

APP Certificate of Compliance

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

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# **ALMA Phasing Project**

# **Certificate of Compliance**

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

| <b>Prepared By:</b> | Organization        | Signature |
|---------------------|---------------------|-----------|
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# **Change Record**

| Revision | Date       | Affected Paragraphs(s) | Reason/Initiation/Remarks |
|----------|------------|------------------------|---------------------------|
| A.01     | 2014-Dec-2 | All                    | Initial draft             |
|          |            |                        |                           |
|          |            |                        |                           |
|          |            |                        |                           |



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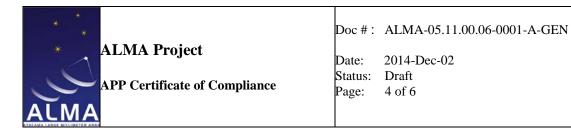
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## 1.0 GENERAL

# **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<br>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 subassemblies was performed according to best practices established under ALMA; much of which was done progressively on site, available for ALMA review and inspection.

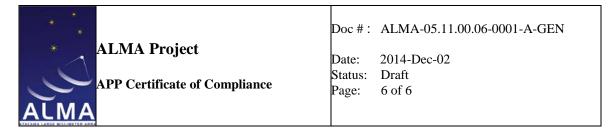
# 2.2. APP Vendor Supplied Equipment

The following table lists certifications for purchased equipment.

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

# **Table 3 Certifications of Suppliers**

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|                                    | ENICO170 Committee mittee DENLAN               |
|------------------------------------|--|
|                                    | EN50178 Complies with DEN-AN                   |
| San Ace 80, fan in XW-100 Optical  | Flammability: UL94V-0 (frame), UL94V-1         |
| chassis                            | (impeller)                                     |
|                                    | UL "Recognized Component", UL Certified        |
|                                    | RoHS 2002/95/EC                                |
|                                    | CSA Certification                              |
|                                    | TUV EN 61058-1, for low voltage appliances     |
| Sumitomo 10GB-SR SXP3100SX         | CL 1 Laser Compliant per FDA, EN (IEC) 60825   |
| optical transceiver in XW-100      | (and FDA)                                      |
| Chassis (Preliminary)              | 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-        | Laser Safety Class 1 per IEC60825-1 and        |
| Fxxx optical transceiver in XW-100 | FDA/CDRH 21 CFR 1040                           |
| Chassis (Preliminary)              |  |
| Mellanox Optical transceiver,      | Laser safety Class 1 per EN (IEC) 60825 (and   |
| MFM1T02A-SR                        | 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                        | UL, C-UL: UL 1950/CSA 22.2 950, Standard for   |
| 1530-602-1 XL-GPS Receiver         | 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)                                |
|                                    |  |