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The Netherlands

Amphenol-Invotec

att. H Swarbrick

Our ref.

ESA-TECMSP-LE-2022-000039

Hedging Lane, Tamworth, B77 5HH

United Kingdom

Noordwijk, 10/01/2022

VISA: Thomas Rohr (Head of Section)

**Subject: Failed qualification renewal of PCB manufacturer Invotec**

Dear Mr Swarbrick,

During 2021, ESA in collaboration with Invotec's main industrial customers conducted failure investigation following several NRBs for ESA projects. Invotec was visited on 13 Oct 2021 and the way forward minuted in ESA-TECMSP-MIN-025220. Recent ESA investigations ESA-TECMSP-HO-023748-rev1 and ESA-TECMSP-HO-023873-rev1 report the presence of contamination that exceeds requirements from ECSS-Q-ST-70-60 table 10-34 ref A, as well as the probable presence of dry prepreg that is evaluated as non-compliant to ref D of table 10-8.

As a result, a comment is added to [escies.org/pcb/](https://escies.org/pcb/) that Invotec's "*qualification renewal is failed and ongoing*" with reference to this letter. This does not affect the general qualification status of Invotec, which is maintained as "*qualified*". This is justified by the fact that the risk of the nonconformances is evaluated as low, and partly mitigated by recent improvements at Invotec. This approach is in-line with the intent from 5.16c of ECSS-Q-ST-70-60.

In addition, Invotec submitted a sample for the qualification renewal of rigid-flex technology. ESA's evaluation of this is ongoing and results will be reported on [escies.org/pcb/](https://escies.org/pcb/) as normal. This will be, therefore, dispositioned independently from the concerns described in this letter.

It is requested that Invotec continues the root cause analysis and provides a corrective action plan for ESA review and approval. Successful completion of this is a prerequisite for removing the comment ("*qualification renewal failed and ongoing*") on [escies.org/pcb/](https://escies.org/pcb/).

Best regards,

Stan Heltzel

Materials and Processes Section