



**ALMA Project**  
**APP Certificate of Compliance**

Doc # : ALMA-05.11.00.06-0001-A-GEN

Date: 2014-Dec-02

Status: Draft

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# **ALMA Phasing Project**

## **Certificate of Compliance**

ALMA-05.11.00.06-0001-A-GEN  
2014-Dec-02

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## Change Record

Revision	Date	Affected Paragraphs(s)	Reason/Initiation/Remarks
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## 1.0 GENERAL

### 1.1. Purpose and Scope

This information previously appeared in Table 3 of safety document RD-01 as a convenient place for presentation during design reviews. This Certificate supersedes the table 3 information in RD-01.

### 1.2. Applicable Documents

**Table 1: Applicable Documents**

Reference	Document Title	ALMA Doc. Number
	none	

### 1.3. Reference Documents

**Table 2: Reference Documents**

Reference	Document Title	ALMA Doc. Number
[RD-01]	APP Hazard Analysis and Safety Compliance Plan	ALMA-05.11.10.01-0003-A-PLA



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## 2.0 CERTIFICATIONS

### 2.1. APP Custom Supplied Equipment

Most of the equipment supplied to ALMA by the APP was produced commercially. Integration of the commercial equipment required printed circuit board fabrication and custom wiring in racks and sub-assemblies. APP partners applied best practices for engineering and safety established within their own institutions. Printed circuit board assemblies were fabricated to IPC-A-610 specifications. Wiring in racks and sub-assemblies was performed according to best practices established under ALMA; much of which was done progressively on site, available for ALMA review and inspection.

### 2.2. APP Vendor Supplied Equipment

The following table lists certifications for purchased equipment.

**Table 3 Certifications of Suppliers**

Item	Certifications
T4 Science I3000 Maser	CE EN 55022-B (Radiated and conducted EMI)
	CE EN 55024 (Information)
	CE EN 61326-1 (Equipment for measurement, control, lab use)
Xytronix Research X-DAQ-2R1-4T-E, web enabled temperature monitor (Proposed)	FCC 47CFR15 Class B, IEC CISPR 22, CISPR 24 (EMC), EN55024, EN55022 (EU EMC)
	Safety IEC 60950-1 / EN 60950-1
Eaton-Pulizzi TPC2365/MTD intelligent power strip (Proposed)	TUV Rheinland (C US) of NA, CE, RoHS 2002/95/CE
Western Digital Black & Blue Disk Drives	Canada ICES-003 Class B / NMB-003 Class B (EMC)
	CE (directives unspecified in data sheet)
	RoHS Directive 2011/65/EU
Cosel PBA10F Power Supply in XW-100 Optical chassis	UL "Recognized Component"
	FCC Part15 classB
	CE EN55022-B, EN55011-B (Radiated and conducted EMI)
	Japan VCCI-B (Radiated and conducted EMI)
	UL60950-1, C-UL(CSA60950-1), EN60950-1,



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	EN50178 Complies with DEN-AN
San Ace 80, fan in XW-100 Optical chassis	Flammability: UL94V-0 (frame), UL94V-1 (impeller)
	UL “Recognized Component”, UL Certified
	RoHS 2002/95/EC
	CSA Certification
	TUV EN 61058-1, for low voltage appliances
Sumitomo 10GB-SR SXP3100SX optical transceiver in XW-100 Chassis (Preliminary)	CL 1 Laser Compliant per FDA, EN (IEC) 60825 (and FDA)
	RoHS 2002/95/EC
	FCC Class B, per CENELEC EN50 081 and 082
	IEC 61000-4-3 (80- 1000MHz, Test Level 3) and GR-1089 (RFI Immunity)
	IEC 61000-4-2 (ESD Immunity)
Sumitomo 10GB-XR SXP3102DA-Fxxx optical transceiver in XW-100 Chassis (Preliminary)	Laser Safety Class 1 per IEC60825-1 and FDA/CDRH 21 CFR 1040
Mellanox Optical transceiver, MFM1T02A-SR	Laser safety Class 1 per EN (IEC) 60825 (and FDA),TUV and CSA
	Electrical Safety EN (IEC) 60950
Sunpower ATX PS	EMI: EN 55022 CLASSB, FCC CFR 47 PART 15 CLASS B, CNS 13438. CLASS B, Compliance to EN61000-3-2 CLASSD, EN61000-3-3
	EN 55024: EN 61000-4-2,3,4,5,6,8,11
	UL 60950-1 2nd, GSA C22.2 No. 60950-1-07 2nd, TUV EN 60950-1 :2006+A11, IEC 60950-1:2005, approved
Symmetricon 1530-602-1 XL-GPS Receiver	UL, C-UL: UL 1950/CSA 22.2 950, Standard for Safety, Information Technology Equipment (ITE)
	FCC Part 15, Subpart B
	89/336/EEC EMC Directive
	73/23/EEC Low Voltage Safety Directive IEC 60950 Safety of Information Technology Equipment (ITE)