CTRM
aero composites

# SQR

supplier **quality**
requirement



# 004

## DPD MBD

Effective Date

**29-Jul-2024**

A Member of
DRB-HICOM

# WARNING



The document is also available on our website at the following link:

https://www.ctrm.com.my/ctrm-vendor.php

# REVISION HISTORY

| Revision | Date | Description of Changes |
|---|---|---|
| NC | 01-Jan-2020 | Initial Release |
| A | 29-Jul-2024 | Changes template<br>14.0 – Add form number for Supplier DPD / MBD Checklist |

## Table of Contents

## 1.0 Purpose

This document establishes requirements for CTRM AC suppliers' DPD quality assurance. The requirements contained in this document are intended to facilitate supplier deployment of DPD process and to achieve technical coordination between customer, supplier and sub-tier suppliers.

Note: Customers use various terms for Data Control;

e.g. Boeing requirements are referred to as DPD and MBD. `

Airbus requirements are referred to as Configuration Management.

For the purpose of this document, the generic term DPD and MBD will be used.

## 2.0 Scope

This document is applicable to all suppliers and sub-tier suppliers that are furnished digital data (engineering prints or drawings) used in supplier Digital Product Definition/Model Based Definition (DPD/MBD) systems to produce product(s) or digital data for product acceptance.

The application of this document is required for all phases of design, manufacturing, and inspection when customer furnished digital data is used in supplier DPD systems to produce product(s) or digital data for product acceptance (including accountable tooling and tooling used for inspection).

## 3.0 Digital Product Definition Quality Assurance Plan and Procedures

**3.1** Suppliers and their sub-tier suppliers shall develop and maintain comprehensive documented Digital Product Definition (DPD)/Model Based Definition (MBD) processes and/or procedures that assure that the integrity of product and/or tooling configuration is maintained throughout the supplier's Quality Management System (QMS) from receipt of customer's data through creation of derivatives to product acceptance and process improvement.

**3.2** This documented process defines the responsibilities and method by who is responsible to receive, obtain and use datasets from customer for use in engineering, manufacturing, and/or inspection.

**3.3** This plan shall specifically address the processes and techniques unique to all DPD/MBD processes including the delivery of authority data to measurement users in design, manufacturing, and quality organizations for product acceptance and process control.

**3.4** The supplier's documented process shall specify all departmental organizations responsible for performance of CAD/CAM/CAI operations including organizations responsible for the delivery of Customer data or supplier derived data to sub-tier suppliers.

**3.5** It is recommended that supplier DPD/MBD Quality Assurance plans describe a single, consistent configuration management and QA process to meet all customer / regulatory agency DPD/MBD requirements. This plan shall remain in effect throughout the life of the contract.

**3.6** Customer reserves the right to survey and/or review the supplier's DPD/MBD system to verify effectiveness of the supplier's DPD/MBD Quality Assurance Plan and procedures.

**3.7** Supplier's documentation shall be available in English in addition to supplier's native language.

**3.8** The quality organization shall be responsible for the documented DPD processes with procedures for change control and notification to affected organizations. The authority and responsibility for each element of the documented DPD processes shall be defined and documented to assure consistent implementation. The supplier shall notify CTRM AC Supplier

Quality Assurance Representative within 30 calendar days of implementing changes to below events via annual completion of CTRM AC's form, Supplier DPD/MBD Checklist:

a. The Documented DPD Processes

b. CATIA synchronization

c. CAD, CAM, CAI software additions, updates or changes

d. Addition of new Coordinate Measurement System (CMS)

**3.9** The supplier shall include a flow diagram or equivalent in their plan that includes process ownership and graphically depicts the flow of data through the DPD/MBD system from receipt of customer provided digital data, through the product life cycle (i.e., final inspection).

a. The flow diagram shall identify the documented DPD processes and/or work instructions associated with control of the datasets and derivatives.

b. In lieu of flow diagram, the supplier may provide a complete relational diagram of their internal procedures to the requirements of this document.

## 4.0 Configuration Management and Media Security

**4.1 Media Security**: The supplier shall develop and maintain procedures to ensure the configuration of all customer provided datasets, supplier created CAD/CAM/CAI datasets, type design, tool designs, and datasets sent to sub-tier suppliers used in fabrication or inspection of products. These procedures shall include the following:

a. Secure storage and retention of CTRM AC provided DPD, supplier created DPD derivatives, and digital product acceptance datasets.

b. The supplier shall assure datasets found discrepant are suspended from use and manufacture is contacted for disposition.

c. Access and archiving procedures with read/write protection, including passwords which ensure access control. This includes authority datasets, derivatives, digital inspection media used for product acceptance.

d. Encryption protection for sending/receiving of electronically transmitted data.

e. Establishing and maintaining a secure data backup and storage system whether local or remote, a disaster recovery process for authority datasets, derivatives and digital inspection media used for product acceptance.

f. Access control with permission and/or password protection shall be established in order to ensure that CTRM AC provided datasets shall not be inadvertently modified. This process shall include derivative datasets released for manufacturing and inspection.

g. Supplier shall have a process to manage (addition/removal of) supplier employee access to CTRM AC technical data systems such as REDARS, Enovia, Team Center, etc.

**4.2 Configuration Management and Traceability:** The supplier shall develop and maintain procedures to ensure the configuration of all CTRM AC provided datasets, supplier created CAD/CAM/CAI datasets, type design, tool designs, and datasets sent to sub-tier suppliers used in fabrication or inspection of products. These procedures shall include the following:

a. Formal release process of DPD which ensures that only current authorized DPD datasets are available for use in production and inspection.

b. The supplier shall ensure planning and all derivative DPD data that is released, is traceable to the CTRM AC authority dataset(s) it was created from with derivatives stored and retained as part of the acceptance package.

c. Supplier shall demonstrate traceability to the current authority and any derivatives dataset including filename and file extension. Derivatives shall have revision control in addition to product/tooling revision.

d. A documented process for change control and retention for all authority datasets and dataset derivatives.

e. A documented process that includes segregation, storage and retention of noncurrent (obsolete) authority datasets and dataset derivatives.

f. Supplier shall have a documented process to generate digitized manufacturing/inspection data from customer provided full scale engineering Mylar plots or from any authorized physical representation. This process shall ensure integrity of derived dimensions and include review, release and configuration control of digitized data.

**4.3** The supplier shall provide a system for formal release of digital datasets, which ensures that only authority datasets are available for use in production and inspection. A record of the key identifiers of CTRM AC authority datasets (drawing, sheet, revision level and/or dataset name) and those key identities and naming conventions created for authority supplier derivatives, must be readily available during measurement, verification, and data analysis processes for product acceptance by supplier, sub-tier and customer QA representatives.

a. A system for change accountability and configuration management for all datasets and dataset derivatives (including graphical/geometric electronic data, Computer Aided Engineering (CAE) datasets and supplier hardcopy reports), will be maintained by the supplier.

b. The supplier shall comply with and reference in their DPD/MBD Quality Plan, applicable customer document(s) defining the authority status of geometric elements within customer furnished digital datasets.

## 5.0 Product Acceptance Software (PAS) Validation

**5.1 Commercial Off The Shelf Software** - The supplier shall document and maintain documented processes for the control of Product Acceptance Software (PAS). PAS includes software used in the acceptance of special tooling and products.

a. Supplier must document and maintain PAS procedures and reference applicable documents in their documented DPD processes. Documented results shall provide for identification of software name, software version and validation results used for all QA applications.

b. Supplier will develop and maintain procedures for reporting, tracking, and resolving software related product acceptance problems.

c. Procedures will be documented and maintained to prevent unauthorized changes, to limit personnel access to software files, separate archives for Masters and duplicates.

d. Supplier PAS must be verified prior to product acceptance and/or manufacturing use. The supplier shall establish and maintain a procedure and validation plan independent of the software developer to determine that the software, and subsequent revisions, accomplishes its intended function. A formal means of identifying approved PAS is required with configuration control and QA management procedures for relating the PAS to the product being accepted. A PAS verification report is required to demonstrate PAS compliance; the report shall include the CMS software functional capabilities (i.e. GD&T, etc) that will be used for inspection and/or manufacturing of parts and/or tooling.

e. The PAS verification report shall demonstrate a comparison of measured values to theoretical values (utilizing a physical artifact or embedded software testing ), within a tolerance applicable to the parts and/or tooling being manufactured and/or inspected. Examples of common algorithms include GD&T functions, feature construction, temperature compensation, CAD translations, and software that controls hardware.

**5.2** **Computer Aided Manufacturing Software** - When used for inspection (i.e., CNC on machine probing, etc.), the supplier shall develop and maintain documented processes for configuration identification and control of CAM software and must meet the requirements of section 5.0 .

a. Supplier must verify numerically controlled software prior to product acceptance,and maintain records.

**5.3** **Supplier Developed Software** - Software developed by suppliers requires plans and instructions for building, configuration management, loading and testing of code. Supplier developed software, and subsequent revisions, will require independent testing and meet the requirement in sections 5.0 to insure the software accomplishes its intended function

## 6.0 Coordinate Measurement Systems

**6.1** Suppliers using CMS, Optical Layout Template (OLT), and Plotters for fabrication and/or inspection of customer products (parts and tools) shall document and control their processes. Suppliers must comply with the product acceptance software, measurement equipment, inspection media, and training requirements for CMS.

**6.2** Additional CMS requirements are stated below and require capability approval by Customer or Nadcap accreditation per section 6.5(n).

**6.3** The supplier must document inventory of all components used for CMS measurements that affect the integrity of data collection.

**6.4** The supplier and its sub-tier suppliers utilizing CMS and OLT (where applicable), shall have documented procedures for all equipment types to be utilized for inspection of hardware to the CTRM AC Supplier Quality Assurance Representative of record for review and approval.

**6.5** When the documented procedures have been approved, and an on-site verification of the procedures completed by the CTRM AC Supplier Quality Assurance Representative of record, an individual approval shall be granted to the supplier for each type of CMS hardware specified. This approval shall be recorded in the CTRM AC Approved Supplier List. The documented procedures for each type of equipment shall be developed to include the criteria listed below as well as all supplier specific information:

a. Purpose / Scope - Overview or statement of specific equipment and its intended use.

b. Calibration – Supplier shall define calibration intervals and maintain a system for periodic maintenance of measurement equipment. The supplier must document inventory of all specific components used for CMS and OLT measurement that could affect the integrity of data collection. This inventory should include and not be limited to CMM reference sphere and Laser Tracker target accessories (e.g. bushings, adapters, sphere mounts, bar/rod, probing, drift nest, supports, etc.), all reflector types, and weather station equipment. Calibration and measurement processes shall be traceable to the National Institute of Standards and Technology (NIST) standard, or equivalent, and meet original equipment manufacturer requirements.

c. Product Acceptance Software – Supplier shall perform Product Acceptance Software testing.

d. Field Checks / Probe Calibration / Set up – Establish criteria for field checks / probe calibration / set up to ensure data and system accuracy prior to collecting measurement data.

e. Drift Points / Stability – When environmental conditions, vibration, or stability of the product being measured could affect measurement data; drift point analysis is required. A record of drift points measured and acceptance tolerance used, before and after measurements is required as objective evidence.

f. Temperature Compensation / Scale Factors –When products are measured in an uncontrolled environment a documented process to compensate for thermal effects on the objects being measured is required. The product dimensional characteristics being verified must meet the engineering definition requirements as defined in ASME Y14.5, Dimensioning and Tolerancing and ANSI B89.6.2, Temperature and Humidity Environment for Dimensional Measurement. Objective evidence is required for temperature compensation when using scale bars, artifacts or temperature calculation. Supplier shall document their temperature compensation process which includes planning for pre, post and during measurement survey analysis. Although scale bars and artifacts are not required for all applications, they can be an effective tool for verification of temperature chane in the object if object scale bar temperature are monitored closely throughout the measurement survey.

g. Establish Coordinate System – Establish criteria for changing the coordinate system from a local coordinate system to a part or tool coordinate system (e.g. tolerances, datum targets, datum features, tooling holes, tool enhanced reference system or best fit). Establishment of coordinate systems shall be in accordance with customer engineering definition and ASME Y14.5 as applicable. Best Fit alignment shall not be used unless contractually authorized by end use customer and evidence of authorization shall accompany final inspection reports.

h. Multiple Station Set-up Criteria – When moving CMS equipment or product is moved from one location to another, or combining CMS equipment during a survey, supplier shall document their process and acceptance tolerance. A minimum of seven adequately distributed common points used as reference for repositioning/adding the CMS equipment during a survey shall be verified and recorded as objective evidence.

i. Data Collection Parameters – Establish measurement guidelines and specific collection parameters for the CMS equipment prior to collecting measurement data. (E.g. point density, point labels, time/distance separation parameters, apex angles, distance limitations).

j. Data Analysis – Establish guidelines for the evaluation of 3D point data to tool engineering, engineering datasets, point maps or drawings.

k. Reports – Establish standard process for CMS reports shall include job information, coordinate system establishment (alignment verification), object temperature, data analysis and measured results, point maps. When products are measured in an uncontrolled environment CMS reports shall include scale bars and drift points. Reports shall be in English and in inches unless directed otherwise by customer contract.

l. Record Retention – Establish standard process for all inspection and test records to be archived and retained per customer contract requirements and provided to the customer upon request.

m. Training – Suppliers shall define training requirements to assure competence and maintain employee training records, including on-the-job-training, for all CMS users.

n. CTRM AC will recognize suppliers approved by Nadcap for Measurement and Inspection (M&I) Industry Controlled Other Party (ICOP) approvals in addition to or in lieu of customer approvals for the following Nadcap accreditations:

AC7130, AC7130/1 – Nadcap accredidation for CMM

AC7130, AC7130/2 – Nadcap accredidation for Laser Tracker

AC7130, AC7130/3 – Nadcap accedidation for Articulating Arms

## 7.0 Internal Quality Audits

**7.1** The supplier shall develop and maintain procedures for auditing all operations annually affecting customer digital datasets and related documentation to assure compliance with contractual requirements, software and production part quality standards, including the observance of security restrictions.

**7.2** The audit plan shall include provisions for audit of sub-tier suppliers using DPD data annually on CTRM AC products and tooling. The audit plan shall address all requirements of this document to include all CMS equipment and software. A checklist should be formatted to the plan requirements. Documentation shall be maintained per company internal auditing procedures.

**7.3** The supplier is responsible to ensure that subcontractors are audited and approved to DPD/MBD requirements prior to placement of purchase order. Documentation shall be maintained per company documented process.

**7.4** Results of all audits will be documented and maintained for review by an authorized customer representative per contract requirements.

## 8.0 Procurement Control

**8.1** The supplier shall flow down the requirements of this document to their sub-tier suppliers and document sub-tier supplier compliance when CTRM AC authority datasets or dataset derivatives are used for manufacturing or product acceptance. Flow down to sub-tier suppliers shall include International Traffic in Arms Regulations (ITAR), Manufacturing License Agreement (MLA), Manufacturing Agreement (MA), Technical Assistance Agreement (TAA), and Export Administration Regulations (EAR) requirements.

**8.2** The supplier shall be responsible to CTRM AC for the maintenance, change incorporation, use of DPD and observance of security restrictions by sub-tiers for design, manufacturing and inspection.

**8.3** CTRM AC reserves the right to survey and/or review the DPD quality assurance and configuration management systems of these suppliers and requires that CTRM AC right of entry at supplier facilities be flowed to said suppliers by appropriate documentary means.

**8.4** The supplier is fully responsible for and shall establish procedural controls to assure CTRM AC DPD transferred (authority and derivative) between their company divisions and all levels of sub-tier suppliers shall be in compliance with this document.

**8.5** The supplier shall determine scope of DPD sub-tier supplier approvals based on their ability to interpret and maintain control and configuration of DPD data. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained.

**8.6** The supplier shall continue to approve sub-tier suppliers and measurement service providers. It is recommended that suppliers recognize the Nadcap M&I accreditation, or require sub-tier suppliers to become Nadcap M&I accredited. Nadcap accreditation does not relieve suppliers of the responsibility to monitor and measure sub-tier performance.

## 9.0 Control of Measurement Equipment

The supplier will develop and maintain a system for a periodic certification of digital measurement equipment. These controls will provide records of dates of certification, acceptance/rejection, and next certification due date. Measurement equipment will be physically identified in accordance with certification records. This includes all CMS equipment, Numerically Controlled (N/C) (CAM) equipment with calibrated inspection probe capability and plotters (used to produce drawings, Mylar's, or other inspection or tooling media).

## 10.0 Inspection Media

The supplier shall ensure that all digital measurement operations performed on each part or tool are planned. Supplier's QA organizations are responsible, at a minimum, for digital inspection media, measurement instructions, and analysis of data for product acceptance. Measurement planning shall give consideration to the following activities, as appropriate, in meeting the specified design requirements:

**10.1** Description of method and instructions for validation of each product feature for first article inspection, and documentation of the analysis of inspection and test results used as a basis for all quality/inspection adjustments.

**10.2** To validate product features with methods other than dimensional measurement, the supplier must document the media and/or process used.

**10.3** **Inspection Media** - The Supplier shall develop and maintain documented processes to create inspection media from DPD datasets including delivery and control of the media. These shall assure:

a. Media is independently derived from and traceable to the authority dataset

b. Media must be under configuration control

c. Media contains graphics, annotations, text, and GD&T to illustrate inspection

operations

d. Coordinate system, alignment and datum features are defined

e. Part/Tool set up instructions

f. Media is created by qualified personnel

g. A media review process exists (checker, checklist or peer/team review)

**10.4** When a supplier uses authority databases for inspection purposes, any data extracted from those datasets used for product acceptance must have visible evidence of supplier's QA acceptance and be under configuration control. In addition, any output data generated from plots and CMS inspection processes must have evidence of suppliers QA acceptance and be under configuration control. Traceability of CMS data back to the original customer authority dataset is required.

**10.5** Data or datasets identified as "Pre-Release" or "REFERENCE ONLY" shall not be used for product acceptance purposes. Any use of this data for manufacturing or design is at the risk of the supplier.

**10.6** Supplier may use definition of Master Dimension Definition (MDD), Master Dimensions Identifier (MDI), Master Dimension Surface (MDS), or other digital definition, including IGES or STEP format, as authority for product acceptance, when supplied by CTRM AC according to a Master Dimension Request (MDR) process.

**10.7** **Reduced Content Drawings** - Suppliers who receive reduced content drawings with an associated 3D model, must be able to extract information from the 3D model sufficient for manufacturing and inspection in addition to the 2D drawing.

**10.8** Suppliers must identify and document for manufacturing and inspection, the following requirements at a minimum.

a. All features identified on the 2D drawing

b. Features of the 3D model not defined by the 2D drawing

c. Fabrication & manufacturing process specifications

d. Flag notes, parts list and other specified requirements

e. SSP's, SPECO's, and APO's

**10.9** **Printed Wire Boards (PWB)** - PWB suppliers that have been provided 100 % Boeing defined 2D drawings are exempt from the SQR-004 approval.

**10.10** **Supplier Created Plotted Media** - Suppliers creating plots for product acceptance must have a documented procedure. These procedures shall include the following at a minimum;

a. Plotter calibration – Follow OEM process for calibration and adjustment and independent validation to NIST or equivalent.

b. Plotting Environment – Equipment located in temperature and humidity controlled environment to meet product requirements. (Typically 68 degree Fahrenheit (with +/- 2 degree variance)

c. Verification of engineering definition – Verification of developed flat pattern and plot verification features

d. Plotted media material - should be minimum .005 inches thick polyester film. Paper plots may be approved on a case by case basis for tolerances greater than +/-.10 inches.

e. Part number Identification & revision - Traceability to the Boeing authority dataset

f. Verification of plotted media - Acceptance criteria of plot accuracy prior to stamping and releasing plot to manufacturing or inspection

g. Quality acceptance stamping – Date, Temperature, Humidity, Accuracy and evidence of inspection.

h. Accuracy of plots used for inspection – Plotted media will be validated prior to use in the environment where they are used. (Manufacturing or Inspection, etc.)

Note: The tightes product tolerance that can be reasonably inspected with a Mylar overlay is +/- 0.030 inch after grid check or defined verification features check has been performed.

**10.11 Validation of plot accuracy** - Check plots for accuracy prior to manufacture and inspection of parts. Measure to ensure the accuracy of the grid lines, or defined verification features vertically, horizontally and diagonally to validate plots. Grid lines are usually plotted in 10-inch increments. Check the grid lines from the first to the last grid line or defined verification features. Grid lines shall be within a tolerance of +/-.020 under 100 inches and within +.030/-.010 over 100 inches.

Note: A calibrated steel scale (Starrett or equivalent) is recommended to check the grid lines for accuracy.

**10.12 Environmental Controls** - Plotting equipment shall be located in a temperature and humidity controlled environment. Development and validation of plots will be done in an environmentally controlled area using a real time monitoring system for temperature and relative humidity.

Note: The tolerance noted in the plot accuracy stamp is the accuracy of the plot at the time it was generated and does not relieve the user of the responsibility to validate the plot at the time of use.

**10.13 Handling Storage** - To maintain media accuracy and stability, plots are required to be stored in:

a. A container not less than 3 inches in diameter

b. In a dust free, non-condensing moisture and chemical free area

c. Temperature from 65 to 80 degrees Fahrenheit and relative humidity from 45 to 55 percent.

d. Do not expose the media to heat generating sources. This may include laser printers, computer monitors, copy machines, air compressors, transformers, batteries, engines and sunlit enclosed places.

e. Do not fold, crease or damage in anyway, as this also effects the dimensional stability.

**10.14 Destruction of Obsolete/Unusable Plot Media** - All materials and computing media of any kind containing PROPRIETARY information shall be disposed of by methods that ensure that all proprietary information is destroyed so that none of it can be reconstructed from the residue or remains. Disposal methods may include recycling, shredding, burning, etc. and are

dependent upon the resources at any given company/supplier facility. Recycling may be used only where procedures are in place to assure continuous security controls throughout the recycling process.

## 11.0 Data Exchange Methods

**11.1** The supplier shall document the current level of hardware, software, and other digital system information required to maintain synchronization with CTRM AC supplier datasets and/or data exchange formats per applicable requirement.

**11.2** **Translations** - When suppliers translate from Native CAD format to alternate formats including CATIA V4 to CATIA V5, suppliers are responsible for all dataset translations and must have a clear documented process for each. The documented process must include a method to verify the accuracy of translations. Suppliers must be able to demonstrate the CAD translation process, including verification/interrogation methods used, and the ability to identify known discrepancies.

a. Acceptance criteria for accuracy of translated surface profile/ geometry, tolerance) must be determined by the supplier, and must ensure the end product will be within engineering tolerance/ specification. Objective evidence of translation validation must be retained. (Typical allowable deviation is 1/10th of the tightest engineering tolerance).

b. The verification process for translation of datasets containing 3D annotation (i.e. feature control frames, dimensions, text, and/or surface geometry) must ensure that all intended entities are accounted for in the translated media.

c. Suppliers receiving CTRM AC authority STEP format datasets supplemented with a 2D DWG 3D-PDF or SUPPAR STEP formats throughout their product realization and inspection processes are not required to perform data translation validation. It is strongly recommended data translation validation remain a best practice to mitigate potential errors.

## 12.0 Tooling

**12.1** The supplier shall describe documented processes to ensure release, acceptance, identification, security, access and change control of tool design and tool inspection datasets. Tooling datasets shall have traceability to current authority engineering and derivative tooling dataset sources. The engineering authority dataset(s) shall be identified on the tool design when applicable.

**12.2** The supplier shall ensure that when Tool Design responsibility is flowed down to sub-tier suppliers, the sub-tier supplier will be approved by the supplier.

**12.3** Traceability - All digitally defined special tooling and physical inspection media (check fixtures, templates, etc.) will be identified and traceable to the engineering authority dataset, tool design dataset and any tool inspection datasets.

**12.4** Inspection - These tools and tooling media will be accepted and periodically validated to the authority design at a frequency determined to ensure accuracy and repeatability of the tool before use.

## 13.0 Training and Process Performer

**13.1** DPD Training - Suppliers shall define training requirements to assure competence and shall maintain employee training records, including on-the-job-training, for all DPD system users (e.g. quality, IT, planning, purchasing, contract review and Mfg).

**13.2** The supplier shall ensure that QA personnel, and other personnel utilizing the DPD system, have DPD system access and training adequate to perform digital product acceptance activities and/or their related process functions, including digital inspection media generation, performance of inspections and 3D data collection. If these activities are performed by individuals other than the suppliers' quality assurance personnel, the supplier shall define the specific tasks and responsibilities that are authorized and the corresponding requirements and training necessary to perform those tasks. A Training Plan (i.e. Training Matrix, etc.) is required to document training requirements and status.

**13.3** Training syllabus shall include training criteria necessary to ensure proficiency of process performers, e.g. planning, programers, quality, etc., to interpret ASME Y14 Dimensioning and Tolerancing (a.k.a., GD&T).

**13.4** Training shall be updated due to changes driven by new equipment, software or CTRM AC program requirements.

**13.5** If Quality activities are performed by individuals other than the supplier's quality assurance personnel, the supplier shall define the specific tasks and responsibilities that are authorized and the training necessary to perform those tasks.

## 14.0 Supplier DPD / MBD Checklist

Refer Form 386 Supplier DPD / MBD.checklist

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