

RTS-TB-035

18-April-2017

## Low frequency Noise / Hum heard on Zeus III audio

Issue Severity:	Product(s) Affected:
<input type="checkbox"/> <b>High:</b> URGENT – Immediate Action Required  <input checked="" type="checkbox"/> <b>Medium:</b> Bosch Security Systems, Inc. strongly recommends you take the action(s) described below.  <input type="checkbox"/> <b>Low:</b> Advisory	<ul style="list-style-type: none"> <li>Zeus III matrix systems: Zeus III / Zeus III Lite (LE) / Zeus III Lite Redundant built prior to May 2017</li> </ul>
Notification Applies To:	Access Restrictions:
<input checked="" type="checkbox"/> Technical Support (TSS) <input checked="" type="checkbox"/> Repair (ASA) <input checked="" type="checkbox"/> Sales (NSO / RSO)	<input type="checkbox"/> Internal Distribution <b><u>ONLY</u></b> <input checked="" type="checkbox"/> <b>No</b> Restrictions (Internal & External Distribution)

### 1.0 Issue

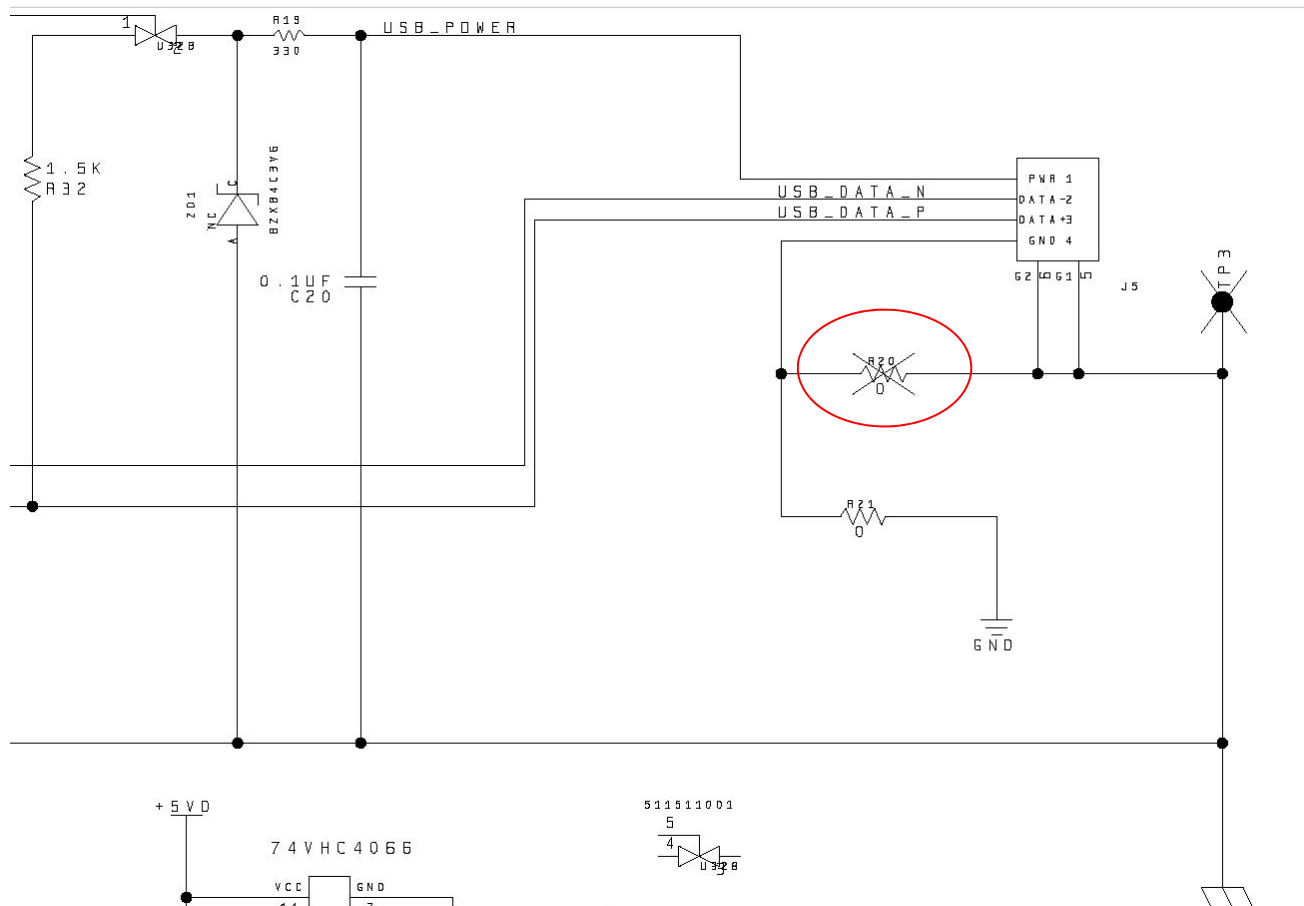
Several customers have identified an issue with noise on the Zeus III audio signals. The noise has the signature of a ground type noise or hum. One way to determine if the Zeus III is affected by this issue is to plug a USB device into the front panel USB connection of the Zeus III. If the noise goes away when the USB device is attached, the problem is related to the issue described in this bulletin.

Engineering believes that this issue is caused on certain panels by a high impedance between frame ground and circuit ground internal to the Zeus III design. This creates the environment for ground noise on the audio lines.

## 2.0 Resolution / Corrective Actions

Bosch recommends a simple rework which we believe will address this issue. The schematics and PCBA layout of the Zeus III Main PCBA contains a resistor R20 which is currently depopulated on shipments. This resistor is a 2010 package geometry. If this resistor is replaced with a 0 Ohm equivalent (or the pads simply shorted together), this should eliminate the noise issue and create the same benefit that connecting an external USB device has.

The following shows the schematic with R20. The “X” over the resistor symbol indicates the resistor is currently not populated. Note that if populated, R20 would connect circuit ground to frame ground on the Zeus III Main PCBA. Connector J5 is the USB port on the front of the Zeus III.



## 3.0 Rework for Input Impedance Change

Necessary tools and parts:

- Phillips Head screw driver
- 22-26 AWG wire or equivalent Zero Ohm resistor SAP# F01U161791 or F01U162449 (Example manufacturing part number NIC NRC50ZOTRF)
- Soldering iron



### NOTICE:

Rework should only be performed by qualified personnel who observe proper ESD and handling procedures.

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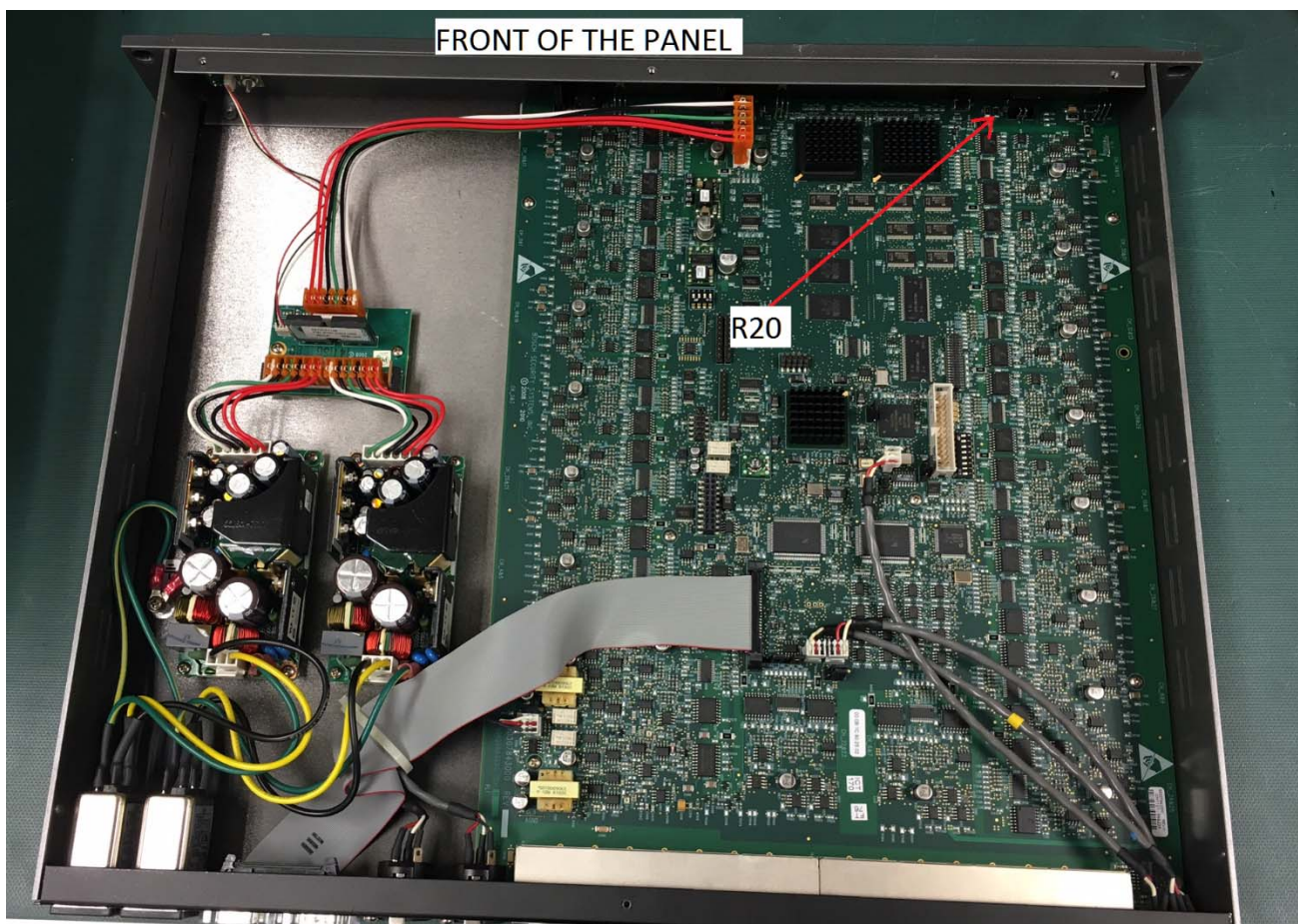
### Rework steps:

1. Remove AC power from the ZEUS panel and place the panel onto an ESD safe work surface.
2. Remove the top cover from the ZEUS panel by unscrewing 10 Phillips drive flat head screws (4 on top and 3 on each side):



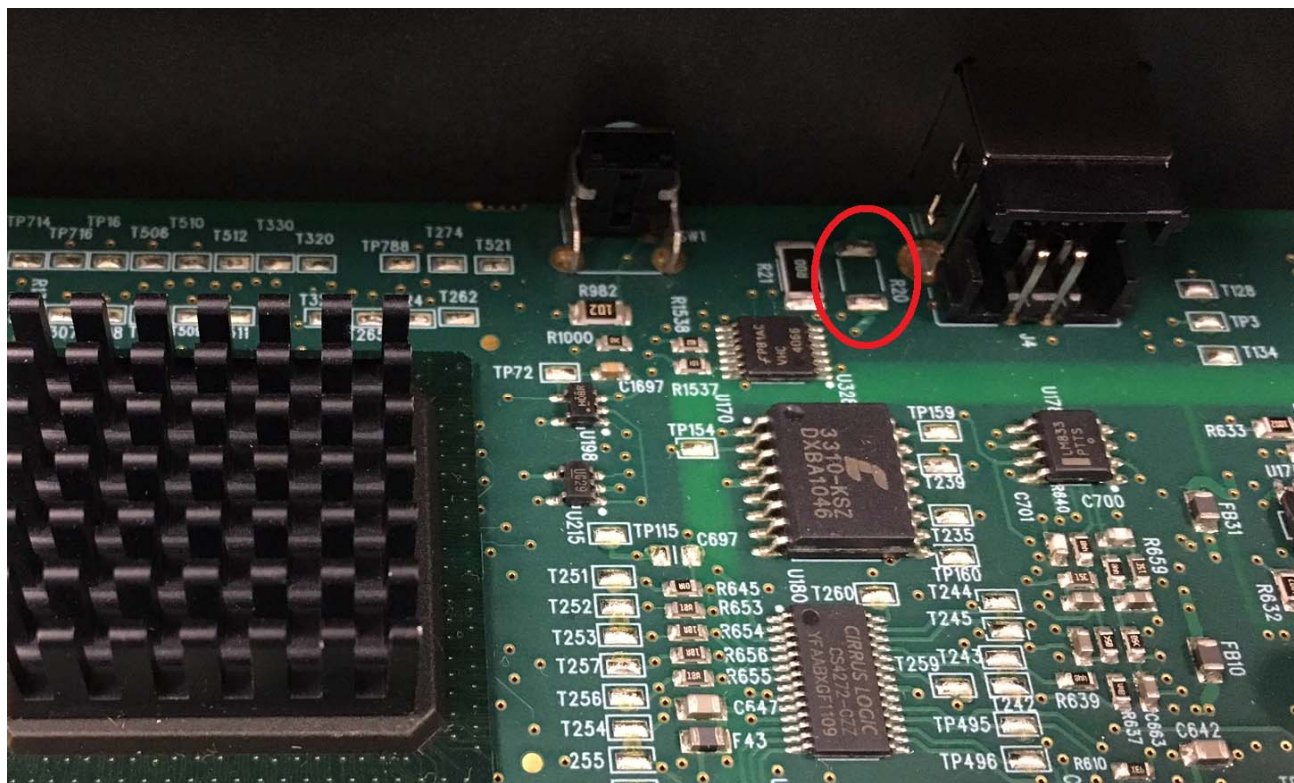


3. Identify resistor pads location R20 on the Main PCBA. Refer to the following pictures that show the resistor pads location R20.

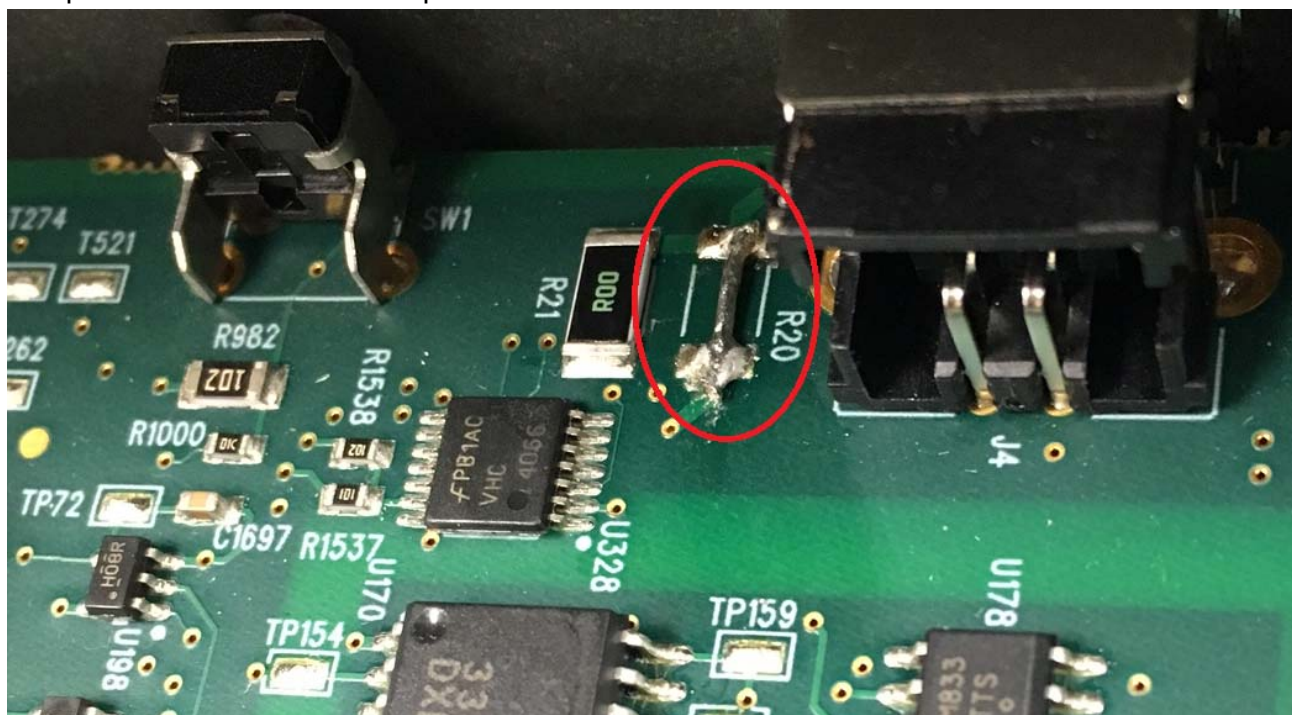




Close-up view of resistor pads location R20:



- Carefully solder an appropriate 0 Ohm 2010 resistor (SAP# F01U161791 or F01U162449) or a piece of wire between both pads of R20.



5. Re-install the top cover and secure with 10 Phillips drive flat head screws.

6. This rework should connect frame and circuit ground on ZEUS III Main PCBA and eliminate ground noise on the audio lines. Power the unit up and perform an audio verification to make sure the noise issue has been eliminated.