



Title: Documentation Management Plan	Owner: P.P.A. Kotzé	Date: 2023-05-15
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Documentation Management Plan

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Change Record

Version	Date	Authors	Affected Section(s)	Reason/Remarks
A	2019-08-26	Lear	All	Incorporated edits by M. McKinnon; prepared PDF for release as v.A.
B	2020-03-11	Lear, Lenox, Kusel	All	Updated text to reflect usage of EDMS as Document Repository; Resolved minor inconsistencies; added section and AD cross-references; new document type; Minor copyediting; clarified doc nos. & titles of ADs; revised cover page
C	2023-05-15	Archuleta, Kuhn, Kotzé	All	General update to align with the Configuration Management Plan update; Document type class summary and breakout of types to each class updates; Updated numbering scheme to reflect updated convention; Updated to be consistent with CMS



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I Introduction

I.1 Purpose

This document describes the overall approach to managing documentation within the Next Generation Very Large Array (ngVLA) project and presents guidelines for the creation, identification, and classification of project documents.

A “document” in this context constitutes a word processing file, spreadsheet, graphics file, drawing, schematic, model, firmware code, script, or any similar item that can be contained in an electronic file.

Configuration Item or Product Structure Numbers (PSN) are defined within a Product Tree also called the Product Breakdown Structure (PBS) [AD01]. Documentation numbers are based on the PBS numbers and are presented in this document.

I.2 Scope

The *ngVLA Project Documentation* includes all plans, requirements, specifications, drawings, schematics, diagrams, test procedures, reports, firmware, source code, written information, and any other information necessary to build, maintain, or otherwise perform work on any ngVLA system.

The *ngVLA Document Repository* refers to the central Electronic Document Management System (EDMS) that stores and serves ngVLA-managed documents. A description of the repository and protocols for storage and retrieval is available in Section 4.

I.3 Applicable Documents

The following list of documents is applicable to this document to the extent specified. If not stated otherwise, the latest released version of the document in the repository is valid. In the event of a conflict between the information stated in this document and the information stated in one of the following listed documents, the information in this document supersedes that available in the other documents.

Ref. No.	Document Title	Document Number
AD01	ngVLA Product Breakdown Structure	020.10.20.00.00-0004-DSN
AD02	ngVLA Documentation Standards <i>[in preparation]</i>	020.10.10.10.00-0007-STD
AD03	ngVLA Configuration Management Plan	020.10.10.15.00-0001-PLA
AD04	ngVLA Document Approval Matrix	020.10.10.10.00-0002-LIS

I.4 Verb Convention

“Shall” and “must” are used when a specification or provision is mandatory. The verbs “should” and “may” indicate a specification or provision that is not mandatory.

“Will” is used to indicate a future happening/action.

I.5 Definitions

Part Number: This number identifies a configuration item at any level in the hierarchy. A unique number uses the format 020.xx.xx.xx.xx as defined in the Configuration Management Plan [AD03]. xx.xx.xx.xx indicates the part’s location in the PBS.

Facility: Product Tree Level I is the top-level product category, generally reserved for NRAO facilities or arrays. This includes installations such as the VLA, ngVLA, GBT, VLBA, etc.



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System: Product Tree Level 2 is reserved for standalone systems within the facility that can generally be defined under their own functional requirements (e.g., the correlator or the antenna). It also includes Work Breakdown Structure (WBS) elements such as Project Management, Science Communications, Software, and Safety to support documentation management of these artifacts.

Subsystem: Product Tree Level 3 is reserved for subsystem elements and is sometimes also used to define an aggregate of assemblies that provide common functionality, such as the Front End electronics and the Data Transmission System (DTS).

Assembly: Product Tree Level 4 represents a hardware or software item, or an aggregate of both. This typically makes up a collection of components or sub-assemblies that are designed as Line Replaceable Units (LRUs). Examples are modules, receivers, etc.

Sub-Assembly: Product Tree Level 5 represents composite items (hardware and/or software) that make up an assembly having defined functionality and interfaces. This is especially applicable if a sub-assembly may be repurposed in another assembly. Examples are PCBs (printed circuit boards), enclosures, and specific Front End receivers (Bands 1–6).

Component: This is a single piece, or two or more pieces joined together, not normally subject to disassembly or identified by a single part number by the vendor (for example, a resistor, a screw, or a machined piece of metal).

Configuration Item (CI): This is an item uniquely defined by its own set of requirements and complete design documentation, all of which are under configuration control. A configuration item may be at any level of the product tree hierarchy and may be comprised of multiple CIs at lower levels of the Product Tree. The PSN entry is appended with “CI” to make the designation explicit. CIs are expected to have CI Definitions (CIDs) and CI Lists (CILs) as defined in [AD03].

Serial Number: The four-digit serial number is a sequentially assigned, unique identifier used to differentiate between two or more interchangeable parts having the same Part Number.

Controlled Document: Controlled documents are subject to the following:

- Numbering according to the Document Numbering Convention described in this document;
- Version control and secure access via an Electronic Document Management System (EDMS);
- Formal approval required before issuance; and
- Changes required to be authorized and controlled.

Configuration Control: Items are identified for configuration control based on the following factors:

- The potential impact of changes to array performance, operations, and maintenance;
- Impacts to design interfaces; and
- Threats to human health and safety.



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2 General Approach to Document Management

The general approach taken to document management is highlighted in the following points, which will be discussed in more detail in subsequent sections.

1. A product-centric approach is taken consisting of a product tree in the form of a hierarchical number scheme detailing the location of each product in use in the project [AD01]. All controlled documents must be contained within the structure of the Product Tree.
2. All controlled documents will be submitted in the native source file formats **and** as PDFs, both of which will be stored in an electronic Document Repository and accessible by a Web-enabled EDMS interface.
3. All employees will (at a minimum) have read access to the Document Repository. Based on privacy or proprietary needs some directories may not be available to all users. Write access to specific libraries in the EDMS will be limited to personnel requiring such access to create, revise, review, or approve and release documents in those libraries.
4. The PDF files are the officially archived record; hence, approvals and signatures will be applied to the PDF documents rather than the source files.
5. All PDF files submitted must have an associated source file available for future revisions. This is of particular importance if outside vendors supply project documents that require revisions be in the native formats. Contracts shall require files delivered in native formats, except in cases where the vendor clearly retains IP rights.
6. Controlled documents may be in the status of planned, draft, released, baselined or obsolete (see Section 3). A document must be reviewed and approved by all parties in the approval routing to be released according to [AD04].

Past released versions of documents will be archived in the EDMS for future reference, both in PDF and native/source formats.

3 Document States

A document may pass through five potential states in its lifetime, which describe the control and management of the document at that stage of development or maintenance (see Figure 1).

- Planned – a document is identified but may not exist yet
- Draft – the document is currently being written or revised and is in work
- Released/Approved – the document has been signed off after peer review
- Baselined/Change controlled – the document has been identified as a baseline document and is subject to change control
- Historic – the document is marked obsolete or superseded by another document or revision

The following document state diagram visualizes potential movement through the states, with icons that relate each state to the Bentley ALIM CMS's approval management states.

The document approval and change procedure is outlined in [AD03] and must be followed for all change-controlled documents. Visualization of the states a document may pass through is found in Figure 1. The document approval process is further detailed in Section 4.7.

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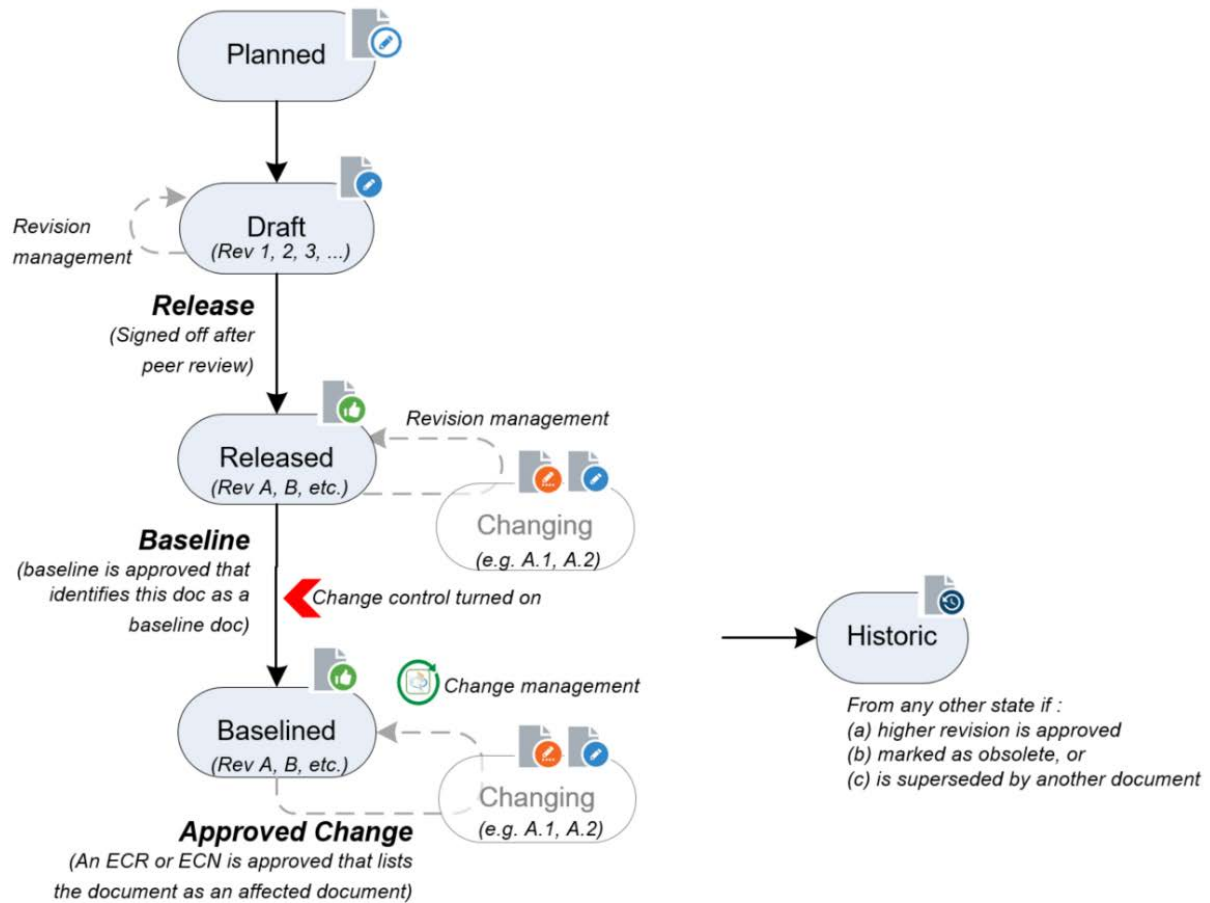


Figure 1: Document State Diagram.

4 Document Number Conventions

4.1 Document Number and Part Number

Document numbers use the part number as a classifier, but add document specific information as defined in this document. Document numbers must be unique.

Part numbers and document numbers are not necessarily the same. One part could have many documents associated with it. Multiple parts could be defined by the same document.

4.2 Numbering of Documents

All controlled project documentation falls under the document numbering scheme. Capital letters must be used for all alphabetical components of the document number. Document numbers take the form of:

Document Number: 020.xx.xx.xx-ssss-TTT

Where:

- 020.xx.xx.xx = Part Number as defined in [AD03].
- ssss = Document identifier or sequence number.
- TTT = Document Type Designator (DWG, BOM, PRO, MAN, etc.; see Section 3.3).



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This numbering scheme permits identification of individual documents by listing the full number (e.g., 020.30.05.00.00-0006 DSN).

The sequence number is a sequential number that is assigned to the document within the Product Breakdown Structure. All documents must be assigned a sequence number. This number is always given as a four-digit number beginning with 0001, with leading zero placeholders used as needed. A sequence number of 0000 is not allowed.

The sequence number is used to distinguish between different documents that fall under the same PBS. No other meaning is ascribed to the sequence number. Unique document types that are frequently referenced should use an appropriate Document Type Designator (Section 3.3).

4.3 Document Type Designator (TTT)

The last component of the document number is the document type designator. This three-digit abbreviation is used to classify the document into one of the recognized types, as outlined in Table I in section 8.2. A description of what is to be included within the classification of the document type is provided for guidance. The re-use of document sequence numbers with different type designators is unwanted to avoid confusion.

This document type classification serves to identify the main contents of the document to help users locate the information they seek. If an author is uncertain of the appropriate document type designation or if multiple document types apply to a single document, ask for clarification from the Documentation Specialist, or simply choose the most applicable type designator. Where generic document types (e.g., DWG) and more specific types are applicable (e.g., SCH), the more specific type is preferable.

Document types have been organized into three classes to categorize them as management documents, system documents, or detailed design documents. This categorization supports documentation organization and information storage in the configuration management software, as well as helps inform potential approval and change processes, and the level of involvement required for a particular document.

Management documents include high level programmatic document types that describe or manage program-related information. The System class includes document types related to high-level documents descriptive of system architecture, design, change management, and reporting. Finally, detailed design documents include all document types relevant to design, reporting, and change management.

4.4 Version Identifier (V)

All documents must have a version identifier (the term revision number is also used). All released documents must have a version identifier (A, B, C, and so on for each Released Version) indicated within the document. A combination of numbers and letters will be used to note the revision, with the alpha numeric code indicating a level of maturity.

4.4.1 Drafts Before First Release

Draft documents, before release, should be marked with a numeric code starting with “1”.

Version: 1 Date: YYYY-MM-DD Status: Draft
Version: 2 Date: YYYY-MM-DD Status: Draft

4.4.2 Released Documents

Once a document is approved (signed) for release, an alphabetical designator is used. The first issue (release) of a document is always the letter “A”. If a document exceeds 26 major versions, then “AA” followed by “AB” is to be used. All major versions are identified by a letter.



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Version: A Date: YYYY-MM-DD Status: Released

4.4.3 Major Revisions

Any changes to a part that affects fit, form, or function is material and classified as a major revision. Changes to plans, processes or procedures are also considered material and trigger major revisions.

Major revision, with a roll of the version:

Version: B Date: YYYY/MM/DD Status: Released

4.4.4 Intermediate Drafts

If a revision is in process and multiple intermediate drafts are distributed for feedback or review, drafts can be noted with the release which was used as a base file and a progressive number. For example, a progression from Version B to version C with three intermediate drafts would look as follows:

Version: B Date: YYYY/MM/DD Status: Released
Version: B.1 Date: YYYY/MM/DD Status: Draft
Version: B.2 Date: YYYY/MM/DD Status: Draft
Version: B.3 Date: YYYY/MM/DD Status: Draft
Version: C Date: YYYY/MM/DD Status: Released

4.4.5 Baselined

Once a released document is baselined (put under configuration control) it can only be updated through formal change control to the next version. No intermediate draft documents can be managed in the CMS following a baselined document. For example, an update from Version D to version E would look as follows:

Version: D Date: YYYY/MM/DD Status: Baselined
Version: E Date: YYYY/MM/DD Status: Released

4.5 Document History and Baselined Documents

The document history shall have a brief description of all the changes made to the document since the previous version, who made the changes and when.

When a document is Baselined, the document history shall clearly indicate at which version the document was baselined. The document history of all changes following a baselined version shall include an ECN/ECR or PCR number in the document change record.

4.6 Document Status

Documents have a Draft or Released status to indicate if they have gone through review. The production version shall always be marked as Released while a working draft will be labeled as such.

The document with the highest version letter, and that has a Released status, is always the current version.

Once a part or drawing is obsolete, it may be revised to note its status as Obsolete. In such a case, it is typical to note the document or drawing that has superseded it.



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4.7 Document Review and Approval

The required reviews and approval associated with each typical design artifact will be captured in a document approval matrix [AD04] to provide clarity to the Responsible Engineer on the level of approval and review required.

In an effort to maintain the responsibility and authority of the Responsible Engineer, document approval reviews will typically be limited to three levels:

- a) Level 1 – Assigned Engineer: Reviews and approves the design given their field of expertise.
- b) Level 2 – Responsible Engineer: Acknowledges review and technical responsibility for the design of the assembly, subsystem, or system.
- c) Level 3 – IPT Lead: Acknowledges review and managerial responsibility for the work within their IPT.

If the IPT lead is also the Responsible Engineer, is drafting his/her own drawings, and is an expert in the related discipline (e.g., an electronics engineer preparing a schematic), then no additional approvals are required (since they represent all three approvers). However, the Responsible Engineer has discretion in requesting additional peer review as best fits their project.

Lead Systems Engineer and Project Engineer review and approval will typically be limited to the review of comprehensive technical baselines prior to a key review gate (such as a design review). High-level artifacts, such as requirements documents and design narratives, are reviewed and approved in this context. Approval of the Project Engineer and Lead Systems Engineer is also required when proposing changes to previously approved baselines (e.g., changing subsystem requirements or concepts after a Conceptual Design Review, or a production part after a Final Design Review) and should be initiated through an ECR.

Project and System-level documents (typically prepared by the Project Manager, Project Scientist, Project Engineer, or Lead Systems Engineer) require review and approval through the Project Director. Reviewers have the ability to comment on documents in the EDMS and the author of the document is responsible for addressing those comments by either agreeing and implementing the update, or disagreeing and providing a reason for not updating. Consensus from reviewers is required to reach approval and release.

5 ngVLA Document Repository and Archive

All ngVLA documentation shall be stored and managed in an Electronic Document Management System. This EDMS shall provide secure access, controlled read/write/approve access, version control and recovery, and tracking of all document actions.

5.1 Archival Policies

All documentation and drawings shall be created and stored, in electronic version only, in the Document Repository. For the archival version of documents, the goal is to store documents in formats which are highly portable and stable over time. Therefore, all released documents will be stored in their PDF versions as well as in their native file types. All attempts will be made to maintain access to the PDF files to ensure that the files remain readable through the lifecycle of the project. Software required to access the native file types will also be maintained and archived when feasible.

5.2 Digitizing Documents

A paper copy archive will not be maintained. The Documentation Specialist(s) shall be responsible for digitizing any documents that are required to be maintained and only available in hardcopy. These shall be



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scanned and saved to PDF format, then stored in the Document Repository for archival purposes. This may include but is not limited to certificates of compliance, vendor shipping documentation and receipts, faxes, and other legacy documents.

5.3 *Superseded Documents*

All superseded documents become obsolete (historic) documents. An obsolete document is one that no longer reflects the current design, configuration, policy, or procedure within the ngVLA project. Obsolete documents shall be maintained in the EDMS archive; however, they must be clearly marked as “obsolete” in the document properties.

For most documents, the document status is also identified on the title page and in the header of each page. All changes to documents must follow the procedures outlined herein.

6 **Electronic File Naming Conventions**

Electronic file names are separated into two categories: (1) the PDF document that has been approved, and (2) the source file(s) used to generate the PDF file.

6.1 **PDF File Naming**

PDF file names will use the same convention as the document numbering scheme, with the document type, a brief descriptive title, and the file extension added.

020.xx.xx.xx.xx-ssss-TTT-TITLE.EXT

For example, a simple drawing of a bracket might have the part number 020.01.02.30.40, which would translate to a file name of “020.01.02.30.40-0021-DWG-Bracket.pdf”.

When titling a file, the following rules will be observed:

- The description added to the file name should be kept as short and simple as possible, while still giving a brief summary of what the file represents. Given the 256-character limit imposed by certain operating systems for a path + file name, the descriptive title shall be limited to 40 characters.
- No spaces shall be used in the file name; rather, underscores will be used.

6.2 **Source File Naming**

Whenever possible, source files will be named similarly to PDF files, with the exception that revision numbers are not part of the file name. The source file name will have the part number followed by the document type and a brief description. For the example above, the Autodesk Inventor file name would be “020.01.02.30.40-0021-DWG-Bracket.idw”.

6.3 **CAD File Naming Issues**

Should the above scheme interfere with the operation of computer-aided design (CAD) software packages, alternative source file naming schemes may be used.

CAD software packages often produce a set of interrelated files that ultimately produce one or many printable or viewable drawings. Since these files are not easily separated, and do not map 1:1 to individual drawings, they should be submitted as a single package. All source files for drawings must always be submitted with a PDF of the composite drawing.



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In such cases, a ZIP file or equivalent (.rar, .tar, .tgz, etc.) shall be submitted with the full source file set and the aggregated file shall be marked with its own unique sequence number. The document type shall be noted as SRC (Source).

7 Document Accessibility

7.1 Document Storage

All controlled project documents will be maintained in the ngVLA Document Repository (described in Section 4) and will be accessible to all members of the ngVLA project via a Web-based interface to the EDMS. The EDMS will provide functionality for searching the repository, downloading documents, versioning, tracking user access and actions, and routing documents through approval/signature workflows.

7.2 Access to the ngVLA Document Repository

The ngVLA Document Repository will be accessible only to individuals within the NRAO organization and internal to the NRAO network. All information or documentation that needs to be accessed by non-NRAO personnel will be copied to externally accessible websites or via other means with authorization by the Project Director.

7.3 File Format Standards

To maximize document accessibility, the standard format for the dissemination of project documentation is PDF. Therefore, all released and deliverable documents will be maintained in PDF form. The source files (for example, Word, Excel, Autodesk Inventor, Altium, etc.) will be maintained as well.



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8 Appendix

8.1 Abbreviations and Acronyms

Abbreviation	Non-Abbreviated Reference
ACU	Antenna Control Unit
AD	Associated Document
BOM	Bill of Materials
CAD	Computer-Aided Design
CASA	Common Astronomy Software Applications
CI	Configuration Item (also referred to as “Parts”)
CID	Configuration Item Definition
CIL	Configuration Item List
CMS	Configuration Management System
CPU	Central Processing Unit
DTS	Data Transmission System
ECO	Engineering Change Order
EDMS	Electronic Document Management System
FE	Front End
GBT	Green Bank Telescope/Observatory
ID	Identification
IF	Intermediate Frequency
LO	Local Oscillator
LRU	Line Replaceable Unit
M&C	Monitor and Control
MIB	Module Interface Board
ngVLA	Next-Generation Very Large Array
NRAO	National Radio Astronomy Observatory
PBS	Product Breakdown Structure (Product Tree)
PCB	Printed Circuit Board
PDF	Portable Document Format
PSU	Power Supply Unit
PSN	Product Structure Number
VLA	Jansky Very Large Array
VLBA	Very Long Baseline Array
WBS	Work Breakdown Structure



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8.2 Document Types

Table 1. Document Type and Category Summary.

Document Types			Document Type Category		
Name	Acronym	Description	Management	System	Detailed Design
Agenda	AGD	Meeting agenda.	X		
Block Diagram	BLK	Block diagram representation of a system, process, etc.		X	X
Bill of Material/Parts List	BOM	List of parts and/or sub-assemblies used in the creation of an assembly or a list that enumerates all parts including unique type codes (e.g., manufacturer's type number), used in a single product or a logical or functional part of a product.			X
Budget	BUD	Detailed presentation of a projected cost breakdown.	X		
Corrective Action Report	CAR	A specific type of report in response to a documented discrepancy, non-conformance, or other reported condition that is tracked for compliance or correction.	X	X	X
Configuration Item Definition	CID	The top level document describing an assembly or sub-assembly. Identifies all applicable documents to the design, fabrication and maintenance of the assembly (typically without noting revision level).		X	X



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Configuration Item List	CIL	Similar to a CID, but specifies revision levels and captures a snapshot of the configuration, as of the date of issue. For mature products, the CIL may be serial number or revision specific and lists applicable documents to an individual assembly or sub-assembly.		X	X
Contract	CON	Binding agreement between vendor, customer, or other parties.	X		
Data Sheet	DAS	Document summarizing product characteristics, specifications, components, and materials.		X	X
Design Description	DSN	Description of a hardware, software, system, or subsystem design which can include theory of operation, justification for design decisions, high level descriptions of interfaces, proposed operational details, etc.		X	X
Drawing	DWG	Document presenting a graphical representation of a system assembly or part.		X	X
Engineering Change Request	ECR	Document used to communicate a proposed change to the system, assembly, or part.		X	
Engineering Change Order	ECO	Describes a change to the system and associated drawings. Includes an assessment and approval for implementation.		X	
Engineering Change Notice	ECN	Document used to communicate a minor proposed change to the system, an assembly, or part.		X	



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Firmware	FRM	Personalities used in programmable logic devices, memory images, and other programmable instructions typically associated with circuit level hardware devices; descriptions of such files, or instructions for the build and archiving of such files.			X
General	GEN	Open category for documents not accounted for elsewhere. Only use this document type when all other document type categories do not apply.	X	X	X
Interface Control Document	ICD	Document describing the specification of the interface between two configuration items.		X	X
Instructions	INS	General instructions or information for performing work or tasks where no compliance, inspections, or monitor and control processes are involved.	X		X
List	LIS	Document giving an enumeration of items.	X	X	X
Manual	MAN	Document describing how to use or repair a product. Can focus on specific groups (e.g., user, maintenance, installation etc.)		X	X
Manufacturer Data Sheet	MDS	Data sheet supplied by an outside manufacturer.			X
Memorandum	MEM	Narrative document that can address any subject.	X	X	X
Minutes of Meeting	MIN	Meeting report, can include action item list.	X		
Printed Circuit Board	PCB	All PCB manufacturing files such as artwork, layers, etc.			X



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Plan	PLA	Document describing an intended scheme or sub-project.	X	X	X
Procedures	PRO	Description of mandatory steps to execute a certain task or process where compliance is implied.	X	X	X
Proposal	PRP	Document describing intended project or research activity.	X	X	
Quotation	QOT	Description of cost breakdown of product(s) or service(s).	X	X	X
Register	REG	A specific type of list which is typically used for tracking of management processes such as the Risk Register, Stakeholder Register, and other lists that are traditionally identified as registers.	X	X	
Report	REP	Technical reports and design documents.	X	X	X
Requirements	REQ	Document describing the high-level requirements for a system. These are an expression of user needs, and are defined without an implied or assumed implementation.		X	X
Request for Proposal	RFP	Proposals, quotes, and other budgetary or costing information requested from vendors, contractors, institutions, or other entities invited to bid on project work.	X		
Request for Waiver	RFW	A formal request from the design team, administration, or other entities to deviate from requirements or process protocols where compliance is otherwise mandated or expected.		X	



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Review Item Discrepancy	RID	Notice from the review panel to the team under review that an item in the review package is missing, non-compliant, does not meet requirements, needs further elaboration, is out of scope for the review, etc.	X	X	X
Schedule	SCD	A comprehensive compilation of all tasks, durations, and resource loading needed to complete a work package, an integration of multiple packages, or the entire project.	X		
Schematic	SCH	Schematic representation of an electrical circuit, hydraulic system, etc.			X
Standard Operating Procedure	SOP	A step-by-step procedure for regular recurring activities, including safety analyses and hazard mitigations. The procedure should be used for training and as a reference when work is performed.		X	X
Statement of Work	SOW	Document describing what tasks should be carried out by a defined entity (person, company or institute).	X		
Specification	SPE	Document describing the required specifications of a product.		X	X
Standards	STA	Document describing or listing standards criteria for a system, product, or process.		X	X



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Test Data Report	TDR	A specific type of report that is the output from a procedure, where the report supports compliance and the procedure may be needed to interpret the results.			X
Top Level Assembly Drawing	TOP	Used to denote the top-level assembly drawing for a particular subsystem/assembly. Only one document of this type shall exist for each subsystem/assembly.		X	X
Template	TPT	A template for a specific type of document.	X	X	X
Use Case	USC	Description of potential or planned objectives that a system would accomplish.	X	X	
Wire List	WIR	Wiring diagrams and cabling schemes for a system, assembly, or sub-assembly.			X
Compressed File	ZIP	Any file that uses compression tools to combine and save them in a single file.	X	X	X












020.10.10.10.00-0001-PLA-DOC_MGMT_PLAN

Final Audit Report

2023-05-15

Created:	2023-05-15
By:	Alicia Kuhn (akuhn@nrao.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAAdfyflZv33PCZ2Z6vlwkYMiLr2uEFF26-


"020.10.10.10.00-0001-PLA-DOC_MGMT_PLAN" History

-  Document created by Alicia Kuhn (akuhn@nrao.edu)
2023-05-15 - 1:05:05 PM GMT
-  Document emailed to pkotze@nrao.edu for signature
2023-05-15 - 1:06:13 PM GMT
-  Email viewed by pkotze@nrao.edu
2023-05-15 - 1:13:07 PM GMT
-  Signer pkotze@nrao.edu entered name at signing as P.P.A.Kotzé
2023-05-15 - 1:13:42 PM GMT
-  Document e-signed by P.P.A.Kotzé (pkotze@nrao.edu)
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-  Document emailed to rselina@nrao.edu for signature
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-  Signer rselina@nrao.edu entered name at signing as R. Selina
2023-05-15 - 2:03:09 PM GMT
-  Document e-signed by R. Selina (rselina@nrao.edu)
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