MEMO

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To	ESA PA Managers, ESA Approved assembly lines	Copy	TEC-QTM

Subject: Assembly approval status review during MPCB

One of the purposes of the MPCB is to ensure that the assembly of electronic components on Printed Circuit Boards (PCB) substrates is in compliance with the ECSS-Q-ST-70-07, 08, 28 and 38.

In order to ensure efficient MPCB, during which the assessment of the assembly verification status of the supplier is performed, the following shall be available to all contractual chain at the MPCB for review by assembly experts.

1. Compliance matrix of EEE parts packages assembled on the flight hardware with its associated ESA Approval status and reference to Summary tables (see Annex 1 for template).

-The list of all packages, including devices assembled through holes, shall be extracted from the last issue of the DCL. A RFA shall be issued for all packages for which the assembly is not covered by ESA approved Summary tables or by similarity rules in compliance with the ECSS-Q-ST-70-38.

-When no ESA Approval has been granted yet, reference to the assembly verification programme and report shall be identified in the table with associated RFA reference.

-When no assembly verification has yet been performed then a RFA shall be issued with associated verification programme to be reviewed.

-When verification by similarity is considered, then detailed justification shall be provided to ensure compliance with similarity rules. For FP the lead forming shall be identical as well as the pitch, lead section and materials. Special care shall be taken that the lead forming is exactly the same (in case lead forming setting is made using the stand off between the bottom of the component and the PCB then thickness of the device may have an impact).

-When sensitive devices are assembled on the board confirmation that 5 parts were assembled and microsectioned for verification purposes shall be provided. If not the parts shall be added in a new verification programme and RFA shall be issued.

2. Confirmation shall be provided, that the applicable PID issue is the one having been reviewed and Approved by ESA. If this is not the case, then all changes shall be identified including also new issues of assembly procedures.

3. Confirmation, based on project thermal analysis, that the temperature on the PCB during Qualification test, and mission (Operational and not operational) is within -55/+85C in compliance with the ECSS-Q-ST-70-08 and 38. A RFD shall be issued in case the temperature is outside this temperature range.

4. Confirmation, based on project vibration requirements, that the vibration tests performed for the claimed assembly verification covers the application. A RFD shall be issued in case the vibration levels do not cover the application.

5. To provide Lead Free Control Plan (LFCP)

6. To provide confirmation that none of the EEE parts are procured with pure tin
In case pure tin finish parts are procured evidence of re processing verification shall be provided with evidence that the parts have not been damaged in compliance with the ECSS-Q-ST-60-13 and microsections to demonstrate that all pure tin has been alloyed shall be provided.

7. To provide confirmation that PCB design is in compliance with the ECSS-Q-ST-70-12 and compliant to PCB manufacturer PID. Otherwise to provide RFD.

8. To provide the certification status of the operators and inspectors.

9. To confirm absence of contact between gold and aluminium also if alodine treatment is present. Such contact concerns usually the attachment of the connectors on the aluminium case. In case of contact then RFD to be issued.

10. To provide an overview of the schedule for QM and PFM or FM MRR dates.

Annex : Example of expected information to be provided in the components/ Assembly Approval status compliance matrix

Component or package family	Manufacturer	For leaded parts: Pitch, thickness and width of leads	Reflow assembly method (when applicable)	Hand soldering
C0805 T2	Y	NA	Reference to ESA Approval or verification report	Reference to ESA Approval or Verification report
C1825 T2	Y	NA	By similarity with C0805 T2 and C2225 T2 from Y. Reference to ESA Approval or verification report	By similarity with C0805 T2 and C2225 T2 from Y. Reference to ESA Approval or verification report
C2225 T2	Y	NA	Reference to ESA Approval or verification report	Reference to ESA Approval or verification report
C1210 T1	X	NA	Reference to ESA Approval or verification report	Reference to ESA Approval or verification report
CDFP4-F16	Y	1.27mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width	By similarity with CDFP4-F20 (Reference to ESA Approval or verification report Package characteristic: 1.27 mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width Same stacking and bonding configuration)	By similarity with CDFP4-F20 (Reference to ESA Approval or verification report Package characteristic: 1.27 mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width Same stacking and bonding configuration)
CDFP4-F20	Y	1.27mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width	Reference to ESA Approval or verification report Package characteristic: 1.27 mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width	Reference to ESA Approval or verification report Package characteristic: 1.27 mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width
CQFP352	Z	0.5 mm pitch 0.10-0.18 mm thick 0.45-0.56 mm width		Not yet approved. RFA references