

NetNode Robust
L Band (R-115140) Variant
S Band (R-217250) Variant

Revision History

<i>Revision Version</i>	<i>Created /Modified by</i>	<i>Summary of Change</i>	<i>Date</i>
V1.0	S.McGhie	First Draft	18/08/2010
V1.1	S.McGhie	Modified to include different variants & additional notes	27/08/2010
V1.2	S.McGhie	Added notes regarding fastening of connectors & references to Purge testing plus introduction of Product Labelling	04/02/2011

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1. Scope

This work instruction outlines the process to be followed to assemble an L Band NETNode-R-115140 & S Band NETNode-R-217250 (Highlight in Red).

2. Related Documents

SA0304 Robust DUO/Mesh Enclosure Assembly (Generic)

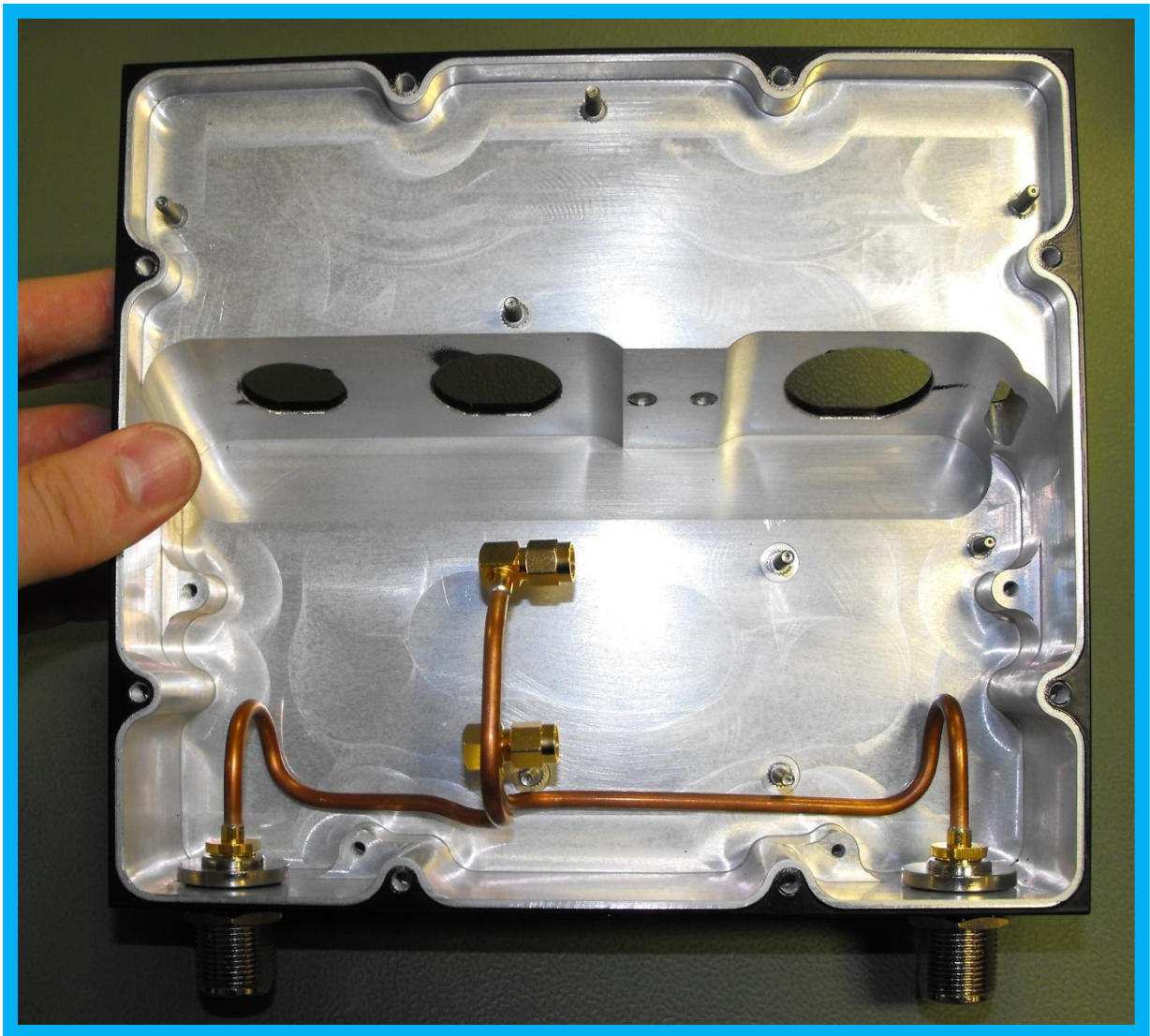
SA0317 DUO/Mesh-R Top Level Assembly (L-Band)

SA0281 DUO/Mesh-R Top Level Assembly (S-Band)

WI0006 Equipment Purging & Sealing

3. Work Instructions

- 1) Fit the rigid cable [CA0360](#) in the left hand side of main housing ([MW0258](#)) opposite the Power I/P hole. Then secure with the supplied rubber seal, shakeproof washer and nut. Ensure the connectors are fully tightened to avoid possible leaks.
- 2) Repeat the above process in the right hand side of the enclosure opposite the AV hole with the rigid cable [CA0361](#).



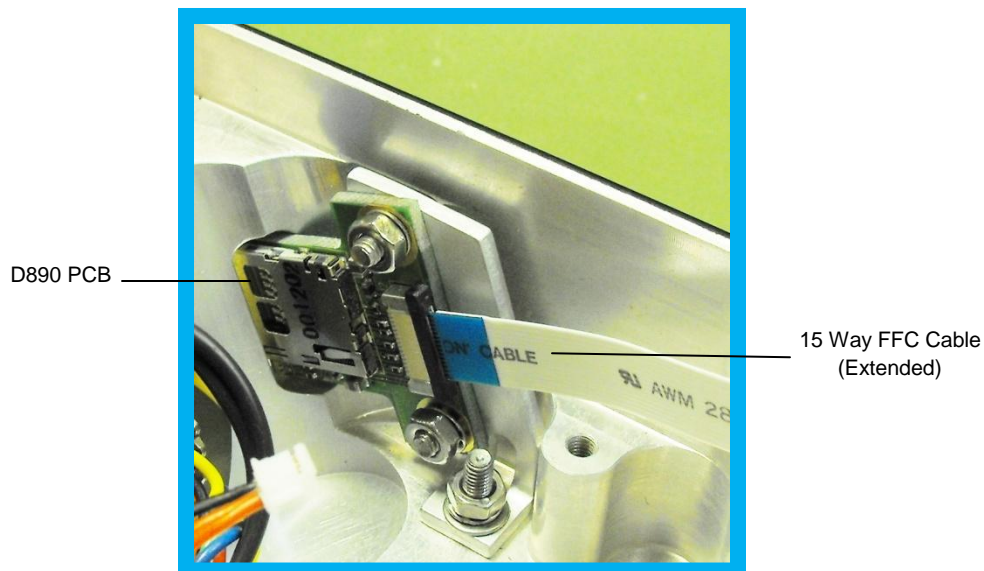
CA0361

CA0360

3) Fit an extended 15 Way FFC cable ([AP000345](#)) to the D890 PCB.

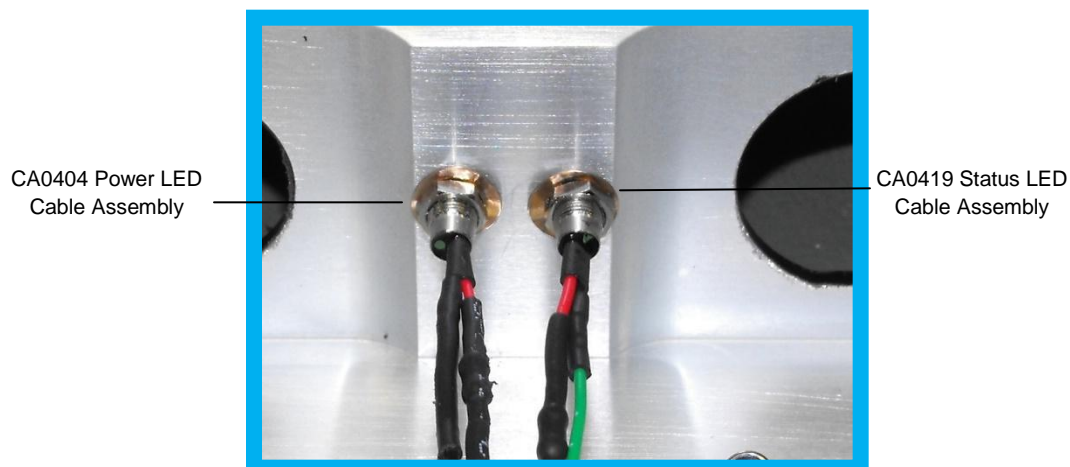
4) Loosely place the D890 PCB on the studs on the card mount bracket ([MW0269](#)) & place in position as shown below. The PCB will not fit into the slot if the PCB is fastened to the card mount bracket before it is fitted into the enclosure.

5) Fasten the SD card mount bracket ([MW0269](#)) & D890 PCB in position as shown with M3 shakeproof washers & M3 Nuts. Once the M3 nuts have been tightened carefully apply a small amount of Loctite 222 thread lock to each of nut.

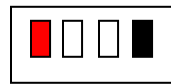


6) Fit the Power LED cable assembly [CA0404](#) in position as shown. When fitting the LED cable assembly insure the rubber O ring is fitted on the outside of the housing & the shakeproof washer & nut are fully tightened with a 6BA spanner.

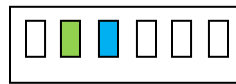
7) Repeat the same with the Status LED cable assembly [CA0419](#).



8) Connect the wires from [CA0404](#) to a 4 Way JST housing & [CA0419](#) to a 6 Way housing.

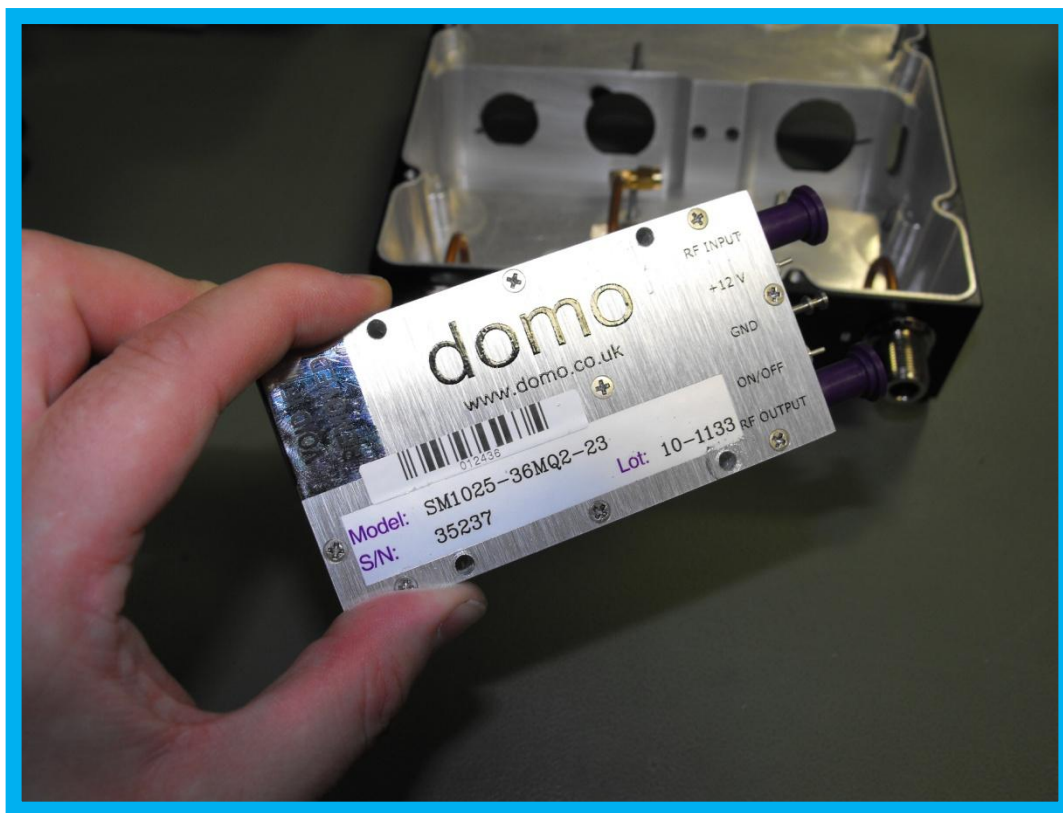


CA0404 Power LED
Cable Assembly



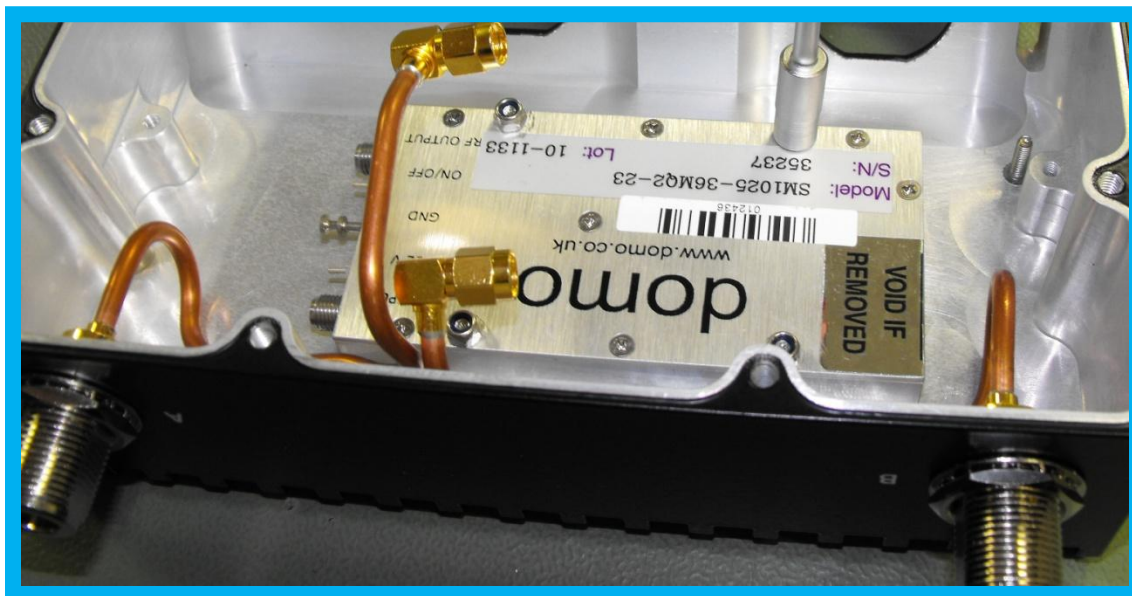
CA0419 Status LED
Cable Assembly

9) Open up the 4 holes on the Fast Switching 1WS and L Band Amplifier ([AP000926](#)) with a 3,3mm drill bit.

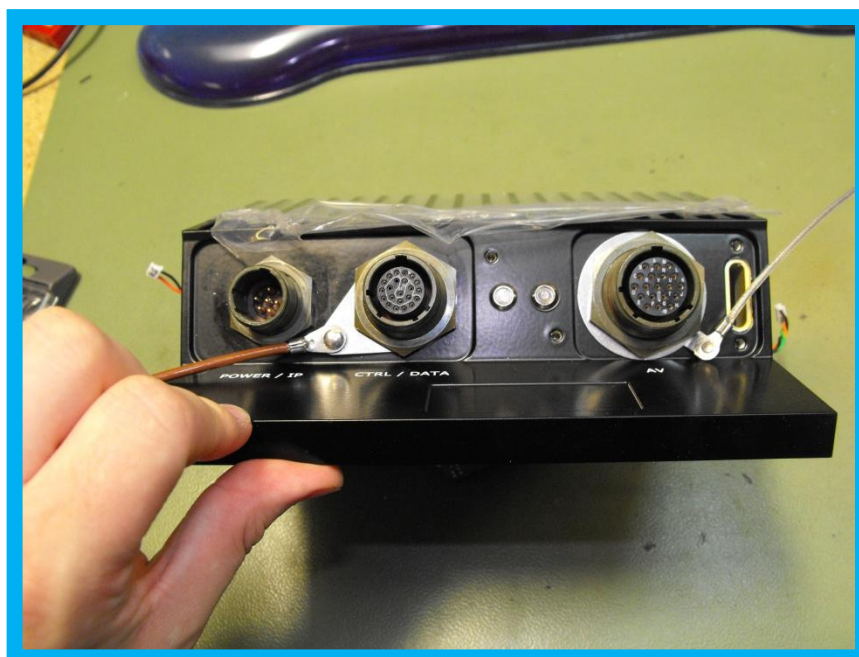


10) Apply a thin layer of heatshink compound ([AP000151](#)) to the bottom of the Fast Switching 1WS and L Band Amplifier.

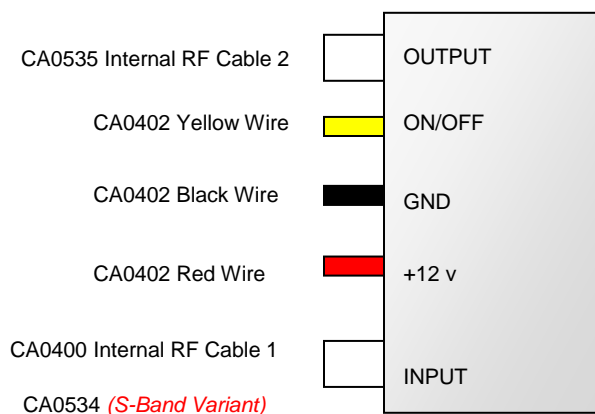
11) Align the amp with the studs & carefully press down the amp ensuring the SMA connectors are positioned on the left hand side as shown. Once in position secure the amp with four M3 Nyloc Nuts ([AP001474](#)) & tighten with a 5.5mm nut runner.



11) Fit the Main Internal Loom Assembly [CA0402](#) & protective covers ([AP001199](#) & [AP001200](#)) to main housing with the provided box spanners. When fitting the amphenol connector a thin smear of silicon grease around the rubber O ring. When tightening the amphenol connectors insure the supplied rubber seal is fitted & the protective connectors are positioned as shown. It is vital these connectors are fully tightened to avoid possible water ingress.

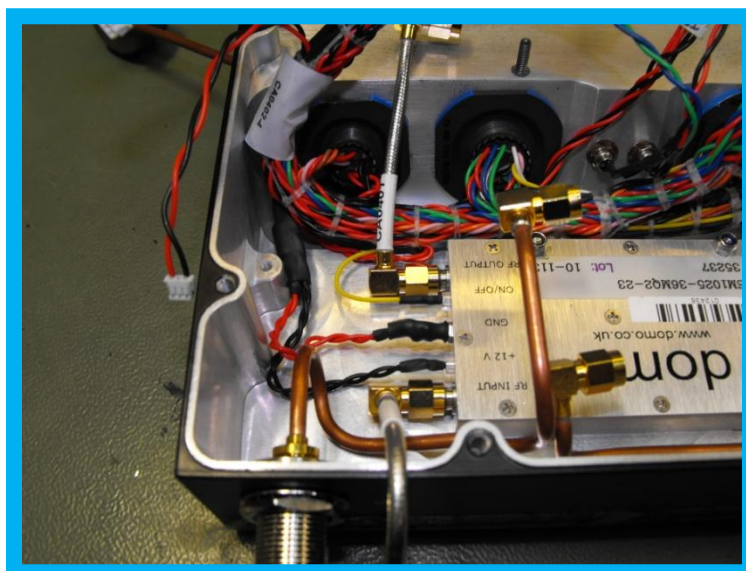


- 12) Solder Black flying lead of CA0402 to **GND** of the AMP and cover solder joint with heatshrink (AP000010).
- 13) Solder Red flying lead of CA0402 to **+12v of AMP** ensuring no short on nut at back of pin, and cover solder joint with heatshrink (AP000020).
- 14) Solder Yellow flying lead of CA0402 to **ON/OFF** of AMP ensuring no short on nut at back of pin, and cover solder joint with heatshrink (AP000020).



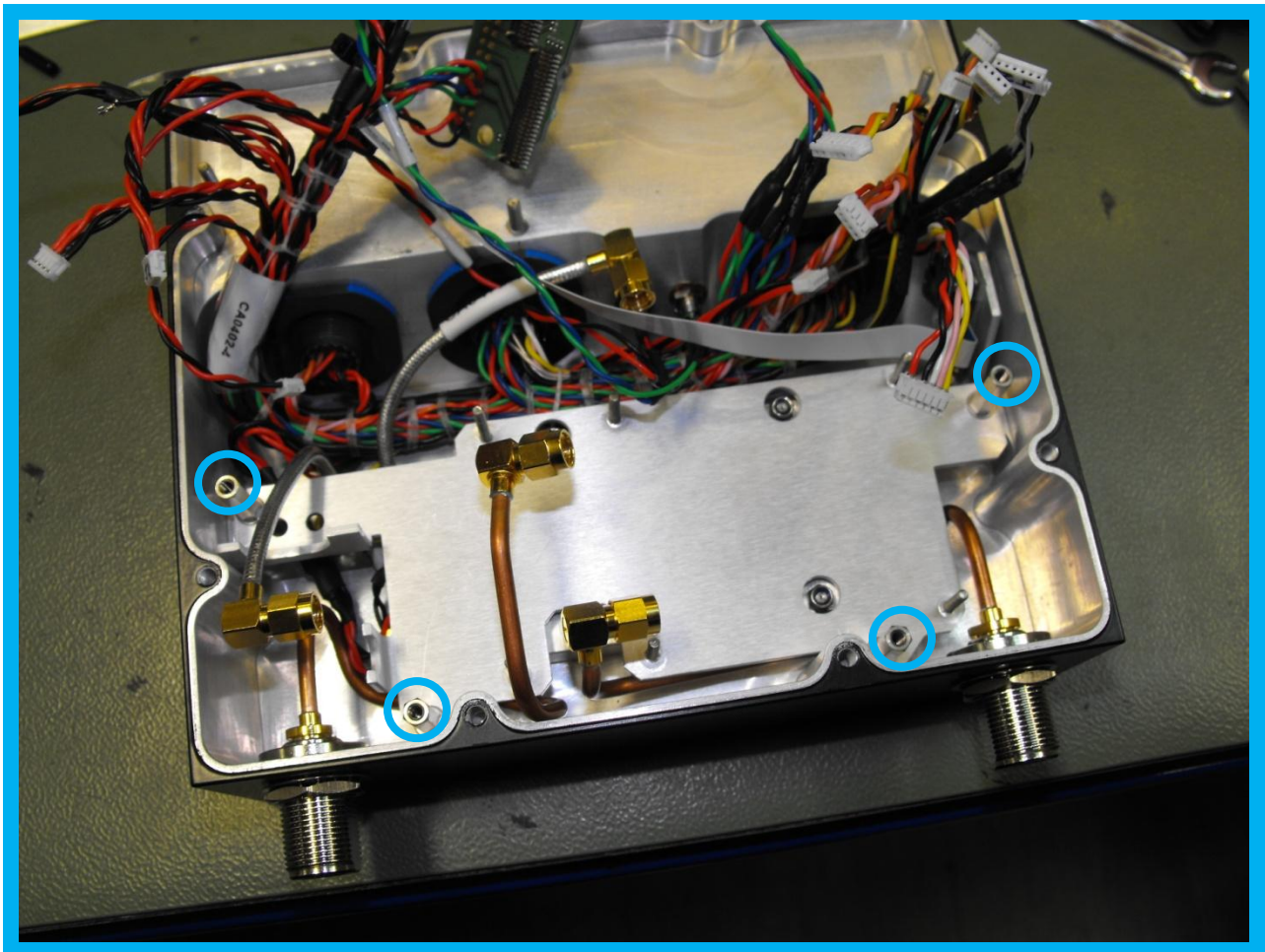
*****If assembling the S Band variant fit an High Pass VHF-2000+ Filter (AP000725) with a SMA Right Angle Plug (AP001552) to the OUTPUT position*****

15. Fit cable assembly CA0535 to the Amp in the **OUTPUT** position & tighten with 8mm spanner.
16. Fit cable assembly CA0400 to the Amp in the **INPUT** position & tighten with 8mm spanner.



16) Align & fit the Inner A/V Power Plate ([MW0262](#)) on to the main housing ([MW0258](#)) insuring that the semi rigid cables ([CA0534](#) & [CA0535](#)) are not trapped.

17) Carefully fasten the Inner Plate with four M3 x 16mm spacers ([AP00136](#)) with 2 x M3 flat washers ([AP000094](#)) underneath each with a 5.5mm Nut Runner.

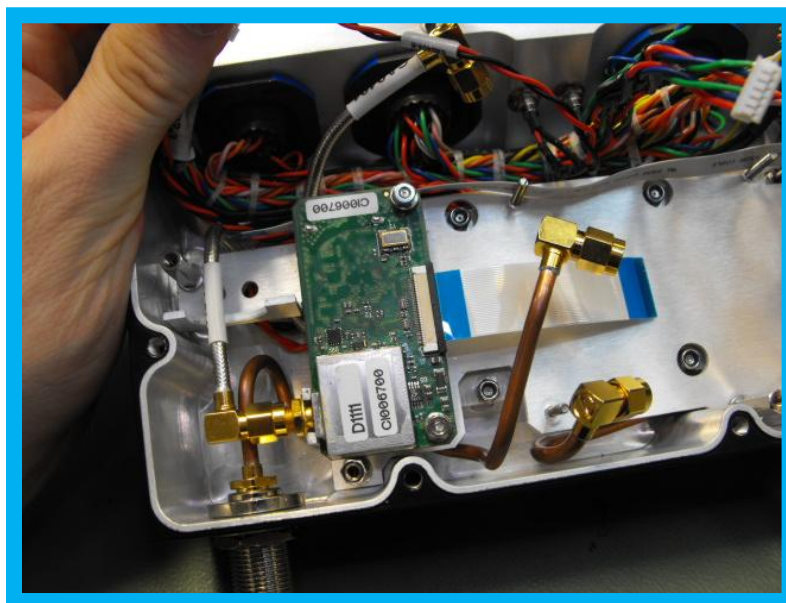


18) Fit two M2.5 x 8 spacers (AP001603) on to the two studs of the Inner A/V Power Plate & tighten with a 5mm Nut Runner.

19) Carefully fit a 30 Way FFC Flexible cable (AP000237) to the D1111 PCB (or D1113 if an S Band Variant) with the blue tab facing the brown latch.

20) Align the D1113 PCB with the studs & carefully lowered & secure with M2.5 shakeproof washers (AP000248) & M2.5 nuts (AP000431). Once fully tightened apply a small amount of Loctite 270 threadlock.

21) Fit the cable assembly (CA0535) to the D1111 PCB (or D1113 if an S Band Variant) & fasten with an 8mm spanner.



22) Fasten the D584 PCB to the Inner Lower Plate (MW0260) with four M3 x 6 captive screws (AP000757).

23) Align the Inner Lower Plate (MW0260) over the M3 studs in base and secure with four M3 shakeproof washer & M3 Nuts. Fully tighten the nuts with a 5.5mm nut runner then apply Loctite 220 threadlock.

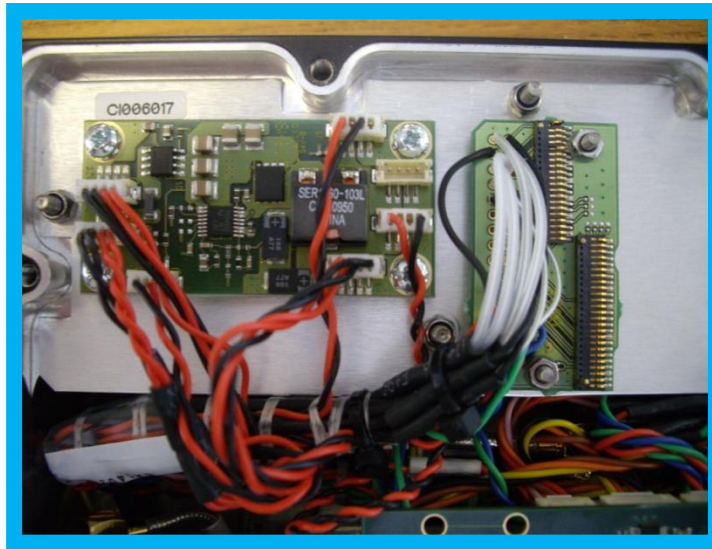


24) Connect the labeled JST connectors from the main loom to J1, J2, J3, J4, J5 on the D584 PCB

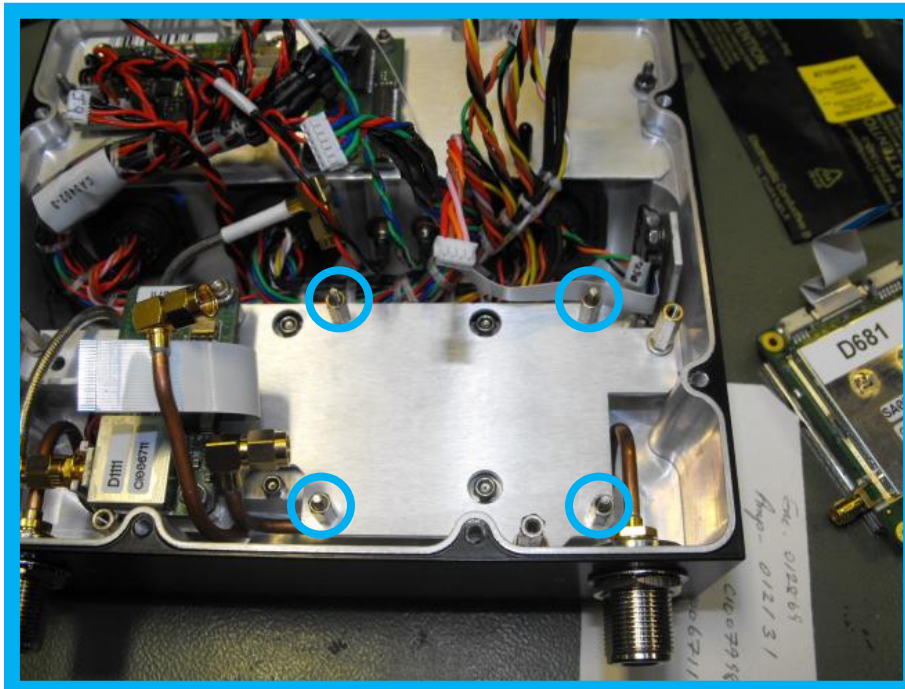
25) Connect the LED Loom ([CA0404](#)) to J6 on D584 board.

26) Place two spacers ([MW0393](#)) over studs on the Lower Inner Plate ([MW0260](#)) and place the D570 board onto them.

27) Secure the D570 PCB using two M2.5 plastic washers ([AP001620](#)) & M2.5 Nyloc nuts ([AP001473](#)).



28) Fit four M2.5 x 17 spacers ([AP001397](#)) to the studs on the Inner A/V Power Plate & fully tighten with a 5mm Nut Runner.

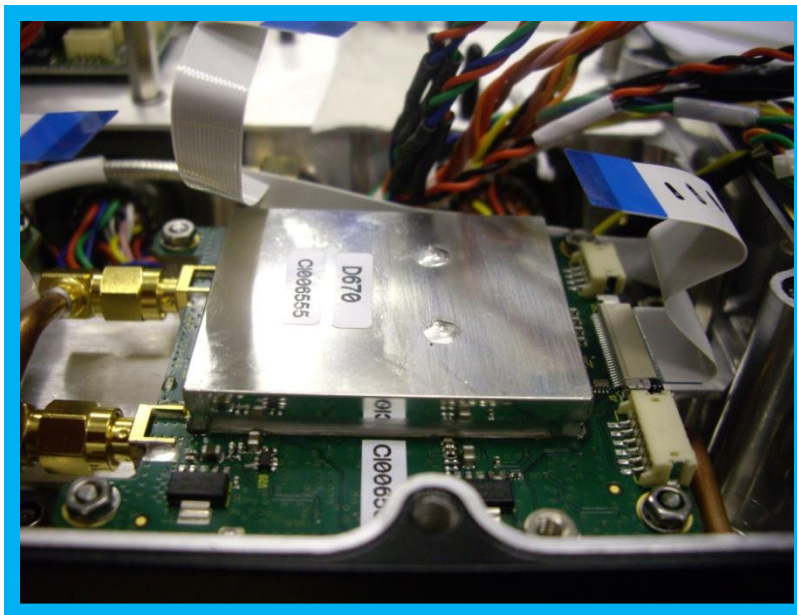


29) Fit a 30 Way FFC flexible cable (AP000237) to the D681 or D670 (S Band) PCB & carefully fold the FFC cable as shown below.

30) Loosely fasten the rigid cables CA0360 & CA0361 to the SMA connectors of the D681 (L Band) or D670 (S Band) PCB.

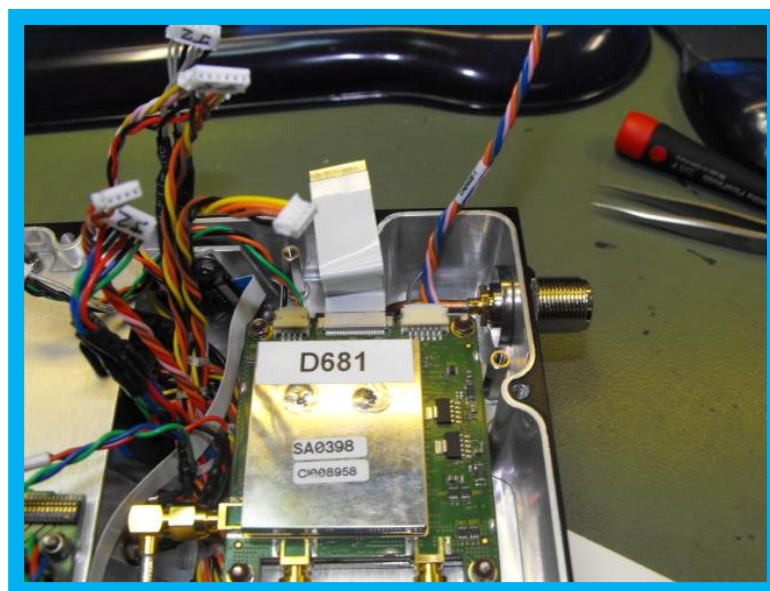
31) Locate D670 PCB over studs in AV & Power plate (MW0262) and secure using four M2.5 shakeproof washers (AP000248) & M2.5 nuts (AP000431). Fasten with a 5mm nut runner and apply Loctite 270 threadlock.

32) Tighten cable assemblies CA0360 & CA0361 with an 8mm spanner.

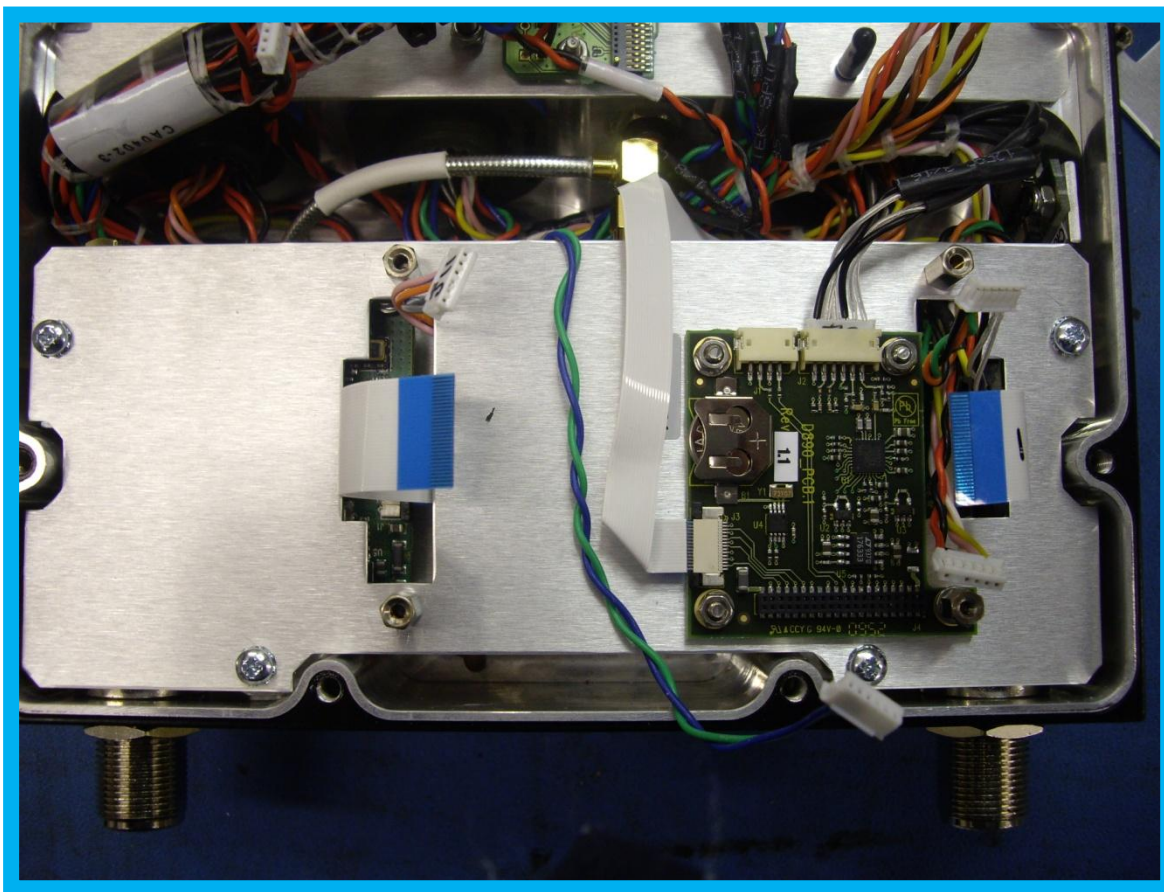


33) Connect the 4 way JST from main loom (marked D670) into 4 way header.

34) Connect the 6 way JST from cable assembly (CA0408) into the 6 way header on the D670 or 681 (S Band) PCB.



- 35) Assemble inner upper plate ([MW0261](#)) over D670 PCB on to four spacers ([AP000136](#)) securing AV/Power plate ([MW0262](#)). Pass the 30 Way FFC cable and JST connectors J6 & J7 from main cable through aperture in plate nearest the main housing edge.
- 36) Fit the 30 Way FFC cable & connectors J11 from [CA0405](#) & J9 from main cable through the aperture in the plate.
- 37) Fit Inner Upper Plate & fasten with four M3 x 6 captive screws ([AP000757](#)).
- 39) Fit four M2.5 flat washers ([AP000298](#)) over studs in upper plate ([MW0261](#)), and then assemble D890 PCB on top of them.
- 40) Secure the PCB with three M2.5 nuts ([AP000431](#)) and s/proof washers ([AP000248](#)) in corners of PCB. Over stud in leg of PCB, fit two M2.5 flat washers, and secure using M2.5 x 6 spacer ([AP001308](#)). Apply Loctite 270 threadlock to the three nuts, and insert battery into the holder on the D890 board. Assemble 3 x M2.5 x 9 spacers ([AP001304](#)) to remaining studs in plate ([MW0261](#)).
- 41) Now lay LED cable ([CA0419](#)) across plate, and over edge of housing, and insert 15 way ribbon cable ([AP000345](#)) into connector on D890 PCB. Connect coaxial lead socket on main cable ([CA0402](#)) into J2 on D890 PCB.

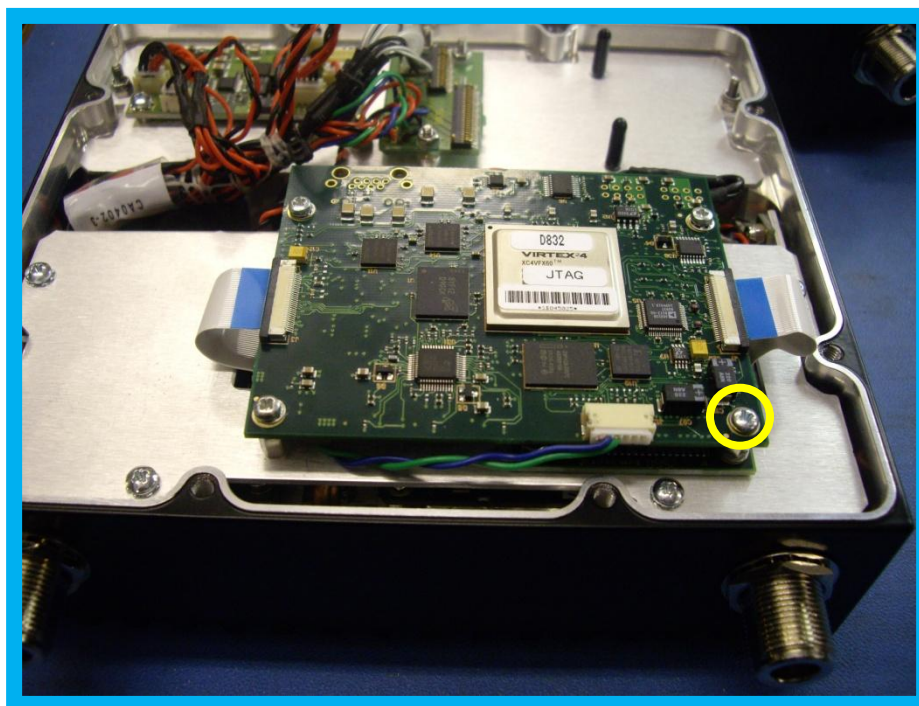


42) Connect the appropriate JST connectors to position headers J6, J7, J9, & J11 insuring they are threaded through the aperture in the plate to the D832 PCB. Before securing the D832 PCB route the connectors linking to J2, J5, J8, & J10 along edge of board & insure the ribbon cables are spaced out.

43) Fit the D832 PCB on to the spacers & secure using three M2.5 x 6 (AP000305) & one M2.5 x 4 (AP000713) screws (Highlight in Yellow) & shakeproof washers (AP000248).

43) Now carefully connect the 30 Way FFC cables to the D832 PCB.

44) Connect the JST connector from (CA0419) to J13 on D832 PCB.



45) Ensure all cables are tucked in where possible & made as neat as possible.

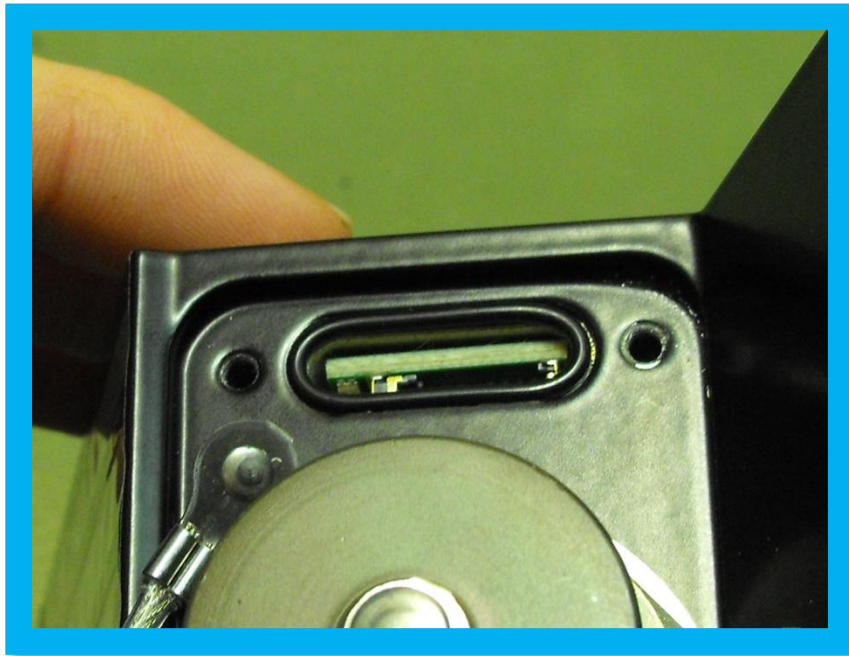
46) Apply a thin layer of heatsink compound to the processor on the D832 PCB.

47) Carefully fit the backplate (MW0259) to main housing (MW0258) & secure using eight M4 x 16 screws (AP001404) insuring no wires are trapped.

48) Fit the M6 x 10 purge screw (AP000702) and gasket (MW0235).

49) Fit the LED cover (AP001391) on to front face of main housing (MW0258) & securing with two M3 x 6 black screws (AP001598).

50) Apply a thin bead of Dow Coring 3145 RTV glue (AP000867) to the recess of the SD Card Slot & place the rubber O ring (AP001402) & allow to dry.



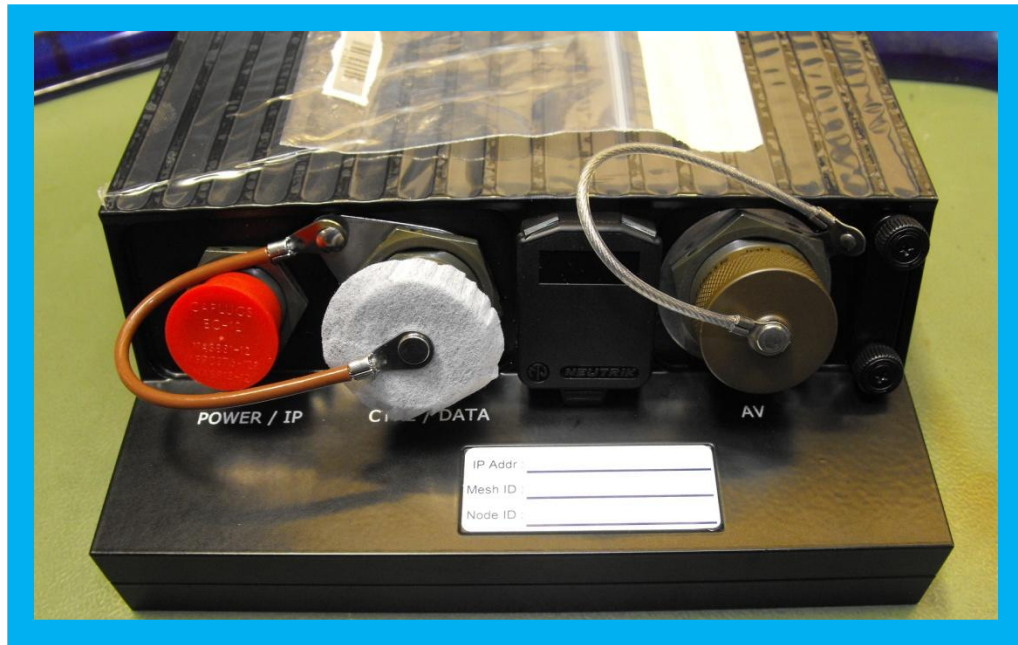
51) Fit the SD Card Slot Cover ([MW0271](#)) & fully tighten with the two integral screws.

Check all connectors are fully fastened to the appropriate torques & shake the unit to check for potential loose screws etc...

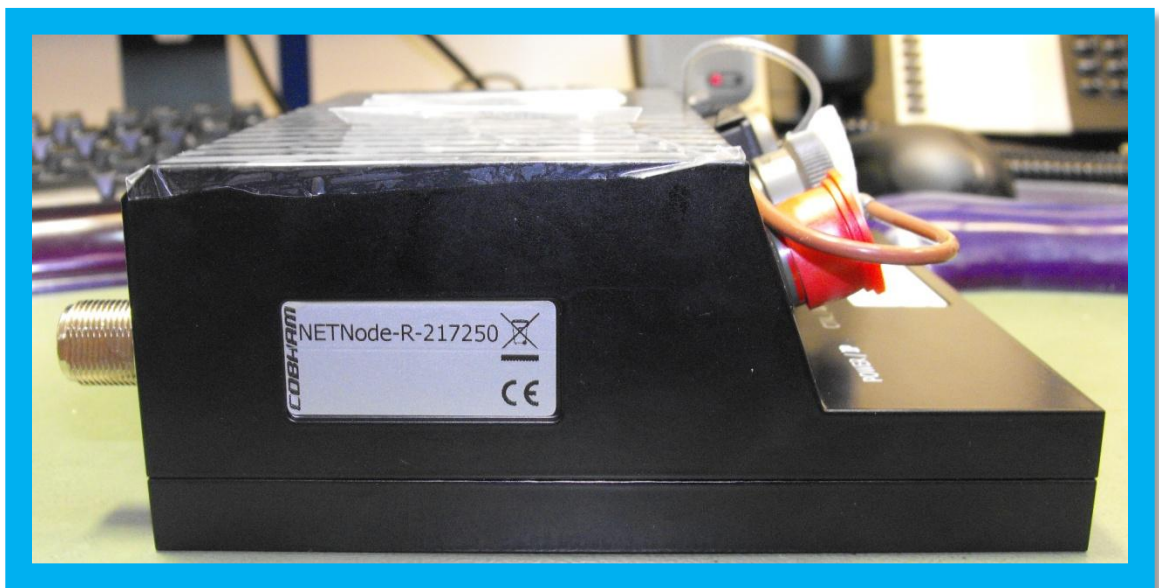
4. Product Labelling

The following labels must be fitted, & the route card or tag (Subcontractor) be completed & passed to test for full functional test & Purge test (as specified in [WI0006 Equipment Purging & Sealing](#)).

1. Fit the IP Address Label to the front of the enclosure.



2. Fit the Type Label to the side of the enclosure as shown. Please check the type of assembly is correct before proceeding.



3. Fit the serial number label to the type label.



4. Fit two void labels either side of the backplate seal.



5. Once the assembly has been purge tested fit the Purge Label.

