



CNPEM
Brazilian Center for Research
in Energy and Materials



Manufacturing specifications for the AFC_3.1 hardware

May 2016

Brazilian Synchrotron Light Laboratory
Beam Diagnostics Group (DIG)

PCB Fabrication Specification

Design references			
Name	AFC_3.1	Date:	05/23/2015
File name			
Designers	Fernando Cambauva SantAnna		
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Mechanical characteristics	
External size (mm)	180.6508mm x 148.5508mm
Thickness (mm)	1.712 mm
Layers	14
Min track width (mm/mils)	0.02mm / 2mils
Min Hole size (mm/mils)	0.15mm / 7.8mils
Laminate	FR-4 – TG150
Pre-preg	FR-4 – TG150
Finish Copper	
External layers (μm)	35 μm
Holes walls (μm)	25 μm
Internal Layers-Planes (μm)	35 μm
Internal Layers-Signals (μm)	35 μm
Board finishing requirements	
Mask Solder color	Red for prototype and Blue for production
Silkscreen on top layer (color)	White
Silkscreen on bottom layer (color)	White
Surface Finishing	ENIG – Electroless Nickel / Immersion Gold according to IPC-4552
Thickness	Ni: 3 μm min, 6 μm máx. Au: 0.05 μm min, 0.125 μm máx

Additional Information	
Impedance test	No
Packaging requirements	No
Documentation to be delivered	No
Additional control quality requirements	No

Board Stackup Information

	Name:		Laminate/pre-preg	Thickness (mm/mils)
Layer 1	Top Layer	Digital signals + Digital Ground plane		
Layer 2	G(GND)	Ground Plane	FR-4	0.11mm
Layer 3	L1	Digital signals	FR-4	0.1mm
Layer 4	G(GND)	Ground Plane + Digital Ground plane	FR-4	0.11mm
Layer 5	L2	Digital signals	FR-4	0.1mm
Layer 6	P3(Mult Nets)	Power	FR-4	0.11mm
Layer 7	L3	Digital signals	FR-4	0.1mm
Layer 8	P4(Mult Nets)	Power	FR-4	0.11mm
Layer 9	GND(GND)	Ground Plane + Digital Ground plane	FR-4	0.1mm
Layer 10	L5	Digital signals	FR-4	0.11mm
Layer 11	P6(Mult Nets)	Power	FR-4	0.1mm
Layer 12	L6	Digital signals	FR-4	0.11mm
Layer 13	GND(GND)	Ground Plane + Digital Ground plane	FR-4	0.1mm
Layer 14	Bottom Layer	Digital signals + Digital Ground plane	FR-4	0.11mm
Total			Total	1.712 mm

