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LOFAR

Low Frequency Array

System Engineering Support

LOFAR Glossary of Terms and Abbreviations

Report


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Revision	Date	Chapter / Page	Modification / Change
1.0	2002-01-15	-	First issue. This issue still contains TBDs and TBCs for term explanations that are not yet defined finally.
2.0	2006-02-01	All	Glossary information from SRR, PDR, SS CDR data package included in this document.

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1 Introduction

1.1 Purpose of this document

This glossary is intended to facilitate the discussions within the LOFAR project by providing unambiguous definitions of terms and abbreviations.


In principle, all LOFAR configuration controlled documentation shall refer to this glossary.

1.2 Executive summary

This document provides a definition of abbreviations and terms to be used in the LOFAR project. Several documents produced so far contain glossaries that have been taken as input. Other sources are general standards like ECSS and ISO.

Although already many calibration related terms have been included in this document, more dedicated definitions of calibration terms can be found in:


Glossary for LOFAR Processing terms, LOFAR-ASTRON-DOC-0000, issue 1.0 by J. Noordam

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2 Glossary of Abbreviations

The Context entry defines the scope of the abbreviation. A context designation “-“ implies a generic term.


<i>Abbreviation</i>	<i>Context</i>	<i>Meaning</i>
ACC	CEP	Application Configuration & Control
AD	LOFAR	Applicable Document
ADC	-	Analogue Digital Conversion
AGN	-	Active Galactic Nuclei
AGP	-	Accelerated Graphical Port
AIPS	-	Astronomical Image Processing System
AIT	LOFAR	Assembly, Integration and Test
ARG	LOFAR/MAC	Array Receptor Group
ARVI	LOFAR	Archiving virtual instrument
AUX	LOFAR	Auxiliary
BBS	Calibration	Black Board Self-calibration
BBTN	LOFAR	Broad Band Transport Network
BGL	CEP	Blue Gene/L
BSR	Calibration	Band-pass Saw-tooth Ripple
CCB	-	Configuration Change Board
CCP	-	Change Control Procedure
CCU	LOFAR	Central Control Unit
CEP	LOFAR	Central Processor
CI	LOFAR	Configuration Item
CIA	LOFAR	Common Interface Application Sub-system
COTS	LOFAR	Commercial off-the-Shelf
CRC	-	Cyclic Redundancy Check
CS1 (n)	Station	Core Station 1 (n)
CWDM	WAN	Coarse Wave Division Multiplexing
DAS	CEP	Direct Attachment Storage
DBD	Station	Digital Board Design
DCR	-	Document Change Request
DDV	LOFAR	Design, Development and Verification
Dec	-	Declination
DFT	LOFAR	Discrete Fourier Transform
D-GPS	LOFAR	Differential Global Positioning System
DTN	LOFAR	Data Transport Network
DWDM	WAN	Dense Wavelength Division Multiplexing
EMC	LOFAR	Electromagnetic Compatibility
EMI	-	ElectroMagnetic Interference
EMP	-	ElectroMagnetic Pulse
EOR	LOFAR	Epoch of Reionization
EPA	Station	Embedded Processing Application
EPDM	LBA	Ethylene Propylene Diene Monomer (rubber)
EPROM	-	Erasable Programmable Read Only Memory
ESD	-	Electro-Static Discharge

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<i>Abbreviation</i>	<i>Context</i>	<i>Meaning</i>
FDIR	SHM	Fault Detection, Isolation and Recovery
FIR	-	Finite Impulse Response
FMECA	LOFAR	Failure Mode Effects and Criticality Analysis
FOV	-	Field of View
FOV	LOFAR	Field of View
FPGA	-	Field Programmable Gate Array
FTS	Station	Full Test Station
GbE	-	Giga-bit Ethernet
GPS	LOFAR	Global Positioning System
GPU	-	Graphical Processor Unit
GSM	LOFAR	Global Sky Model
H/W	LOFAR	Hardware
HBA	MAC	High Band Antenna
HMI	MAC	Human Machine Interface
ICD	LOFAR	Interface Control Document
ICS	MAC	Instrument Control System
ICWG	LOFAR	Interface Control Working Group
IOC	LOFAR	Initial Operations Capability
IS-GE1	Station	International Station Germany 1
IS-UK1	Station	International Station United Kingdom 1
ITS	Station	Initial Test Station
JLOC	Operations	Joint LOFAR Operations Centre
JTAG	-	Joint Test Action Group of IEEE
JTB	Station	JTAG Test Board
LAN	MAC	Local Area Network
LBA	MAC	Low Band Antenna
LCU	Station	Local Control Unit
LOFAR	LOFAR	Low Frequency Array
LR	LOFAR	LOFAR Receiver
LRU	-	Line Replaceable Unit
LS	LOFAR	LOFAR Scheduler
LSM	Calibration	Local Sky Model
LVDS	Station	Low Voltage Differential Signalling
MAC	LOFAR	Monitoring and Control Sub-system
MACN	LOFAR	Monitor and Control Network
MAIT	-	Manufacturing, Assembly, Integration and Test
ME	LOFAR	Measurement Equation
MEP	LOFAR	Measurement Equation Parameters Database
MEP	MAC	MAC-EPA Protocol
Meq	LOFAR	Measurement Equation
MIM	Calibration	Minimum Ionospheric Model
MIT	-	Massachusetts Institute of Technology
MPI	-	Message Passing Interface
MTBF	-	Mean Time Between Failure
MTTR	-	Mean Time to Repair

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<i>Abbreviation</i>	<i>Context</i>	<i>Meaning</i>
NAA	-	Non Astronomical Applications
NCR	-	Non-Conformance Report
NMS	MAC	Network Management System
NRB	-	Non Conformance Review Board
NRL	-	Naval Research Laboratory
OCS	MAC	Observation Control System
OFVI	MAC	Off-line virtual instrument
OLAP	CEP	On-Line Application Processing
ONVI	MAC	On-Line Virtual Instrument
OPS	LOFAR	Operations
OTDB	SHM	
PA	-	Product Assurance
PAD	-	Part Approval Document
PBL	-	Product Baseline
PC	-	Project Control
PCB	-	Printed Circuit Board
PDP	-	Planning Data Package
PDR	-	Preliminary Design Review
PDU	-	Power Distribution Unit
PI	-	Principal Investigator
PO	-	Purchase Order
PPL	-	Preferred Parts List
PPM	-	Parts per Million
PPS	-	Pulse Per Second
PRBS	Station	Pseudo Random Bit Sequence
PROM	-	Programmable Read Only Memory
PRR	-	Production Readiness Review
PSD	-	Power Spectral Density
PSF	Calibration	Point Spread Function
PSS	-	Procedures, Standards and Specification
PT	-	Product Tree
PTR	-	Post Test Review
PU	-	Principal User
PVD	CAL	Patch Visibilities Database
PVSS	LOFAR	ProzessVisualisierungs und SteuerungsSystem
PWM	-	Pulse Width Modulation
PWR	-	Power
QA	-	Quality Assurance
QBL	-	Qualification Baseline
QCI	-	Quality Conformance Inspection
QPL	-	Qualified Parts List
R&D	-	Research and Development
Ra	-	Right Ascension
RAID	LOFAR	
RAMS	-	Reliability, Availability, Maintainability and Safety

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<i>Abbreviation</i>	<i>Context</i>	<i>Meaning</i>
RCOF	SHM	Root Cause Of Failure
RCU	Station	ReCeiver Unit
RD	-	Reference Document
RE/RS	-	Radiated Emission & Radiated Susceptibility
RFA	-	Request For Approval
RFD	-	Request for Deviation
RFI	-	Radio Frequency Interference
RFQ	-	Request For Quotation
RFW	-	Request For Waiver
RID	-	Review Item Discrepancy
RID	LOFAR	Residual Images Database
ROM	-	Read Only Memory
ROM	-	Rough Order of Magnitude
RP	-	Report
RS1	LOFAR	Remote Station1
RSP	Station	Remote Station Processing
RTM	-	Radiative Transfer Model
RVD	CAL	Residual Visibilities Database
RVT	-	Radiation Verification Testing
S/N	-	Signal to Noise Ratio
SAS	CEP	Specification And Scheduling
SBF	MAC	Station Beam-former
SCO	Station	Station Control Oscillator
SCOE	-	System Check-Out Equipment
SCS	LOFAR	Station – Core Selfcal
SCV	LOFAR	Station – Core Visibilities
SDP	MAC	Station Digital Processing
SER	-	System Engineering Report
SERDES	-	SERializer / DESerializer
SFP	WAN	Small Form-Factor Pluggable
SHM	CEP	System Health Management
SMP	-	Simple Message Protocol
SNMP	-	Simple Network Management Protocol
SNR	-	Signal to Noise Ratio
SOC	LOFAR	Science Operation Centre
SOE	-	Sequence of Events
SPR	-	Software Problem Report
SPU	Station	Sub-rack Power Unit
SRD	-	Software Requirements Document
SRG	MAC	Station Receptor Group
SSS	LOFAR	Station-Station Selfcal
SSV	LOFAR	Station-Station Visibilities
ST	-	Short Term
STS	MAC	STation Subsystem
SW	-	Software


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<i>Abbreviation</i>	<i>Context</i>	<i>Meaning</i>
TBB	Station	Transient Buffering Board
TBC	-	To Be Confirmed
TBD	-	To Be Defined
TBS	-	To Be Specified
TBW	-	To Be Written
TD(B)	Station	Time Distribution (Board)
TDL	Calibration	Tree Definition Language
TID	LOFAR	Travelling Ionospheric Disturbances
TOP	CEP	Theoretical Operation
TP	-	Twisted Pair
TPM	-	Technical Performance Measurement
TR	-	Test Review
TRR	-	Test Readiness Review
TRRB	-	Test Readiness Review Board
TSP	-	Twisted & Shielded Pair
UCE	-	Unit Check-Out Equipment
UML	-	Unified Modelling Language
UOC	LOFAR	Ultimate Operations Capability
URD	-	User Requirements Document
UTC	-	Universal Time Coordinated
UTE	-	Unit Test Equipment
UUT	-	Unit Under Test
VCD	-	Verification Control Document
VLAN	-	Virtual Local Area Network
VR	MAC	Virtual Route
WAN	LOFAR	Wide Area Network Sub-system
WAN	-	Wide Area Network
WBS	-	Work Breakdown Structure
WHAT	HBA	Westerbork HBA Antenna Test
WP	-	Work Package


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3 Glossary of LOFAR Terms


<i>Term</i>	<i>Context</i>	<i>Definition</i>
(LOFAR) Schedule	SAS	A list that specifies which Observation Tasks to execute when using which Virtual Instrument(s).
Abort Condition	MAC	Specification of a condition that, when it is encountered during observation, causes the Monitoring and Control Subsystem to abort the observation.
Abort Function	SAS	Function that determines the environmental or telescope conditions under which it is no longer useful to continue the execution of an Observation.
Accepted Observation Action	SAS MAC	Observation that has been approved by the Review Board. An action can be initiated by the user or by the control system itself and can modify the behaviour of the control system, the instrument equipment or cause an interaction with an external system. It can be initiated either by the user at any time, within the normal rules of the control system, or by the control system itself on the occurrence of an alarm or event.
Adaptive Beam Control	SDP	A monitoring of the output beams properties can be used to characterise the RFI in a direction. This information serves to set correction coefficients and weights to a closed loop on the input signal.
Adaptive Beam Control	SDP	A monitoring of the output beams properties can be used to characterise the RFI in a direction. This information serves to set correction coefficients and weights to a closed loop on the input signal.
Adaptive Weight estimation	SDP	A study of the antenna element input signals gives information about the high SNR directions of arrival. This information is used to set the direction of looking taking care of the environment. The high SNR are considered as RFI to be "nulled".
Adaptive Weight estimation	SDP	A study of the antenna element input signals gives information about the high SNR directions of arrival. This information is used to set the direction of looking taking care of the environment. The high SNR are considered as RFI to be "nulled".
Alarm	MAC	An alarm is generated when a piece of equipment or logical device deviates from the desired operation. Several levels of alarm are possible.
Alarm Condition	MAC	System state in which an alarm signal has been received and which in general is a precondition for a rule. In general this rule executes further measures to handle the alarm signal.
Application decomposition	SDP	The dissection of required functions for the sub systems applications
Application decomposition	SDP	The dissection of required functions for the sub systems applications
Application template	SDP	Application template defined as a combination of techniques
Application Topology	SDP	The distribution of required functions into processes and the interconnections between those processes.
Application Topology	SDP	The distribution of required functions into processes and the interconnections between those processes.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Approved Activity	SAS	An activity, which has been approved. These activities can be observations approved by the review board, or maintenance activities approved by TBD.
Architecture	SDP	A fundamental organization of a system embodied in its components, their relationships to each other, and the environment, and the principles guiding its design and evolution. IEEE Std. 1471-2000
Architecture template	SDP	Architectural template defined as a combination of hardware resources
Archiving virtual instrument (ARVI)	MAC	Category of virtual instruments. Virtual instruments in this category use the CEP temporary storage, the CEP data production resources and CEP archiving resources.
Array beam processor	MAC	A group of Station beam processors. Each station beam processor in this group is located at a different station location. (TBC).
Array beam-former group	MAC	A group of Station beam-formers (each beam-former in this group is located at a different station) that share the same direction parameters.
Array receptor group	MAC	A group of SRGs. Each SRG in this group is located at a different station. Each SRG in this group has the same signal settings.
ARVI library	MAC	Definition of possible ARVI configurations and per ARVI configuration the available VIs and VI-tasks.
Availability (performance)	RAMS	The ability of an item to be in a state to perform a required function under given conditions at a given instant of time or over a given time interval, assuming that the required external resources are provided (IEC 50:1992). Notes: <ul style="list-style-type: none"> ▪ This ability depends on the combined aspects of the reliability performance, the maintainability performance and the maintenance support performance. ▪ Required external resources, other than maintenance resources do not affect the availability performance of the item. ▪ When referring to the measure for Availability, the preferred term is Instantaneous Availability. ▪ For LOFAR the required function to be performed is the execution of defined observation types.
Beam	SDP	A signal that is obtained through spatial filtering of the combined signals of a set of antennas. The beam is not necessarily narrow band (see monochromatic beam)
Beam	SDP	A signal that is obtained through spatial filtering of the combined signals of a set of antennas. The beam is not necessarily narrow band (see monochromatic beam)
Beam former	SDP	Selection of a direction of observation after the phasing and the coherent addition of the antenna signals.
Beam pattern	SDP	The sensitivity as a function of looking direction
Beam pattern	SDP	The sensitivity as a function of looking direction
Beam former	SDP	Selection of a direction of observation after the phasing and the coherent addition of the antenna signals.
Behaviour	SAS	A description of an instruction sequencer that can be executed on an Instrument Partition. Desired behaviour is specified by SAS and implemented by MAC.
Behaviour Parameter	SAS	Parameter of a Behaviour Template.
Behaviour Template	SAS	A generic Virtual Instrument Behaviour. Its generality is based on

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
		Parameters Template contains a set of parameters selected by MAC and communicated to SAS as part of the Observation Type TBC . SAS defines desired behaviour by providing proper parameter values according to Template and returned to MAC. This Template describes a part of interface between SAS and MAC.
Breadboard Model	-	See Model, Breadboard
Built-In-Test	SDP	A testing function built-into the subsystem in order to check the correct functioning of the subsystem. Such BIT functionality can be active in various modes of operation, e.g. start-up, continuous in parallel with the normal operating functions or in diagnostic (troubleshooting) mode.
Built-In-Test	SDP	A testing function built-into the subsystem in order to check the correct functioning of the subsystem. Such BIT functionality can be active in various modes of operation, e.g. start-up, continuous in parallel with the normal operating functions or in diagnostic (troubleshooting) mode.
Cancel	SDP	Action of filtering out signals from the data flow in every domain (time, frequency, space)
Cancel	SDP	Action of filtering out signals from the data flow in every domain (time, frequency, space)
Candidate Schedule	SAS	See Schedule, Candidate
Capacity Schedule	SAS	Low quality, long-term (\pm six months) Schedule used to determine whether a collection of (accepted) Observations can be scheduled during that period. Taking statistical instrument and environmental numbers into account.
Cause	-	When used in the context of hazard analysis, the action or condition by which a hazardous event is initiated (an initiating event). The cause may arise as the result of failure, human error, design inadequacy, induced or natural environment, system configuration or operational mode(s).
Channel blanking	SDP	Spectrum of a channel which will be ignored for data processing (no further processing of associated data)
Channel blanking	SDP	Spectrum of a channel which will be ignored for data processing (no further processing of associated data)
Channel separation	SDP	Separation of the sub bands into narrow band spectral channels
Channel separation	SDP	Separation of the sub bands into narrow band spectral channels
Command	MAC	A command is defined to be an action that can change the state or operation of instrument equipment, e.g. switch on/off, change from one mode of operation to another, change a setpoint, etc. A command can be issued by a user or by the control system itself.
Command Procedure	MAC	A command procedure is a combination of commands that a user can initiate through a single action. It allows the user to perform complex and possibly conditional actions in an easy and efficient manner.
Compact Core	LOFAR	See Core, Compact
Compress	SDP	The compression is the action of reducing the output-sustained rate by adapting the signal's representation or dynamic.
Compress	SDP	The compression is the action of reducing the output-sustained rate by adapting the signal's representation or dynamic.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Configuration	MAC	A configuration defines a cluster of instrument partitions of logical nodes, which can operate in parallel.
Configuration Item	-	A configuration item is an aggregation of hardware, software, processed materials services or any of its discrete portions that is designated for configuration management and treated as a single entity in the configuration management process.
Configuration Item tree (CI tree)	-	The configuration tree is a subset of the Product Tree in which only Configuration Items appear.
Configuration Parameter	MAC	A configuration parameter is a parameter which defines a configurable value for any physical or logical device, e.g. alarm limit, set-point, scan frequency, etc.
Confusion limit	-	Minimum required instrument resolution to distinguish two distinct sources at a given sensitivity.
Constraint Function	SAS	Function that determines whether an Observation Task can be scheduled in a specific Time Interval.
Control plug-in	MAC	External (ASTRON) developed piece of control software performing specific tasks and algorithms. The plug-in is embedded in the monitoring and control software, which facilitates the plug-in with storage and communication resources.
Control Program	MAC	A control program controls implements control at a certain node in a hierarchical control system. It controls any nodes in the layers below and defines the control interface that is accessible at the next higher layer.
Core, Compact	LOFAR	LOFAR antennae within a diameter of ~ 2 km around the centre form the compact core. The signals of the antennae within this core may be combined, thus forming a single large station.
Core, Extended	LOFAR	The inner 50% of all LOFAR dipoles within a diameter of 10 km. This includes the compact core and stations along the spiral arms.
Cost, Life Cycle	-	The total cost of a system, from needs identification until disposal.
Customer	-	The institute, organisation or company that will give the order to develop and build LOFAR. See the LOFAR management plan for a detailed definition.
Data, Meta	-	Data about data. In data processing, meta-data is definitional data that provides information about or documentation of other data managed within an application or environment. For example, meta data would document data about data elements or attributes (name, size, data type, etc) and data about records or data structures (length, fields, columns, etc) and data about data (where it is located, how it is associated, ownership, etc.). Metadata may include descriptive information about the context, quality and condition, or characteristics of the data.
Data, Science	LOFAR	Results of instrument measurements of the sky. These include sky and calibration data.
Dataflow	CEP	Collection of data sets re occurring in time. For example the flow of station beam data entering the CEP facility; each time sample for a station beam is part of the Flow of data.
Dataset	CEP	Coherent set of data that is not re occurring in time. For example a measurement set containing all visibility samples for a long range of time.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Dead-band range	MAC	Range of a parameter value or change in a parameter value within which no notification of change in the parameter is given. When the value or change in value is outside the range, a change notification is sent to subscribed parties.
Dependability	-	The collective term used to describe the availability performance and its influencing factors: reliability performance, maintainability performance and maintenance support performance (IEC 50:1992). Note: Dependability is used only for general descriptions in non-quantitative terms.
Derived Parameter	MAC	A derived parameter is a parameter, which is calculated by the control system from a combination of measured or derived parameters.
Development Model	-	See Model, Development
Device	LOFAR	A device is a part of the LOFAR instrument that is controlled by the Monitoring and Control (MAC) sub-system. In most cases, these parts do have local intelligence by a local CPU. Examples are: <ul style="list-style-type: none"> • receptor chain • beam former • central processor • network gateway • network management system
Device	MAC	A device is a piece of instrument equipment that is monitored and controlled by the monitoring and control subsystem. A device can have one or more parameters associated with it.
Element	SDP	Antenna+RCU pair
Element	SDP	Antenna+RCU pair
Environment Model	SAS	This subsystem is responsible for providing the Specification and Scheduling Subsystem with information about the (predicted) environmental conditions at the time of execution.
Environmental model	MAC	The measured, derived or predicted status of the environment (weather, RFI, ionosphere).
Equipment	-	Hardware and/or software product procured against defined specifications
Event	MAC	An event is defined to be a situation that, when it arises, causes an action to be initiated, e.g. detection of a new RFI source requires a subsequent action to mitigate that RFI source.
Execution phase	MAC	The phase in which data is acquired and/or processed for an observation.
Extended Core	LOFAR	See Core, Extended
Failure	-	The termination of the ability of an item to perform a required function. Notes: <ul style="list-style-type: none"> • After failure, the item has a fault. • "Failure" is an event, as distinguished from "fault", which is a state. • This concept as defined does not apply to items consisting of software only.
Failure Mode	-	The observable effect of the mechanism through which the failure occurs. E.g. short-circuit, open-circuit, fracture, excessive wear.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Failure Severity	-	<p>A classification of a failure or undesired event according to the magnitude of its possible consequences. The following severity categories have been identified (TBC):</p> <ul style="list-style-type: none"> • Catastrophic loss of life loss of telescope (repair time > 1 year or repair cost > 0.5 MEuro. • Serious unacceptable loss/corruption of data for all science experiments • Major unacceptable loss/corruption of data for one or more, but not all, science experiments • Minor acceptable loss/corruption of data • Negligible no influence, except required maintenance.
Failure, Common Cause	-	Failures of multiple items occurring from a single cause that is common to all of them. Common cause failures and failures which are not detectable, shall be treated as single point failure.
Failure, Common Mode	-	Failures of multiple identical items that fail in the same mode. Note: Common mode failures are a particular case of common cause failures
Failure, Single point	-	A failure in a component, device or sub-system that has major or catastrophic consequences to higher levels in the system. The purpose of the Failure Mode Effect and Criticality Analysis (FMECA) is to identify all possible single points of failures. A single point failure can be removed by assuring adequate reliability of the component or device, or by implementing redundancy.
Fault	-	<p>Definitions:</p> <p>The state of an item characterised by inability to perform as required, excluding the inability during preventative maintenance or other planned actions, or due to lack of external resources.</p> <p>An unplanned occurrence or defect in an item, which may result in one or more failures of the item itself or of other, associated equipment.</p> <p>Notes:</p> <ul style="list-style-type: none"> • A fault is often the result of a failure of the item itself, but may exist without prior failure. • An item may contain a sub-element fault, which is a defect that can manifest itself only under certain circumstances (definition #2 above). When those circumstances occur, the defect in the sub-element will cause the item to fail, resulting in an error. This error can propagate to other items causing them, in turn, to fail. After the failure occurs, the item as a whole is said to have a fault or to be in a faulty state (definition #1 above).
Final Model	-	See Model, Final
Function, Constraint	SAS	An expression related to a specific activity to be scheduled that delivers a boolean value indicating if a proposed scheduling of this activity satisfies all constraints.
Gateway	MAC	The gateway transports the measurement output of the station processor to the WAN.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Global Sky Model	LOFAR	See Model, Global Sky
Group	-	“Group” is defined as an aggregation of systems and/or products with clearly defined interfaces and/or common aspects. This word is being used (until a better term will be found) as not to lead to further confusion with names like system, subsystem etc. These “groups” should be actually reflected in the Configuration Item (CI) tree
Hazard	RAMS	A condition associated with the design, operation or environment of a system that has the potential for harmful consequences.
Human Error	RAMS	The failure of a person to perform an action as required.
Imaging, Deep	LOFAR	Observation mode intended for the mapping of very dark sources. Long baselines are used to identify and subtract with very high accuracy foreground compact sources. The inner part of LOFAR is used to make the residual maps of background features.
Imaging, Large-scale	LOFAR	Imaging with some very short baselines between virtual stations made from suitable subsets of dipoles within a station.
Imaging, Pointed	LOFAR	Observation mode similar to survey imaging, but restricted to a single field.
Imaging, Survey	LOFAR	The basic LOFAR observation mode. Station-Core Selfcal, followed by Station-Station Selfcal. Major contribution to the GSM.
Initial Operations Capability (IOC)	LOFAR	See Operations Capability, Initial.
Instrument Engineer	SAS	A user with detailed technical knowledge of the telescope. He is responsible for producing the Operational Schedules and for providing Scientists with Behaviour Templates, Virtual Instruments and Observation Types.
Instrument Model	SAS	This software subsystem is responsible for determining the feasibility of executing specific System Configurations on the LOFAR telescope and for providing information on the status of the LOFAR telescope.
Instrument Partition	MAC	An Instrument Partition defines a collection of Logical Devices to form a processing chain within the LOFAR system. These Logical devices are all put in a specific mode such that they co-operate.
Instrument Partition	SAS	Subset of the LOFAR resources that can be used to execute an Observation Task. For this an Instrument Partition must contain a complete Instrument processing pipeline. An Instrument Partition is part of one or more System Configurations
Instrument Simulator	LOFAR	A software model used for several purposes: <ul style="list-style-type: none"> • Support of SW development • Support of Integration and regression testing • SW performance analysis and verification tool • HW/SW in the loop testing • Support of operations • Education and training (TBC)
Instrument, Virtual	MAC	A configuration model of LOFAR resources to enable a certain observation. The resources include antenna stations, data processing, data transport and archiving. These resources are all put in a specific mode such that they co-operate to produce the data needed for an observation. (TBC).
Item, Configuration	-	See Configuration Item.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
LOFAR	LOFAR	This term refers to the instrument implementation for the Low Frequency Array. The LOFAR project will be considered as an entire system; as such, it also includes all elements (instrument, support equipment, data processing software, and operation preparations).
LOFAR Central Processor	LOFAR	This term refers to the hardware and software implementation to perform the following main functions: <ul style="list-style-type: none"> • Initial Self-Calibration (Selfcal) to remove interference and to correct the UV-data sufficiently for further integration. • Data Visualisation allows the user to visualise the processed data including quality information for final interpretation and to derive the final self-calibration values. • Final Self-Calibration to reduce all residual artefacts to a level lower than the noise. • Archiving and Export of the data to the scientist. (TBC).
LOFAR Instrument Logical Device	LOFAR MAC	The entire LOFAR system A Logical Device is defined as an aggregation of LOFAR Instrument Resources combined with assigned behaviours (algorithms, software etc.) that together form logical system functionality. Examples of Logical Devices are: a Beam Former and an Integrator.
Logical Node	MAC	An instance of a logical node represents a set of resources, allocated to a specific task. A single logical node may be mapped on several devices; a single device may be utilised by several logical nodes. It is possible to define a hierarchy of logical nodes. Examples: <ul style="list-style-type: none"> • beam processor • correlator • virtual transport route • on-line virtual instrument
Maintainability	RAMS	The ability of an item under given conditions of use, to be retained in, or restored to, a state in which it can perform a required function, when maintenance is performed under given conditions and using stated procedures and resources Note: The term “maintainability” is also used as a measure of maintainability performance. In this sense, maintainability is “the probability that a given active maintenance action, for an item under given conditions of use can be carried out within a stated time interval, when maintenance is performed under stated conditions and using stated procedures and resources”
Maintenance	RAMS	The combination of all technical and administrative actions, including supervision actions, intended to retain an item in, or restore it to, a state in which it can perform a required function.
Maintenance Activity Mapping	SAS SDP	An Observation used for maintenance purposes. Connection of an application template to an architecture template.
Measured Parameter	MAC	A measured parameter is an individual piece of information, which is read by the control system from a device.
Measurement (quality) model	MAC	The actual status of relevant measurement points (e.g. S/N level of receptors, actual integration-time of 1st self-cal, ...).
Meta Data	-	See Data, Meta
Mission	-	The whole of activities leading to the overall project goal.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Model, Breadboard (BB)	-	A breadboard model is intended for the development of critical technologies. A breadboard is used in the concept design phase to examine the critical technologies of the programme in more depth.
Model, Development (DM)	-	A development model or prototype is intended to establish confidence in the design before production of a deliverable model commences. A development model contributes significantly to the verification process. Its construction and test confirm that the design maturity has been achieved and permits the final design to be frozen.
Model, Final (FM)	-	A model intended for the final implementation of the LOFAR system.
Model, Global Sky (GSM)	LOFAR	The Global Sky Model (GSM) is a global model of the radio sky at LOFAR frequencies. It will contain all the astrophysical objects that can be identified in LOFAR images or otherwise. The GSM will be used in the calibration process inside the LOFAR system. The GSM is potentially also a separate data product. The Global Sky Model will be updated and refined in a continuous process.
Model, Qualification	-	Qualification verification tests are carried out on a Qualification Model. The Qualification Model is representative in the sense of being standard with respect to all aspects having a direct or derived implication on the performance to be verified. The test conditions generally include qualification factors relative to nominal conditions either on levels, or on duration, or on both.
Monitoring and Control Subsystem	-	See Subsystem, Monitoring and Control
Monitoring and Control System	SAS	A software subsystem that is responsible for the execution of the schedules provided by the Specification and Scheduling Subsystem and for providing feedback on the execution of those schedules and the status of the telescope and its environment.
Monochromatic beam	SDP	An antenna, station or compact core beam probing the sky for signals within a narrow frequency band.
Monochromatic beam	SDP	A narrow band beam
Multiplicity	SDP	The number of occurrence of a platform or a group of platforms
Narrow band	SDP	Frequency bandwidth corresponding to the highest spectral resolution defined (1KHz)
Narrow band	SDP	Band limited to the highest spectral resolution defined (1KHz)
Network management system	MAC	This system manages the WAN.
Observation	LOFAR	An observation is defined by a LOFAR end-user, typically an astronomer. An observation defines in terms of Virtual Instruments in which mode LOFAR is used, what data processing is performed and what data products are generated.
Observation Parameter	SAS	Parameter of an Observation Type. All Observation Parameters are included in Observation Types.
Observation Request	LOFAR	A request made by an Astronomer Scientist for an observation that has been submitted to the Review Board for approval.
Observation Task	SAS	A description of a set of measurements and subsequent processing steps taking place within a single time interval
Observation Task Type	SAS	A generic Observation Task. Its generality is based on Parameters
Observation type	MAC	A generic observation through parameterization.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Observation Type	SAS	A template for a group of Observations that are similar in the sense that they use the same Behaviour Templates for their execution by the telescope. Its generality is based on Parameters
Off-line virtual instrument (OFVI)	MAC	Category of virtual instruments. Virtual instruments in this category use the CEP temporary storage and the data-processing part of CEP.
OFVI library	MAC	Definition of possible OFVI configurations and per OFVI configuration the available VI's and VI-task.
On-line imaging application	MAC	Internal CEP application, which controls the on-line part of an imaging application.
On-line imaging processor	MAC	Type of virtual instrument of the ONVI category, representing all resources needed to perform the acquisition for a single imaging observation.
On-line ionosphere processor	MAC	Type of virtual instrument of the ONVI category, representing all resource needed to perform the acquisition of ionosphere data. An instance of this type of VI can be coupled to one or more On-line imaging processors.
On-line virtual instrument (ONVI)	MAC	Category of virtual instruments. Virtual instruments in this category use acquisition, network and on-line CEP resources. Some virtual instruments in this category use only on-line CEP resources (notice: on-line CEP resources are the signal processing part of CEP until the temp-storage)
ONVI library	MAC	Definition of possible ONVI configurations and per ONVI configuration the available VI's and VI-tasks.
Operational Schedule	SAS	High quality, short term (\leq two weeks TBC) Schedule that is fit to be submitted to the telescope.
Operations Capability, Initial	LOFAR	The IOC is the first phase of the LOFAR project. It provides operations capability for a limited set of science experiments and limited performance as compared to the Ultimate Operations Capability (UOC). The IOC configuration will comprise all antennae, infrastructure and most of the signal processing hardware, as specified in the Design, Development and Verification Plan.
Operations Capability, Ultimate (UOC)	LOFAR	The UOC is the second phase of the LOFAR project; it provides the full operations capability for a complete set of science experiments and full performance. During the IOC operations, development of the final algorithms for UOC will take place; further upgrade of IOC hardware to UOC "state of the art" is foreseen.
Operator Error	-	The failure of an operator to perform an action as required or trained.
Outage	-	The state of an item of being unable to perform its required function.
Parameter	MAC	A parameter may be measured, derived or configuration.
Parameter	SAS	Placeholder for a value, used in generic descriptions.
Parameter Assignment	SAS	Assignment of a Value to a Parameter
Patch	LOFAR	Sub-division of a station beam on the sky
Patch Visibility Database	CAL	The Patch Visibility Database (PVD) contains two types of UV-data: regular Station-Station Visibilities (SSV) and Station-Core Visibilities (SCV).
Patch, Sub	LOFAR	Sub-division of a patch on the sky
Performance	-	Those generally quantified aspects of an item observed or measured from its operation or function.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Physical Device	MAC	A physical device is a device that represents a hardware device towards the control system typically through a device driver.
Physical node controller	-	A physical node controller is a device driver and/or a device wrapper. Examples: <ul style="list-style-type: none"> ▪ receptor driver (interface between receptor hardware and station platform) ▪ central processing driver (interface between central processing hardware and central processing platform)
Platform	MAC	A platform controls a set of devices and/or lower level platforms. Logical functions and tasks are created through the platform. These logical functions use the lower level devices within the platform. The platform provides the mapping between the functions and the lower level devices. The two main functions of a platform are: <ul style="list-style-type: none"> ▪ Support logical functions of the platform ▪ Platform management activities of its physical nodes. To represent complex systems, a hierarchy of platforms may be defined. Higher-level platforms may utilise lower level platforms to implement functionality. Examples: <ul style="list-style-type: none"> ▪ station platform ▪ array platform ▪ central processor platform ▪ on-line virtual instrument platform
Platform Schedule	MAC	The platform schedule determines which logical nodes and tasks are active within a platform, which need to be activated and which have to be stopped. The schedule may contain rules. Examples: <ul style="list-style-type: none"> ▪ Start acquisition task at 09:00h. ▪ Stop acquisition task at 17:00h. ▪ Stop acquisition task if SNR level is lower than 3.
Pointed Observation	SAS	Observation that focuses on a point in the sky.
Preference Function	SAS	Function that determines the suitability of a Time Interval for the execution of an Observation Task.
Preparation phase	MAC	Preparation of the LOFAR instrument and MAC for a specific observation.
Process network (PN)	SDP	Model of a system as a network, passing messages through unidirectional FIFO channels. The PN is a natural model for describing signal processing systems where infinite streams of data samples are incrementally transformed by a collection of processes executing in parallel.
Product tree (PT) or System breakdown	-	The Product Tree (PT) or System breakdown is the breakdown of the LOFAR system into successive levels of partial hardware and software.
Prototype	-	See Development Model
Qualification Model	-	See Model, Qualification

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Qualification Model (QM)	-	Qualification verification tests are carried out on a QM. The Qualification Model is representative in the sense of being standard with respect to all aspects having a direct or derived implication on the performance to be verified. The test conditions generally include qualification factors relative to nominal conditions, either on levels, or on duration, or on both.
Real-time	SDP	When a system is performing within the specified response times
Real-time	SDP	When a system is performing within the specified response times
Receptor	LOFAR	Antenna plus pre-amplifier.
Receptor chain	MAC	A combination of an Antenna and a Receptor Control Unit. A Receptor chain is capable of receiving analog signals and delivers a signal in the spectral domain.
Receptor Station	LOFAR	TBD
Recovery Schedule	SAS	Very short term (< 1 day TBC) Schedule used to overcome unexpected changes in telescope and environmental conditions.
Reliability	RAMS	The probability that an item can perform a required function under given conditions for a given time interval. Notes: <ul style="list-style-type: none"> ▪ It is generally assumed that the item is in a state to perform this required function at the beginning of the time interval. ▪ The term "reliability" is also used to denote the non-quantified ability of an item to perform a required function under stated conditions for a specified period of time.
Reliability Critical Item	RAMS	An item that contains a single point failure with a failure consequence severity classified as catastrophic, critical or major.
Remote Station	SDP	Any station outside the central facilities where receiver elements are installed.
Remote Station	SDP	Any station outside the central facilities where receiver elements are installed.
Residual Images Database	CAL	The Residual Images Database (RID) stores the resulting Fourier Transform of the elements of the Residual Visibilities Database.
Residual Visibilities Database	CAL	The Residual Visibilities Database (RVD) stores results of subtracting Cat. I and Cat. II sources from the uv-data.
Resource model	MAC	The actual status of instrument resources. Via this model, MAC and other sub-systems can determine which resources are available.
Review Board	SAS	A body that controls who gets to use the telescope. It reviews the Observation Requests submitted by Scientists and determines whether these are to be executed on the telescope and with which priority.
Risk	-	A quantitative measure of the magnitude of a potential loss and the probability of incurring that loss.
Risk Management	-	Series of activities to identify and quantify (potential) risks, and the actions set out to mitigate them to a less severe impact category.
Rule	MAC	A rule is a conditional expression which is evaluated by the monitoring and control subsystem and if found to be met causes a Rule action to be generated.
Rule action	MAC	A specific action, associated with a specific rule. The action must be executed if the evaluation of the rule results to 'true'.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Rules	SAS/MAC	Rules allow controlling the instrument behaviour based in analysis and evaluation of external and internal parameters. Examples of such parameters are environmental conditions, instrument failures, observation results, and instrument progress. Rules define how to react for instance if these parameters cross a certain threshold. If a condition of a rule is satisfied, a task is executed or a schedule event is generated. Examples of rules: <ul style="list-style-type: none"> ▪ Generate schedule event if the SNR is lower than 3. ▪ Generate schedule event if the number of active receptors is lower than 10.000. ▪ Generate schedule event if the humidity is higher than 95%.
Safety	RAMS	System state where an acceptable level of risk is not exceeded with respect to fatality, injury or illness, damage to site facilities, the main functions of the system itself, pollution of the environment and damage to public or private property.
Schedule Event	MAC	A schedule event is an input to the platform scheduler. A schedule event may result in starting or terminating tasks.
Schedule Suitability Value	SAS	A numeric value that expresses the overall suitability of a Candidate Schedule to the activities in that schedule. A possible implementation of it can be the weighed sum of all Suitability Function values.
Schedule, Candidate	SAS	A schedule of which not yet has been determined if it satisfies constraints, or how suitable it is.
Scheduling System	SAS	The part of the Specification and Scheduling Subsystem that produces the schedule.
Science Data Scientist	LOFAR SAS	See Data, Science. End user of the telescope. A Scientist is thought to be familiar with the scientific concepts of the telescope, but not with its exact inner workings.
Select	SDP	Selection of a data set (beam, sub bands..). A sequence of data or a combination of data channels can be selected for further processing.
Select	SDP	Selection of a data set (beam, sub bands..). A sequence of data or a combination of data channels can be selected for further processing.
Selfcal	LOFAR	Self-calibration is the process of solving for parameters of the Measurement Equation, using the uv-residuals, i.e. the differences between the measured and predicted UV-data
Selfcal, Station-Core	LOFAR	See Station-Core Selfcal.
Selfcal, Station-Station	LOFAR	See Station-Station Selfcal.
Servlet	SAS	Small (Java) program that runs on a server.
Sky Survey Observation	SAS	Observation that scans an area in the sky.
Snapshot	SDP	The combination of samples, within a spectral band, acquired from the elements within a sample period as used for the intended spectral band.
Snapshot	SDP	The combination of samples, within a spectral band, acquired from the elements within a sample period as used for the intended spectral band.
Software configuration	MAC	Set of related software items (SW-images/models/SW configuration databases).

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Solar Activity	-	Increased emission of radiation and particles by the Sun, with various effects on Earth.
Sources, Categories of	LOFAR	LOFAR has to deal with crowded fields of sources for which the following categories are distinguished: Category I: The brightest 500-1000 sources in the sky Category II: The millions of fainter sources in the Global Sky Model Category III: All sources that are too faint to be identified for inclusion in the Global Sky Model.
Spatial Nulling	SDP	Signal suppression in a certain direction through application of a spatial filter.
Spatial Nulling	SDP	Signal suppression in a certain direction through application of a spatial filter.
Specification System	SAS	The part of the Specification and Scheduling Subsystem that manages the administrative part of the activities, including the collection of Observation Requests, etc.
Station	SDP	Collection/group of antennas separated from other groups defining the interferometer baselines.
Station beam former	MAC	A subset of resources of the station processor, needed to process a single beam in a specific direction.
Station beam processor	LOFAR	All station beam former hardware resources needed to process a single beam.
Station processor	MAC	Station resources needed for processing the output of the station receptor chains (example processing: beam-forming).
Station receptor group	LOFAR	Logical group of receptors, located at the same station. Within the Monitoring and Control Subsystem, a Station Receptor Group is the basic unit for scheduling.
Station receptor group	MAC	A set of receptor chains (each chain contains an antenna at a specific location). All chains in a station receptor group are located at the same station.
Station receptor topology	MAC	TBD
Station-Core Selfcal	LOFAR	The station-station visibilities emerging from the correlator are combined in groups to form (smoothly tracking) station-core visibilities between each station and the virtual core. Station-Core Selfcal (SCS) operates on spatially filtered visibilities, made by combinations between a station and the virtual core. These visibilities are spatially filtered because they only 'see' the sky in a narrow core beam, which is tracking a bright calibrator source. SCS is the cornerstone of the calibration process.
Station-Station Selfcal	LOFAR	Station-Station Selfcal (SSS) operates on regular station-station visibilities. It is the critical part of most calibration strategies because it is truly closed loop, i.e. it deals directly with the actual data. SSS uses the ~ 500 brightest sources in the Sky Model to solve for refined values for Measurement Equation parameters, including those of the Sky Model.
Store	SDP	Action of storing temporary data streams for further analysis and processing.
Sub band separation	SDP	Separation of the input Nyquist sampled bandwidth into regular sub bands.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Subsystem, Monitoring and Control	LOFAR	The subsystem of the LOFAR system intended to ensure that all parts of the system work coherently and that failures in hardware, software or signal transport will be detected.
Subsystem, Specification and Scheduling (SAS)	LOFAR	The Specification and Scheduling Subsystem of the LOFAR system that is responsible for the effective and efficient scheduling of observations and maintenance of the LOFAR telescope.
Suitability Function	SAS	An expression that delivers a numerical value indicating the suitability of an observation.
Survey Imaging System	LOFAR LOFAR	See Imaging, Survey. Hardware and/or software product developed, manufactured and verified against defined specifications. Systems at different levels may be defined. Level 1 is the LOFAR system (or telescope) itself; level 2 systems are referred to as subsystems, lower levels are referred to as system or equipment
System	-	A collection of components organized to accomplish a specific function or set of functions.
System Configuration	SAS	A setting of the telescope defining which and how its resources are used and how they are interconnected. A System Configuration also decomposes the resources into a number of Instrument Partitions.
System integrator	LOFAR	The institute(s), organisation(s) or company(ies) that will develop and build LOFAR, see the LOFAR management plan.
System Property	SAS	Variable whose value is assigned by a LOFAR subsystem such as the Instrument Model or the Environment Model.
Tapering	SDP	Applying gradual transitions in e.g. filtering windows to reduce discretisation artefacts in signals.
Task	MAC	A task defines the behaviour of a logical node. For instance, a task may determine how measurement data are treated, when and how data processing parameters are set. It is possible to define a hierarchy of tasks. Examples: - position tracking task - flow-control task - GPS-clock calibration task
Temporal resolution	SDP	Sample period.
Theoretical Operation.	CEP	One basic operation (multiplication, addition) on a single data word (8-32 bits, depending on the processing step at hand)
Time frequency analysis	SDP	Analysis of the individual input signal properties in the frequency and time domain, and cross-spectrum, i.e. use multiple channels to identify the type of interference
Time frequency analysis	SDP	Analysis of the individual input signal properties in the frequency and time domain, and cross-spectrum, i.e. use multiple channels to identify the type of interference
Time tagged command	MAC	Structure, containing a command and time-stamp. The time-stamp defines at which absolute time the command must be executed.
Triggered Observation	SAS	Pointed (TBC) Observation that must be executed when a specific condition is met. Observations can be performed for a maximum of 3 days (TBD).

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
User	LOFAR	<p>A user is anyone authorised to access LOFAR. There will be different classes of users with different levels of privilege.</p> <ul style="list-style-type: none"> ▪ Operator: member of the LOFAR Operational Team. The operator team is responsible for the LOFAR day-to-day operations. ▪ Instrument engineer: member of a LOFAR Scientific Exploration Centre that will be responsible for the scientific operation of LOFAR and for the support of the broader scientific community. The teams at these centres will consist of expert users of LOFAR, qualified to assessing the instruments behaviour and data products, and committed to obtaining the ultimate quality in calibration and scientific integrity. ▪ Science user: member of the broader community of scientists, interested in doing observations with LOFAR. The science user will access LOFAR mainly indirectly through the Scientific Exploration Centres. Scientists will be responsible for submitting proposals, specifying observational requirements, inspecting acquired data, controlling any on-site data processing and retrieving their data products. ▪ Guest: a user that is granted temporary access with limited privileges (TBW).
UV-Coverage	-	A spatial frequency domain area that must be covered completely by observation in order to assure an optimal target image (Full UV-Coverage). During observation, the radio telescope turns with respect to its target, due to the earth rotation. A certain -instrument geometry dependent- rotation angle has to be covered in order to accomplish full coverage.
Verification by Analysis (A)	-	Analysis is the deductive process used to relate an item's design to its predicted performance. Examples of analytical verification are reliability and moments of inertia. Analysis may include the use of a dedicated simulation facility or tool. Analysis is an integral part of the verification activities. Analysis will be used often during the qualification phase in combination with tests
Verification by Demonstration (D)	-	Demonstration type of verification will be conducted through observation with or without special test equipment, to verify characteristics of the instrument. Examples are services (S/W operations), access features and transportability requirements, operation of mechanisms, etc.
Verification by Inspection (I)	-	Inspection is the visual evaluation of an item and it's associated documentation. Inspection is used during various stages of the program to verify requirements for construction features, document and drawing compliance, workmanship and physical conditions
Verification by Review of Design (RoD)	-	Verification by review of design is used for requirements that correspond to a design feature with no specific performance requirements, for example 'the component shall be internally redundant'. Review of design type of verification will be used during review of design concepts and for lower level elements of the instrument.

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<i>Term</i>	<i>Context</i>	<i>Definition</i>
Verification by Similarity (S)	-	When applicable, similarity analysis will provide evidence that the new application of a similar product in terms of application and characteristics and performance is within the limit of the previously qualified design.
Verification by Test (T)	-	Test is the operation of hardware and/or software to demonstrate that it meets its specified performance requirements. A specified operating environment is achieved, then the test item is appropriately stimulated, and a set of responses measured and verified.
Verification by Test and Analysis (T,A)	-	Verification test and analysis is a combination of test and analysis. The analytical verification of requirements uses results from ground tests as input. Interpretation of test results, or extrapolation to for example the full range, may be necessary to obtain requirements closeout. Examples of verification test and analysis are validation of an electrical mathematical model via tests, and array tests that cover only a part of the full array.
View	SDP	A representation of the whole system from the perspective of a related set of concerns. IEEE Std. 1471-2000
Viewpoint	SDP	A specification of the conventions for constructing and using a view. A pattern of template from which to develop individual views by establishing the purposes and audience for a view and the techniques for its creation and analysis. IEEE Std. 1471-2000
Virtual Instrument	SAS	A specification of LOFAR resources and behaviour to be used in the execution of an Observation. The resources include antenna stations, data processing, data transport and data storage. These resources are all put in a specific mode such that they co-operate to produce the data needed for an observation. The behaviour specifies what operations, if any are to be performed by the aforementioned resources. A Virtual Instrument is decomposed into an Instrument Partition and a Behaviour Template.
Virtual instrument category	MAC	Main category of virtual instruments. Currently the following categories are defined: ONVI, OFVI and ARVI.
Virtual instrument class configuration	MAC	A virtual instrument class configuration is a valid combination of virtual instrument classes (active at the same time).
Virtual Instrument configuration	MAC	A single virtual instrument configuration defines which VIs can be active at the same time.
Virtual instrument instance	MAC	Instance of a virtual instrument. Physical instrument resources are mapped to this instrument.
Virtual Instrument, On-line	MAC	See On-line Virtual Instrument.
Virtual route	MAC	A single virtual route transports measurement data from a group of stations to a group of routing and synchronization nodes (located at the central site). The resources (buffers, bandwidth) of this virtual route are allocated in such a way that real-time (measurement) data-transport and correct synchronization (in order to correlate the right data-products) can be guaranteed (to a certain quality level).