ESA ESTEC
Keplerlaan 1
2201 AZ Noordwijk
The Netherlands

Cistelaier S.p.A.

att. L Pagnani
Via Pillea, 8
16153 – Genova (GE)
Italy

Our ref. ESA-TECMSP-LE-2024-002817

Stan Heltzel 2024.10.11 16:02:21 +02'00'
Thomas Rohr Digitally signed by Thomas Rohr Date: 2024.10.11 13:59:56 +02'00'

Noordwijk, 03/10/2024

VISA: S Heltzel, T Rohr (TEC-MSP)

Subject: Qualification of Cistelaier for polyimide rigid and rigid-flex PCBs

Dear Mr Pagnani,

Cistelaier (CSTL) submitted an initial qualification for polyimide sequential rigid and rigid-flex PCBs. The qualification plan is documented in 20221020_VPP_CISTELAIER_v05 Verification Program Plan. The test results for the rigid polyimide technology are documented in the CSTL qualification report Evaluation_and Qualification_Report_TV 1 (H0811)_20240311_rev.01 (with annexes A, B and C). The test results for the rigid-flex polyimide technology are documented in the CSTL qualification report Evaluation_and Qualification_Report_TV 2 (H0812)_20240426_rev.01 (with annexes A, B and C).

CSTL also submitted samples to ESA for group 6 evaluation. The evaluation results are reported in test reports ESA-TECMSP-TR-2024-001615_GS0006433_Initial qualification Cistelaier polyimide rigid PCBs and ESA-TECMSP-TR-2024-002005_GS0006495_Initial qualification Cistelaier polyimide rigid-flex PCBs.

In addition, CSTL submitted their PID describing the qualified domain for the polyimide rigid and rigid-flex technologies. The PID specifies a qualified domain that includes up to 12-layers buildup, vias filled by resin & capped, polyimide material Arlon 35N laminate and prepreg, among other technology parameters.

An audit was performed at CSTL in Sept 2022 as minuted in ESA-TECMSP-MIN-2022-002786. The close-out of all actions was confirmed in a meeting on 26 June 2024. ESA and CSTL's key industrial customers jointly conducted the audit and approved the action closure, the qualification dossier and the PID, as minuted in ESA-TECMSP-MIN-2024-002017.

Cistelaier is considered qualified in accordance with ECSS-Q-ST-70-60C for the manufacture of Printed Circuit Boards as follows:

- Rigid sequential polyimide PCBs as per PID_v05, until Oct 2025
- Rigid-flex polyimide PCBs as per PID_v05, until Oct 2025

Best regards,

Digitally signed by Jussi Hokka Date: 2024.10.03 11:24:23 +02'00'

Jussi Hokka
Materials & Processes Section