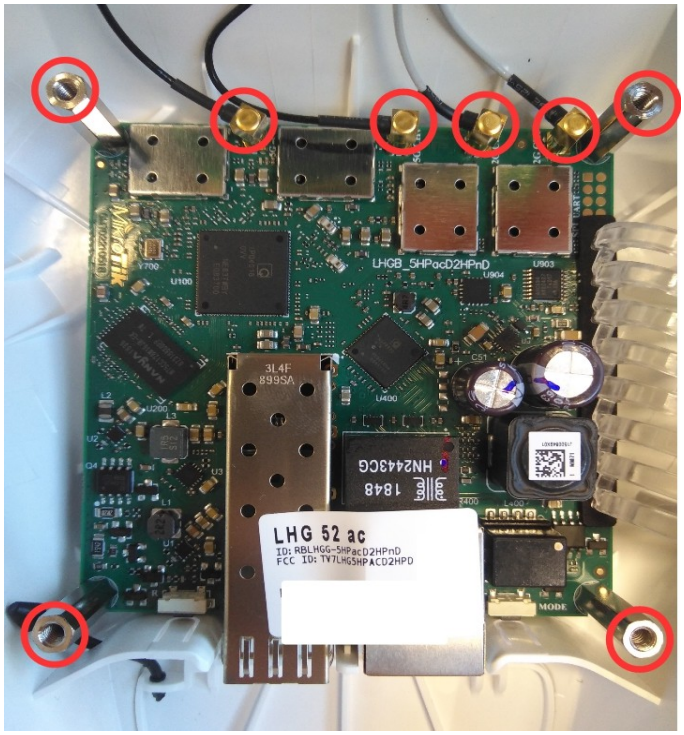
Unscrew 4 PCB holding screws as shown in the picture 406.



Picture 406

Step 6:

Unplug 4 antennas and unscrew 4 metal spacers of which location is shown in the picture 407.



Picture 407

Checking procedure for over-voltage

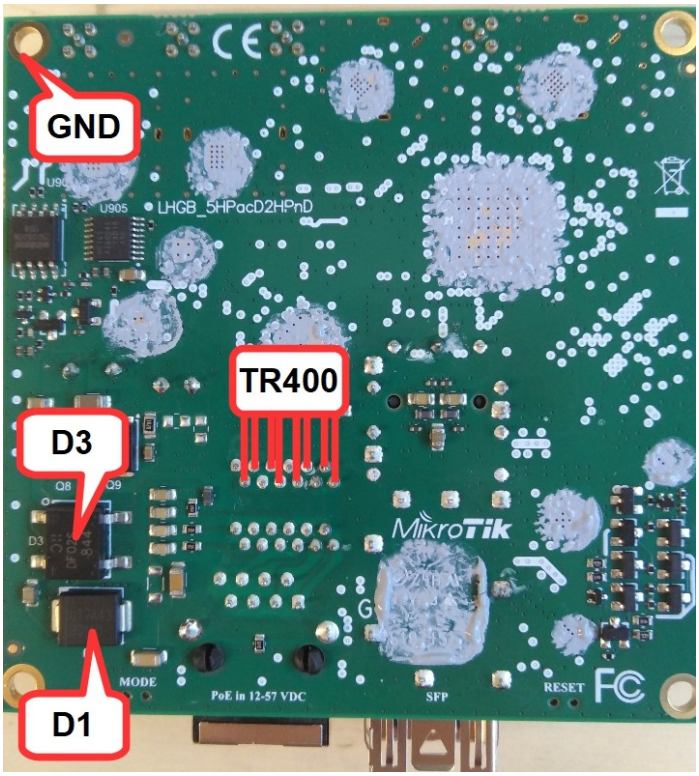
Checking Schottky diode and diode bridge

Check Schottky diode D1 and diode bridge D3. Location of diode on the board you can see in the picture 408. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and ground (note that the ground is connected to every PCB mounting hole). Test points on the transformer pins are marked with red dots, see picture 408.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 408

mANTBox series RouterBoards

mANTBox 15s (921GS-5HPacD-15S)

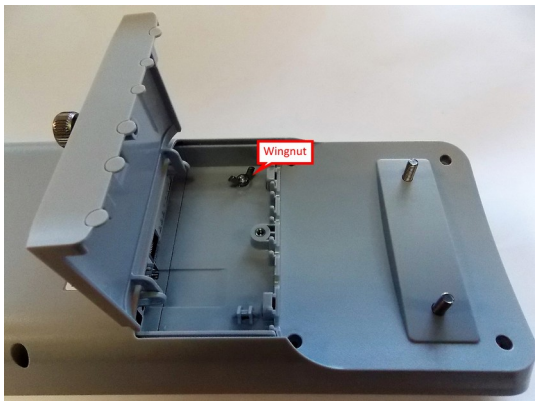


Picture 409

Disassembling information

Step 1:

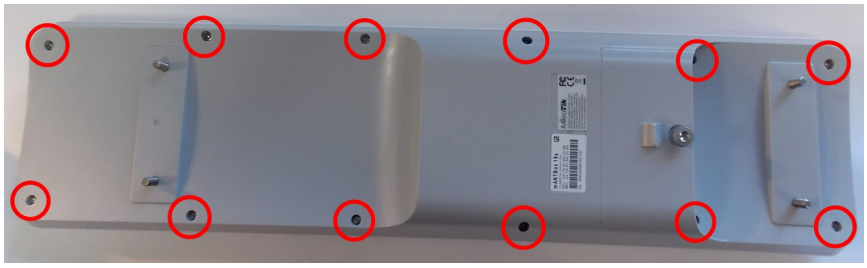
Open antenna enclosure and unscrew wingnut, see picture 410.



Picture 410

Step 2:

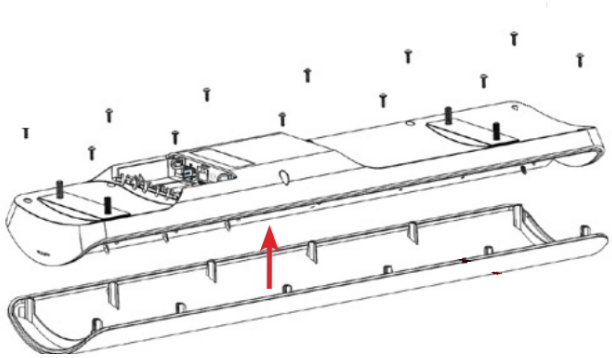
In the picture 411 you can see location of hex screws.



Picture 411

Step 3:

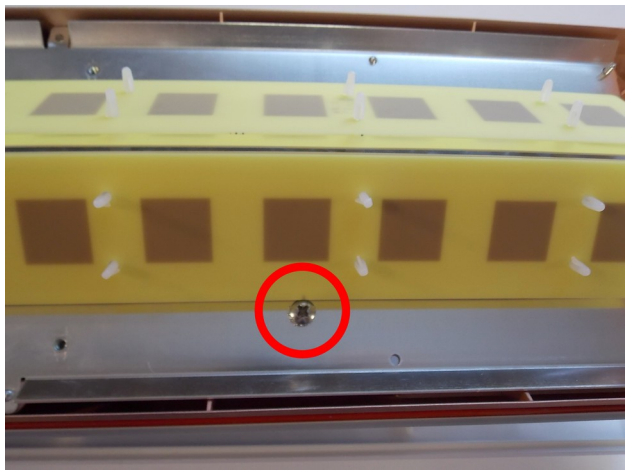
Unscrew hex screws by T10 screwdriver and take out the case, see picture 412.



Picture 412

Step 4:

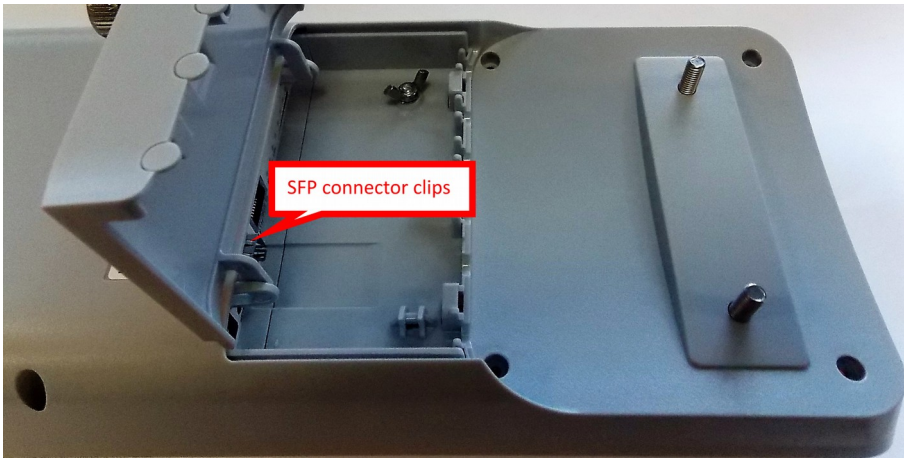
Unscrew M4x16 A2 screw and take out antenna assembly from the case. Location of screw you can see in the picture 413.



Picture 413

Step 5:

Make sure that SFP connector clips are not disturbing to remove the antenna assembly.



Picture 414

Checking procedure for over-voltage

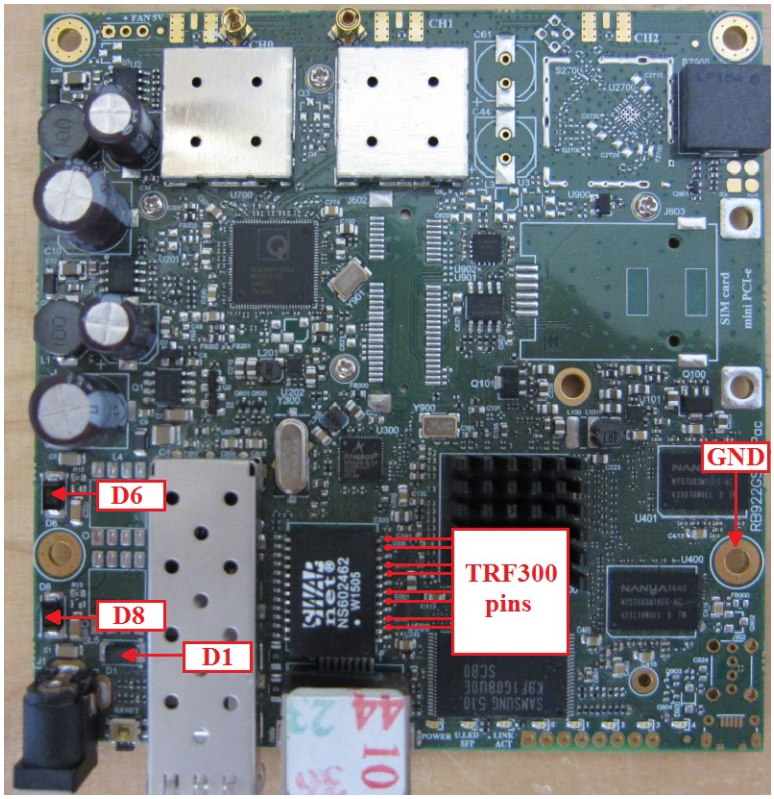
Checking Schottky diodes

Check Schottky diodes D1, D6, D8. Location of diode on the board you can see in the picture 415. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 415.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 415

mANTBox 19s (921GS-5HPacD-19S)

Disassembling information

Disassembly method of the board is the same as the mANTBox 15s. Disassembly method is described on page 288.

Checking procedure for over-voltage

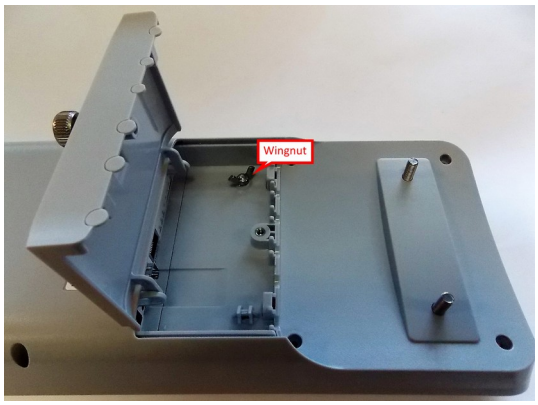
Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for mANTBox 15s, see on page 289.

mANTBox 2 12s (911G-2HPnD-12Sr2)

Disassembling information

Step 1:

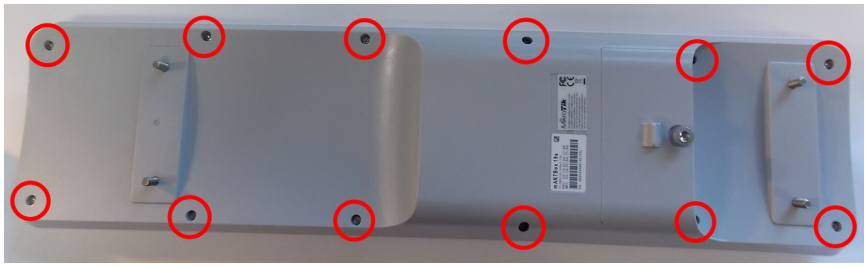
Open antenna enclosure and unscrew wingnut, see picture 416.



Picture 416

Step 2:

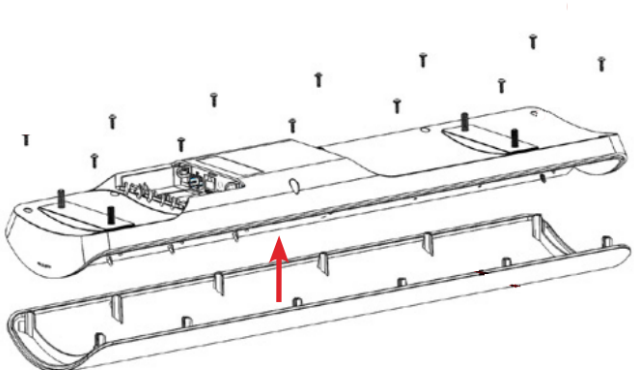
In the picture 417 you can see location of hex screws.



Picture 417

Step 3:

Unscrew hex screws by T10 screwdriver and take out the case, see picture 418.



Picture 418

Checking procedure for over-voltage

Checking Schottky diode and diodes bridges

Check Schottky diode D104, D1 and D2. Location of diodes on the board you can see in the picture 419. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 419.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 419

mAP series RouterBoards

mAP (mAP-2nD)



Picture 420

Disassembling information

Step 1:

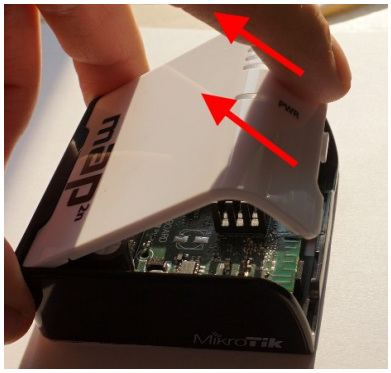
Push the white clip to open the case, see picture 421.



Picture 421

Step 2:

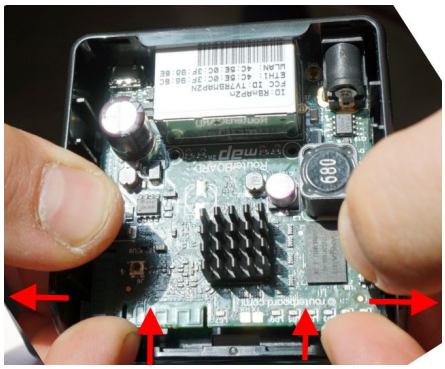
Remove front case as shown in the picture 422.



Picture 422

Step 3:

Take out the board from the case as shown in the picture 423.

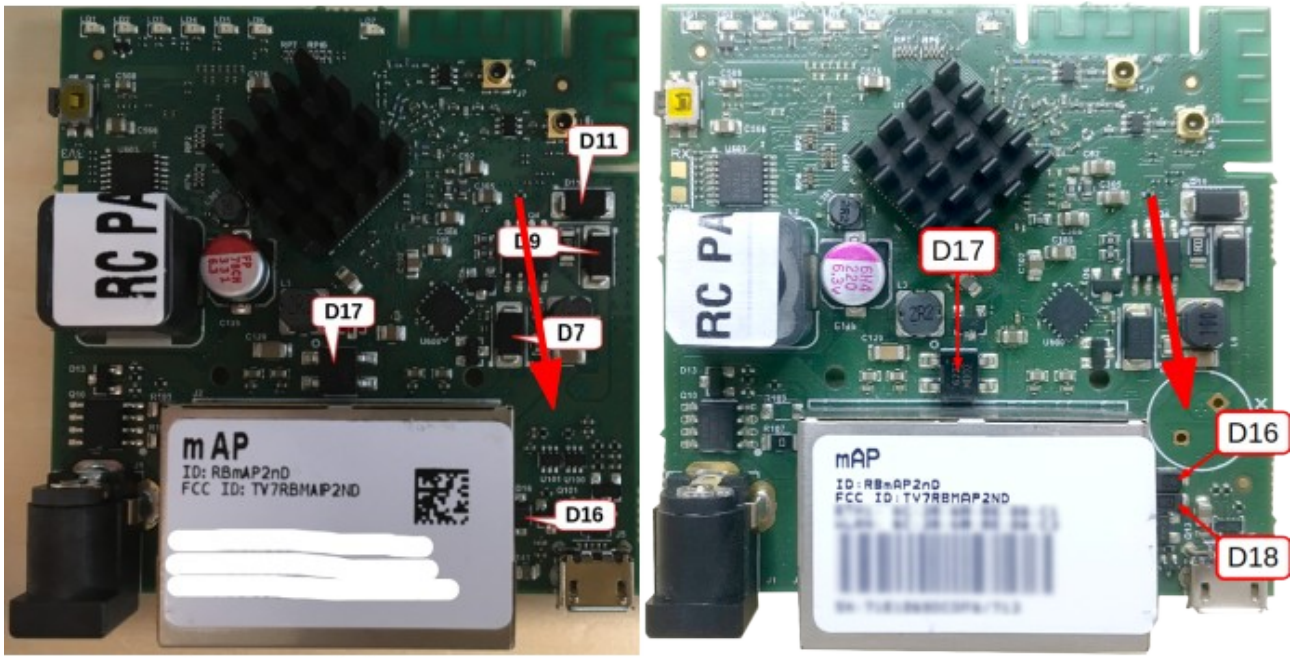


Picture 423

Checking procedure for over-voltage

Determine PCB revision

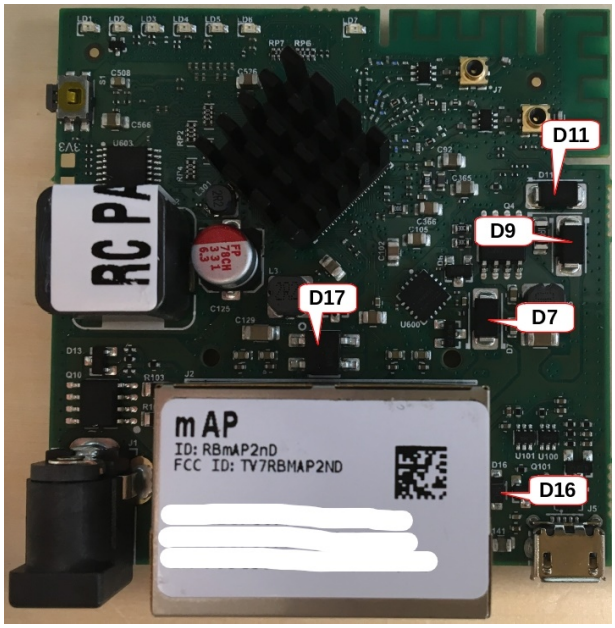
There are two PCB revisions for the mAP-2nD products. Both have different checking procedure for over-voltage. Observe the difference marked with red arrow in Picture 424 to determine the revision.



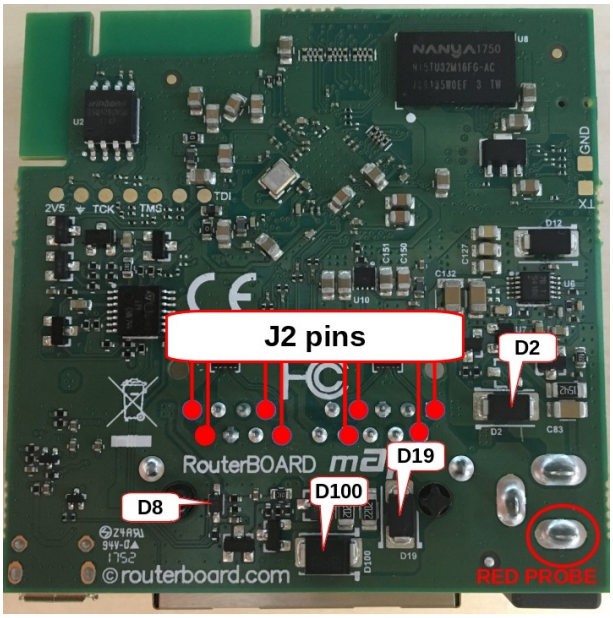
Picture 424

Checking Schottky diodes (latest revisions)

Check Schottky diodes D7, D9, D11, D16 and diode bridge D17, see Picture 425. Diodes D9 and D11 have an exception – measured values should be in range 0,27V..0,31V in both directions. Also check Schottky diodes D2, D8, D19, D100 on the bottom layer, see Picture 426. Schottky diode quality measurement method is described on page 23.



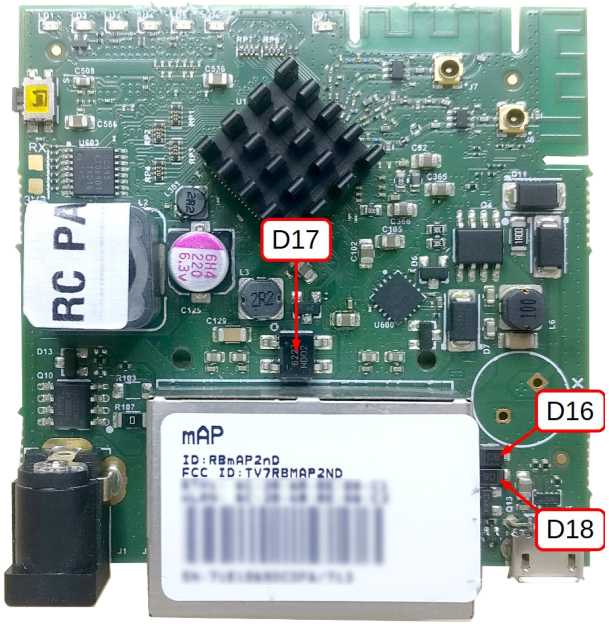
Picture 425



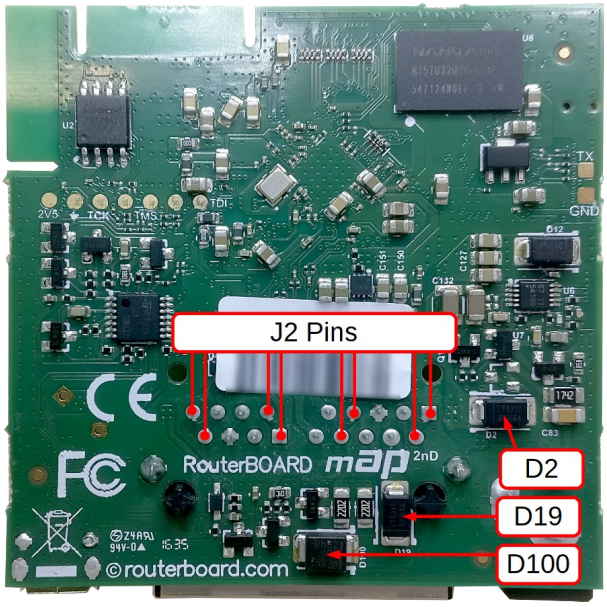
Picture 426

Checking Schottky diodes (early revisions)

Some devices might have different PCB, shown in picture 427 and 428. In such case D2 (OL / 0.320V), D100 (OL / 0.640V), D16, D18 (OL / 0.200V), D19 (OL / 0.315V) and bridge D17 (OL / 0.560V) should be tested for said readings (reverse / forward voltage). Detailed test procedure can be found on page 23.



Picture 427



Picture 428

Checking voltage drop value between Ethernet connector pins and Ground

Check voltage drop value between Ethernet connector J2 pins and Ground. Test points on the Ethernet connector pins are marked with red dots, see picture 426 for latest boards or 428 for older boards.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page on page 25.

mAP lite (mAP L-2nD)

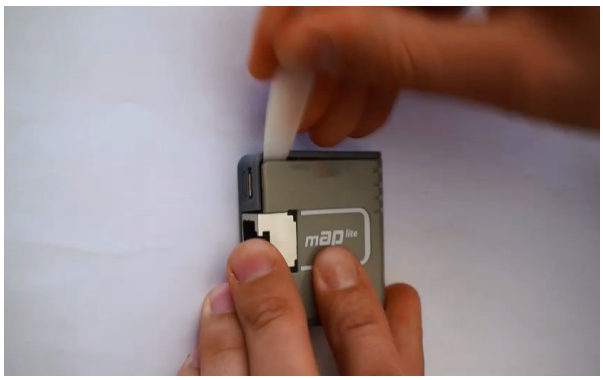


Picture 429

Disassembling information

Step 1:

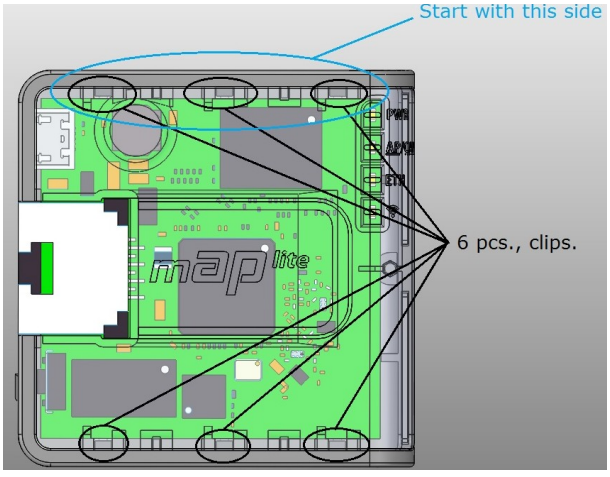
Take some tool and glide it into case gaps, see picture 430.



Picture 430

Step 2:

Push tool outward on all 6 clips and lift up case cover as shown in the picture 431.



Picture 431

Step 3:

Remove case cover and take out routerboard, see picture 432.



Picture 432

Checking procedure for over-voltage

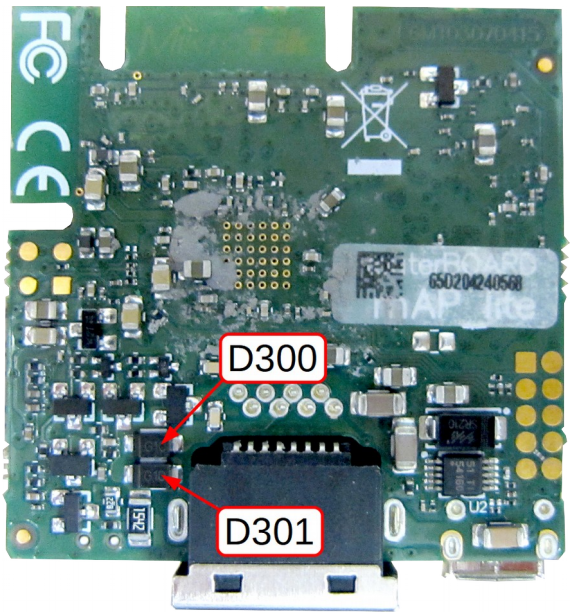
Checking Schottky diode

Check Schottky diodes D300, D301 on the board bottom layer, see picture 433. Schottky diode quality measurement method is described on page 23.

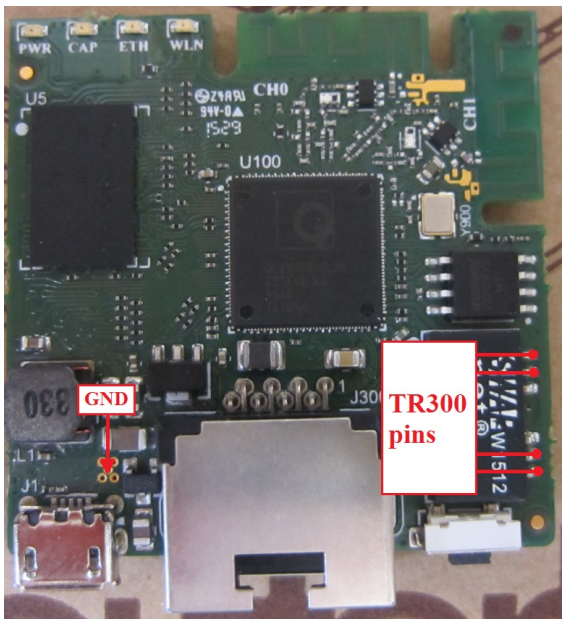
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the Ethernet transformer pins are marked with red dots, see picture 434.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 433



Picture 434

Metal series RouterBoards

Metal 2 (Metal 2SHPn)

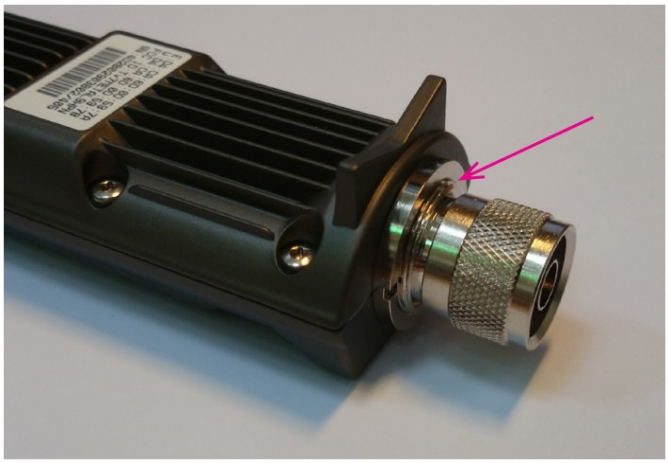


Picture 435

Disassembling information

Step 1:

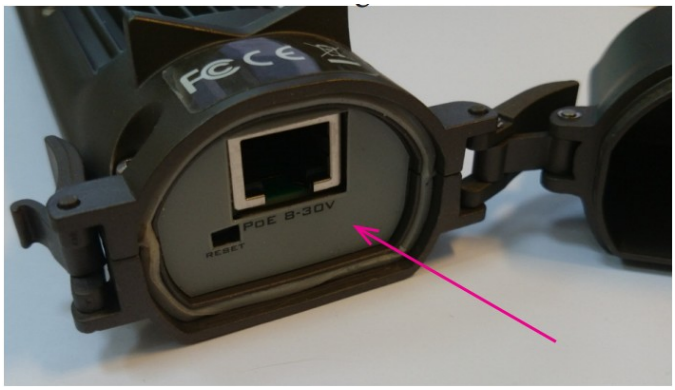
Unscrew N-Male ring nut by special tool.



Picture 436

Step 2:

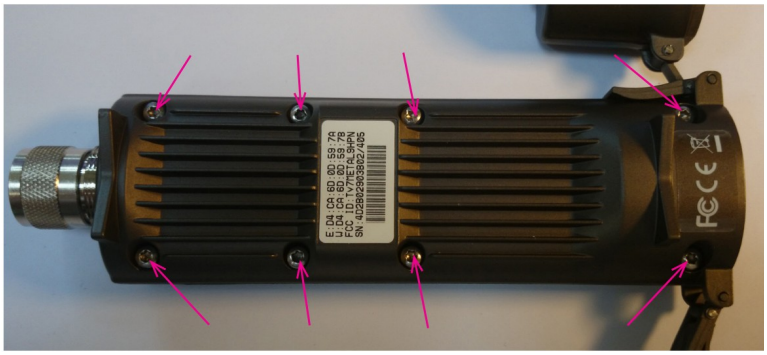
Remove the internal label, see picture.



Picture 437

Step 3:

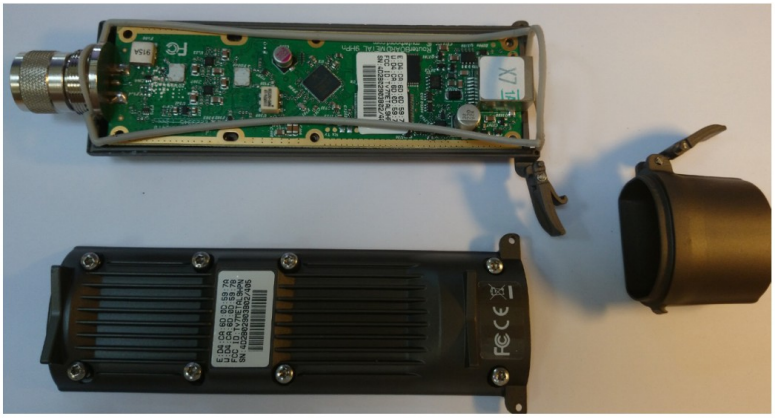
Unscrew 8 torx screws using TX8 screwdriver.



Picture 438

Step 4:

Take out the board from the cover as shown in the picture 439.



Picture 439

Checking procedure for over-voltage

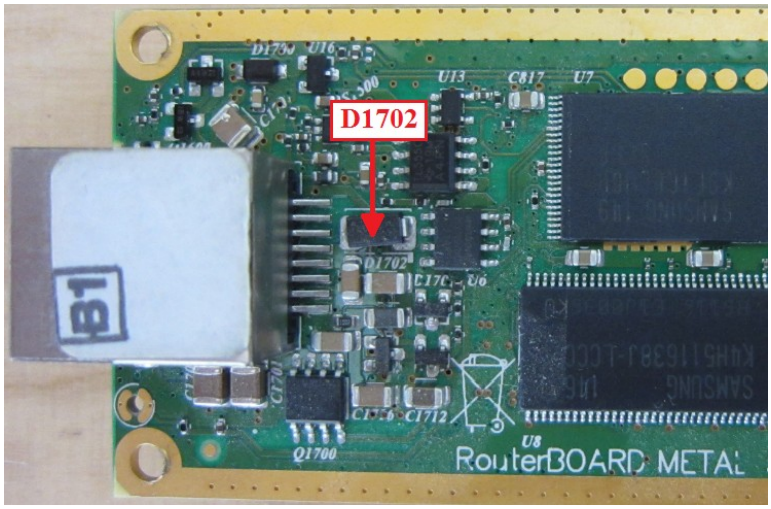
Checking Schottky diode

Check Schottky diode D1702. Location of diode on the board you can see in the picture 440. Schottky diode quality measurement method is described on page 23.

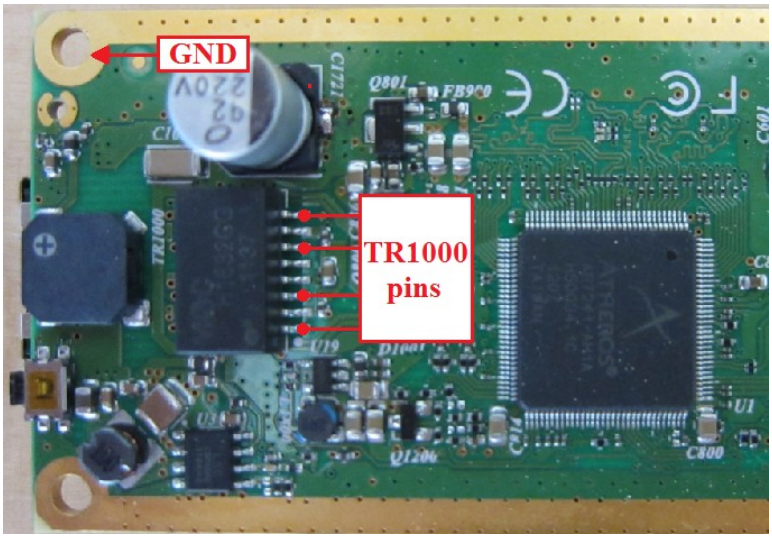
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1000 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 441.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 440



Picture 441

Metal 5 (Metal 5SHPn)



Picture 442

Disassembling information

Disassembly method of the board is the same as the Metal 2 board. Disassembly method is described on page 301.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for Metal 2 board, see on page 302.

Metal 9 (Metal 9HPn)



Picture 443

Disassembling information

Disassembly method of the board is the same as the Metal 2 board. Disassembly method is described on page 301.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for Metal 2 board, see on page 302.

Metal 52 ac (Metal G-52HPacn)



Picture 444

Disassembling information

Disassembly method of the board is the same as the Metal 2 board. Disassembly method is described on page 301.

Checking procedure for over-voltage

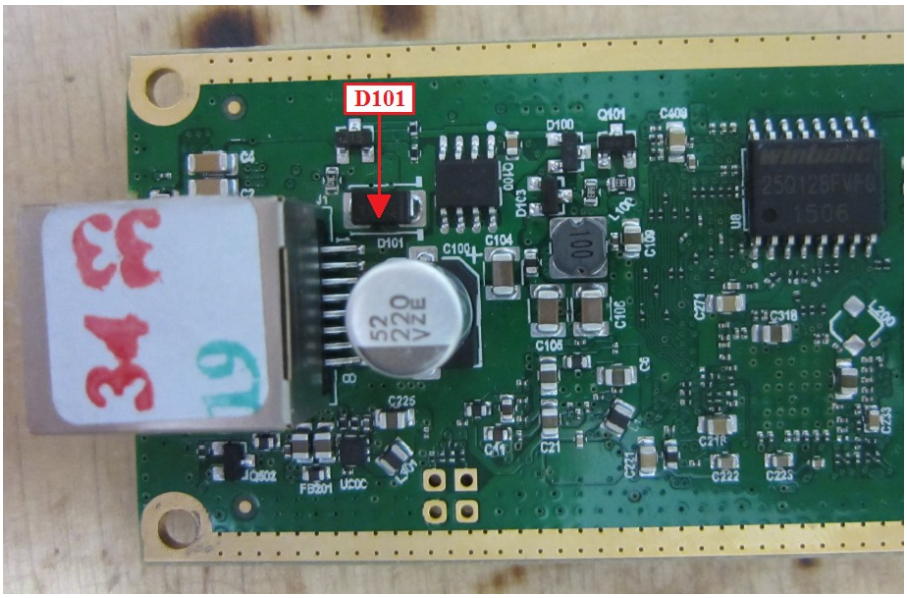
Checking Schottky diode

Check Schottky diode D101. Location of diode on the board you can see in the picture 445. Schottky diode quality measurement method is described on page 23.

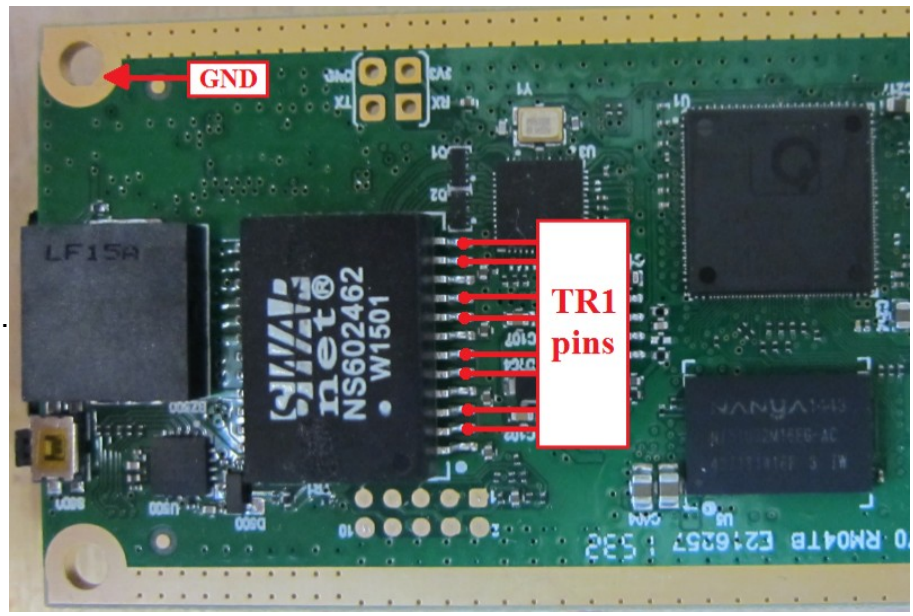
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 446.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 23.



Picture 445



Picture 446

NetBox series RouterBoards

NetBox 5 (911G-5HPacD-NB)

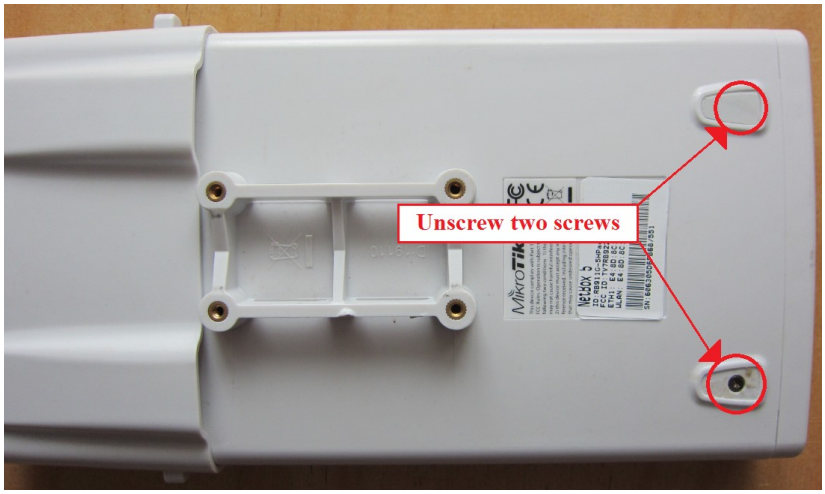


Picture 447

Disassembling information

Step 1:

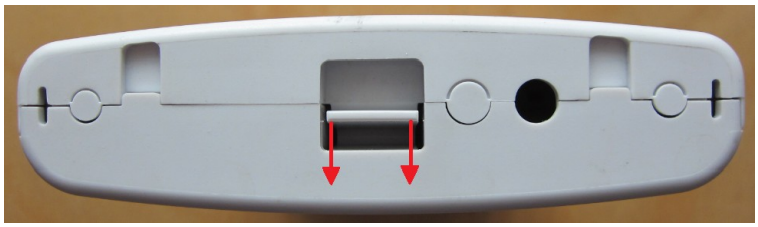
Unstick two stickers on the NetBox case, see picture 448.



Picture 448

Step 2:

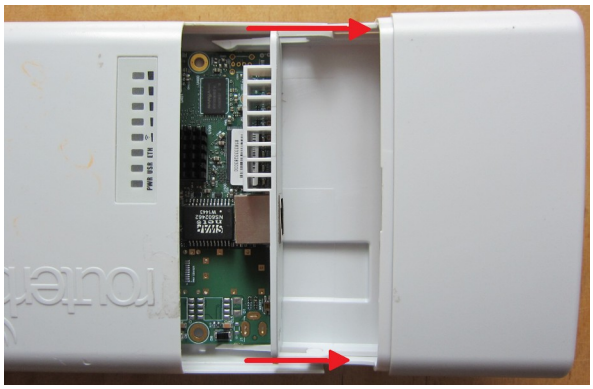
Push the clip as shown in the picture 449.



Picture 449

Step 3:

Take out holder with RouterBoard from the Base case as shown in the picture 450.



Picture 450

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for 911G-5HPacD board, see on page 75.

NetMetal series RouterBoards

NetMetal 5SHPn (RB921UAGS-5SHPacD-NM)

NetMetal 5SHPn triple (RB922UAGS-5HPacT-NM)

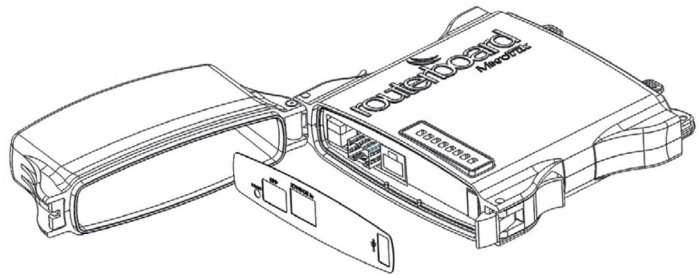


Picture 451

Disassembling information

Step 1:

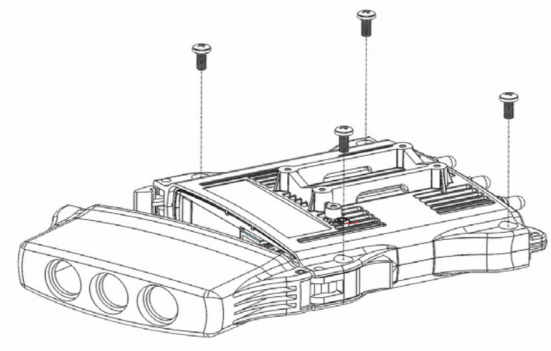
Open case and remove label from connector, see picture 452.



Picture 452

Step 2:

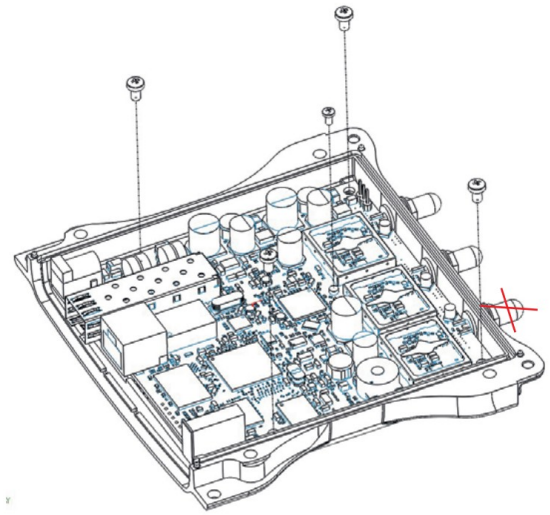
Unscrew 4 screws by 3 mm hex screwdriver. Location of screws you can see in the picture 453.



Picture 453

Step 3:

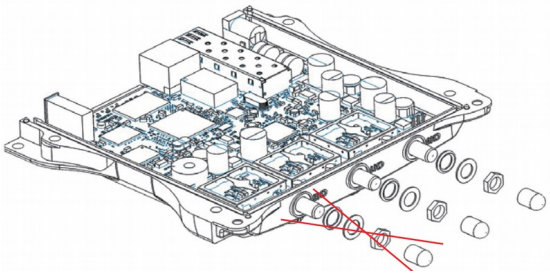
Unscrew the PCB from case back (4 screws - M3 and 1 screw – M2). Location of screws you can see in the picture 454.



Picture 454

Step 4:

Unscrew the SMA connector nuts by 8 mm wrench.



Picture 455

Checking procedure for over-voltage

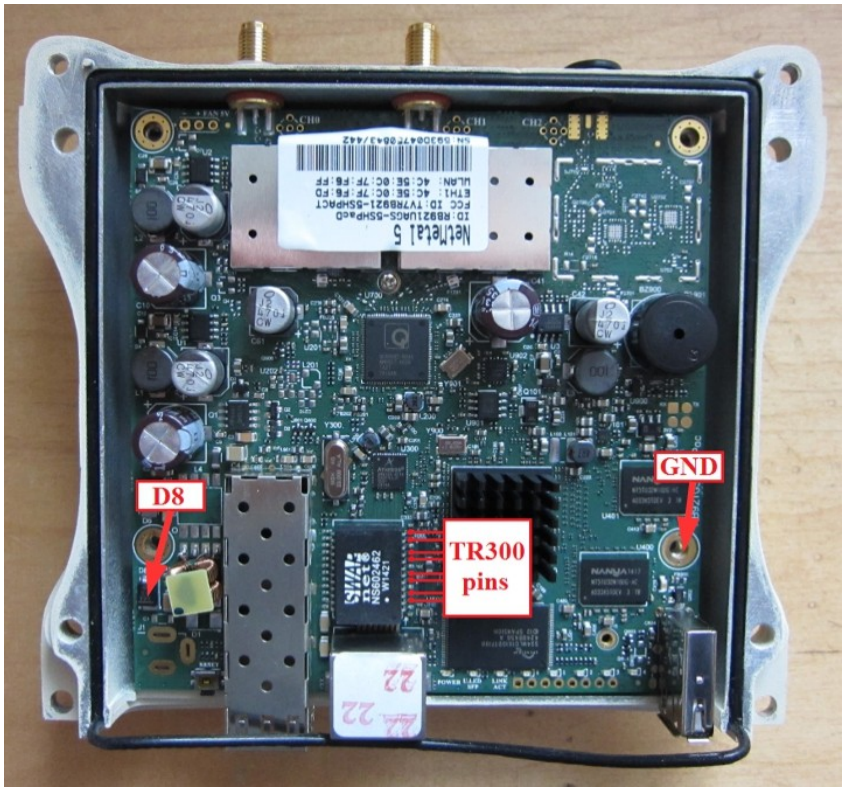
Checking Schottky diode

Check Schottky diode D8. Location of diodes on the board you can see in the picture 456. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 456.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 456

NetMetal 5 triple (RB922UAGS-5HPacT-NM)



Picture 457

Disassembling information

Disassembly method of the board is the same as the Netmetal 5 (RB921UAGS-5SHPacD) board. Disassembly method is described on page 310.

Checking procedure for over-voltage

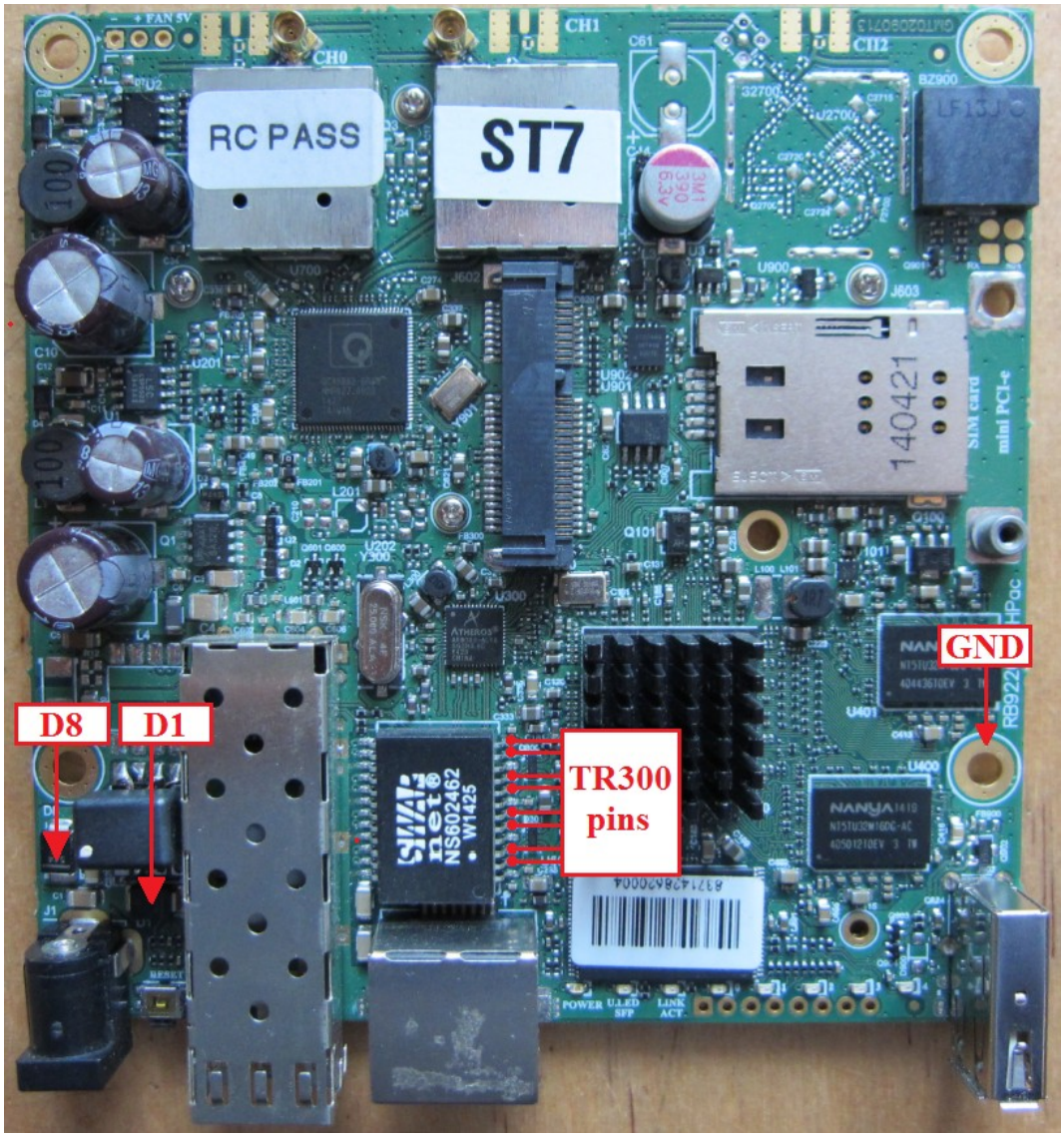
Checking Schottky diodes

Check Schottky diode D8 Location of diodes on the board you can see in the picture 458. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 458.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 458

Checking procedure for over-voltage

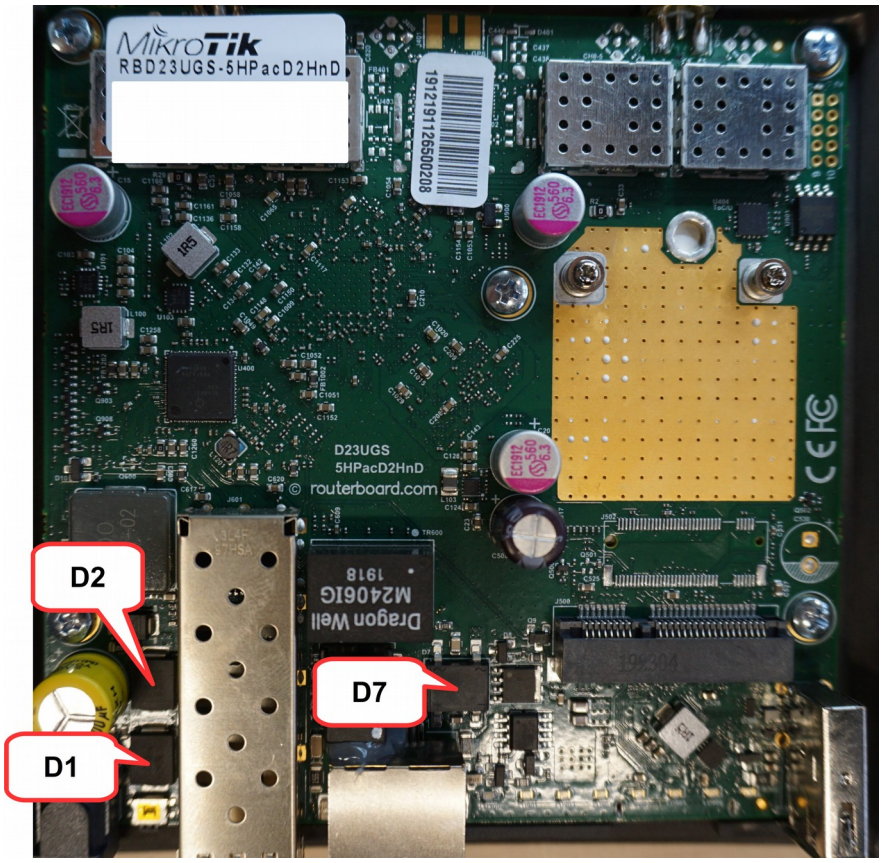
Checking Schottky diodes

Check Schottky diode D1, D2 and diode bridge D7. Location of diodes on the board you can see in the picture 459. Schottky diode quality measurement method is described on page 23.

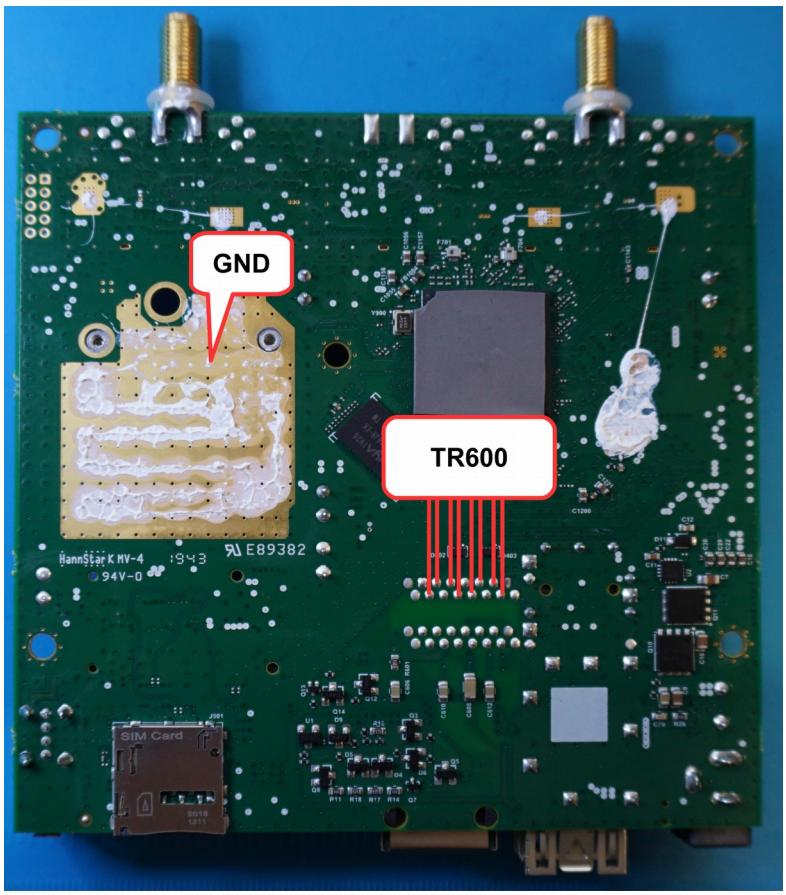
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR600 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 460.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 459



Picture 460

OmniTIK series RouterBoards

OmniTIK 5 (OmniTIK U-5HnD)

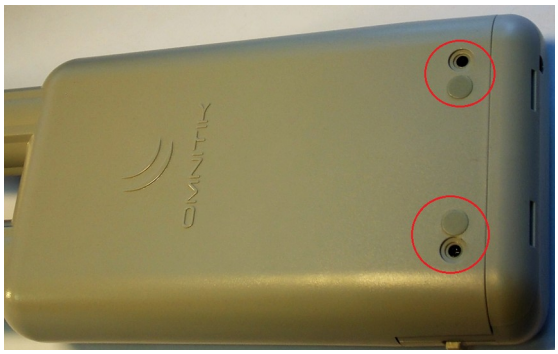


Picture 461

Disassembling information

Step 1:

Unstick 2 screw stickers and unscrew the case base from the board holder by torque T8 screwdriver. Location of screw stickers and screws you can see in the picture 462.



Picture 462

Step 2:

Take out the case base from the board holder, see picture 463.



Picture 463

Checking procedure for over-voltage

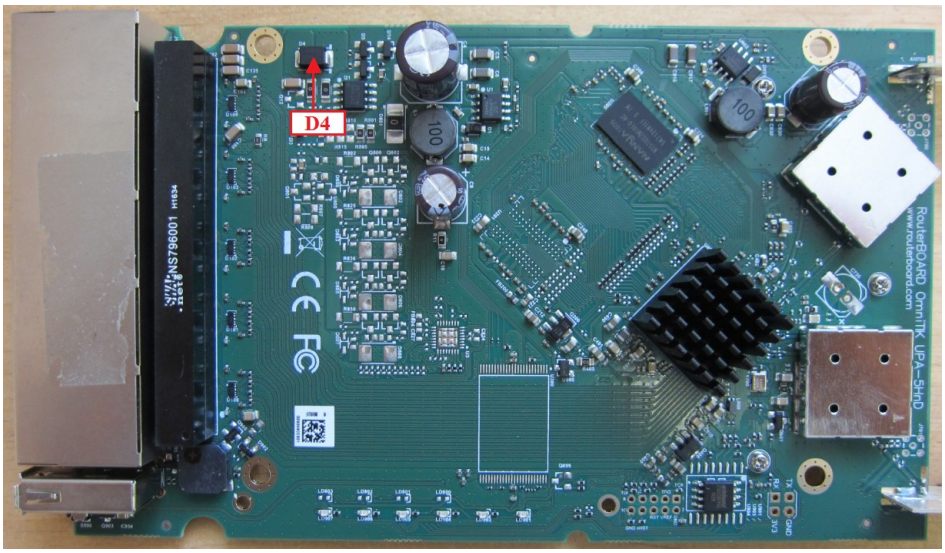
Checking Schottky diode

Check Schottky diode D4. Location of diode on the board you can see in the picture 464. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR102 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 465.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 464



Picture 465

OmniTIK 5 PoE (OmniTIK UPA-5HnD)



Picture 466

Disassembling information

Disassembly method of the board is the same as the OmniTIK 5 board. Disassembly method is described on page 317.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D1, D5, D17, D22, D25, D28, D30, D31. Location of diodes on the board you can see in the picture 467. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between diode array pin#1 and Ground

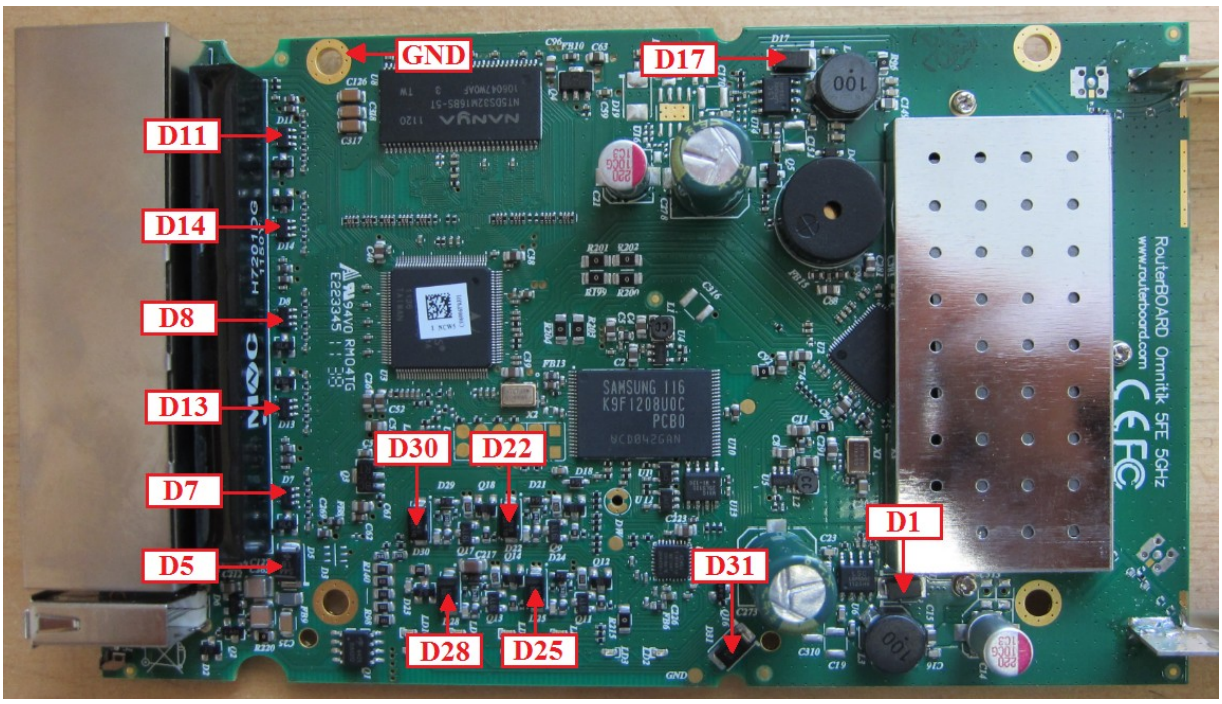
Check voltage drop value between diode arrays D7, D8, D11, D13, D14 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 467.

Voltage drop value between diode array pin#1 and Ground should be in the range from 0,3V to 0,35V. Voltage drop measurement method is described on page 25.

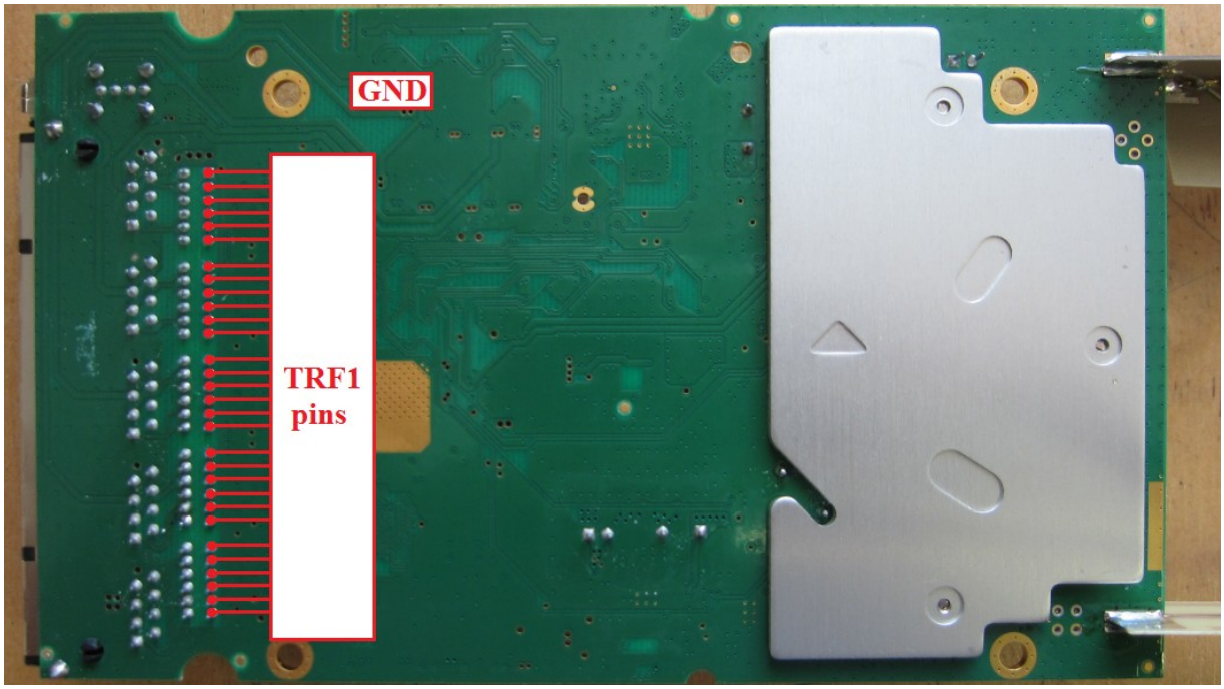
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 468.

Voltage drop value should be in the range from 0,3V to 0,35V. Voltage drop measurement method is described on page 25.



Picture 467



Picture 468

OmniTIK 5 ac (OmniTIK G-5HacD)

OmniTIK 5 PoE ac (OmniTIK PG-5HacD)

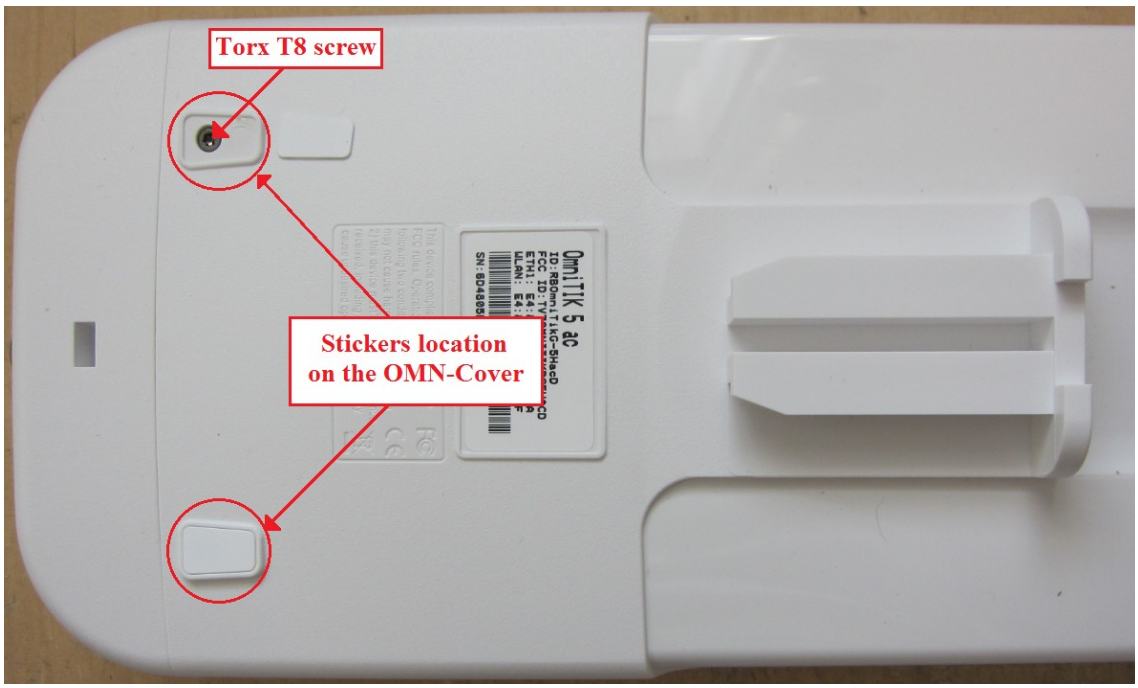


Picture 469

Disassembling information

Step 1:

Unstick 2 stickers on the OMN-Cover, see picture 470.



Picture 470

Step 2:

Unscrew 2 torx screws (QJ-152). Location of screws you can see in the picture 470.

Step 3:

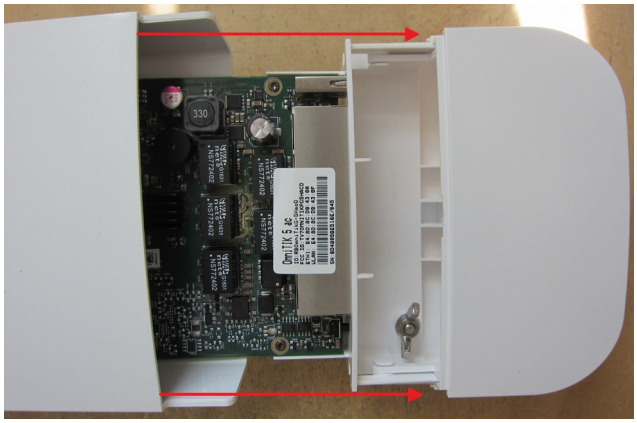
Unscrew with fingers SCR-M4 captive screw as shown in the picture 471.



Picture 471

Step 4:

Take out OMN-Cover from the OMN-Base as shown in the picture 472.



Picture 472

Checking procedure for over-voltage

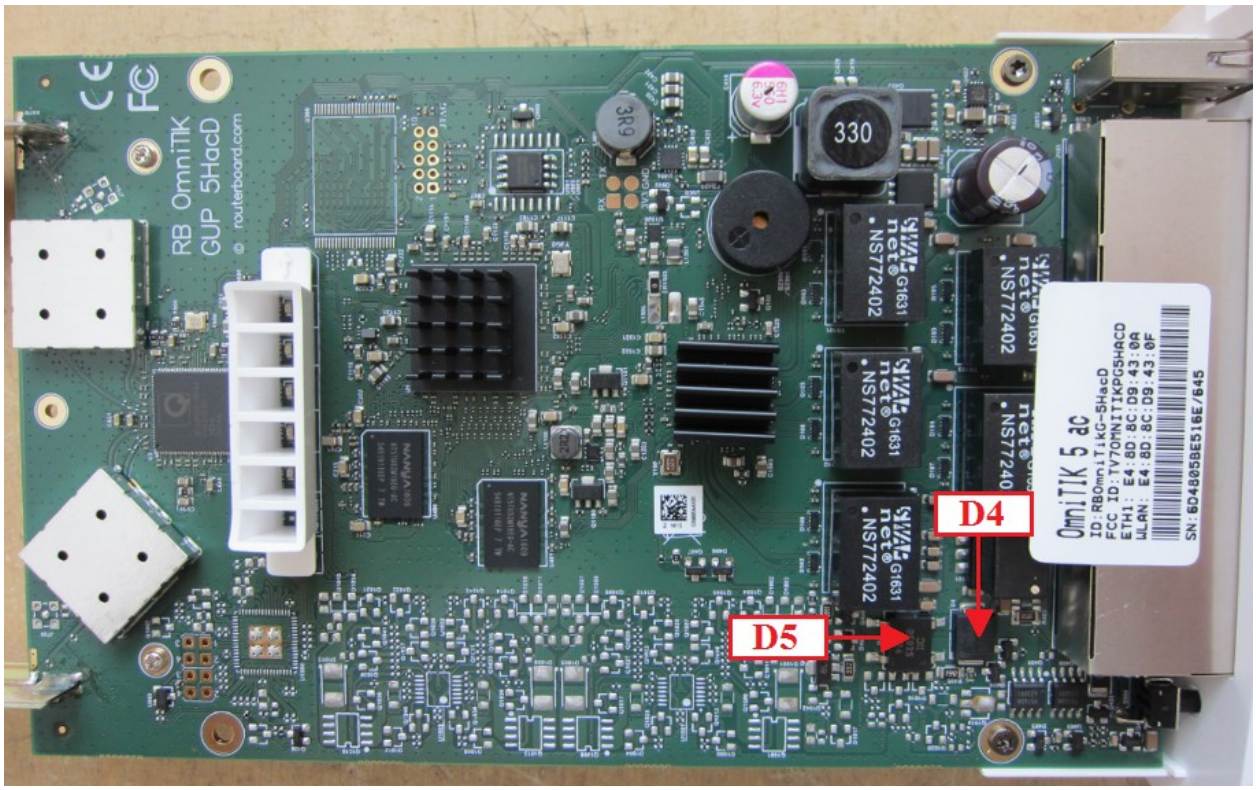
Checking Schottky diode and diode bridge

Check Schottky diode D4 and diode bridge D5. Location of diodes on the board you can see in the picture 473. Diodes quality measurement method is described on page 23.

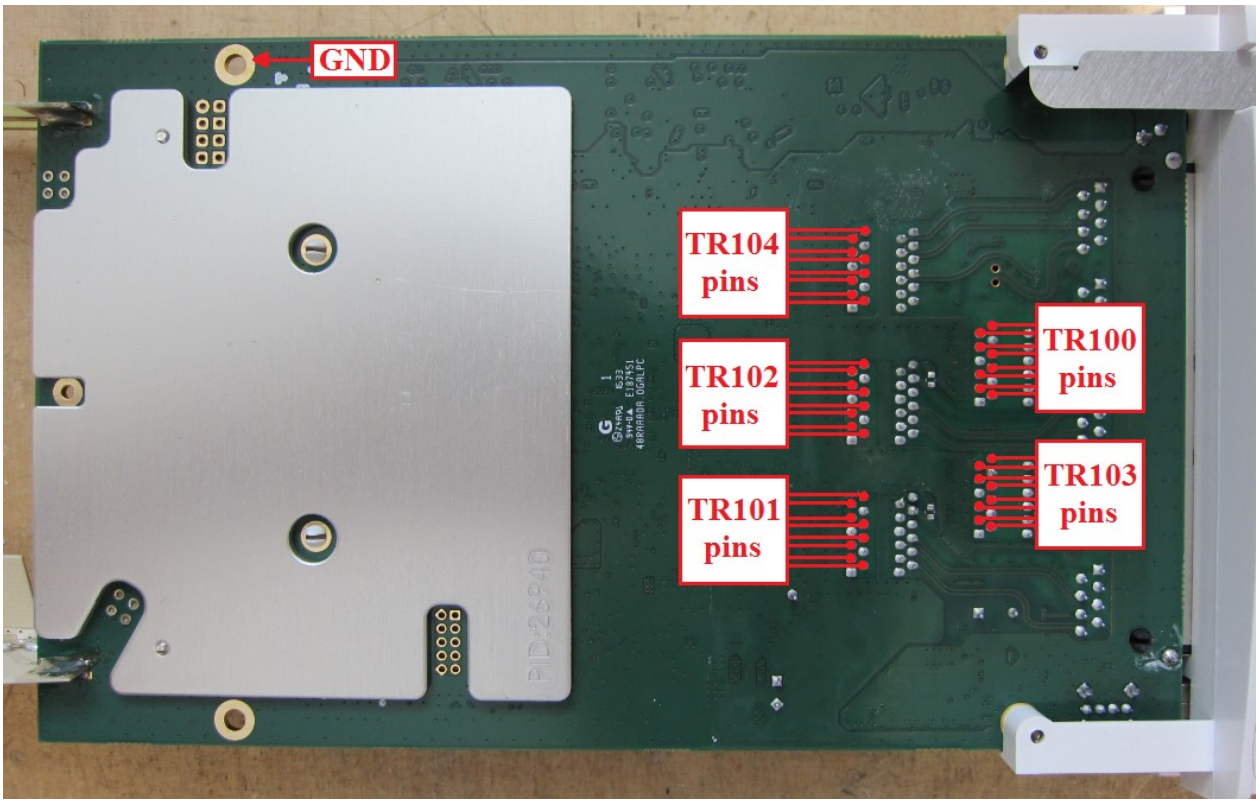
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR100-TR104 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 474.

Voltage drop value should be in the range from 0,4V to 0,45V. Voltage drop measurement method is described on page 25.



Picture 473



Picture 474

PowerBox series RouterBoards

PowerBox (750P-PB)

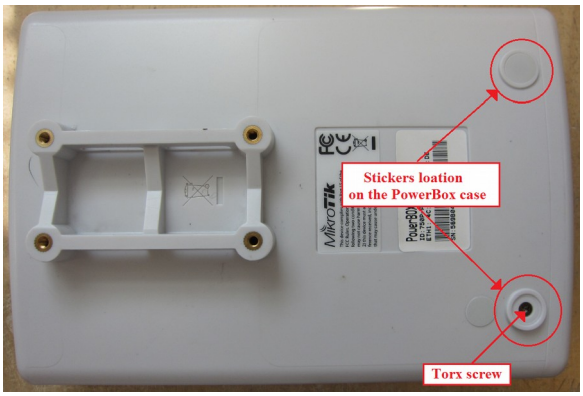


Picture 475

Disassembling information

Step 1:

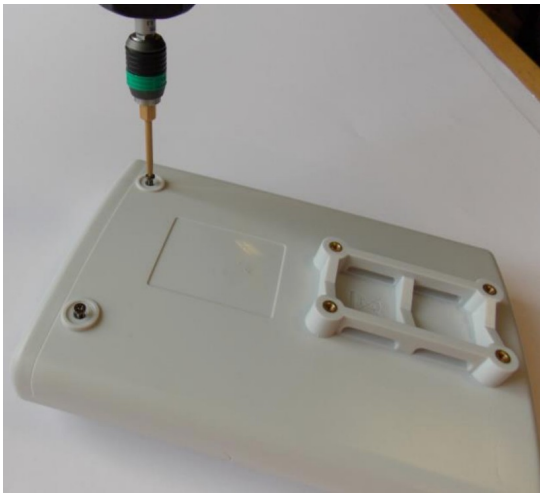
Unstick 2 stickers on the PowerBox case, see picture 476.



Picture 476

Step 2:

Unscrew 2 screws by torx T8 screwdriver. Location of screws you can see in the picture 477.



Picture 477

Step 3:

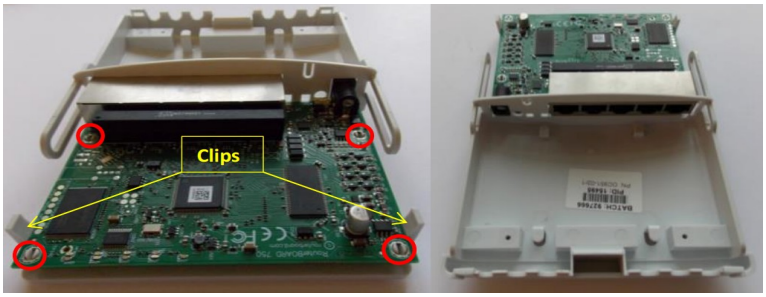
Take out PowerBox cover from the PowerBox Base, see picture 478.



Picture 478

Step 4:

Incline fixed plastic clips to sever board from case, see picture 479.



Picture 479

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diodes D7-D10. Location of diodes on the board you can see in the picture 480. Schottky diode quality measurement method is described on page 23.

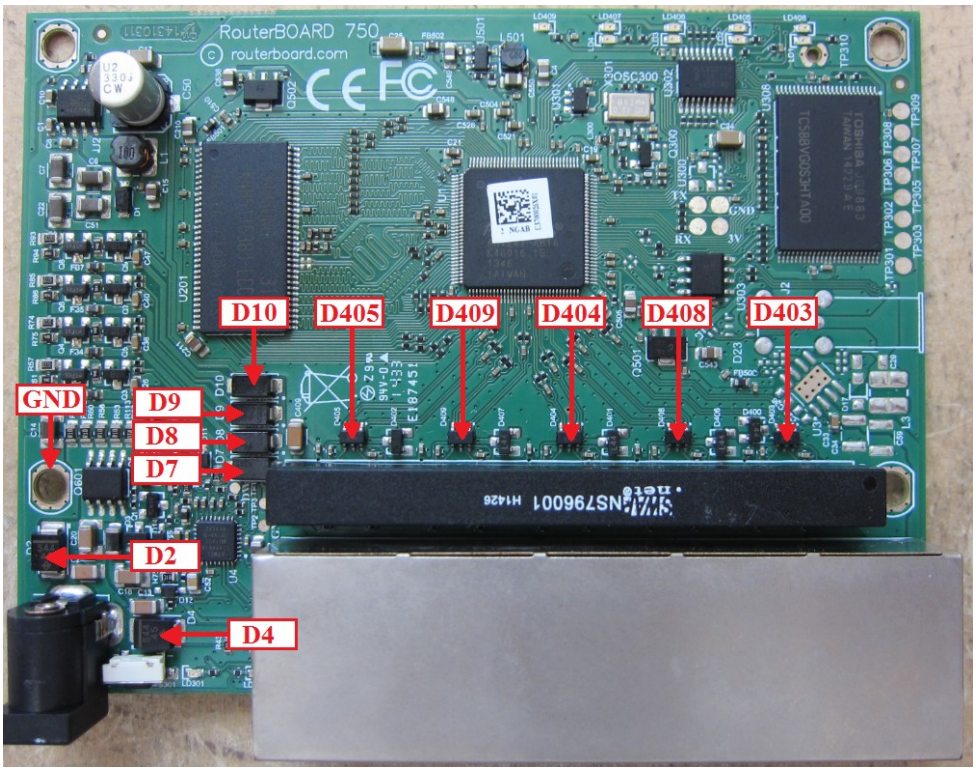
Checking voltage drop value between diode array pin#1 and Ground

Check voltage drop value between diode arrays D403-D405, D408, D409 pin#1 and Ground. Location of diode arrays on the board you can see in the picture 480.

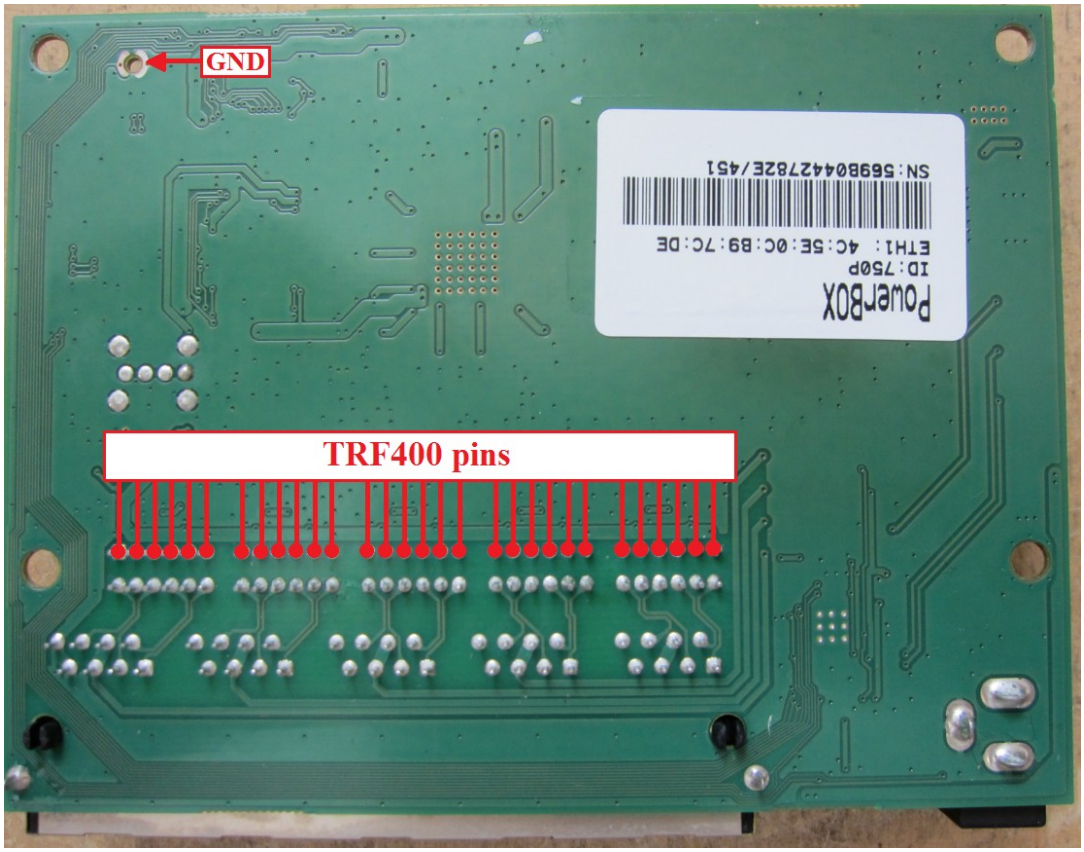
Voltage drop value should be in the range from 0,3V to 0,35V. Voltage drop measurement method is described on page 25.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 481. Voltage drop value should be in the range from 0,3V to 0,35V. Voltage drop measurement method is described on page 25.



Picture 480


GND
TRF400 pins
SN:569804427826/451
ETH1: 4C:5E:0C:89:7C:DE
ID:750P
PowerBOX

Picture 481

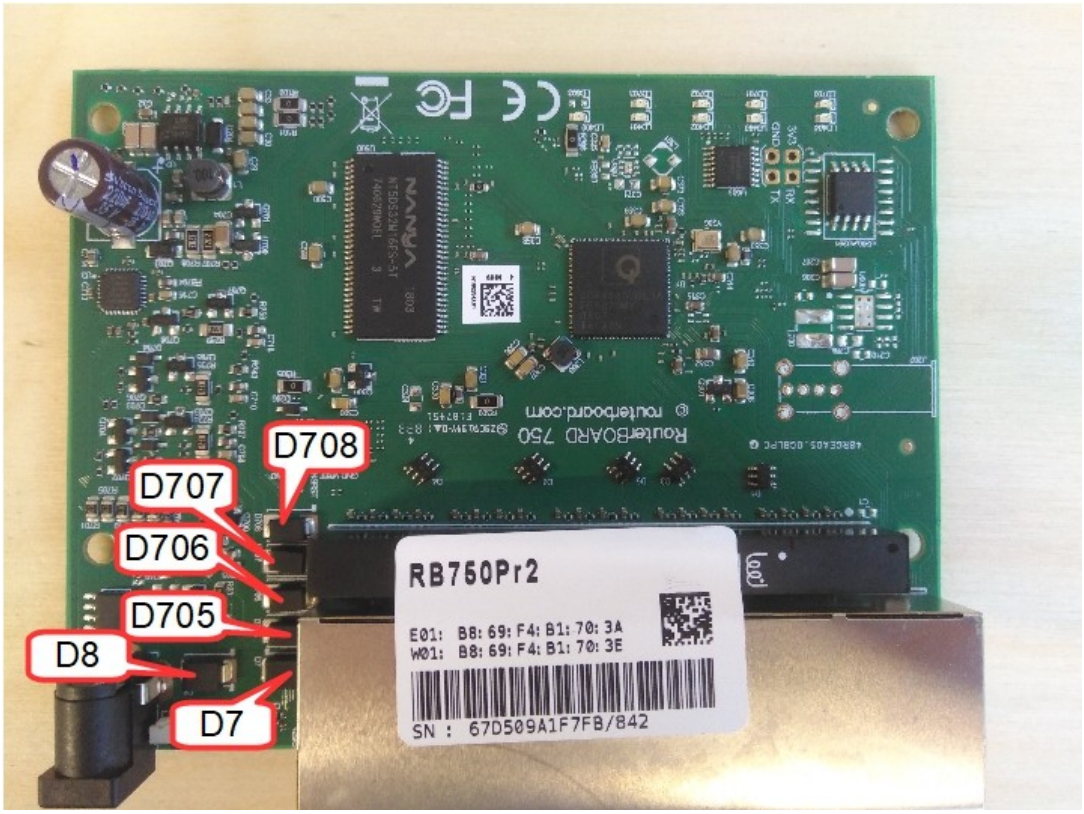
Checking procedure for over-voltage

Checking Schottky diodes

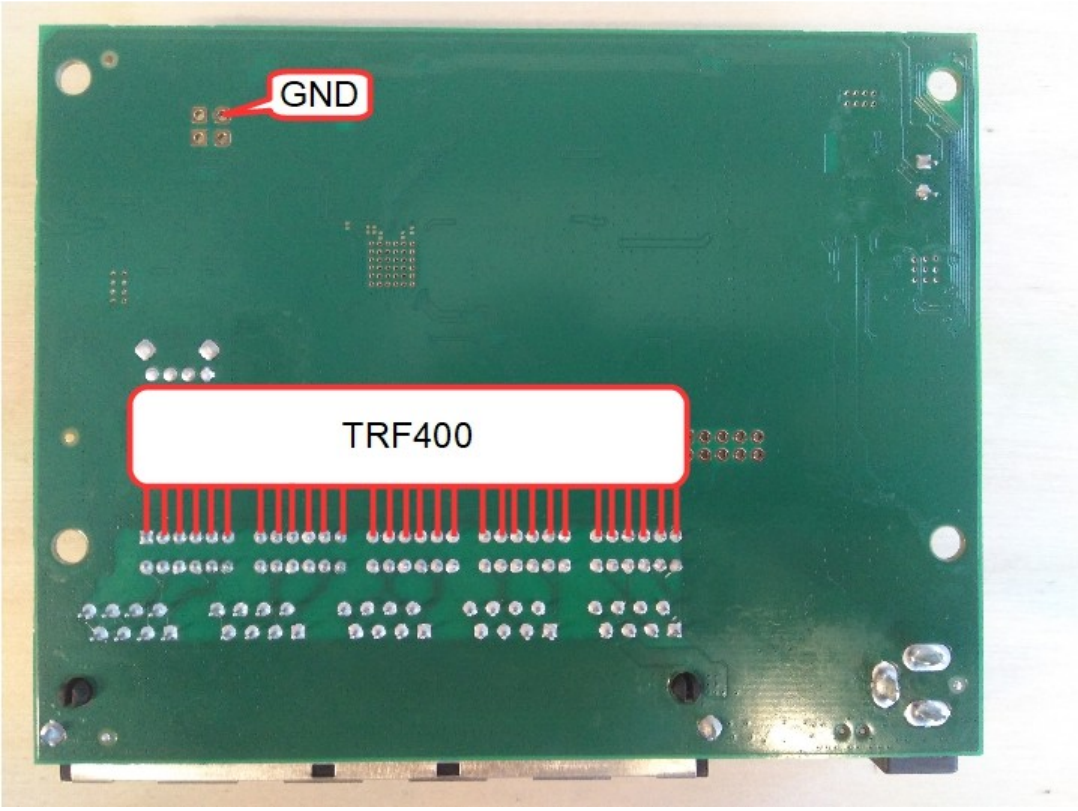
Check Schottky diodes D7, D8, D705, D706, D707, D708. Location of diodes on the board you can see in the picture 482. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 483. Voltage drop value should be in the range from 0,31V to 0,35V. Voltage drop measurement method is described on page 25.



Picture 482



Picture 483

PowerBox Pro series RouterBoards

PowerBox Pro (RB960PGS-PB)

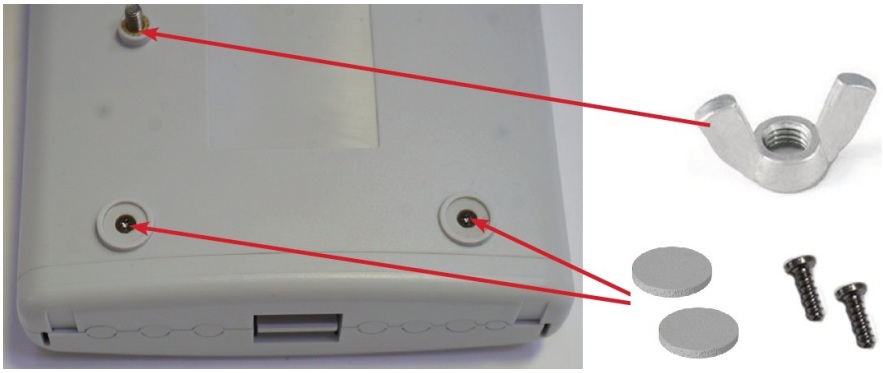


Picture 484

Disassembling information

Step 1:

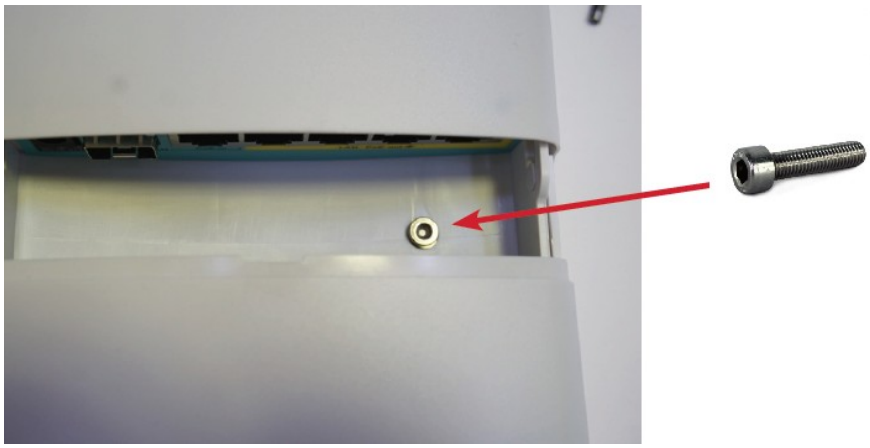
Unstick 2 stickers on the PowerBox Pro case, unscrew 2 screws by torx T8 screwdriver and remove wingnut. See picture 485.



Picture 485

Step 2:

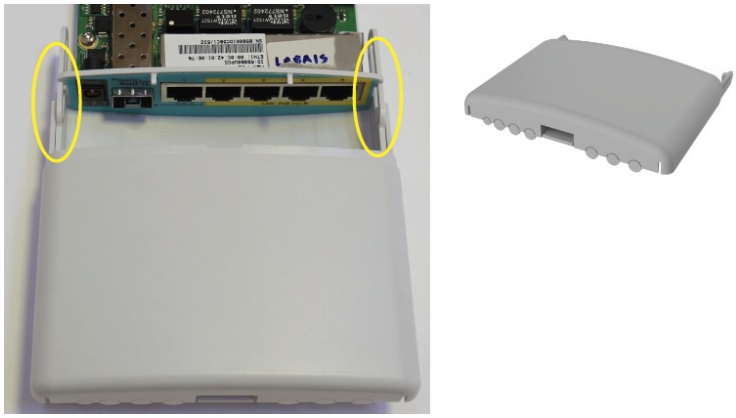
Unscrew and remove M4 scew as seen in picture 486.



Picture 486

Step 3:

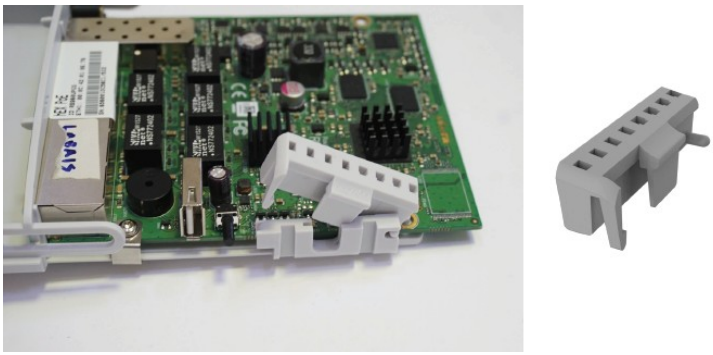
Remove the lid from PCB holder, see picture 487.



Picture 487

Step 4:

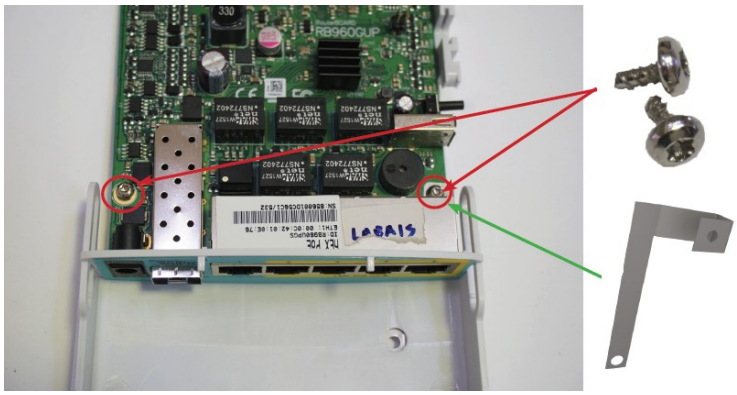
Gently lift the clip side from LED tunnel and remove it from hinge, see picture 488.



Picture 488

Step 5:

Remove two torx screws and grounding sheet as seem in picture 489. Lift PCB from holder.



Picture 489

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for hEX PoE (960PGS) on page 258.

QRT series RouterBoards

QRT 2 (QRT G-2SHPnD)

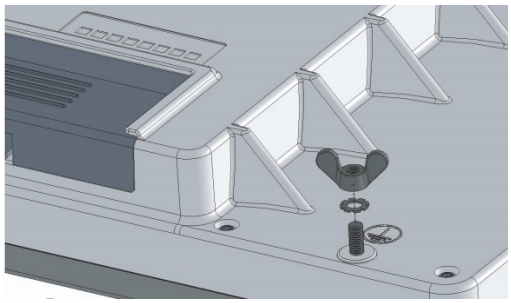


Picture 490

Disassembling information

Step 1:

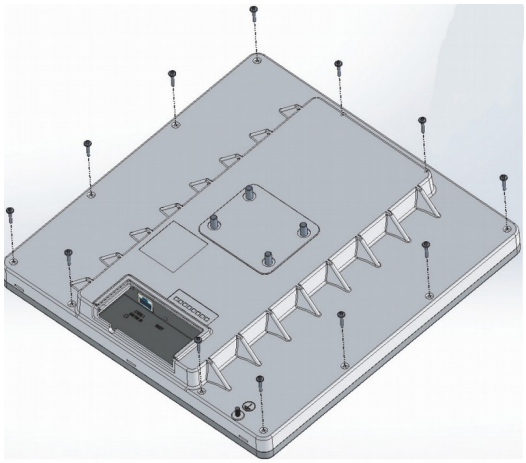
Unscrew the wing nut (M4 screw) from Ground, see picture 491.



Picture 491

Step 2:

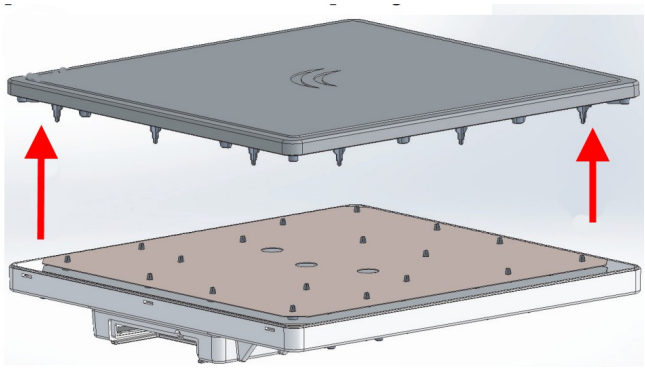
Unscrew 12 screws by torque T8 screwdriver. Location of screws you can see in the picture 492.



Picture 492

Step 3:

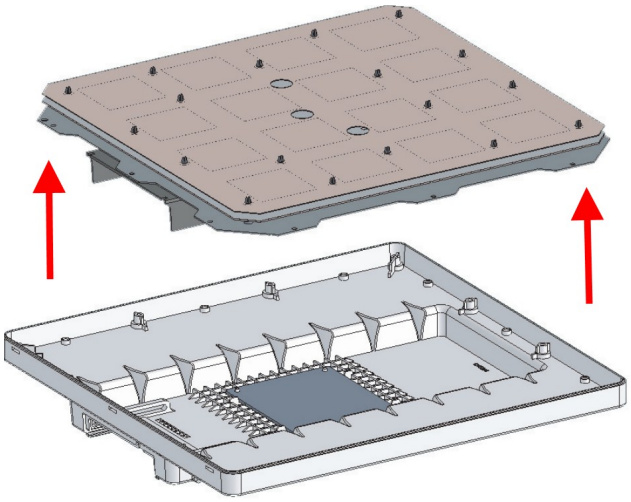
Remove the cover, see picture 493.



Picture 493

Step 4:

Unscrew the M4 screw from bottom plate and than separate bottom plate from antenna with board, see picture 494.



Picture 494

Checking procedure for over-voltage

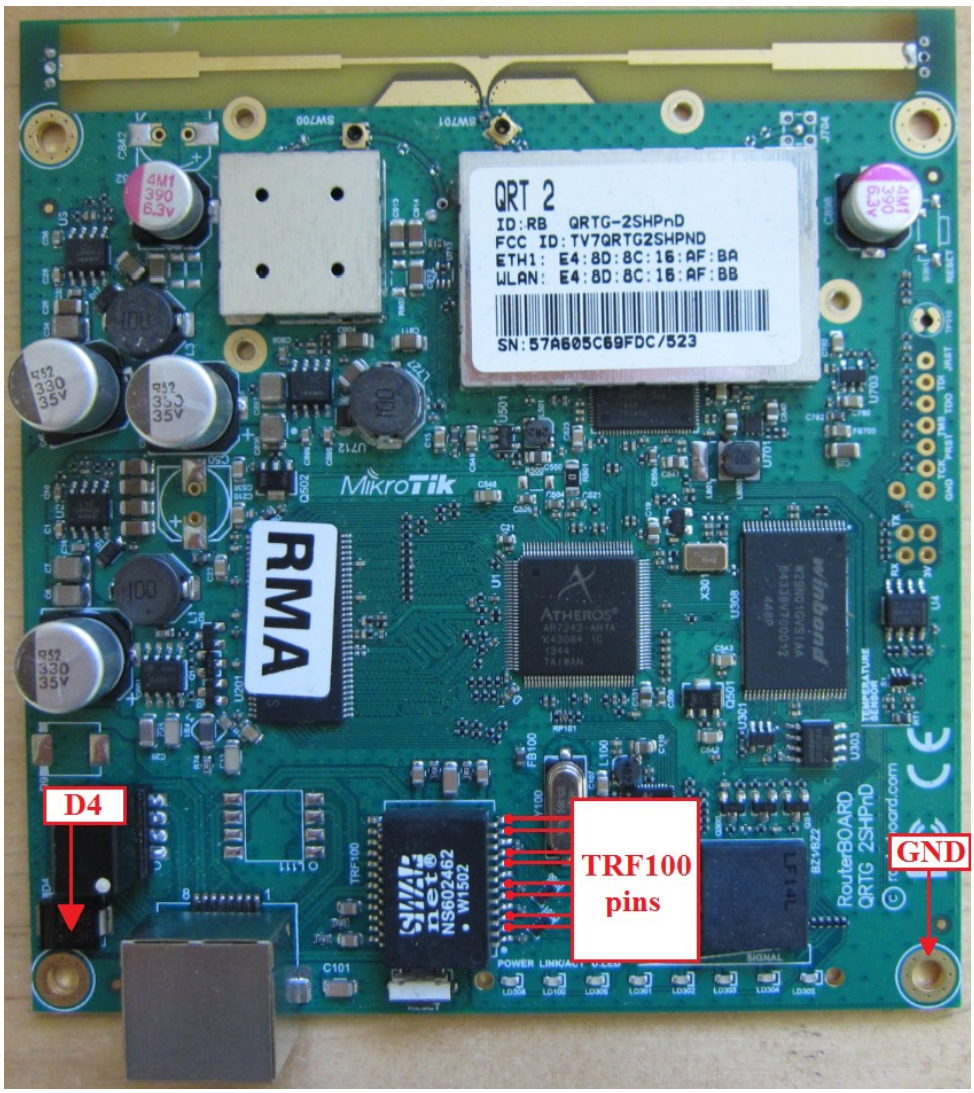
Checking Schottky diode

Check Schottky diode D4. Location of diode on the board you can see in the picture 495. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF100 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 495.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.


QRT 2
ID:RB QRTG-2SHPnD
FCC ID:TV7QRTG2SHPND
ETH1: E4:8D:8C:16:AF:BA
WLAN: E4:8D:8C:16:AF:BB
SN:57A605C69FDC/523
RMA
D4
TRF100
pins
GND

Picture 495

QRT 5 (911G-5HPnD-QRT)



Picture 496

Disassembling information

Disassembly method of the board is the same as the QRT 2 antenna. Disassembly method is described on page 333.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for 911G-2HPnD board, see on page 73.

QRT 5 ac (911G-5HPacD-QRT)



Picture 497

Disassembling information

Disassembly method of the board is the same as the QRT 2 antenna. Disassembly method is described on page 333.

Checking procedure for over-voltage

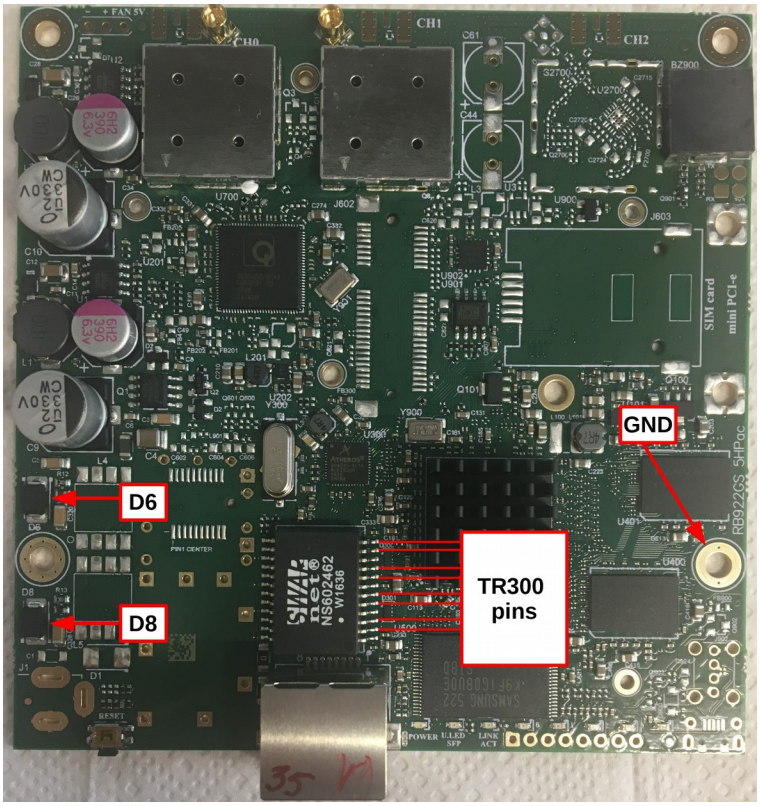
Checking Schottky diode and diodes bridges

Check Schottky diodes D6, D8 shown in picture 498. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer pins and GND shown in picture 498.

Voltage drop value of each pins should be in range from 0,43V to 0,49V. Voltage drop measurement method is described on page 25.



Picture 498

SEXTANT series RouterBoards

SEXTANT G (912G-5HPnD)

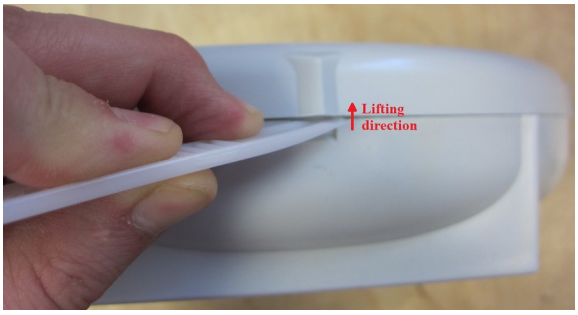


Picture 499

Disassembling information

Step 1:

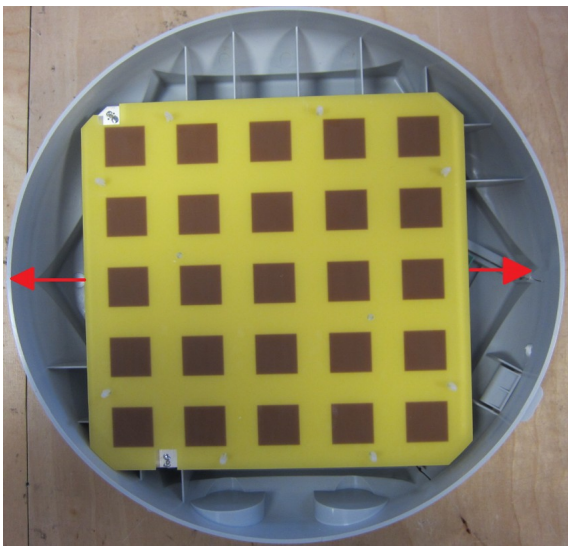
Gently take off the cover from the antenna case using a not very hard tool. Put it into case cavities and carefully lift the cover around the antenna case until the cover can be removed by hand. In the picture 500 you can see case cavities and lifting direction.



Picture 500

Step 2:

Take out antenna with RouterBoard from the antenna case, see picture 501.



Picture 501

Checking procedure for over-voltage

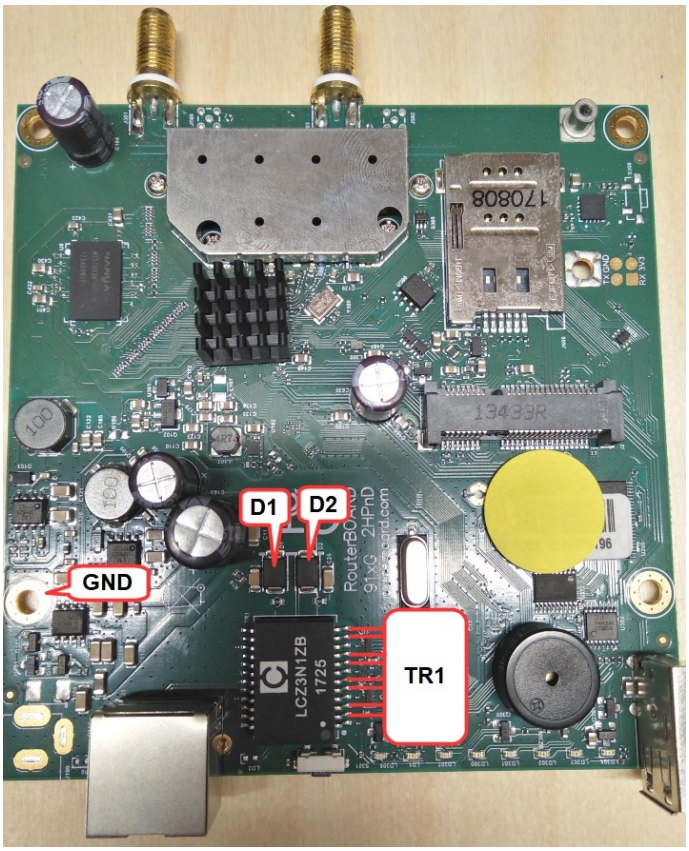
Checking Schottky diode and diodes bridges

Check Schottky diodes D1, D2. Location of diodes on the board you can see in the picture 502. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between TR1 and Ground. Test points on the transformer pins are marked with red dots, see picture 502.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 502

SXT series RouterBoards

SXT HG5 (SXT G-5HPnD)

SXT Lite5 (SXT 5HPnDr2)

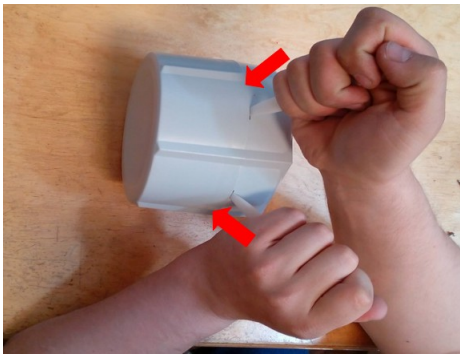


Picture 503

Disassembling information

Step 1:

Using 2 hard tools push it into case cavities as shown in the picture 504.



Picture 504

Step 2:

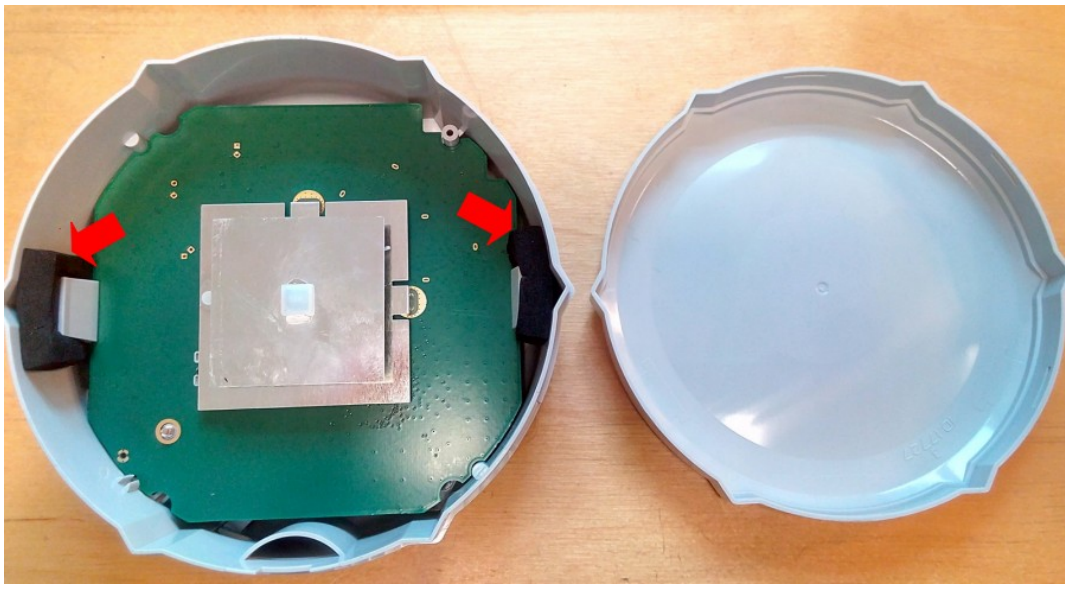
Rotate hard tool and pull both case parts, see picture 505.



Picture 505

Step 3:

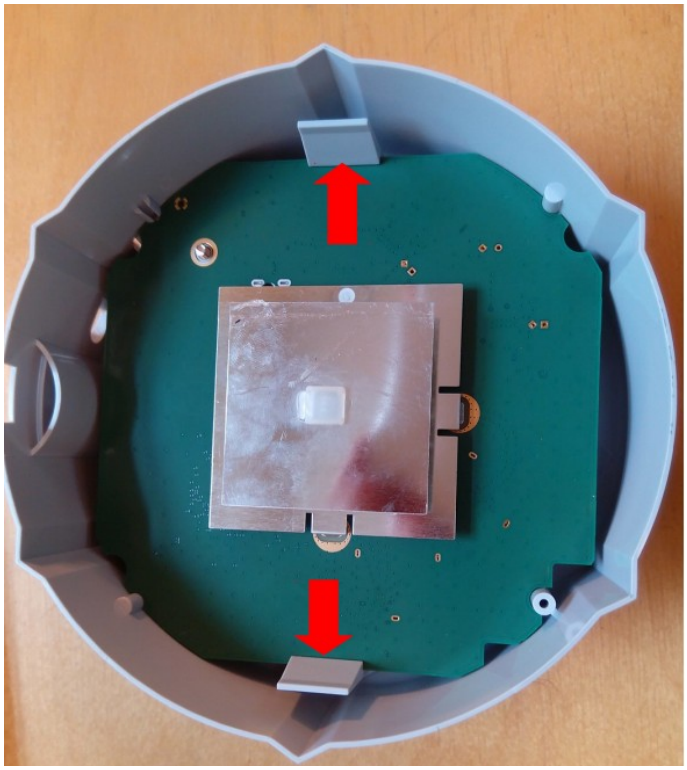
Take out 2 rubber bushing, see picture 506.



Picture 506

Step 4:

Push back Plastic PCB holders and take out the board, see picture 507.



Picture 507

Checking procedure for over-voltage

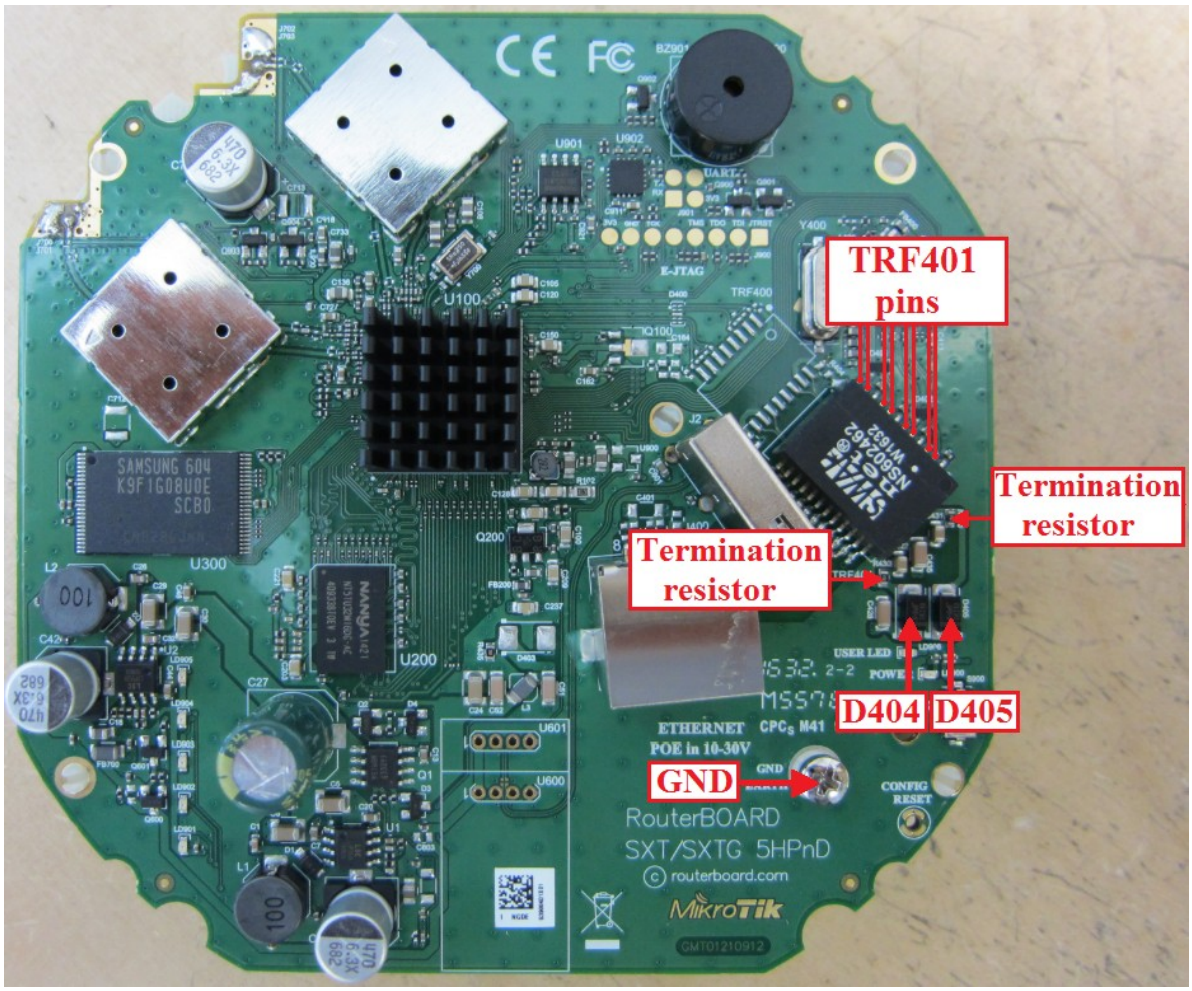
Checking Schottky diodes

Check Schottky diodes D404, D405. Location of diodes on the board you can see in the picture 508. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 508.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 508

SXT HG5 ac (SXT G-5HPacD-HG)



Picture 509

Disassembling information

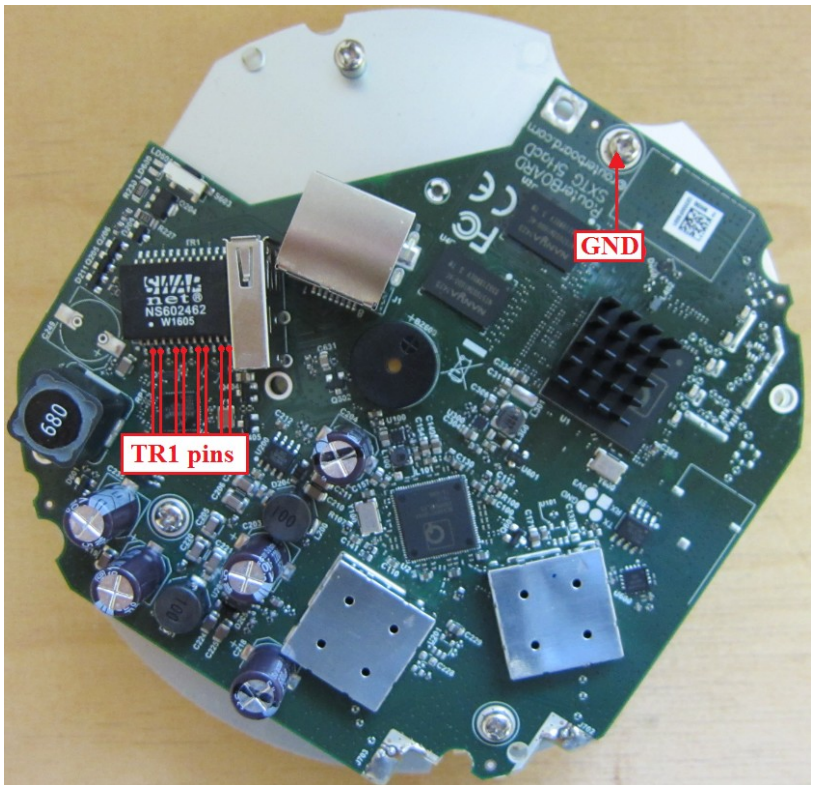
Disassembly method is described on page 342.

Checking procedure for over-voltage

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 510.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 510

SXT Lite 2 (SXT 2nD)



Picture 511

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

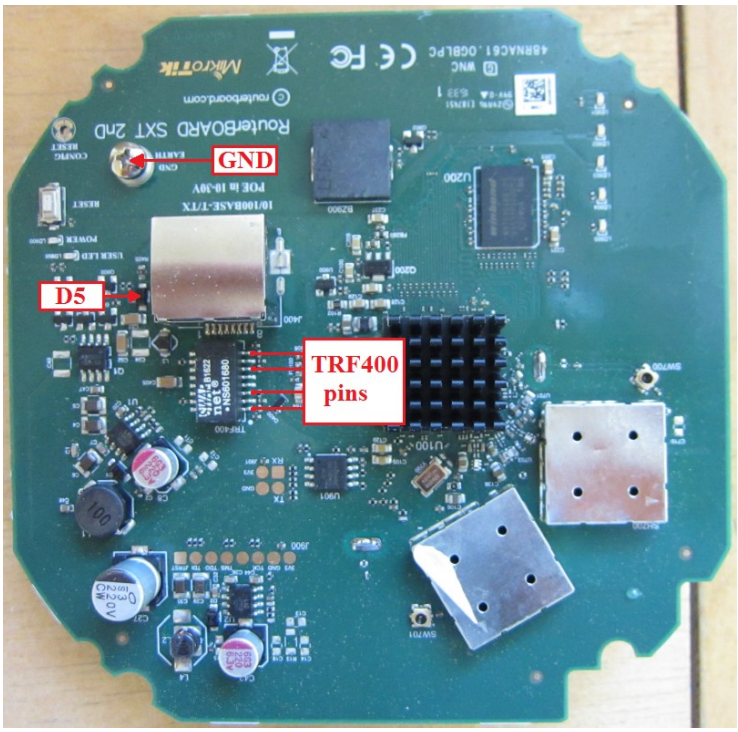
Checking Schottky diode

Check Schottky diode D5. Location of diode on the board you can see in the picture 512. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 512.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 512

SXT Lite 5 (SXT 5nD)



Picture 513

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

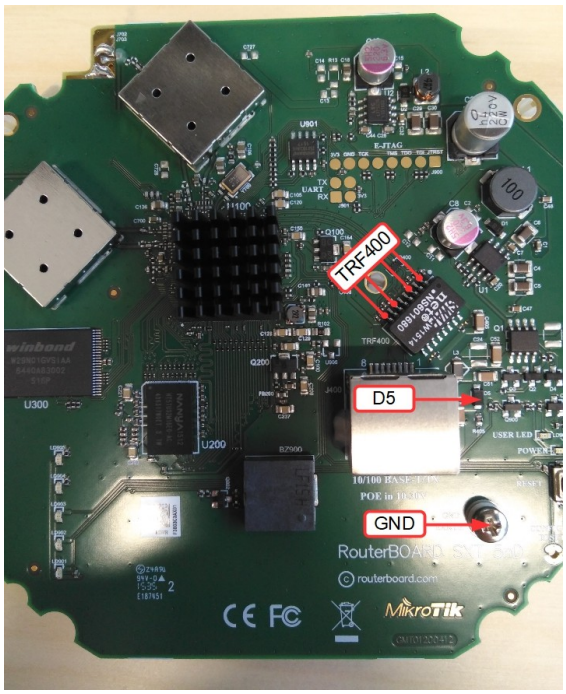
Checking Schottky diode

Check Schottky diode D5. Location of diode on the board you can see in the picture 514. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 514.

Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.



Picture 514

SXT Lite 5 ac (SXT 5HacD)



Picture 515

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diode D201. Location of diode on the board you can see in the picture 516. Schottky diode quality measurement method is described on page 23.

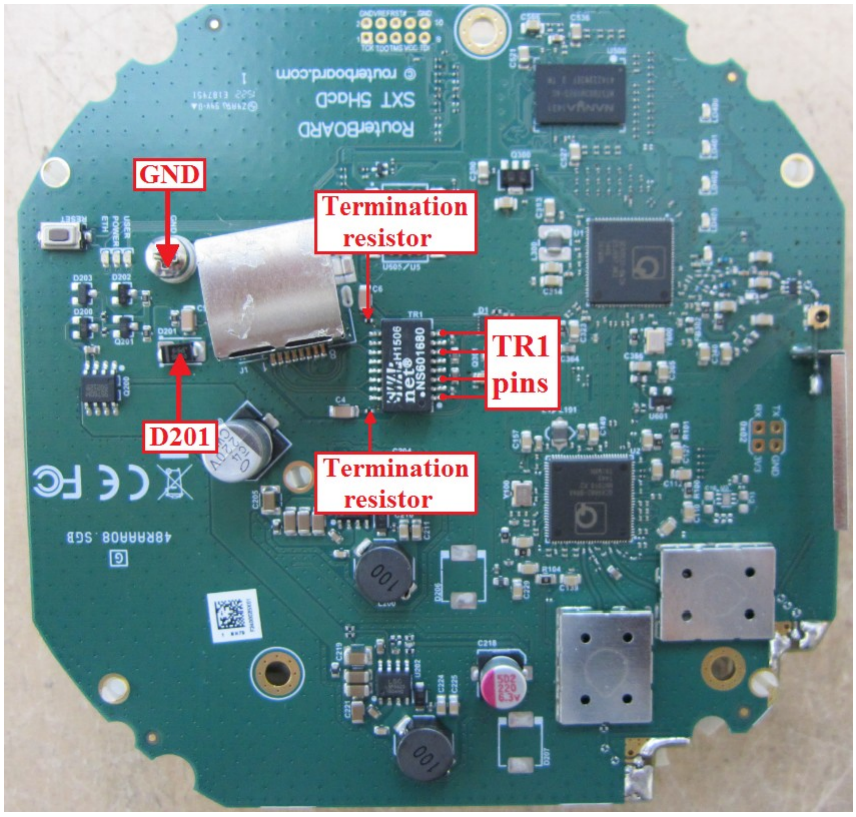
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 516.

Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors resistance

Check resistors R1, R6 resistance value. It should be 75 Ohm +/-1%. Location of resistors on the board you can see in the picture 516.


GND
Termination resistor
TR1 pins
D201
Termination resistor
Picture 516

SXT LTE (SXT LTE 3-7)



Picture 517

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

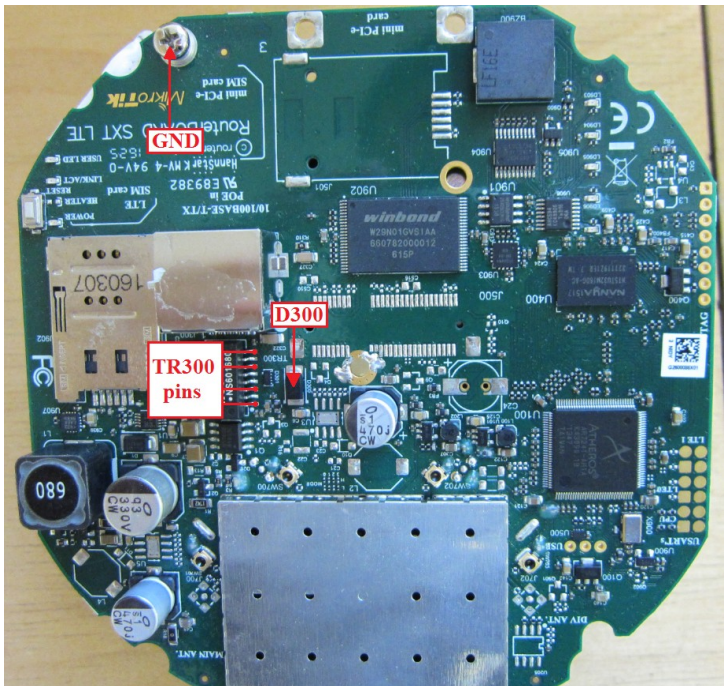
Checking Schottky diode

Check Schottky diode D300. Location of diode on the board you can see in the picture 518. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 518.

Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 518

SXT SA5 (SXT G-5HPnD-SA)



Picture 519

Disassembling information

Disassembly method of the board is the same as the SXT HG 5 board. Disassembly method is described on page 342.

Checking procedure for over-voltage

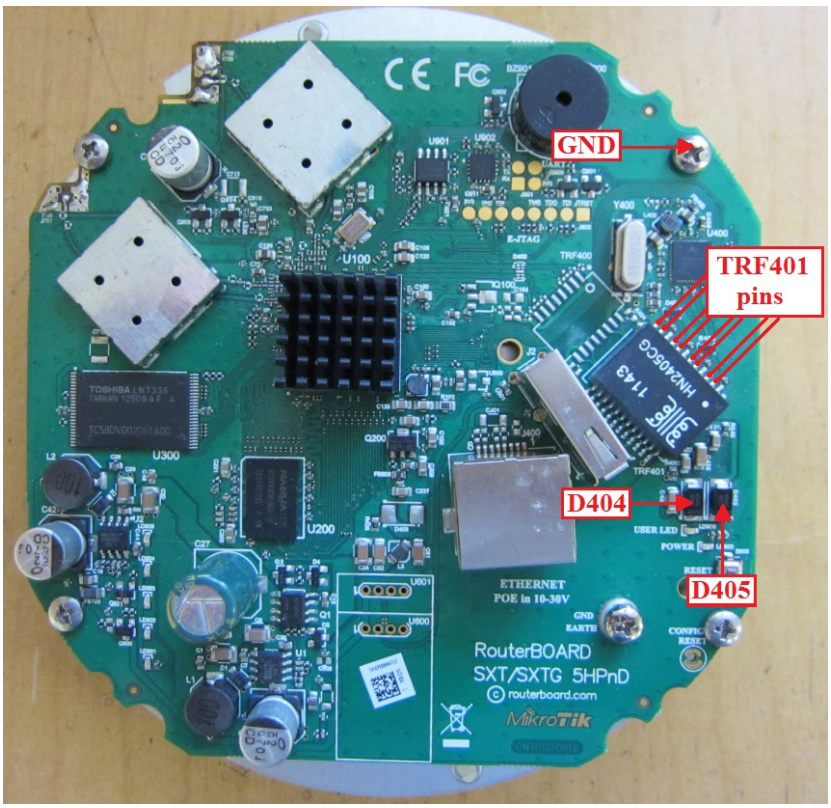
Checking Schottky diodes

Check Schottky diodes D404, D405. Location of diodes on the board you can see in the picture 520. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 520.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.


GND
TRF401
pins
D404
D405
ETHERNET
POE in 10-30V
RouterBOARD
SXT/SXTG 5HPnD
routerboard.com
MikroTik
Picture 520

SXT SA5 ac (SXT G-5HPacD-SA)



Picture 521

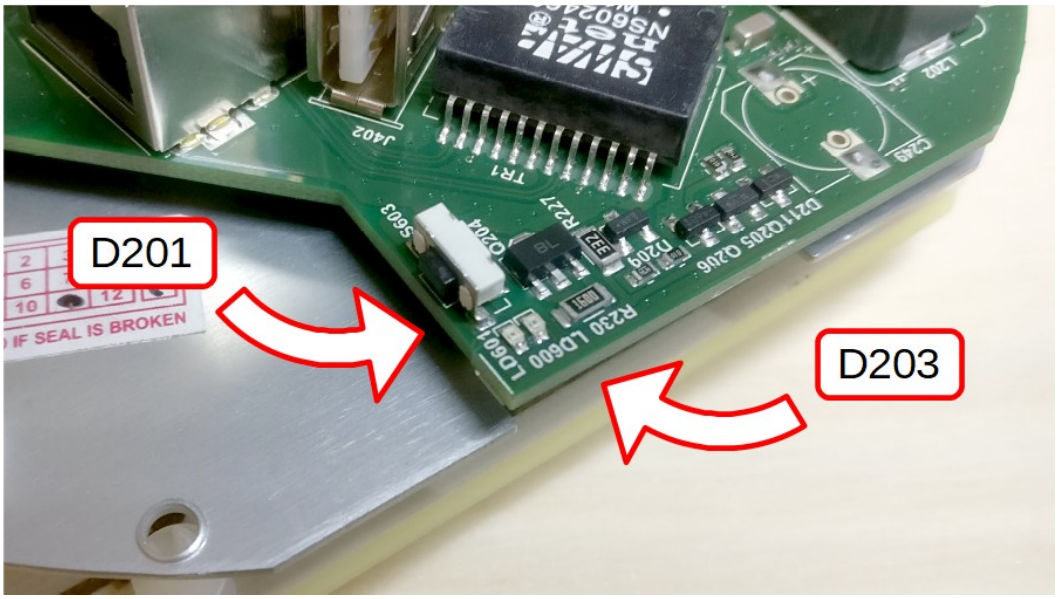
Disassembling information

Disassembly method is described on page 342.

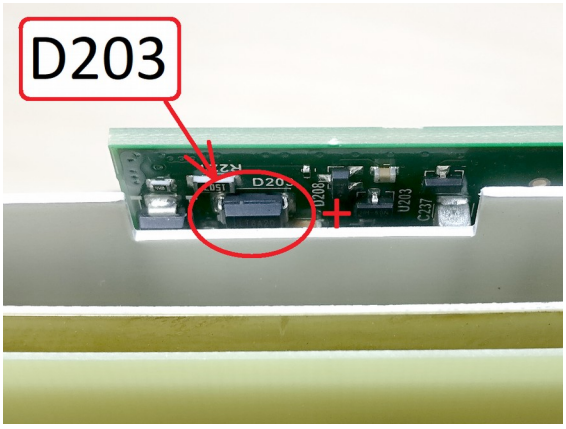
Checking procedure for over-voltage

Checking Schottky diodes

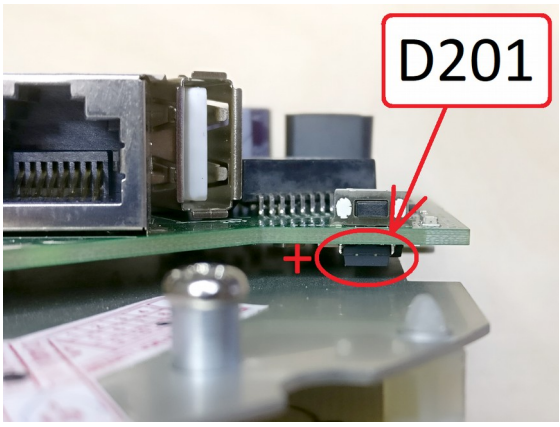
Check Schottky diodes D201,D203. Location of diodes on the board you can see in the pictures 522, 523 and 524. In addition the positive terminal (anode) of each diode is shown. Use negative (common) probe of multimeter on this terminal, when measuring reverse voltage (OL condition). Schottky diodes quality measurement method is described on page 23.



Picture 522



Picture 523

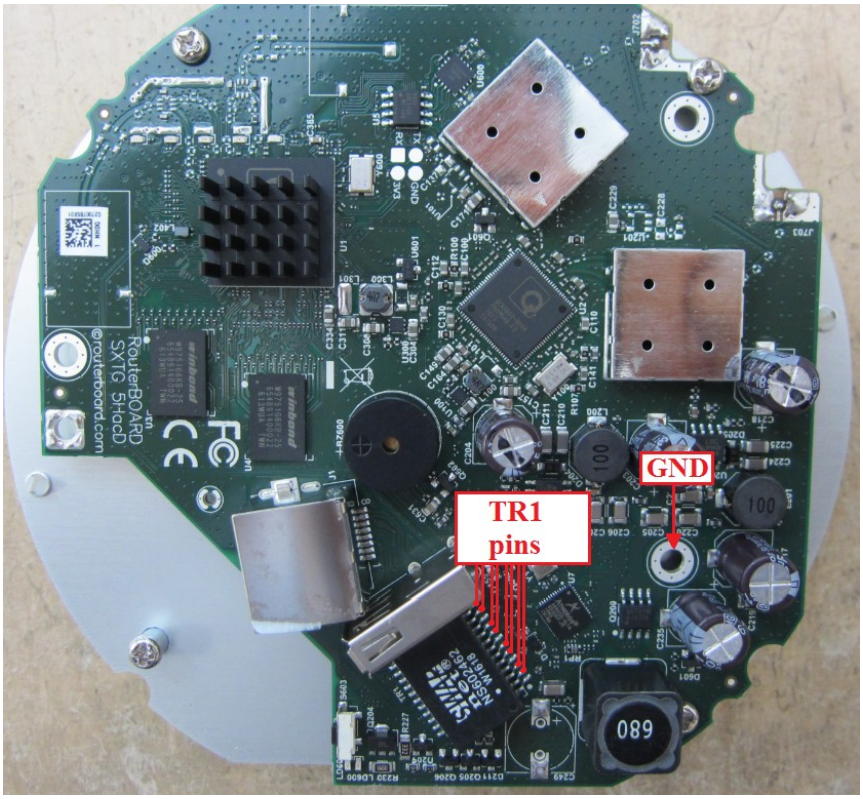


Picture 524

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 525.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 525

SXT 2 (SXT G-2HnD)



Picture 526

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

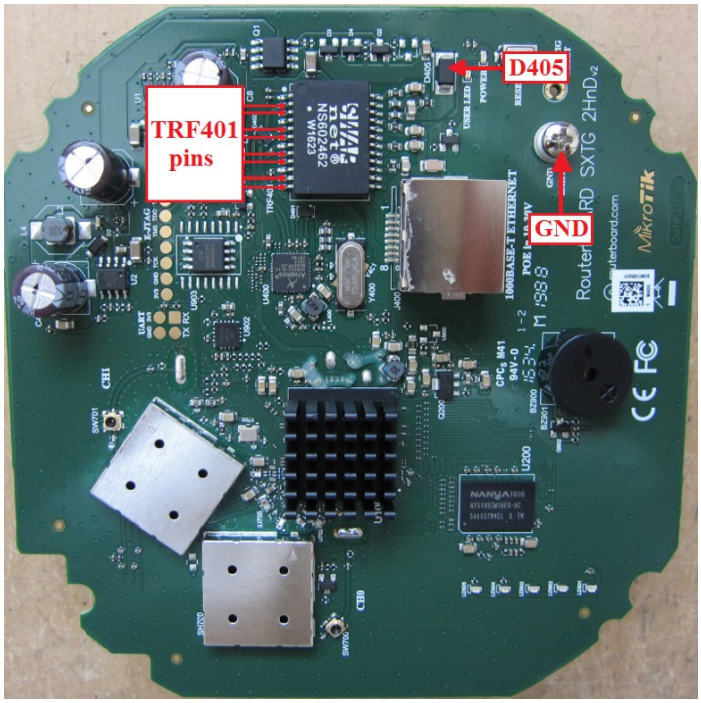
Checking Schottky diode

Check Schottky diode D405. Location of diodes on the board you can see in the picture 527. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 527.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 527

SXT 5 (SXT 5HPnD)



Picture 528

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

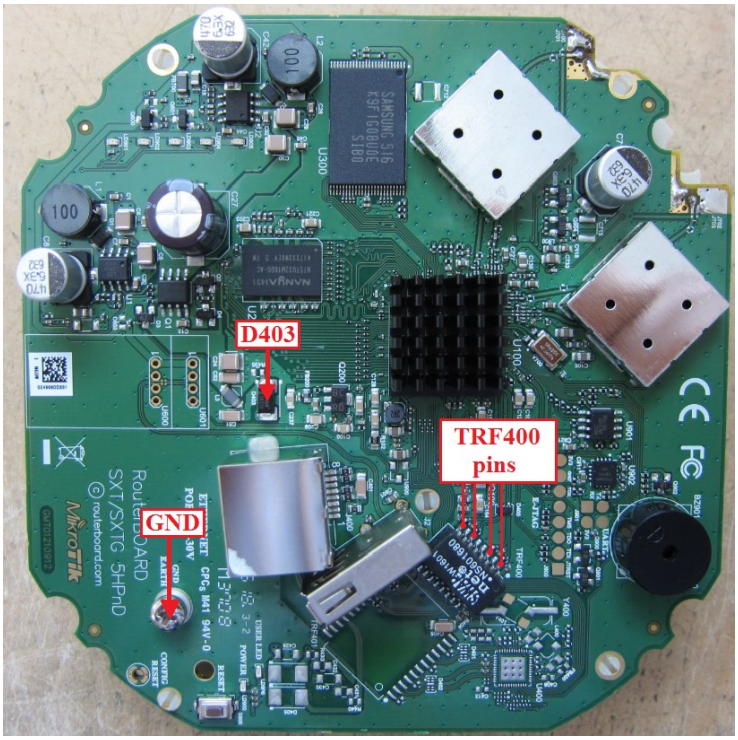
Checking Schottky diodes

Check Schottky diode D403. Location of diode on the board you can see in the picture 529. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 529.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 529

SXT 5 ac (SXT G-5HPacD)



Picture 530

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

Over-voltage testing procedure, the layout of the components on the board and measurement values is the same as for SXT SA 5 board, see on page 351.

SXT 6 (SXT G-6HPnD)



Picture 531

Disassembling information

Disassembly method of the board is the same as the SXT HG 5 board. Disassembly method is described on page 342.

Checking procedure for over-voltage

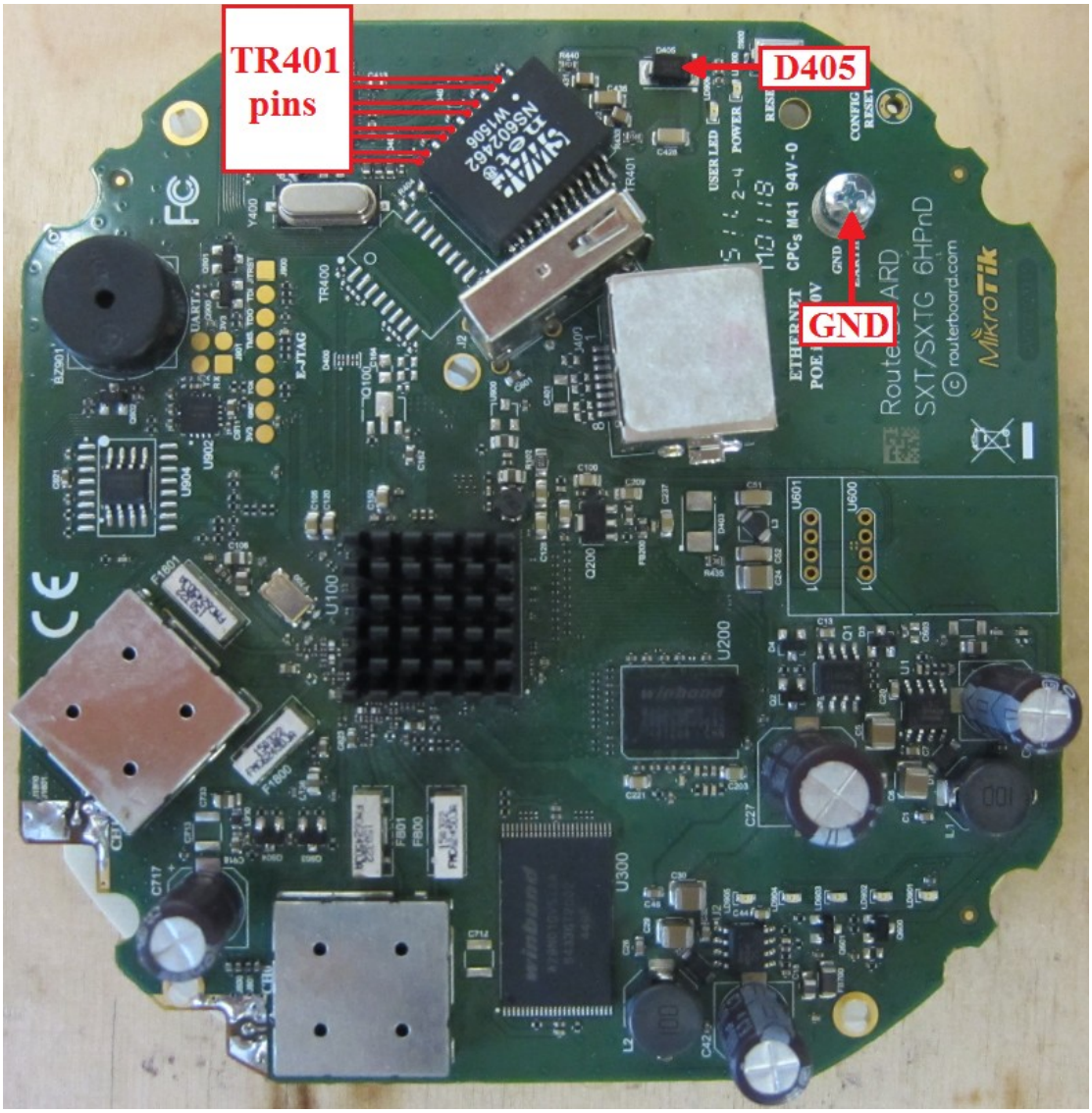
Checking Schottky diode

Check Schottky diode D405. Location of diode on the board you can see in the picture 532. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR401 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 532.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.


TR401
pins
D405
GND
SXT/SXTG 6HPnD
routerboard.com
MikroTik
Picture 532

SXTsq Lite5 (SXTsq 5nD)

SXTsq 5 High Power (RBSXTsq5HPnD)

SXTsq 5 ac (RBSXTsqG-5acD)

SXTsq Lite2 (RBSXTsq2nD)

SXTsq Lite60 (RBSXTsq-60ad)



Picture 533

Disassembling information

Disassembly of this device is not necessary to perform an over-voltage test as both parts of the enclosure are welded together.

Please contact to MikroTik support and try to solve the problem. If problem still persists send unit to RMA.

SXT LTE kit (RBSXTR&R11e-LTE)

SXT LTE kit-US (RBSXTR&R11e_LTE-US)

SXT 4G kit (RBSXTR&R11e-4G)

SXT LTE6 kit (RBSXTR&R11e-LTE6)



Picture 534

Disassembling information

Disassembly method is described on page 342.

Checking procedure for over-voltage

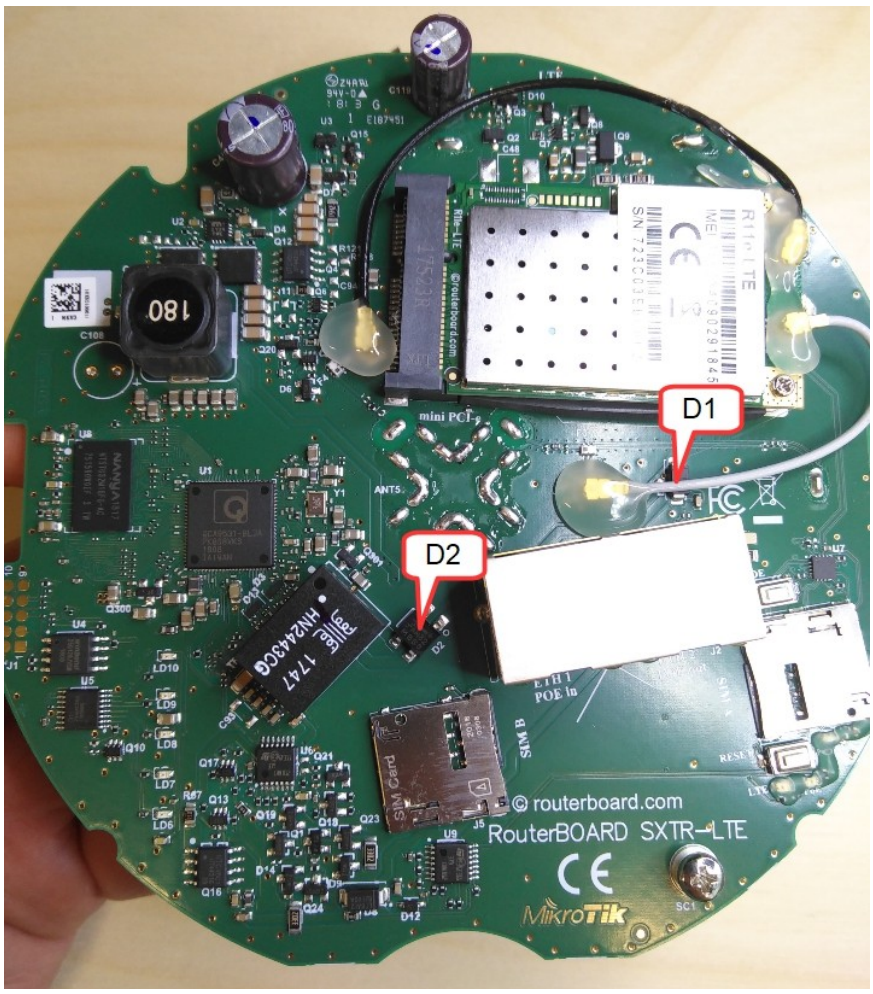
Checking diode bridge

Check Schottky diode D1 and diode bridge D2. Location of diode on the board you can see in the picture 535. Schottky diode quality measurement method is described on page 19.

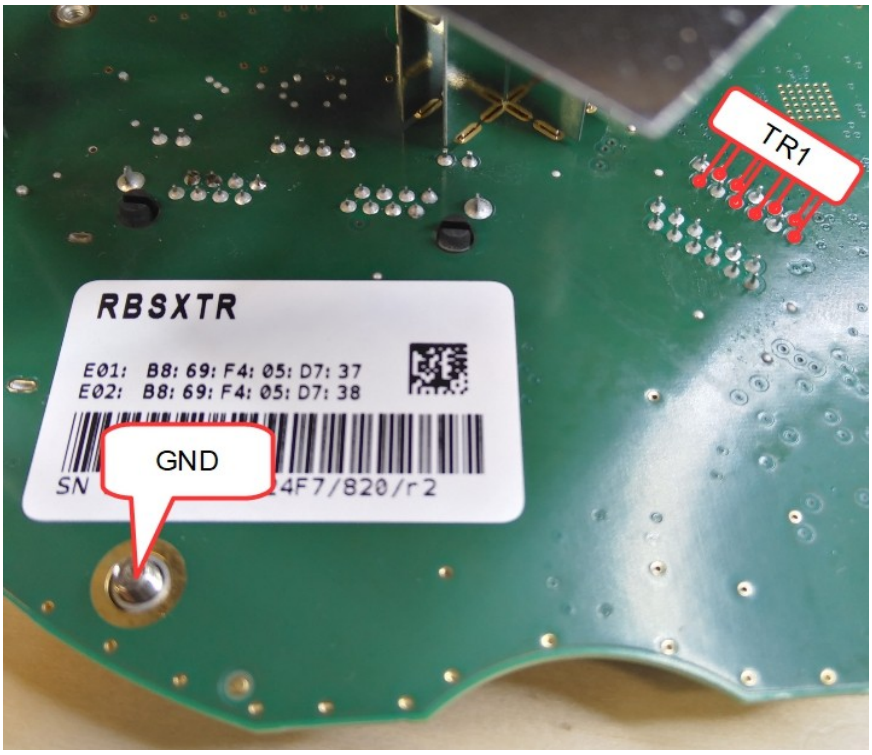
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 536.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 535

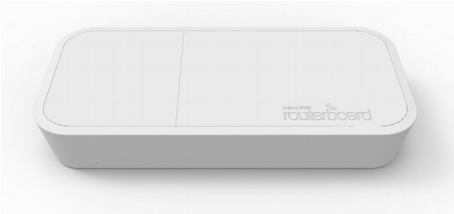


Picture 536

wAP series RouterBoards

wAP (wAP 2nD)

wAP (black edition) (wAP 2nD-BE)



Picture 537

Disassembling information

Disassembly method of the board is the same as the FTC11 board. Disassembly method is described on page 220.

Checking procedure for over-voltage

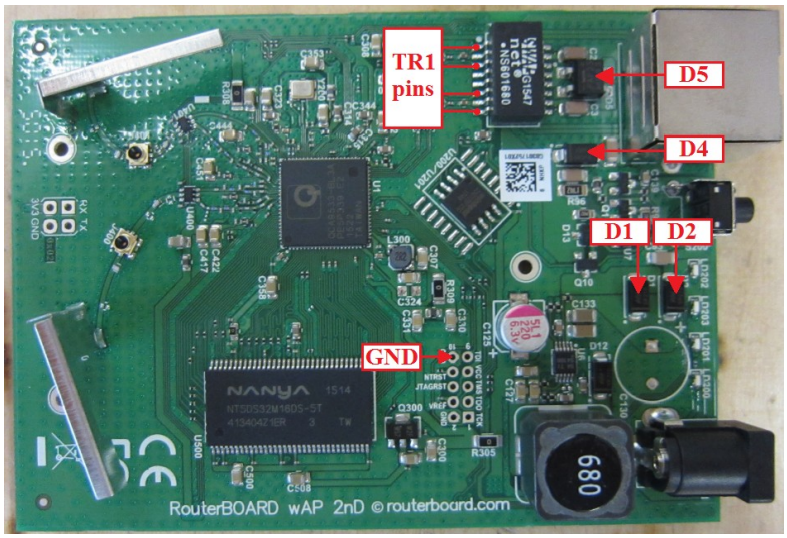
Checking Schottky diodes and diode bridge

Check Schottky diodes D1, D2, D4 and diode bridge D5. Location of diodes on the board you can see in the picture 538. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 538.

Voltage drop value should be in the range from 0,36V to 0,4V. Voltage drop measurement method is described on page 25.



Picture 538

wAP ac (wAP G-5HacT2HnD)

wAP ac (black edition) (wAP G-5HacT2HnD-BE)



Picture 539

Disassembling information

Disassembly method of the board is the same as the FTC11 board. Disassembly method is described on page 220.

Checking procedure for over-voltage

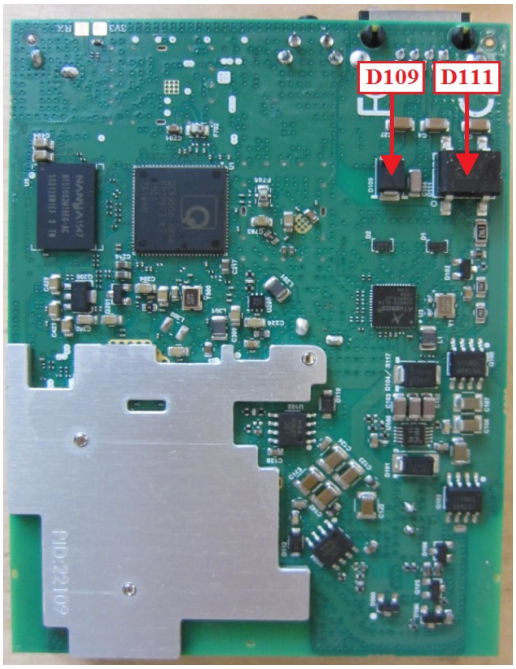
Checking Schottky diodes and diode bridge

Check Schottky diodes D109 and diode bridge D111. Location of diodes on the board you can see in the picture 540. Diodes quality measurement method is described on page 23.

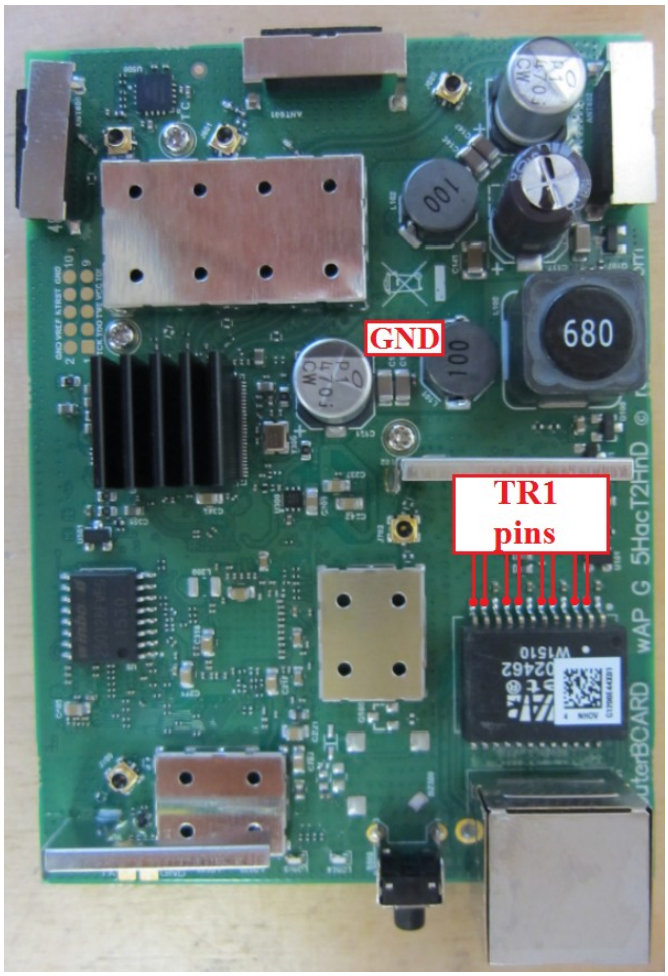
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 541.

Voltage drop value should be in the range from 0,44V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 540



Picture 541

wAP ac (wAP G-5HacD2HnD)



Picture 542

Disassembling information

Step 1:

Unscrew the captive screw marked in the picture 543 and then remove the cover.



Picture 543

Step 2:

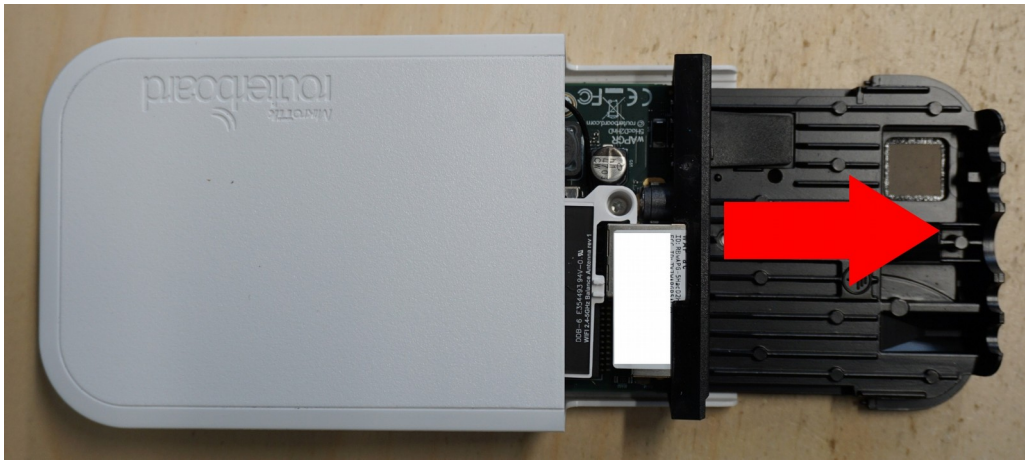
When the cover is removed, unscrew the black screw marked in picture 544.



Picture 544

Step 3:

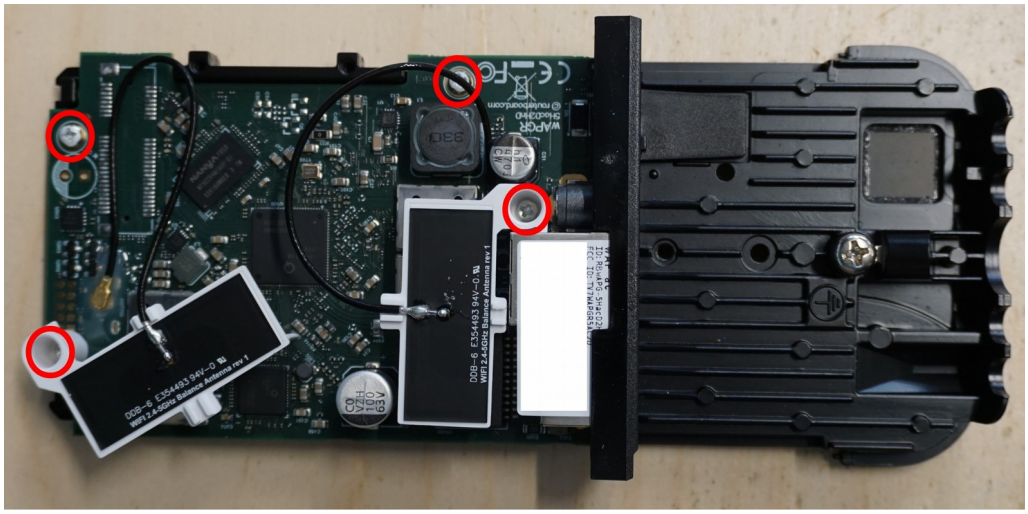
Pull the routerboard out of the case following direction shown in picture 545.



Picture 545

Step 4:

Unscrew the screws marked in picture 546 and remove the PCB afterwards.



Picture 546

Checking procedure for over-voltage

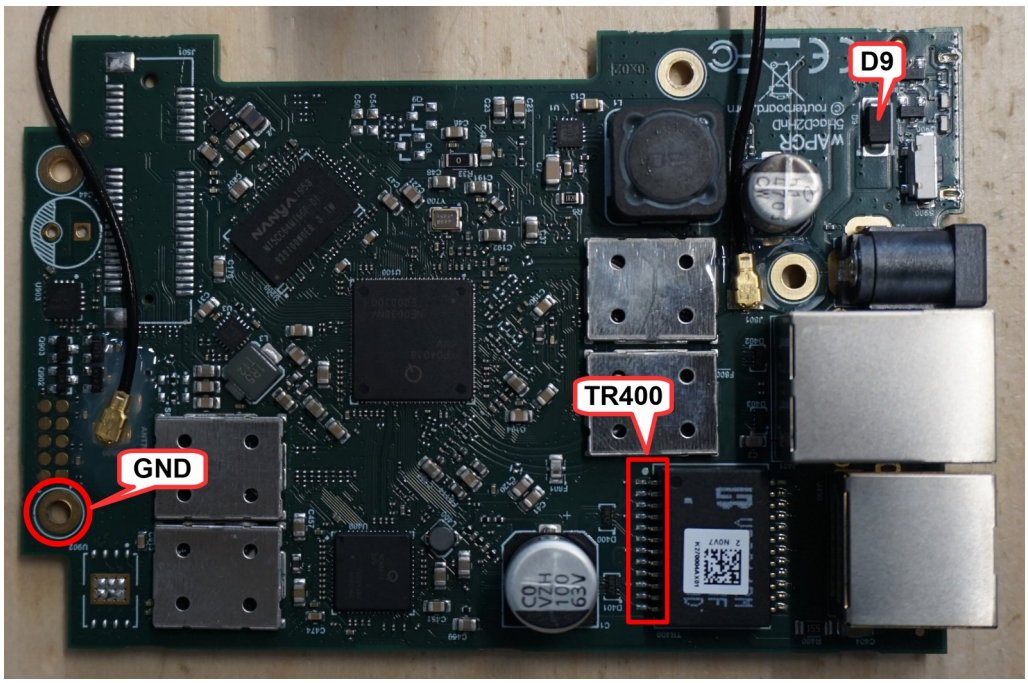
Checking Schottky diodes and diode bridge

Check Schottky diodes D2, D5, D9 and diode bridge D1. Location of diodes on the board you can see in the picture 547 and picture 548. Diodes quality measurement method is described on page 23.

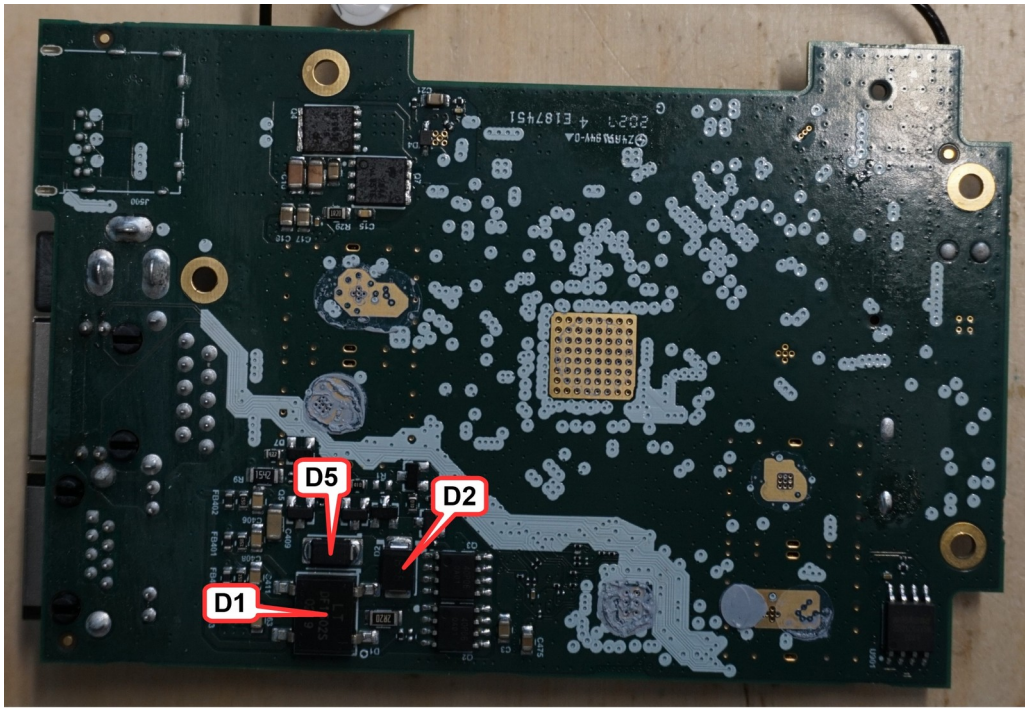
Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TR400 pins and Ground. Test points of the transformer pins are marked in picture 547.

Voltage drop value should be in the range from 0,36V to 0,48V. Voltage drop measurement method is described on page 25.



Picture 547



Picture 548

wAP R (wAP R-2nD)

wAP LTE kit (wAP R-2nD&R11e-LTE)

wAP 4G kit (RBwAPR-2nD&R11e-4G)

wAP LTE kit-US (wAP R-2nD&R11e-LTE-US)

wAP LoRa8 kit (RbwAPR-2nD&R11e-LoRa8)

wAP LoRa9 kit (RBwAPR-2nD&R11e-LoRa9)



Picture 549

Disassembling information

Disassembly method of the board is the same as the FTC11 board. Disassembly method is described on page 220.

Checking procedure for over-voltage

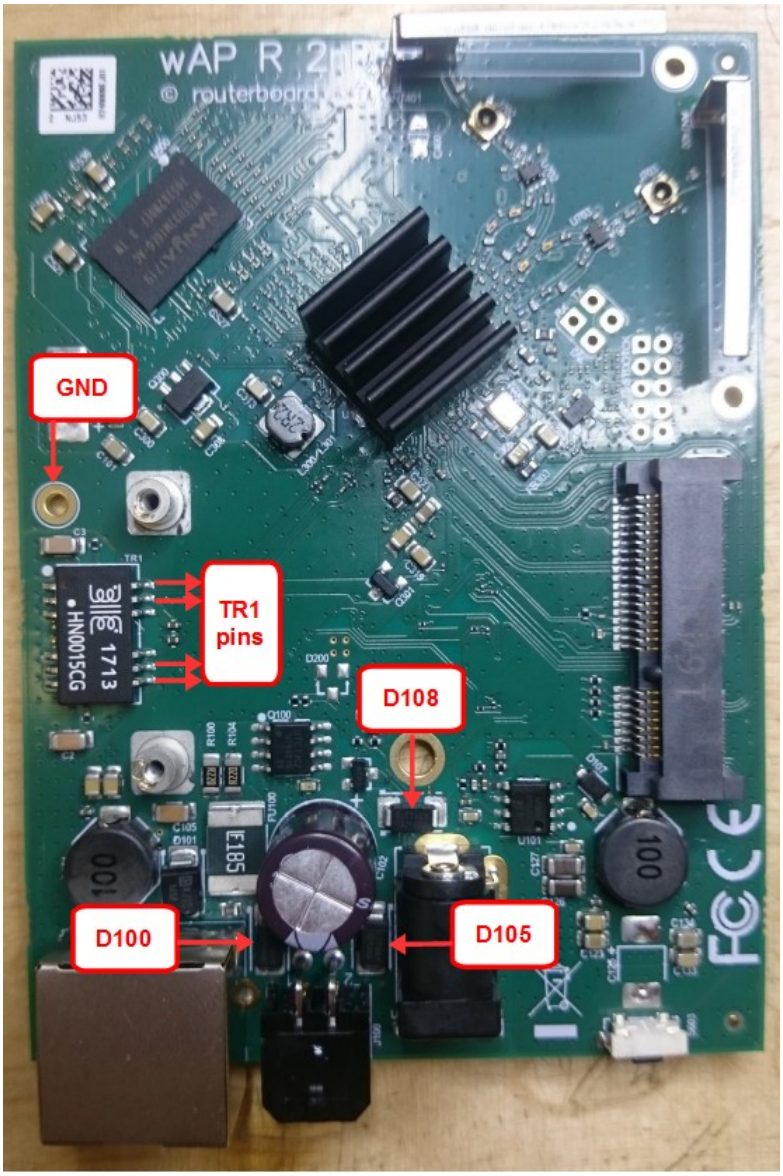
Checking Schottky diodes

Check Schottky diodes D100, D105 and D108. Location of diodes on the board you can see in the picture 550. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red arrows, see picture 550.

Voltage drop value should be in the range from 0,34V to 0,42V. Voltage drop measurement method is described on page 25.



Picture 550

wAP 60G (RbwAPG-60ad r3)

wAP 60G AP (RbwAPG-60ad-A r3)

Wireless Wire (RBwAPG-60ad kit r3)

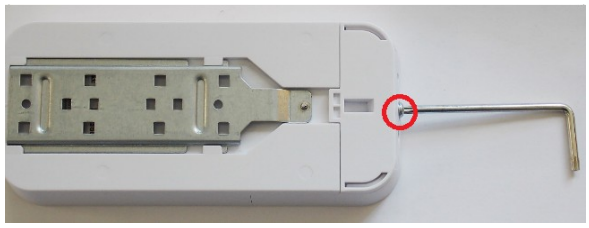


Picture 551

Disassembling information

Step 1:

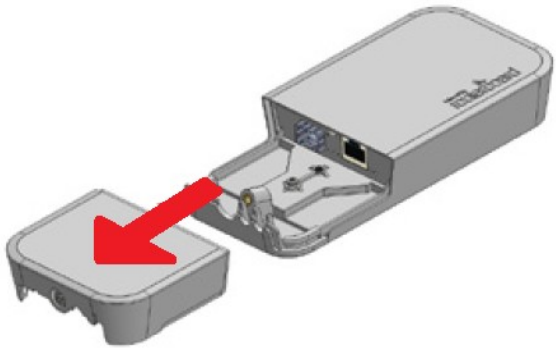
Unscrew “captive screw” by screwdriver. Location of the screw you can see in the picture 552.



Picture 552

Step 2:

Remove cover from the wAP 60 G case, see picture 553.



Picture 553

Step 3:

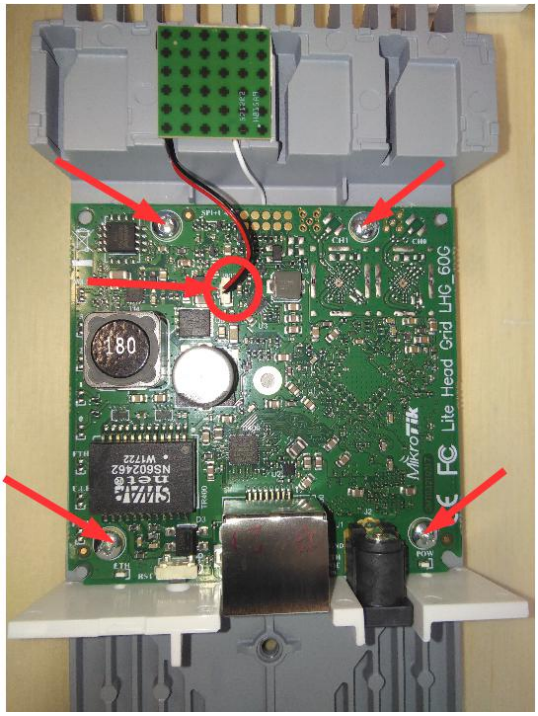
Take off the cover with board, see picture 554.



Picture 554

Step 4:

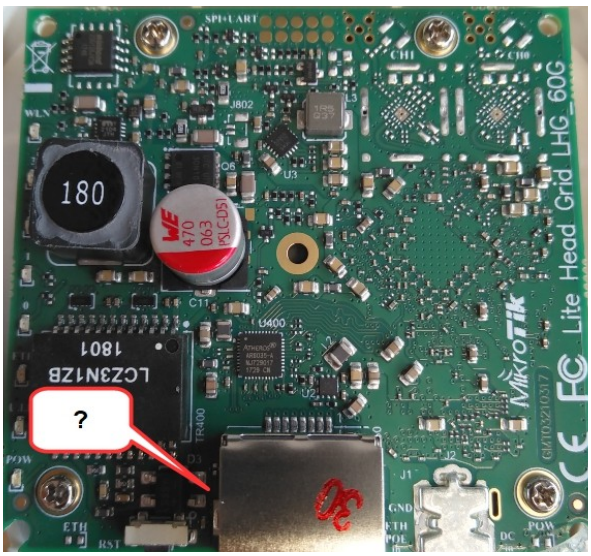
Unscrew 4 PCB mounting screws and unplug the antenna connector, see picture 555. Be careful lifting PCB because white data wire is still connected.



Picture 555

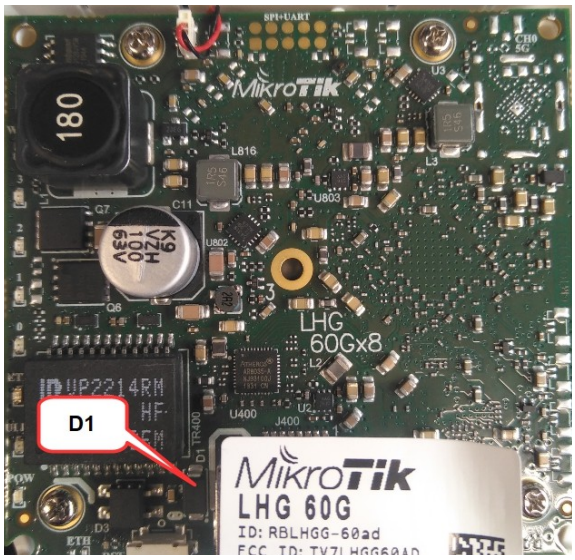
Determine PCB version

Version 1 does not have D1 on top layer, but has on the bottom layer. But for v2 D1 is on the top layer of the PCB.



v1

Picture 556



v2

Picture 557

Checking procedure for over-voltage v1

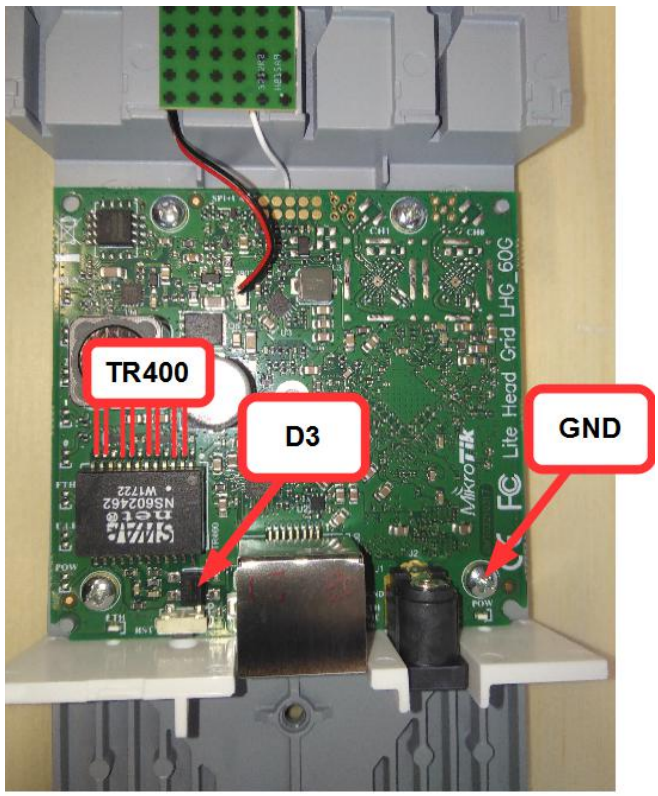
Checking Schottky diodes

Check Schottky diode D1 and diode bridge D3. Location of diodes on the board you can see in the picture 558 and 559. Diodes quality measurement method is described on page 23.

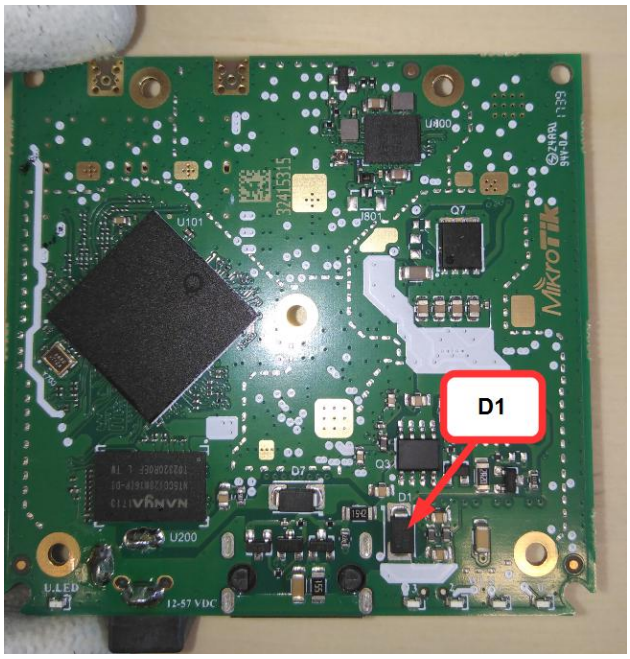
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR400 pins and Ground. Test points on the transformer pins are marked with red arrows, see picture 558.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 558



Picture 559

Checking procedure for over-voltage v2

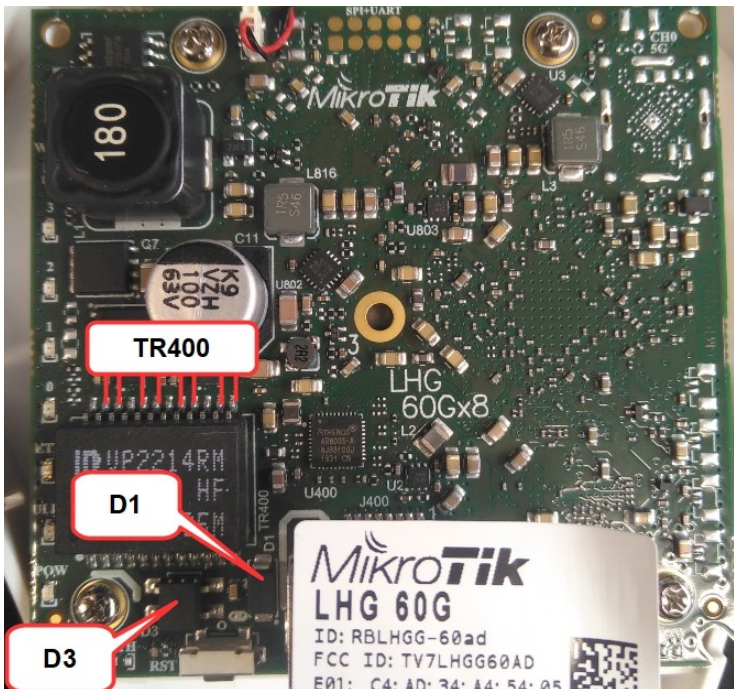
Checking Schottky diode

Check Schottky diode D1 and diode bridge D3. Location of diode on the board you can see in the picture 560. Schottky diode quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformer pins and Ground

Check voltage drop value between Ethernet transformer TRF400 pins and ground (note that the ground is connected to every PCB mounting hole). Test points on the transformer pins are marked with red dots, see picture 560.

Voltage drop value should be in the range from 0,36V to 0,40V. Voltage drop measurement method is described on page 25.



Picture 560

wAP 60Gx3 AP (RbwAPG-60ad-SA)

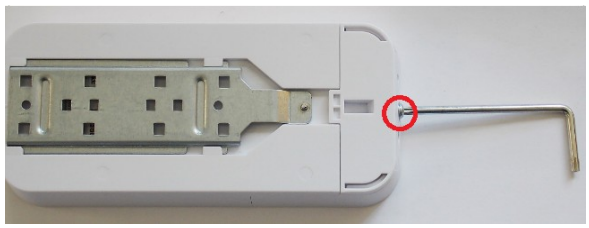


Picture 561

Disassembling information

Step 1:

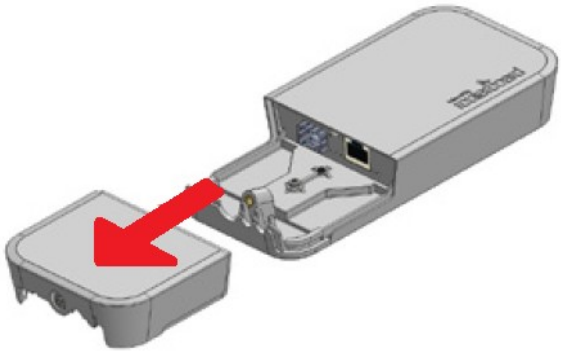
Unscrew “captive screw” by screwdriver. Location of the screw you can see in the picture 562.



Picture 562

Step 2:

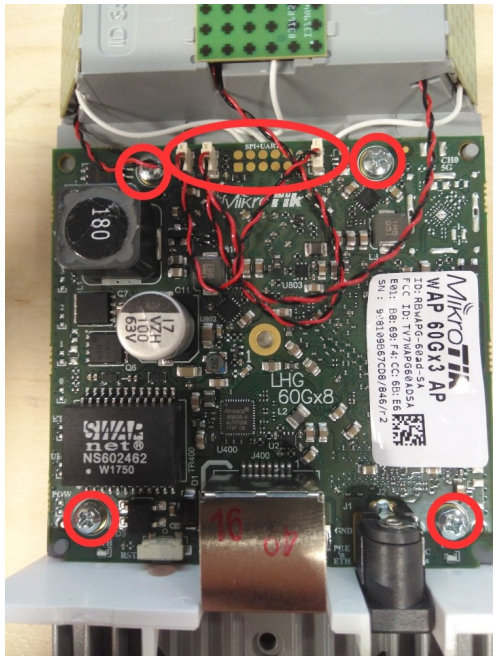
Remove cover from the wAP 60 G case, see picture 563.



Picture 563

Step 3:

Unscrew 4 PCB mounting screws and unplug 3 antennas power connectors, see picture 564.



Picture 564

Step 4:

Lift PCB and unplug 3 antennas signal wires, be careful and do not damage them. Also keep in mind or mark the order of connectors, see picture 565.



Picture 565

Checking procedure for over-voltage

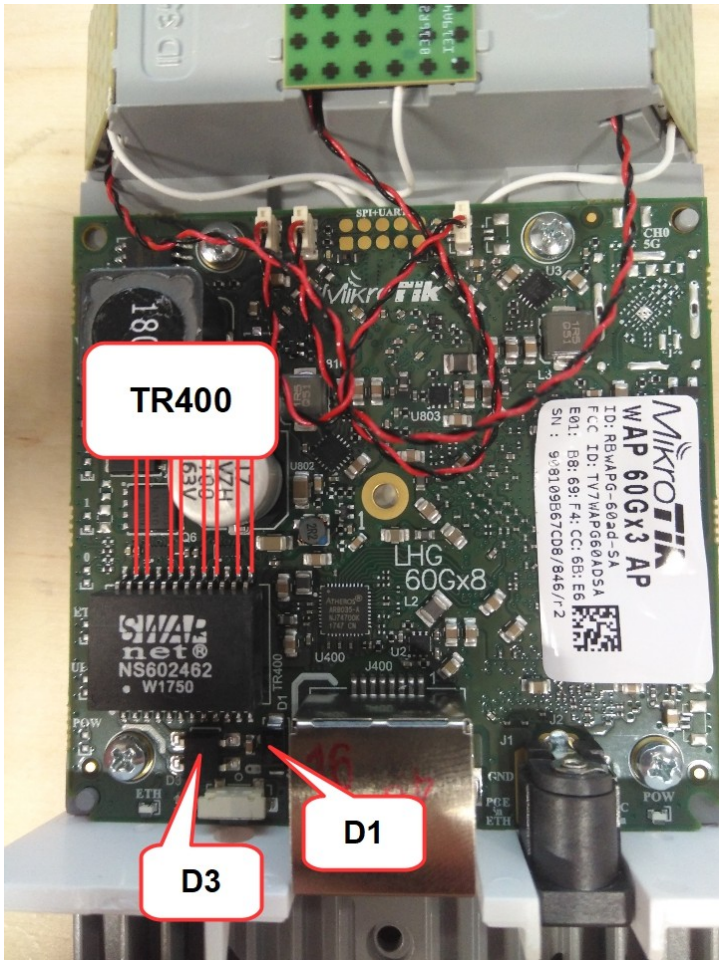
Checking Schottky diodes

Check Schottky diode D1, D7 and diode bridge D3. Location of diodes on the board you can see in the picture 566 and 567. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR400 pins and Ground. Test points on the transformer pins are marked with red arrows, see picture 566.

Voltage drop value should be in the range from 0,37V to 0,41V. Voltage drop measurement method is described on page 25.



Picture 566



Picture 567

wAP R ac (RbwAPGR-5HacD2HnD)

wAP ac LTE kit (RbwAPGR-5HacD2HnD&R11e-LTE)

wAP ac LTE6 kit (RBwAPGR-5HacD2HnD&R11e-LTE6)

wAP ac 4G kit (RbwAPGR-5HacD2HnD&R11e-4G)



Picture 568

Disassembling information

Step 1:

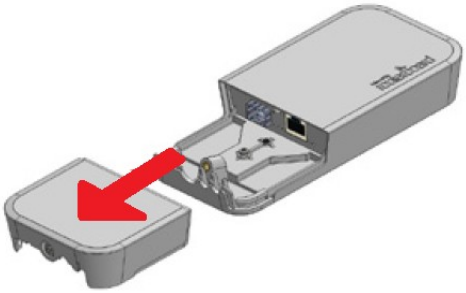
Unscrew “captive screw” by screwdriver. Location of the screw you can see in the picture 569.



Picture 569

Step 2:

Remove the cover from case, see picture 570.



Picture 570

Step 3:

Unscrew 1 mounting screws, see picture 571.



Picture 571

Step 4:

Next unscrew 6 screws marked with red, and remove R11e card, see picture 572.



Picture 572

Step 5:

Then unscrew 2 screws that is under R11e card marked in red, see picture 573.



Picture 573

Checking procedure for over-voltage

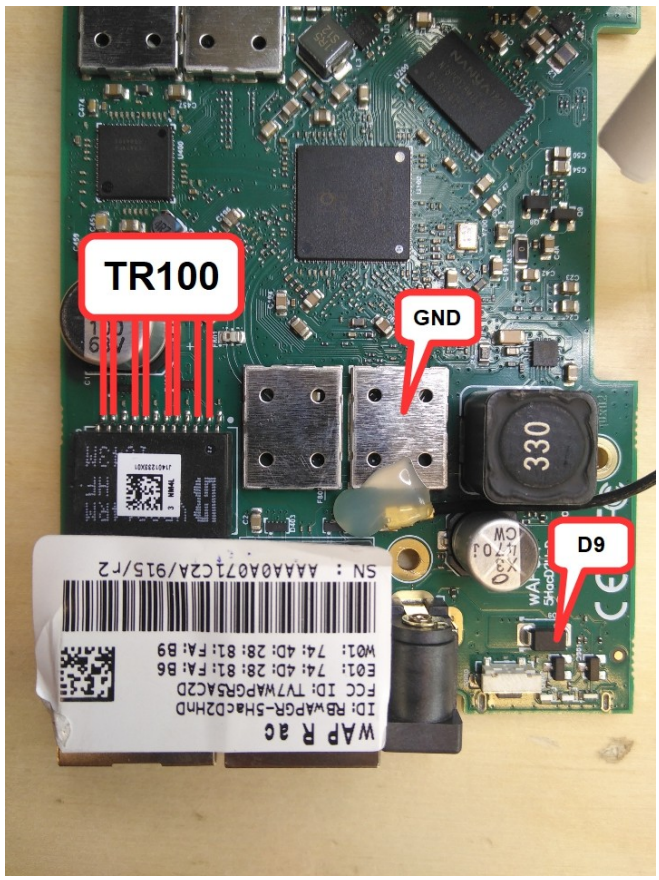
Checking Schottky diodes and diode bridge

Check Schottky diode D5, D9, D2 and diode bridge D1. Location of diodes on the board you can see in the picture 574 and 575. Diodes quality measurement method is described on page 23.

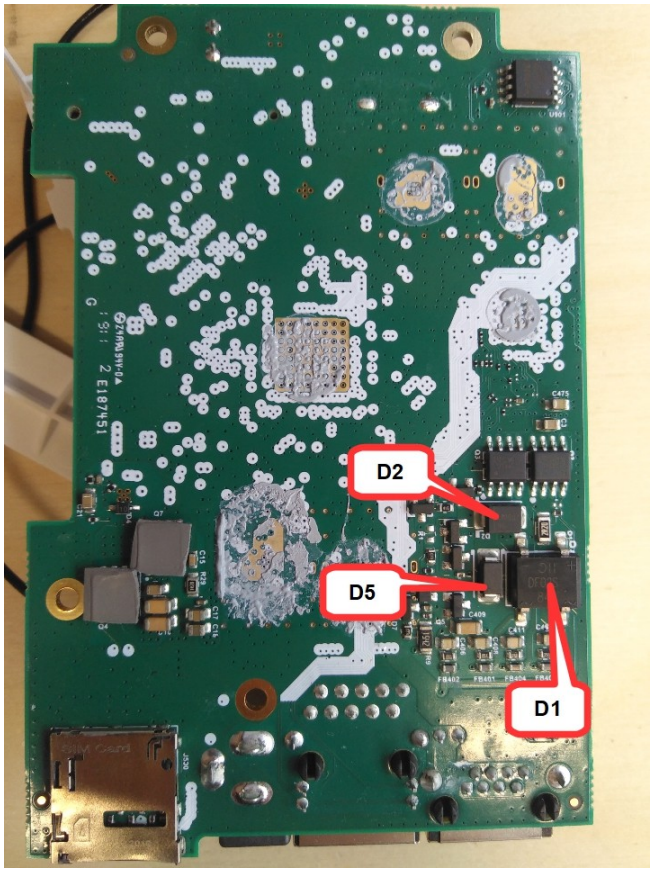
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR100 pins and Ground. Test points on the transformer pins are marked with red arrows, see picture 574.

Voltage drop value should be in the range from 0,39V to 0,43V. Voltage drop measurement method is described on page 25.



Picture 574



Picture 575

wsAP series RouterBoard

wsAP ac lite (RBwsAP-5Hac2nD)



Picture 576

Disassembling information

Step 1:

Unscrew “captive screw” by screwdriver. Location of the screw you can see in the picture 577.



Picture 577

Step 2:

Using TX9 unscrew mounting screw location can be seen in picture bellow.



Picture 578

Step 3:

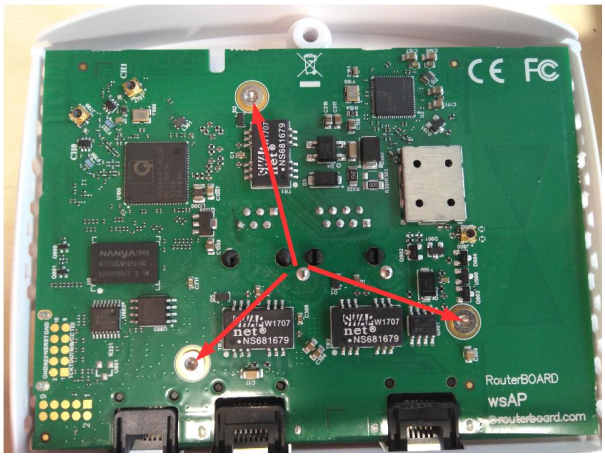
Push the cover to take it off as shown in picture 579.



Picture 579

Step 4:

Unscrew 3 PCB mounting screws, see picture 580.



Picture 580

Checking procedure for over-voltage

Checking Schottky diodes

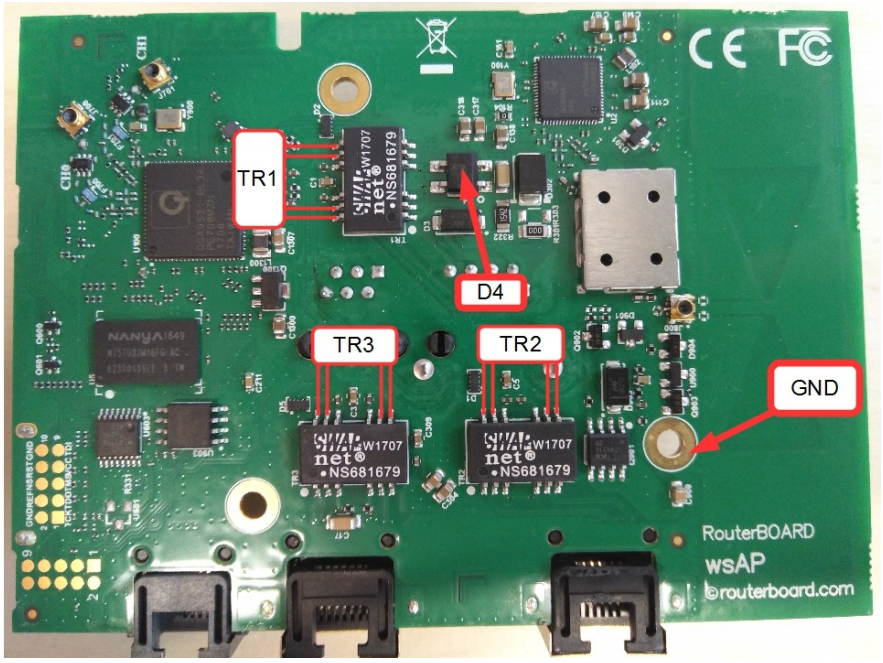
Check diode bridge D4. Location of diodes on the board you can see in the picture 581. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR1, TR2, TR3 pins and Ground. Test points on the transformer pins are marked with red arrows, see picture 581.

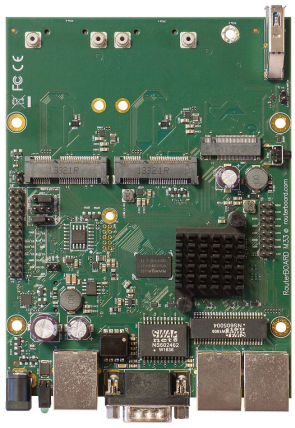
Voltage drop value should be in the range from 0,32V to 0,36V. Voltage drop measurement

method is described on page 25.



Picture 581

RBM33G



Picture 582

Checking procedure for over-voltage

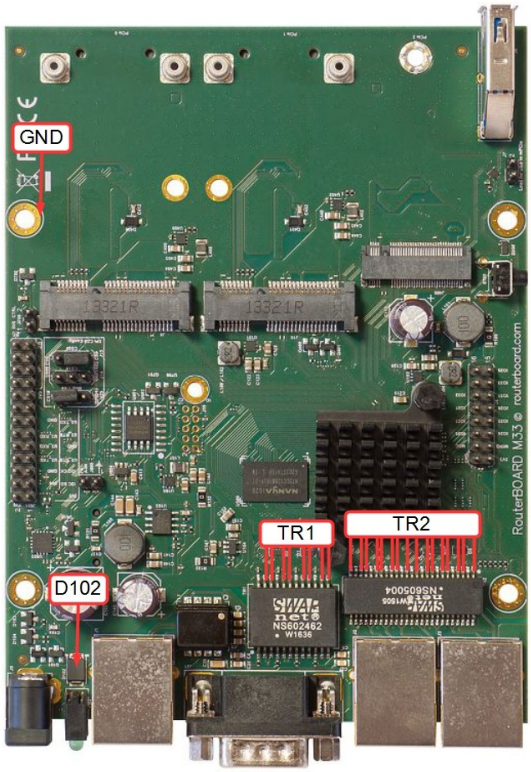
Checking Schottky diodes

Check Schottky diode D102 and D100. Location of diodes on the board you can see in the picture 583, 584. Diodes quality measurement method is described on page 23.

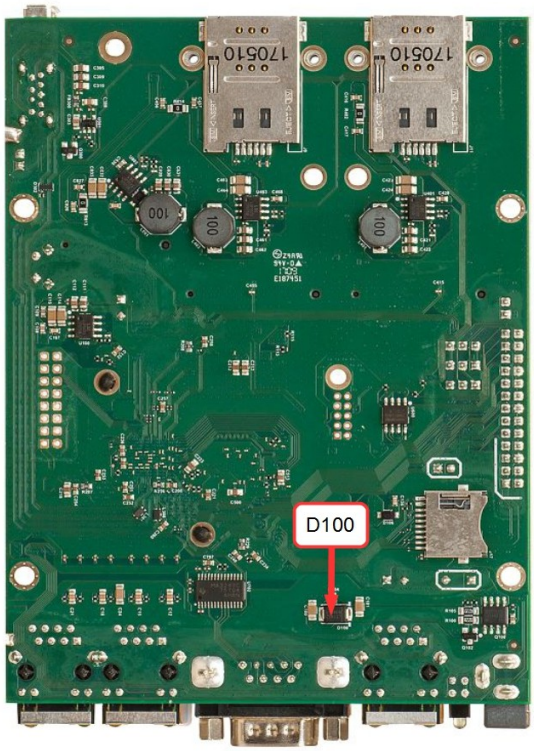
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR1, TR2 pins and Ground. Test points on the transformer pins are marked with red arrows, see picture 583.

Voltage drop value should be in the range from 0,31V to 0,35V. Voltage drop measurement method is described on page 25.

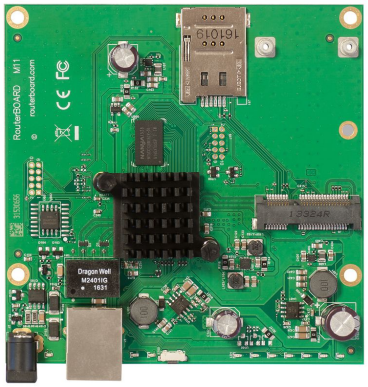


Picture 583



Picture 584

RBM11G



Picture 585

Checking procedure for over-voltage

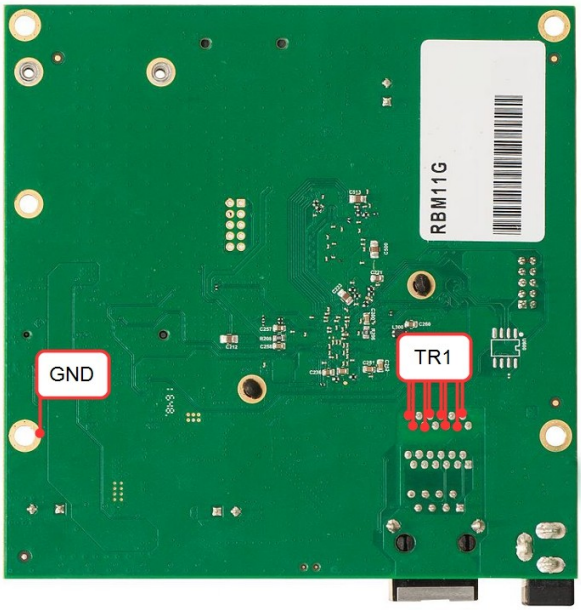
Checking Schottky diodes

Check Schottky diode D102 and D100. Location of diodes on the board you can see in the picture 586, 587. Diodes quality measurement method is described on page 23.

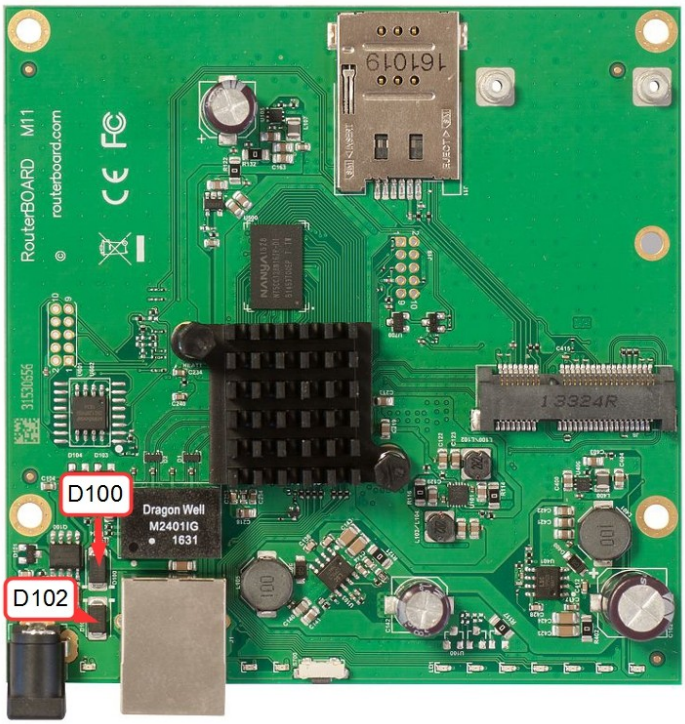
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 586.

Voltage drop value should be in the range from 0,31V to 0,35V. Voltage drop measurement method is described on page 25.



Picture 586


D100
D102
Dragon Well
M2401IG
1631
RouterBOARD M11
routerboard.com

Picture 587

mUPS

mUPS



Picture 588

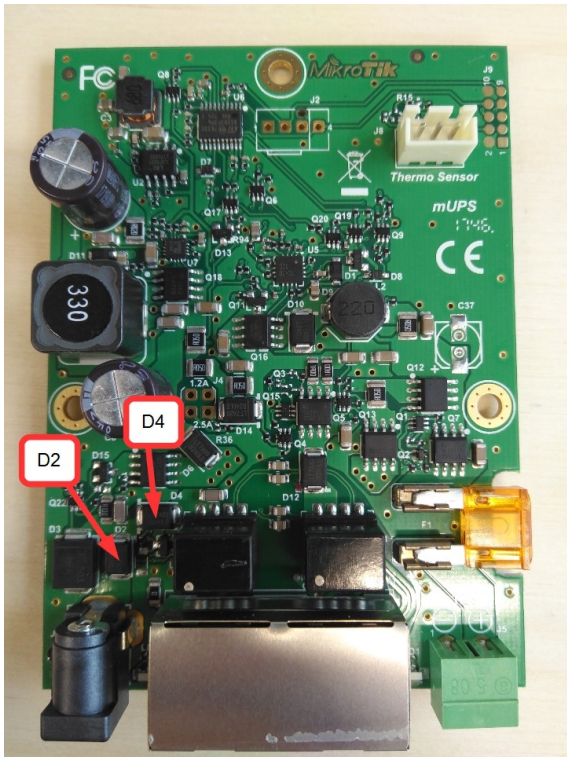
Disassembling information

Disassembly method of the board is the same as the FTC11 board. Disassembly method is described on page 220.

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diode D2 and D4. Location of diodes on the board you can see in the picture 589. Diodes quality measurement method is described on page 23.



Picture 589

LtAP series RouterBoard

LtAP mini LTE kit (RB912R-2nD-LTm&R11e-LTE)

LtAP mini 4G kit (RB912R-2nD-LTm&R11e-4G)

LtAP mini (RB912R-2nD-LTm)



Picture 590

Disassembling information

Step 1:

Unscrew “captive screw” by screwdriver. Location of the screw you can see in the picture 591.



Picture 591

Step 2:

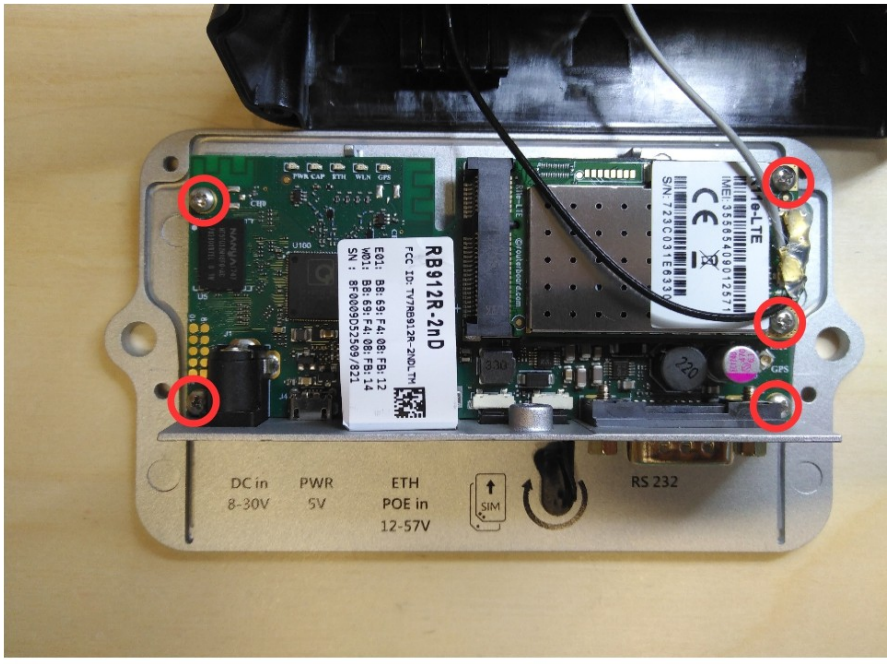
Using Philips screwdriver unscrew mounting screws which location can be seen in picture bellow.



Picture 592

Step 3:

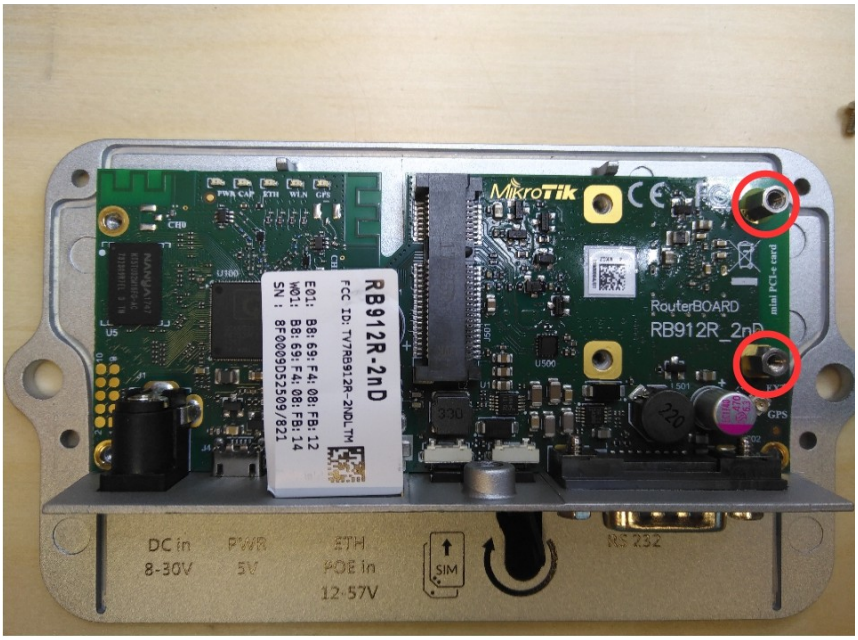
Push the cover to take it off as shown in picture 593 and unscrew 5 PCB holding screws.



Picture 593

Step 4:

Pull out R11 mPCI card and unscrew 2 hex knot spacers as shown in picture 594.


RB912R-2nD
RouterBOARD
RB912R_2nD
DC in
8-30V
PWR
5V
ETH
POE in
12-57V
SIM
RS 232

Picture 594

Checking procedure for over-voltage

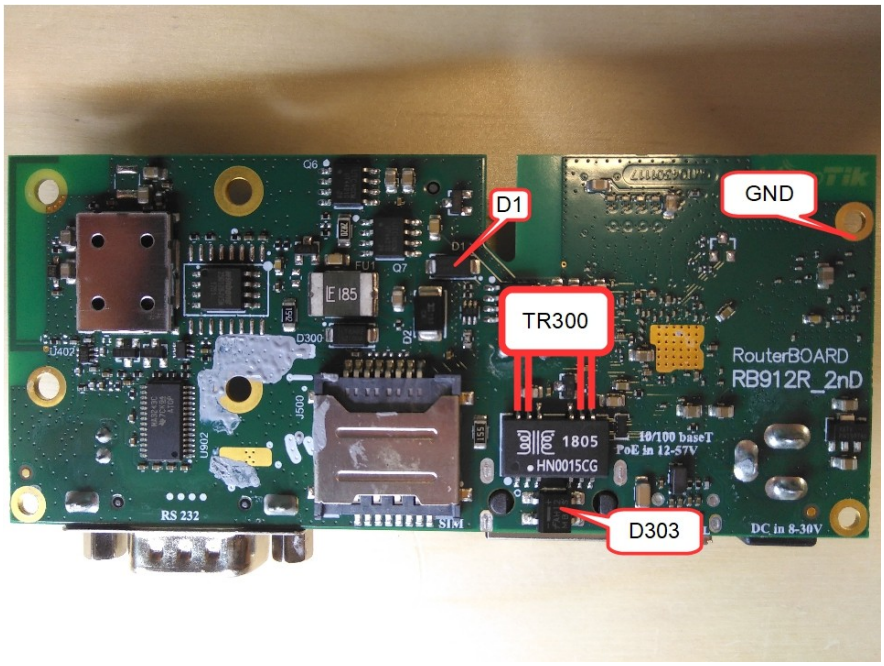
Checking Schottky diodes

Check Schottky diode D1 and diode bridge D303. Location of diodes on the board you can see in the picture 595. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 595.

Voltage drop value should be in the range from 0,34V to 0,37V. Voltage drop measurement method is described on page 25.



Picture 595

LtAP (RBLtAP-2HnD)

LtAP LTE kit (RBLtAP-2HnD&R11e-LTE)

LtAP 4G kit (RBLtAP-2HnD&R11e-4G)

LtAP LTE6 kit (RBLtAP-2HnD&R11e-LTE6)



Picture 596

Disassembling information

Step 1:

Unscrew “captive screw” with screwdriver. Location of the screw you can see in the picture 597.



Picture 597

Step 2:

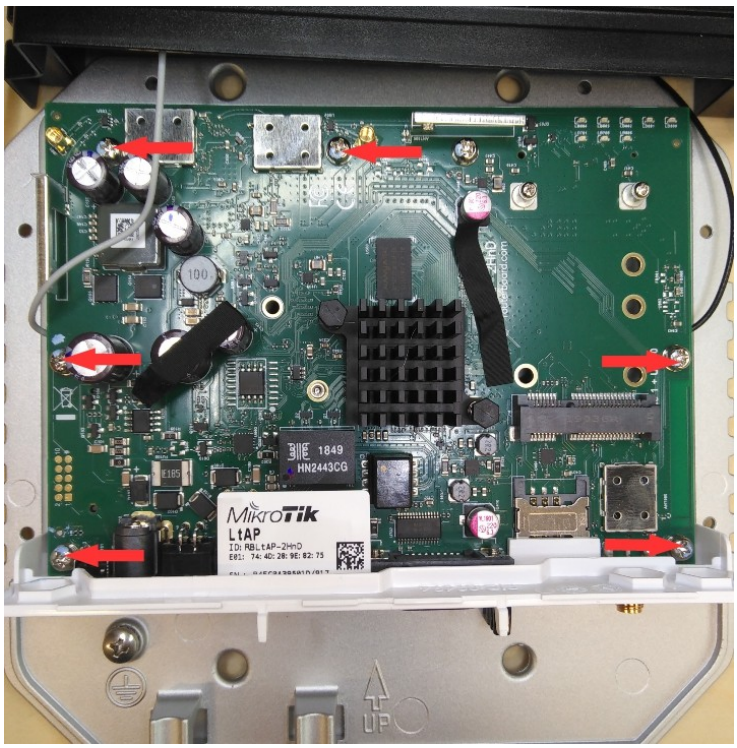
Using Philips screwdriver unscrew mounting screws that location can be seen in picture bellow.



Picture 598

Step 3:

Push the cover to take it off as shown in picture 599 and unscrew 6 PCB holding screws.



Picture 599

Checking procedure for over-voltage

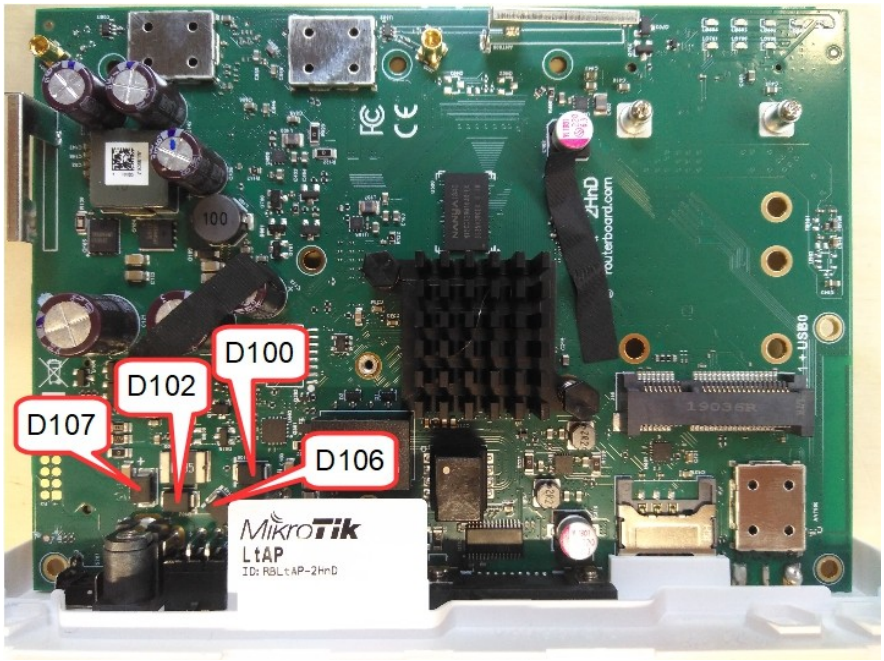
Checking Schottky diodes

Check Schottky diode D100, D102, D106, D107. Location of diodes on the board you can see in the picture 600. Diodes quality measurement method is described on page 23.

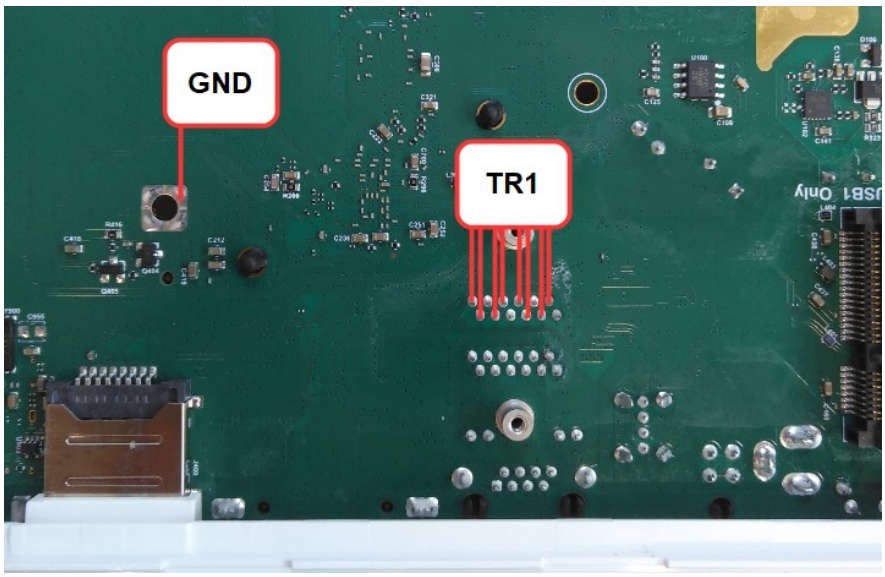
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR1 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 601.

Voltage drop value should be in the range from 0,31V to 0,36V. Voltage drop measurement method is described on page 25.



Picture 600



Picture 601

PWR-LINE series RouterBoard

PWR-LINE AP US plug (PL6411)



Picture 602

Disassembling information

Step 1:

Unscrew the screw that is below the sticker, location of the screw you can see in the picture 603.



Picture 603

Step 2:

Open case by pulling both parts away from each other just like in picture bellow.



Picture 604

Checking procedure for over-voltage

Checking fuses

Fuse FU1 pins are located on the bottom layer of the PCB, so check fuse FU1, by measuring resistance between pins (1 and 2) shown in picture 605. Fuse quality measurement method is described on page 24.

Checking diode bridge

Diode bridge is located on the bottom layer of the PCB, so check the corresponding pins which is directly connected to the diode bridge. Pin pairs that must be checked are shown in picture 606.

PIN pairs:

4. & 1. → ~0.56V (Red probe on pin 4, black probe on pin 1)

4. & 2. → ~0.56V (Red probe on pin 4, black probe on pin 2)

3. & 1. → ~0.56V (Black probe on pin 3, red probe on pin 1)

3. & 2. → ~0.56V (Black probe on pin 3, red probe on pin 2)

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 607.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 605



Picture 606



Picture 607

PWR-LINE AP EU plug (PL7411)

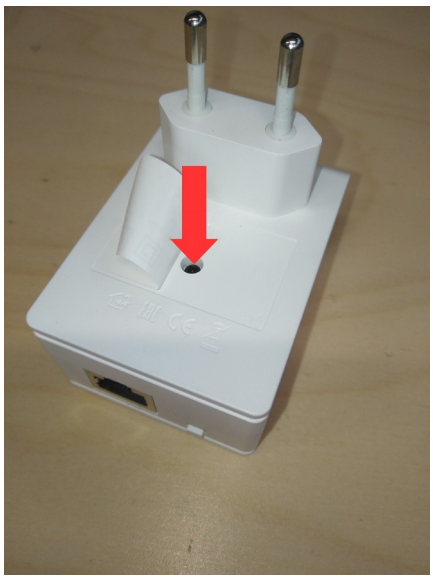


Picture 608

Disassembling information

Step 1:

Unscrew the screw that is below the sticker, location of the screw you can see in the picture 609.



Picture 609

Step 2:

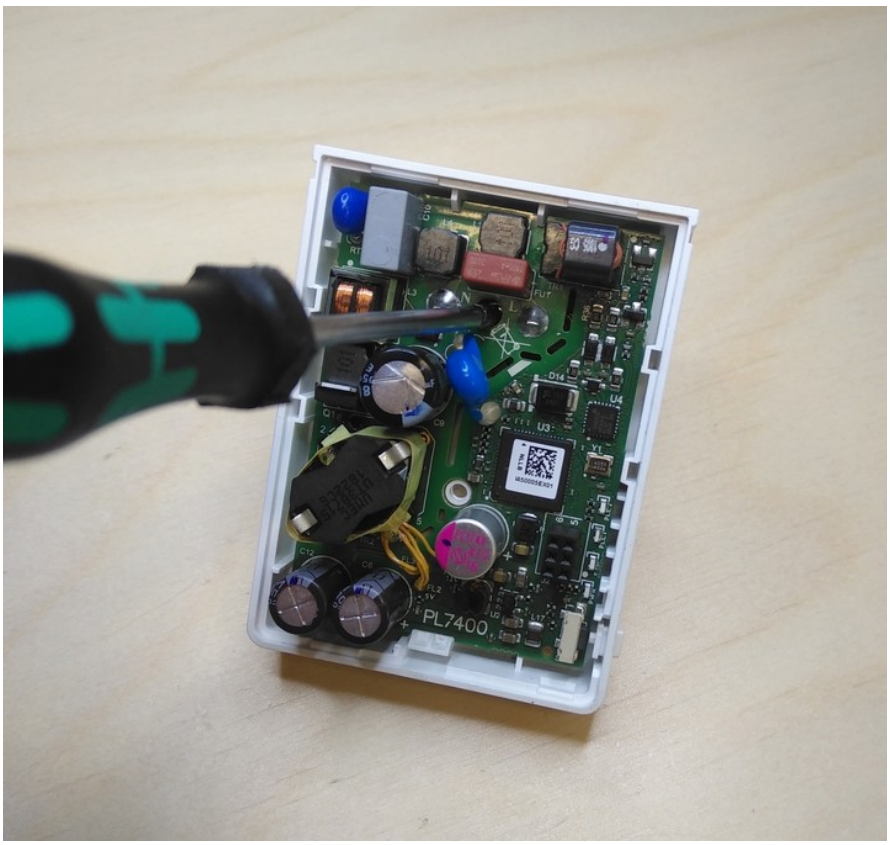
Open case by bulling both parts away from each other just like in picture bellow.



Picture 610

Step 3:

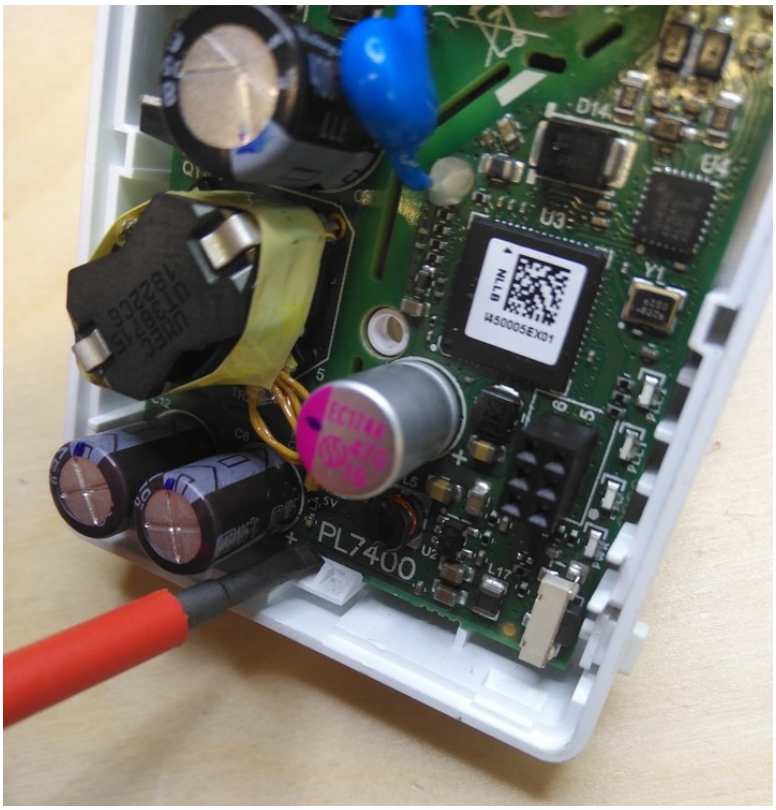
Using narrow screwdriver unscrew one screw that holds plug fork to the case. Location of the screw is shown in picture 611.



Picture 611

Step 4:

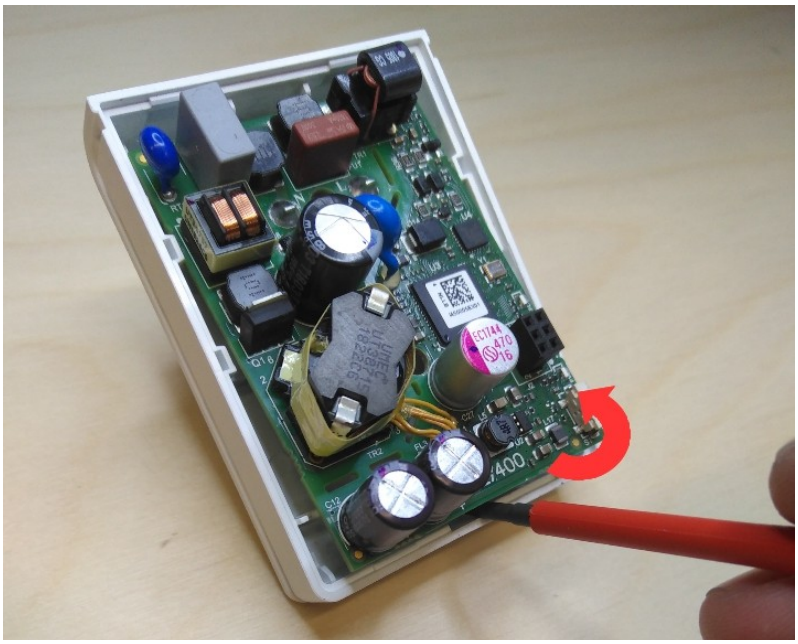
Push the PCB holder to side for releasing PCB as shown in picture 612.



Picture 612

Step 5:

Gently lift PCB as shown in picture 613 and pull PCB out of the case. Be careful with AC plug.



Picture 613

Checking procedure for over-voltage

Checking fuses

Check fuse FU1. Location of fuse you can see in the picture 614. Fuse quality measurement method is described on page 24.

Checking diode bridge

Check diode bridge D3. Location of diode on the board you can see in the picture 615. Diodes quality measurement method is described on page 23.

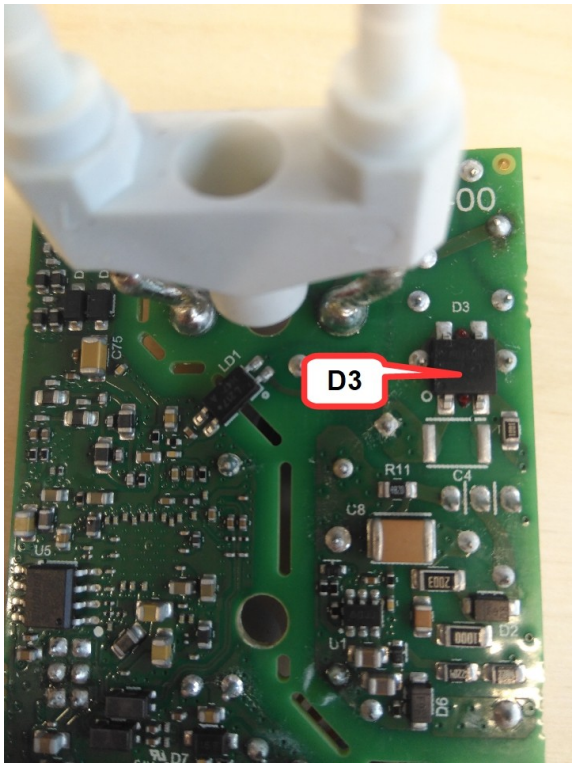
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR300 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 616.

Voltage drop value should be in the range from 0,34V to 0,38V. Voltage drop measurement method is described on page 25.



Picture 614



Picture 615



Picture 616

PWR-LINE US plug (PL6400)

Checking procedure for over-voltage

Checking fuses

Fuse FU1 pins are located on the bottom layer of the PCB, so check fuse FU1, by measuring resistance between pins (1 and 2) shown in picture 605. Fuse quality measurement method is described on page 24.

Checking diode bridge

Diode bridge is located on the bottom layer of the PCB, so check the corresponding pins which is directly connected to the diode bridge. Pin pairs that must be checked are shown below and in picture 606.

PIN pairs:

4. & 1. → ~0.56V (Red probe on pin 4, black probe on pin 1)

4. & 2. → ~0.56V (Red probe on pin 4, black probe on pin 2)

3. & 1. → ~0.56V (Black probe on pin 3, red probe on pin 1)

3. & 2. → ~0.56V (Black probe on pin 3, red probe on pin 2)

PWR-LINE EU plug (PL7400)

Checking procedure for over-voltage

Checking fuses

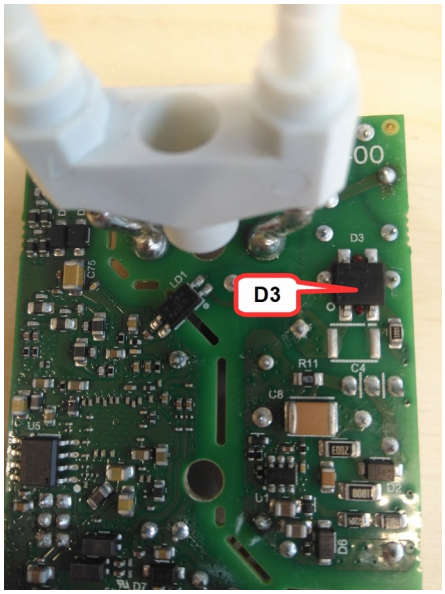
Check fuse FU1. Location of fuse you can see in the picture 617. Fuse quality measurement method is described on page 24.

Checking diode bridge

Check diode bridge D3. Location of diode on the board you can see in the picture 618. Diodes quality measurement method is described on page 23.



Picture 617



Picture 618

PWR-LINE PRO (PL7510Gi)



Picture 619

Disassembling information

Step 1:

Unscrew the screw, location of the screw you can see in the picture 620.



Picture 620

Checking procedure for over-voltage

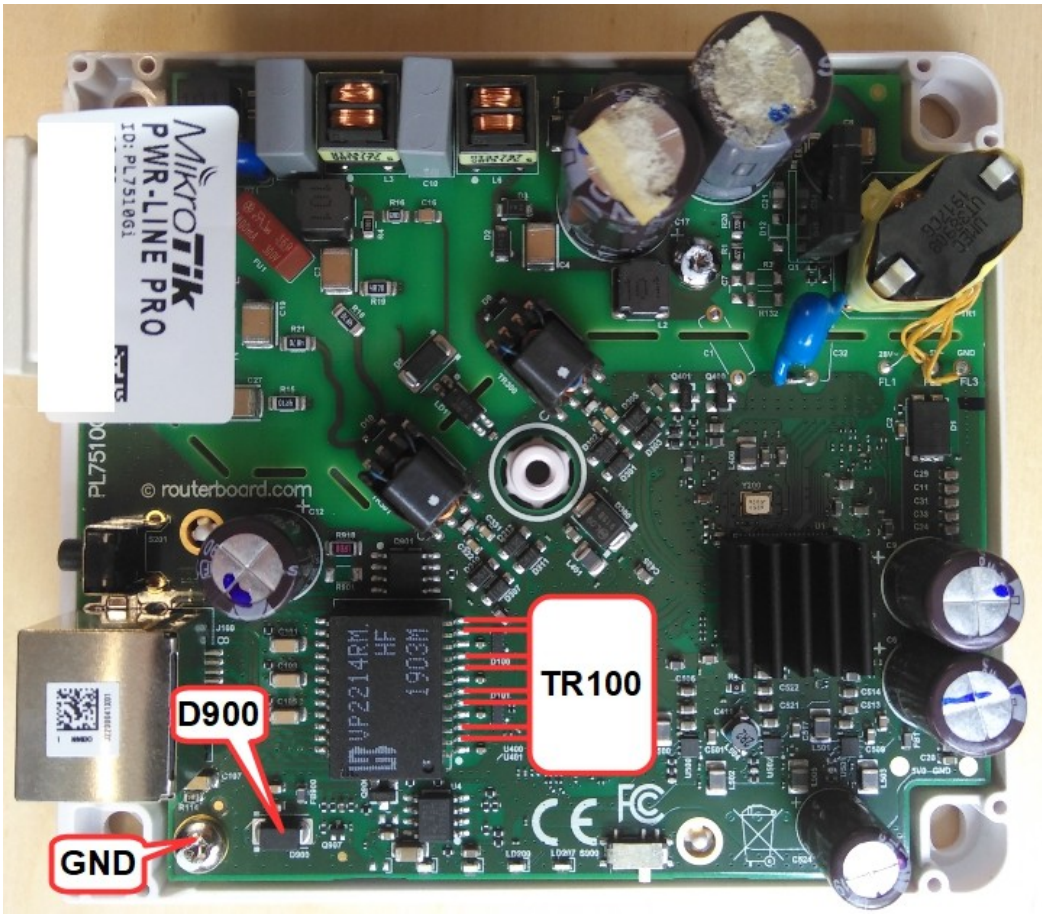
Checking Schottky diode

Check diode bridge D900. Location of diode on the board you can see in the picture 621. Diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer TR100 pins and Ground. Test points on the transformer pins are marked with red dots, see picture 621.

Voltage drop value should be in the range from 0,43V to 0,47V. Voltage drop measurement method is described on page 25.



Picture 621

Cube series RouterBoard

Cube Lite60 (RBCube-60ad)



Picture 622

Disassembling information

Disassembly of this device is not necessary to perform an over-voltage test as both parts of

case are welded together.

Please contact to MikroTik support and try to solve the problem. If problem still persists send unit to RMA.

Other products

Audience LTE6 kit (RBD25GR-5HPacQD2HPnD&R11e-LTE6)

Audience (RBD25GR-5HPacQD2HPnD)



Picture 623

Disassembling information

Step 1:

Take off the sticker as shown in the picture 624.



Picture 624

Step 2:

Unscrew 2 crews using PH0 screwdriver as shown in the pictures 625.



Picture 625

Step 3:

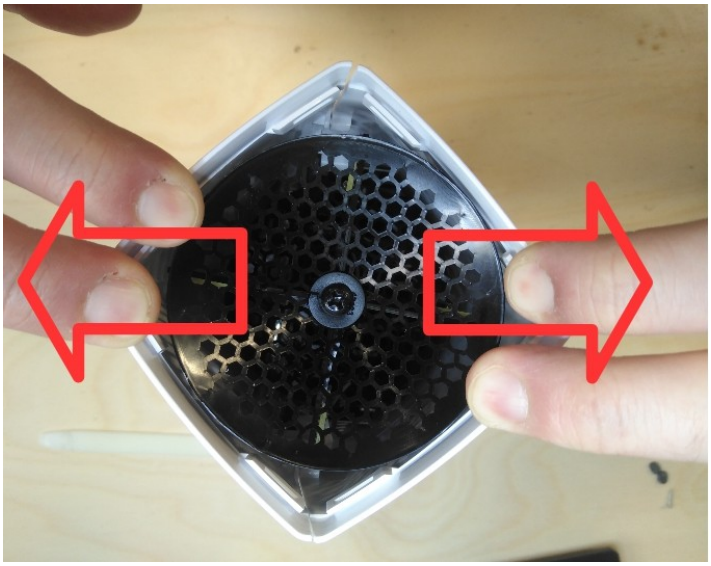
Using soft tool pull up the top part as shown in the picture 626.



Picture 626

Step 4:

Pull two side parts apart as shown in the picture 627.



Picture 627

Step 5:
Unscrew all visible screws shown in the picture 628.



Picture 628

Checking procedure for over-voltage

Checking Schottky diodes

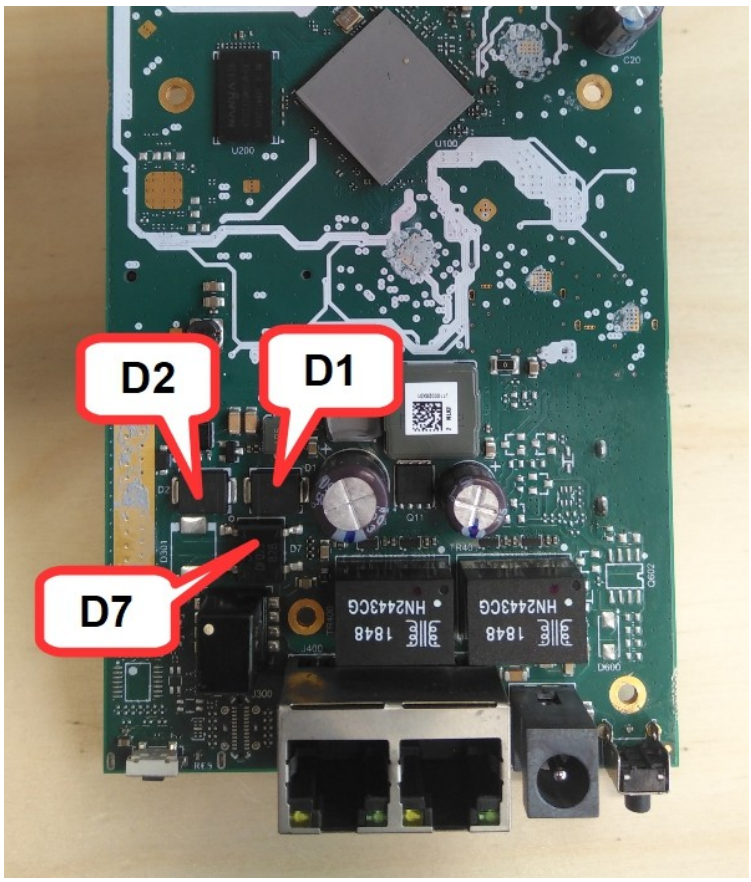
Check Schottky diodes D1, D2 and diode bridge D7. Location of diodes on the board you can see in the picture 629. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

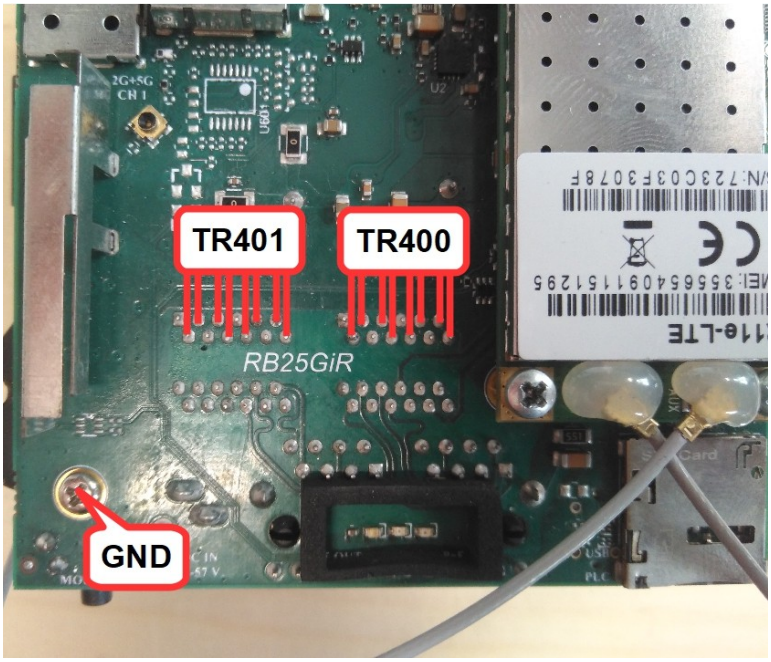
Check voltage drop value between Ethernet transformers TR400 and TR401 pins and Ground.

Test points on the transformer pins are marked with red dots, see picture 630.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 629



Picture 630

Chateau LTE12 (RBD53G-5HacD2HnD-TC&EG12-EA)



Picture 631

Disassembling information

Step 1:

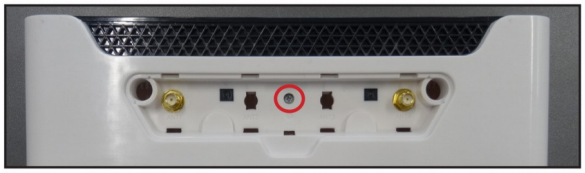
Remove the back small cover as shown in the picture 632.



Picture 632

Step 2:

Unscrew the central screw as shown in the pictures 633.



Picture 633

Step 3:

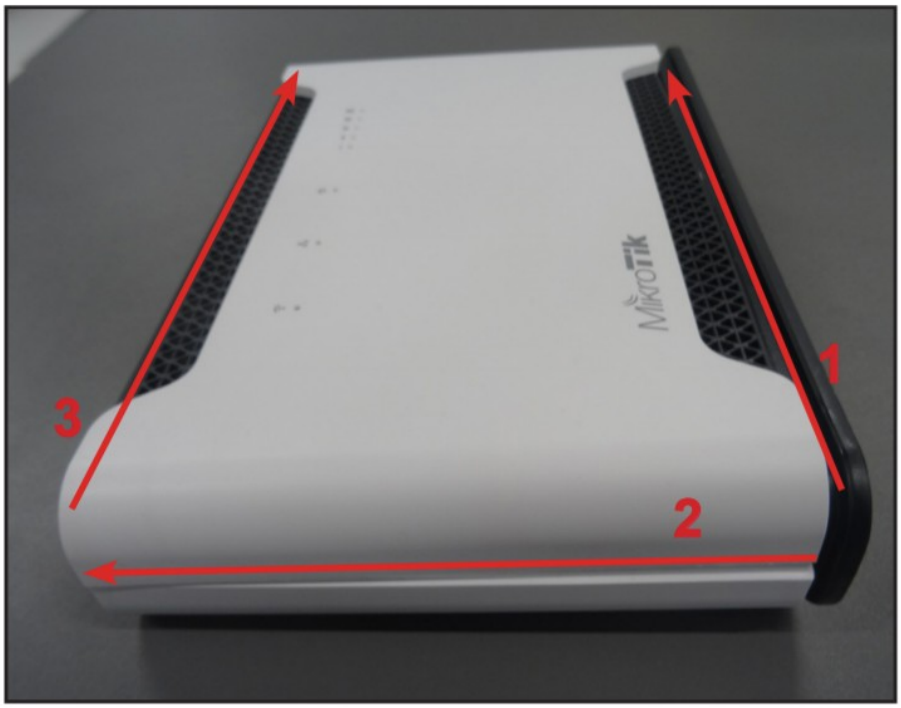
Start opening from the left bottom corner using plastic tools as shown in the picture 634.



Picture 634

Step 4:

Continue to release snap hooks around perimeter starting from the corner as shown in picture 635.



Picture 635

Step 5:

Take off the cover as shown in the picture 636.



Picture 636

Checking procedure for over-voltage

Checking Schottky diodes

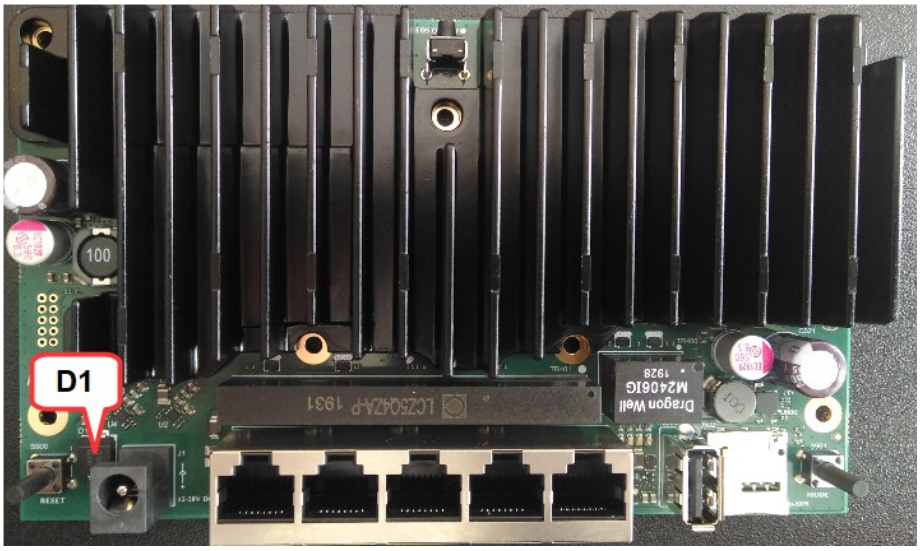
Check Schottky diode D1. Location of diodes on the board you can see in the picture 637. Schottky diodes quality measurement method is described on page 23.

Checking voltage drop value between Ethernet transformers pins and Ground

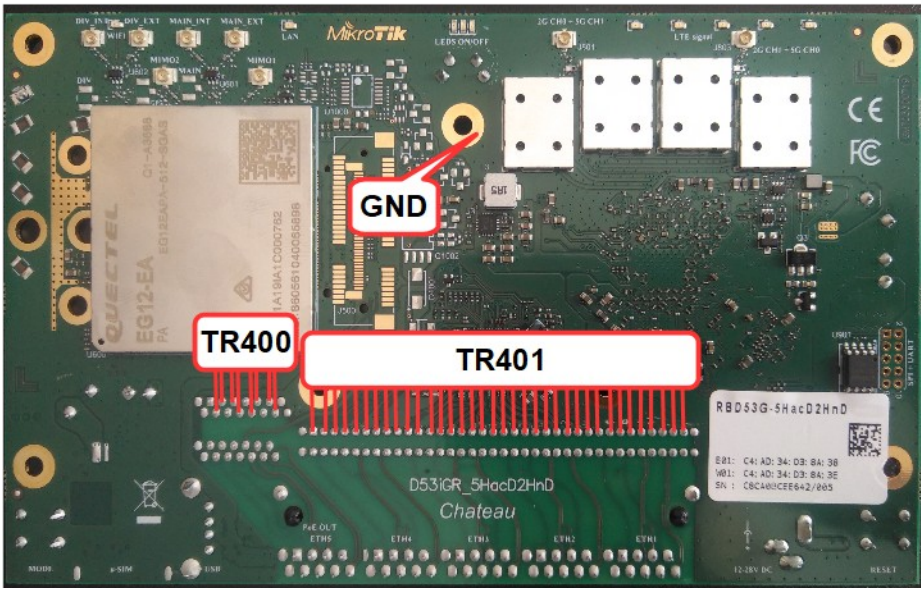
Check voltage drop value between Ethernet transformers TR400 and TR401 pins and Ground.

Test points on the transformer pins are marked with red dots, see picture 638.

Voltage drop value should be in the range from 0,35V to 0,39V. Voltage drop measurement method is described on page 25.



Picture 637



Picture 638

GPEN21



Picture 639

Disassembling information

Step 1:

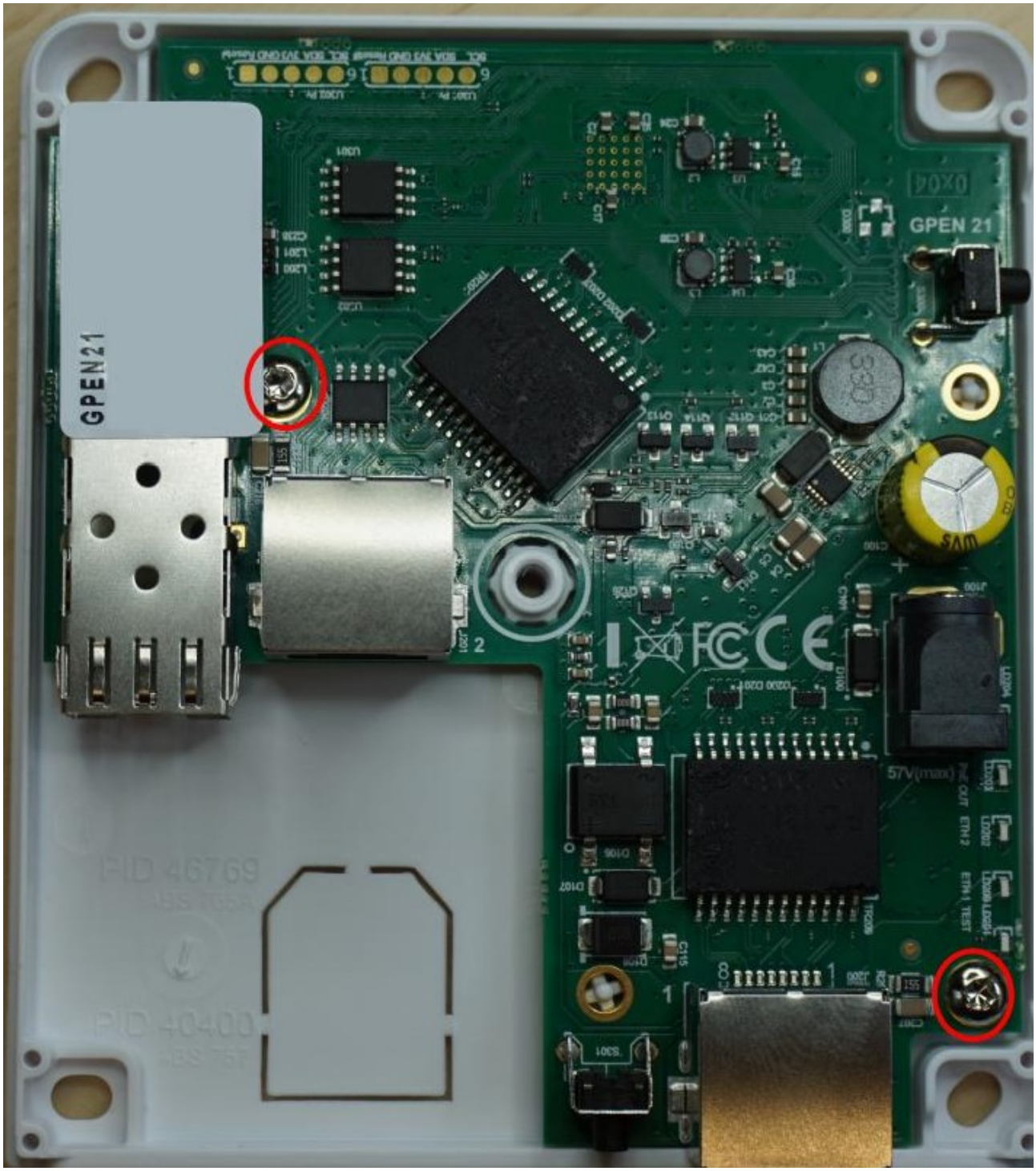
Unscrew the top screw as shown in the picture 640.



Picture 640

Step 2:

Unscrew all visible screws shown in the picture 641.



Picture 641

Checking procedure for over-voltage

Checking Schottky diodes

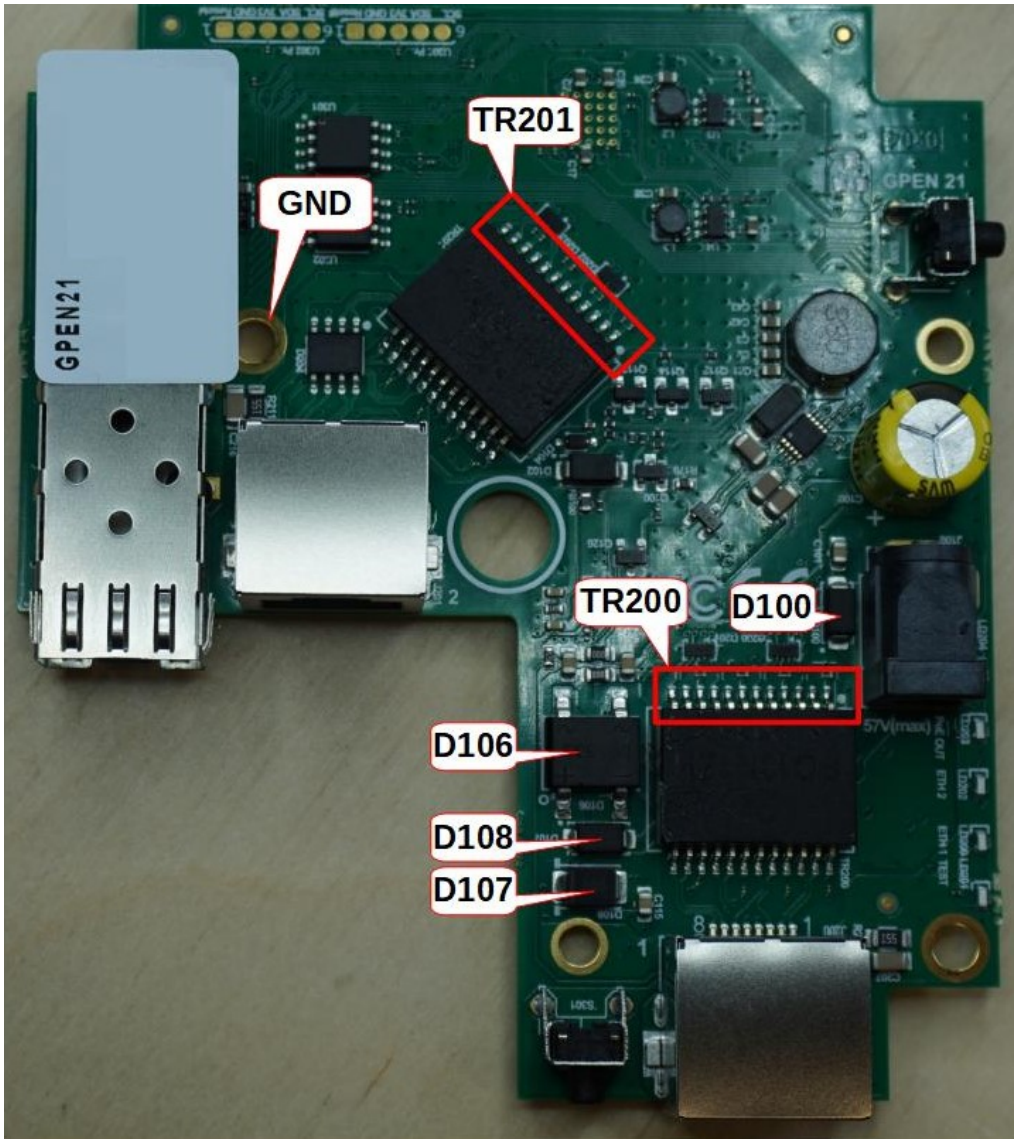
Check Schottky diodes D100, D107, D108 and diode bridge D106 marked in picture 642.

Schottky diodes quality measurement method is described on page 23. Diode bridge quality measurement method is described on page 24.

Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformers TR200 and TR201 pins and Ground. Pins and GND are marked in picture 642.

Voltage drop across pins should be in range from 0,32V to 0,60V. Voltage drop measurement method is described on page 25.



Picture 642

RBGPOE-CON-HP



Picture 643

Disassembling information

Step 1:

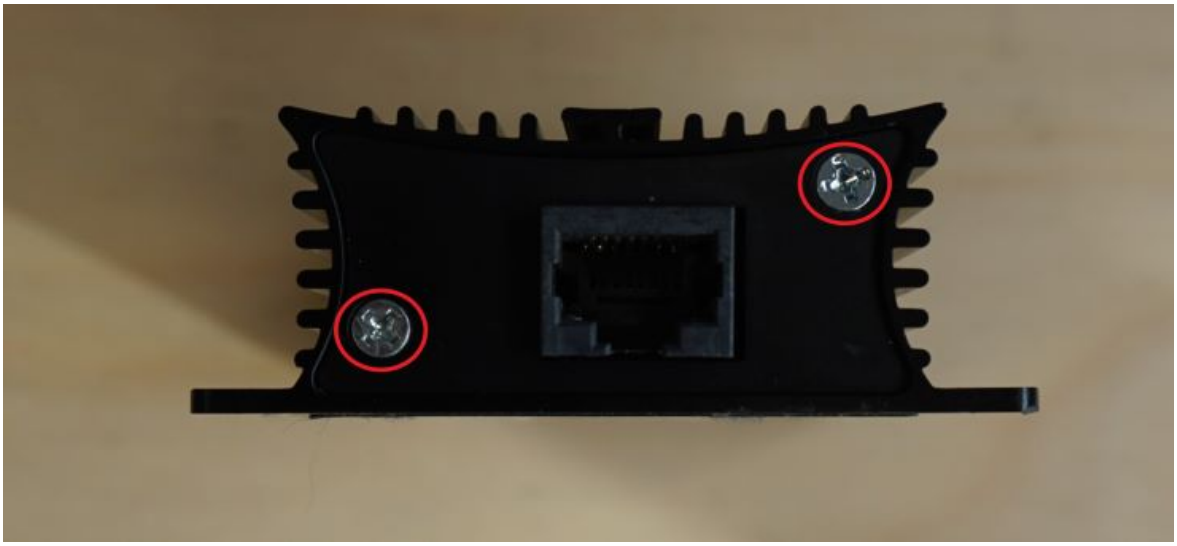
Unscrew the bottom screws as shown in the picture 644.



Picture 644

Step 2:

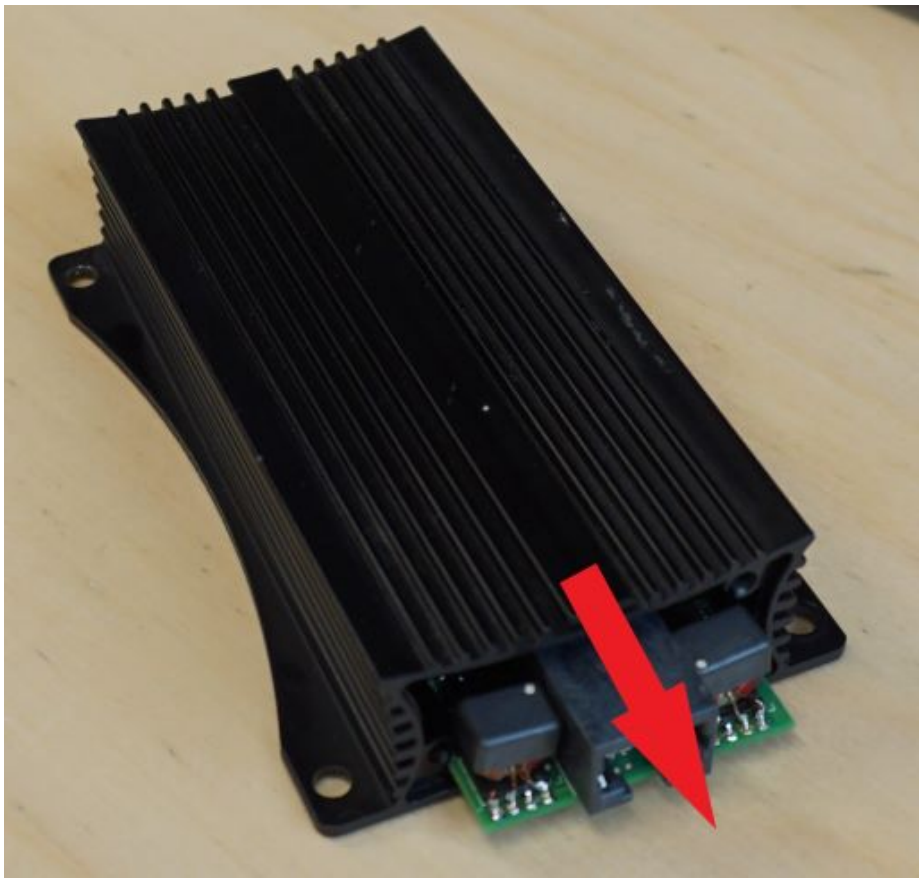
Unscrew the screws as shown in the picture 645 on 48V side.



Picture 645

Step 3:

Pull out PCB following the arrow direction as shown in the picture 646.

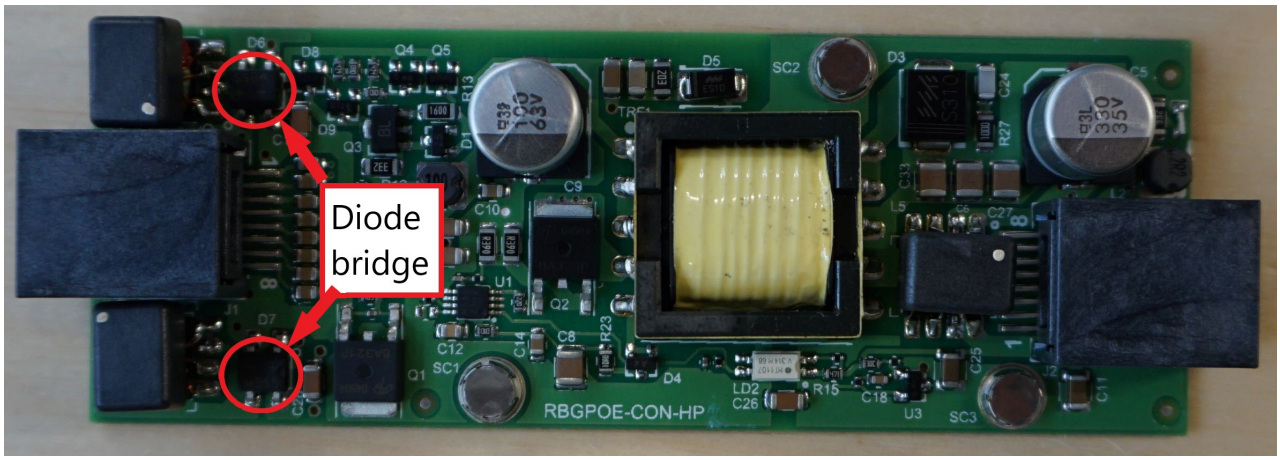


Picture 646

Checking procedure for over-voltage

Checking diode bridge

Check diode bridges D6 and D7. Location of diode bridges on the board you can see in the picture 647. Diode bridge quality measurement method is described on page 24.



Picture 647

Wireless Wire nRAY (nRAYG-60ad)

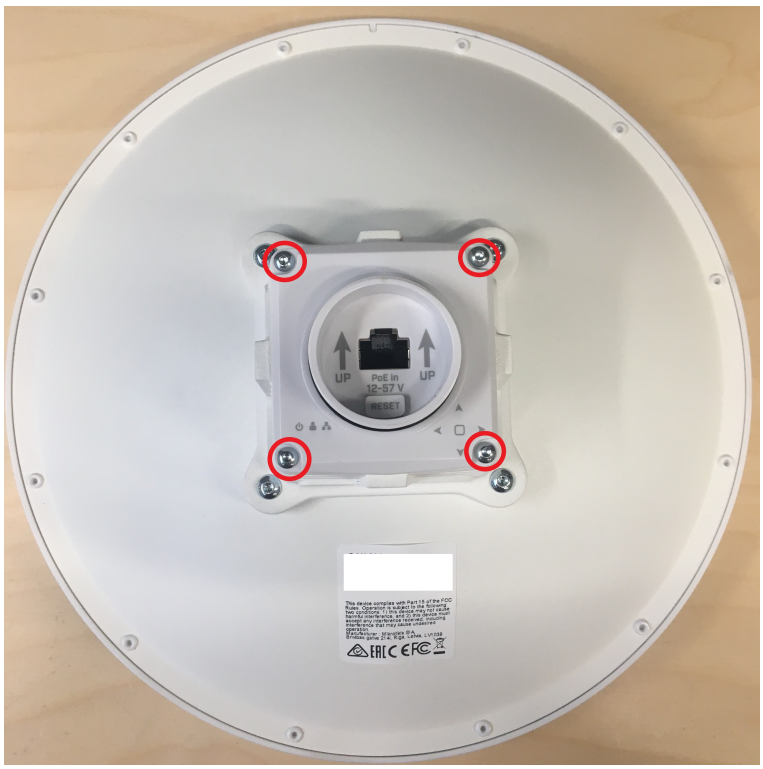


Picture 648

Disassembling information

Step 1:

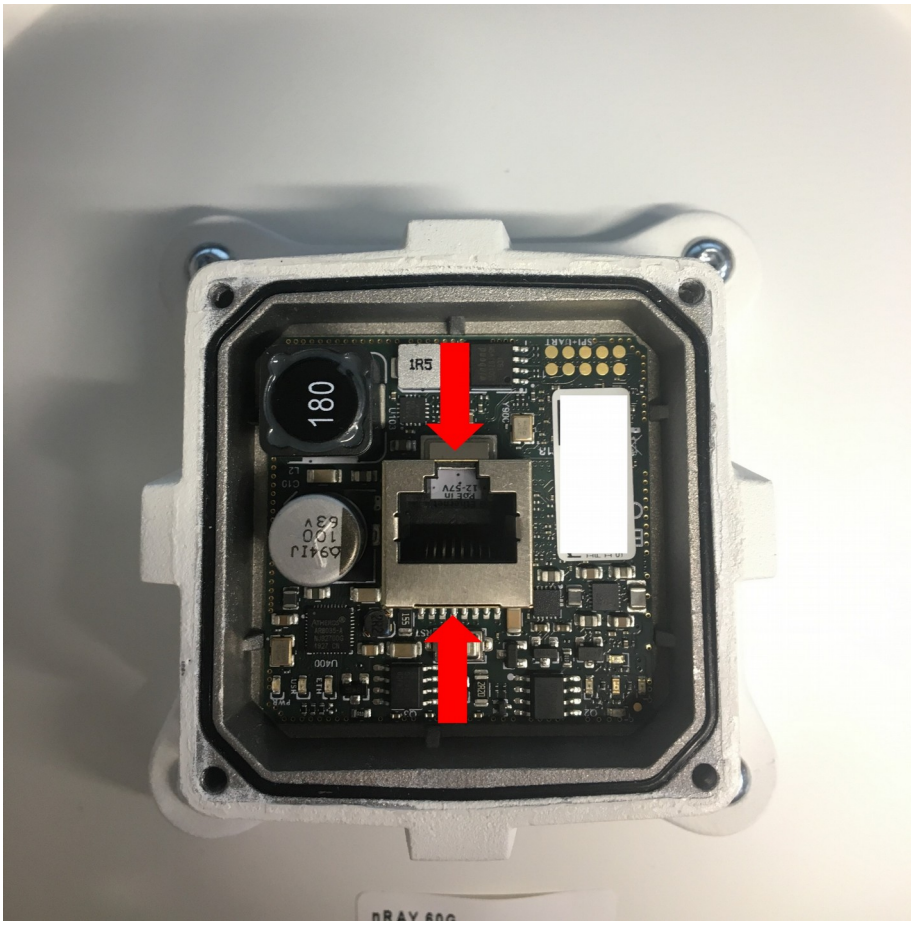
Unscrew 4 bolts marked in picture 649 using Hex 2mm screwdriver.



Picture 649

Step 2:

Pull out PCB holding RJ45 port as shown in picture 650.



Picture 650

Checking procedure for over-voltage

Checking Schottky diodes

Check Schottky diode and diode bridge marked in picture 651.

Schottky diodes quality measurement method is described on page 23. Diode bridge quality measurement method is described on page 24.

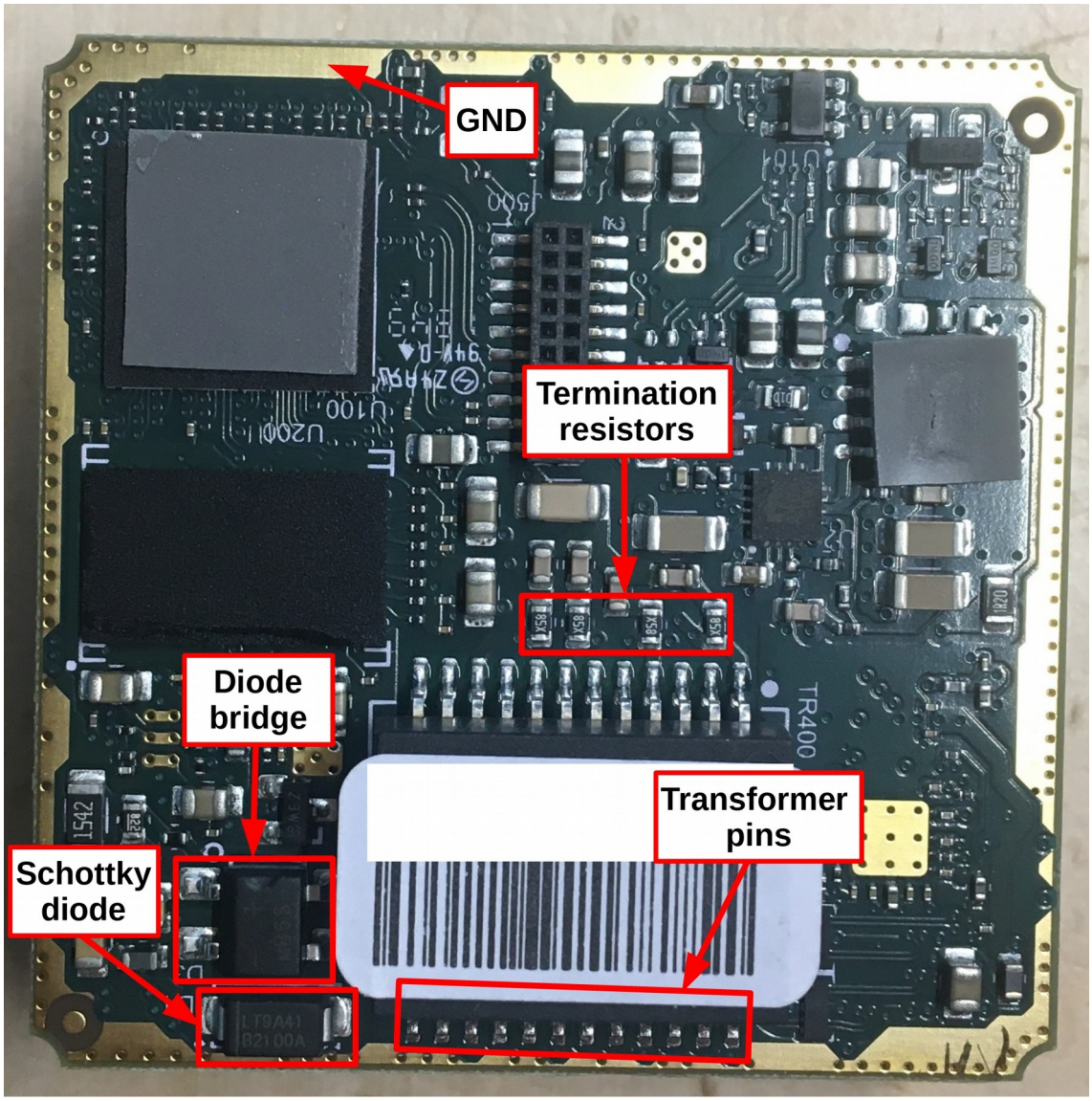
Checking voltage drop value between Ethernet transformers pins and Ground

Check voltage drop value between Ethernet transformer pins and GND. Pins and GND are marked in picture 651.

Voltage drop across pins should be in range from 0,34V to 0,42V. Voltage drop measurement method is described on page 25.

Checking 75 Ohm termination resistors

Check value of each termination resistor marked in picture 651. Resistance should be approximately 75 Ohms.


GND
Termination resistors
Diode bridge
Schottky diode
Transformer pins

Picture 651