

# DIN EN 16602-70-11:2015-05 (E)

## Space product assurance - Procurement of printed circuit boards; English version EN 16602-70-11:2015

---

- Foreword .....4**
- 1 Scope.....5**
- 2 Normative references .....6**
- 3 Terms, definitions and abbreviated terms.....7**
  - 3.1 Terms from other standards.....7
  - 3.2 Terms specific to the present standard .....7
  - 3.3 Abbreviated terms.....10
- 4 Principles .....11**
- 5 Requirements.....12**
  - 5.1 Procurement of PCBs .....12
    - 5.1.1 General .....12
    - 5.1.2 Design and layout .....12
  - 5.2 Base materials.....13
    - 5.2.1 Base laminate materials .....13
    - 5.2.2 Basic metallic layer .....14
    - 5.2.3 Plated metallic layers and finishes .....14
    - 5.2.4 Special materials.....15
  - 5.3 PCB delivery .....16
    - 5.3.1 Marking .....16
    - 5.3.2 Associated test coupons .....16
    - 5.3.3 Outgoing inspection and PCB manufacturer data package .....17
  - 5.4 Packaging.....17
    - 5.4.1 Handling and storage .....17
    - 5.4.2 Packaging .....17
  - 5.5 Supplier acceptance of PCBs .....18
    - 5.5.1 Supplier acceptance inspection.....18
    - 5.5.2 Electrical test.....18
- 6 Inspection of PCBs.....19**
  - 6.1 General.....19

6.2	Visual inspection and non-destructive test .....	19
6.2.1	Verification of marking.....	19
6.2.2	Visual aspects.....	19
6.2.3	External dimensions.....	22
6.2.4	Warp .....	23
6.2.5	Twist .....	23
6.3	Microsection inspection criteria .....	24
6.3.1	General.....	24
6.3.2	Thickness of metal-plating.....	25
6.3.3	Aspect of plated-through holes.....	27
<b>7</b>	<b>Requirements for PCBs .....</b>	<b>30</b>
7.1	Rigid single-sided and double-sided PCBs .....	30
7.2	Rigid single-sided and double-sided PCBs for high frequency application .....	32
7.3	Flexible PCBs .....	35
7.4	Rigid-flex PCBs .....	36
7.5	Rigid multilayer PCBs.....	37
7.6	Sequential rigid multilayer PCBs.....	39
<b>Annex A</b>	<b>(normative) PCB Certificate of conformance (CoC) – DRD.....</b>	<b>43</b>
<b>Bibliography</b> .....		<b>45</b>
<b>Figures</b>		
Figure 6-1:	Arbitrary defects on conductors .....	22
Figure 6-2:	Arbitrary defects on spacing between conductors.....	22
Figure 6-3:	Misalignment of cover layer (for flexible PCBs) .....	22
Figure 6-4:	Warp .....	23
Figure 6-5:	Twist.....	24
Figure 6-6:	Dimensional parameters to be measured .....	24
Figure 6-7:	Microsection of a PTH.....	26
Figure 6-8:	Undercut for PCBs with fused SnPb finish.....	27
Figure 6-9:	Undercut for PCBs with Au/Ni or Au finish.....	27
Figure 6-10:	Overhang for PCBs with Au/Ni or Au finish.....	27
Figure 6-11:	Microsection in PTH: Possible defects.....	28
Figure 6-12:	Microsection of PTH: Possible defects .....	29
Figure 6-13:	Voids in resin inside buried vias .....	29
Figure A-1 :	Example of a PCB CoC.....	44