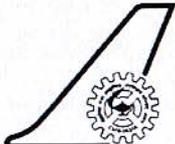
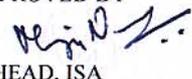
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Division Quality Manual for Independent Safety Assessment

By
CSIR - NAL


**CSIR-NATIONAL AEROSPACE LABORATORIES,
BANGALORE 560017
INDIA**

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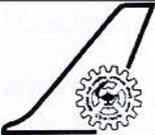
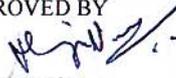
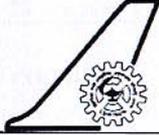
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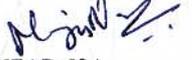
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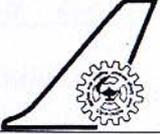
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1 ABOUT QUALITY DOCUMENT

1.1 Scope

This document is prepared to describe the Quality systems of Independent Safety Assessment, ALD, CSIR-NAL, Bangalore, to comply with the requirements of the International Standard ISO/IEC - 17065:2012 and CENELEC standards EN 50126, 50128 and 50129.

This document contains safety assessment related process / procedure.

- The objectives of the Independent Safety Assessment shall be consistent with the CENELAC Standards which shall include:
- Correct identification and management of system requirements, including safety requirements.
- Confirming that the system meets the safety requirements through verification and validation activities.

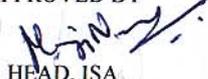
Ascertain if the system safety requirements have been demonstrated in accordance with the applicable regulations.

The 6 step certification process includes:

- Receipt of Application
- Review of Application
- ISA Evaluation & Review
- Grant of Certificate
- Periodic Surveillance (if applicable)
- Renewal of Certificate (if applicable)

1.2 Purpose

To lay down the policies and procedures to define, implement and maintain the Quality System for the activities of Independent Safety Assessment (ISA) of ALD Division, CSIR-NAL.

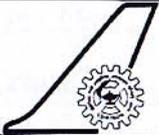
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1.3 Reference

ISO/IEC 17065:2012 Standard document contain provisions, which have been referenced and used in the Quality System for NABCB Accreditation of Independent Safety Assessment, ALD, CSIR-NAL.

2 ABBREVIATIONS

SL. NO.	ABBREVIATIONS	EXPANDED FORM
1.	ALD	Aerospace Electronics & Systems Division
2.	CENELEC	European Committee for Electro technical Standardization
3.	CM	Configuration Management
4.	CSIR	Council of Scientific and Industrial Research
5.	DQM	Division Quality Manual
6.	IDD	Interface Design Document
7.	IEC	International Electro technical Commission
8.	ISA	Independent Safety Assessment
9.	ISO	International Organisation for Standardization
10.	NABCB	National Accreditation Board for Certification Bodies
11.	NAL	National Aerospace Laboratories
12.	OEM	Original Equipment Manufacturer
13.	QA	Quality Assurance
14.	R&D	Research and Development
15.	RDSO	Research Design and Standards Organization
16.	RTCA	Radio Technical Commission for Aeronautics
17.	SAD	Software Architecture Description

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18.	SIL	Safety Integrity Level
19.	SRS	System Requirement Specification
20.	V&V	Verification and Validation

Table 1: Abbreviations

3 ORGANIZATION PROFILE

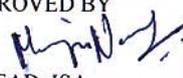
3.1. CSIR-NAL

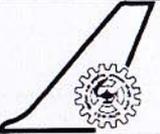
National Aerospace Laboratories (NAL), a constituent of the Council of Scientific and Industrial Research (CSIR), India, established in 1959-60 is the only Civilian Aerospace R&D Laboratory in India. CSIR-NAL is a high technology oriented institution focusing on advanced topics in aerospace and related disciplines and has a mandate to develop aerospace technologies with strong science content, design and build small and medium-size civil aircraft and support all national aerospace programs.

CSIR-NAL has many advanced test facilities, (many of them recognized as National Facilities) which are the best in the country and comparable to those outside. Along with these facilities, its globally recognized competence has enabled CSIR-NAL to achieve notable R&D successes, innovative technology developments and advanced testing capabilities. CSIR-NAL has also provided value added inputs to all national aerospace programs. Its contributions over the last five decades have enabled it to create a niche for itself in the areas of advanced aerospace research and technology development.

3.2. ISA-ALD

Independent Safety Assessment (ISA) Group with the mission of the Safety Critical Software Engineering is to conduct focus-based research in software engineering, Independent Safety Assessment for Indian railways, systems engineering, and many other areas of computing, in order to introduce innovations into projects. The group performs reviews, audits and certifies

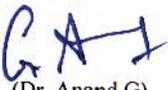
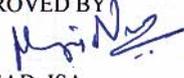
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the products/systems. NAL is the only government agency performing ISA activities for Generic signalling products and systems for Indian Railways.

3.3. Organization Structure

The Figure 1 presents an organizational hierarchy chart, showing a structured chain of command from the Organization Head at the top to the Field Assessors & Internal Auditors at the bottom. The Organization Head oversees the entire organization, delegating responsibilities to the Division Head, who manages a specific division. Below that, the ISA Head (Responsible for Independent Safety Assessment) leads an ISA team. Finally, the Field Assessors & Internal Auditors execute operational tasks, reporting to the ISA Head. This hierarchy ensures clear delegation of responsibilities, accountability, and efficient workflow within the organization.

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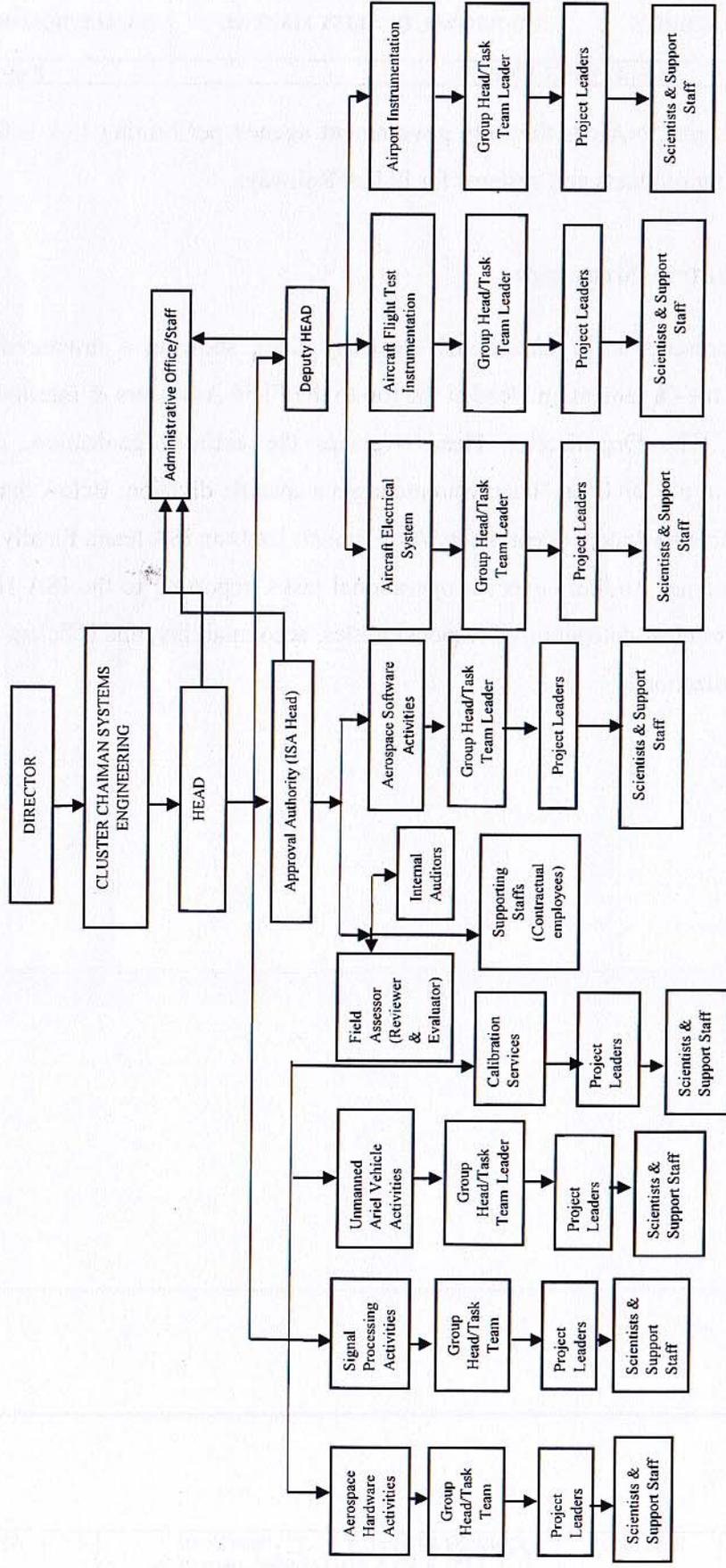
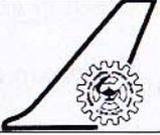


Figure 1: Organization Structure

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3.3.1 Roles and Responsibilities of ISA

➤ Approval Authority (ISA Head)

The ISA Head holds the authority to evaluate the project, ensuring it meets all required standards and regulations. ISA Head review project documents and provide feedback. Lab-level functionality audits verify component performance in controlled environments, ensuring accuracy and compliance. End-to-end field-testing audits assess system reliability, identifying potential failures and integration issues. ISA Head is responsible for granting approval and issuing the necessary certification upon successful completion of the project.

All documents and records are controlled by ISA head.

The ISA Head also ensures impartiality by maintaining independence from assessment activities and by controlling documents and records to prevent undue influence on certification decisions.

➤ Field Assessor (Reviewer & Evaluator)

Field Assessors are responsible for conducting evaluations impartially by reviewing project documentation, performing lab-level audits, and carrying out end-to-end field-testing without bias. They are required to declare any conflict of interest and shall not be involved in final approval decisions, thereby supporting impartiality.

➤ Internal Auditors

Internal Auditors are responsible for evaluating the process performed by assessors impartially on periodic basis to ensure accuracy and compliance.

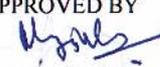
Their independent evaluation helps identify risks to impartiality and ensures effective implementation of certification procedures.

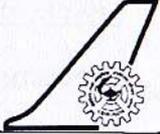
➤ Administrative office/Staff

Administrative Staff are responsible for legal and financial controls related to certification activities and shall not influence technical evaluation or certification decisions. Separation of administrative functions from technical decision-making ensures that commercial or financial considerations do not compromise impartiality.

➤ Supporting Staffs (Contractual)

Contractual staff will assist in document review activities under the supervision and control

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of the Certification Body. They shall operate within defined roles, declare conflicts of interest, and shall not participate in certification decisions, ensuring that impartiality is maintained.

3.3.2 Qualification

1. Appointment of Committee Members and Key Personnel

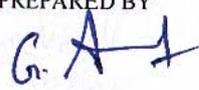
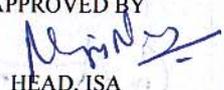
- The Competent Authority (CSIR-NAL) shall appoint the ISA Head (Nodal Head) based on demonstrated experience and competence in safety-critical systems.
- Field Assessors shall be appointed only if they possess a minimum of three (3) years of relevant experience in safety-critical systems.
- Internal Auditors shall be appointed based on successful completion of formal training in ISO/IEC 17065 or equivalent safety-critical standards such as AS9100.
- Supporting Staff shall possess a Bachelor's degree in Engineering and shall be appointed based on project-specific requirements.
- Where an ISA Team member does not initially possess adequate knowledge or competence for assigned ISA activities, the certification body shall ensure that appropriate training is provided in accordance with applicable international standards prior to participation in certification activities.

2. Terms of Reference and Operation

- All committees and personnel involved in the certification process shall operate in accordance with documented procedures, defined roles, and assigned responsibilities.
- Committee members and personnel shall act independently, objectively, and impartially, and shall not be subject to any commercial, financial, or other pressures that could influence certification outcomes.
- All members shall be required to declare conflicts of interest, and appropriate actions shall be taken to eliminate or manage such conflicts.

3. Authority of the Certification Body

- The certification body shall retain full authority to appoint, monitor, and withdraw members of committees or personnel involved in the certification process.
- Withdrawal of appointment may occur in cases of non-compliance, conflict of

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interest, inadequate performance, or loss of competence.

ISA Team	Has overall authority for development of certification policies, certification activities, certification requirements, and delegation of authority within the certification body.
ISA Head	Has overall authority for implementation of policies, certification decisions, resource provision, contractual matters, complaints and appeals, personnel competence approval, and management system effectiveness.
Field Assessors & Supporting Staff	Are responsible for conducting and supporting evaluation activities in accordance with approved procedures and certification requirements.
Internal Auditor	Is responsible for reviewing evaluation results to ensure conformity, consistency, and impartiality prior to certification decisions.
Administrative Office / Staff	Is responsible for managing and supervising financial and administrative activities of the certification body.

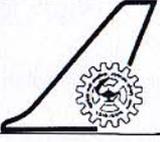
Table 2: Roles & Responsibilities

3.3.3 ISA Staffs details

Sl.No	Name	Designation	Qualification	Experience	Address
1.	Dr.Manju Nanda	ISA Head	Phd in Software Engineering	28 + years of experience in Safety critical embedded Systems	CSIR-NAL
2.	Mr. Neelakanta E	Field Assessor	Mtech in Computer Networking	14 + years of experience in Safety critical	CSIR-NAL

				embedded Systems	
3.	Dr. Anand G	Field Assessor	Phd in Embedded System	10 + years of experience in Safety critical embedded Systems	CSIR-NAL
4.	Mr. Sham Sundar Dhage	Internal Auditor	Ms in Software design engineering	30 + years of experience in Software domain	CSIR-NAL
5.	Ms. Shrilatha Acharya	Internal Auditor	MSc. in E-Commerce	25 + years of experience in Software domain	CSIR-NAL
6.	Ms. Meghna Sudharman	Supporting Staff	M.Tech in Embedded System	1 + years of experience in Safety Critical domain	CSIR-NAL
7.	Mr. Arun Prakash S	Supporting Staff	BE in Electronics and Communication	1 + years of experience in Safety Critical domain	CSIR-NAL
8.	Mr. Jayanth	Supporting Staff	BE in Electronics and Communication	1 year of Experience in Safety critical domain	CSIR-NAL

Table 3: ISA Staff Details

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3.4. Main Function

ISA activities for Generic signaling products and systems for Indian railways

4 ISA STANDARDS

CENELEC Standards (Specific Reference: EN 50126-1&2, EN 50128, EN 50129):

Addresses safety, reliability, availability, and maintainability (RAMS) requirements for safety-critical systems. Guides the risk assessment and hazard identification process for railway applications, safety-critical software, and control systems.

✓ EN 50126 Standard

EN 50126, titled "**Railway Applications – The Specification and Demonstration of Reliability, Availability, Maintainability, and Safety (RAMS)**", provides a structured framework for managing the lifecycle of railway systems with a focus on safety and reliability. It is part of the CENELEC standards specifically tailored for the railway industry.

Features:

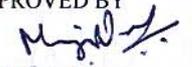
Lifecycle Coverage: EN 50126 addresses all phases of a system's lifecycle, including concept, design, development, operation, maintenance, and decommissioning.

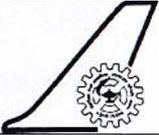
RAMS Principles:

- **Reliability:** Ensuring systems perform their intended functions consistently.
- **Availability:** Maximizing system readiness and uptime.
- **Maintainability:** Ensuring systems are easy to repair and maintain.
- **Safety:** Managing risks to minimize hazards and ensure operational safety.

Risk Management: The standard emphasizes identifying, assessing, and mitigating risks to ensure safety and compliance.

Systematic Approach: It uses a systematic and iterative process to verify and validate that RAMS requirements are met through design, testing, and operational monitoring.

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✓ **EN 50128 Standard**

EN 50128, titled "**Railway Applications – Communication, Signaling, and Processing Systems – Software for Railway Control and Protection Systems,**" specifies requirements for developing and maintaining software used in safety-critical railway applications. It is part of the CENELEC standards for ensuring software safety in railway systems.

Features:

Safety Integrity Levels (SILs):

- Defines Safety Integrity Levels (SIL 0 to SIL 4) to classify the criticality of software, with SIL 4 being the most critical.
- The rigor of the development process increases with the SIL level.

Development Lifecycle:

- Outlines a structured software development process, including specification, design, implementation, testing, validation, and maintenance.
- Requires traceability throughout the lifecycle to ensure all safety requirements are met.

Risk Management:

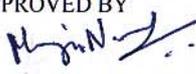
- Emphasizes hazard identification and risk mitigation for software failures.
- Includes measures like fail-safe design and robust error handling.

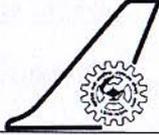
Verification and Validation (V&V):

- Mandates thorough testing and review at each development stage to ensure compliance with safety requirements.
- Independent assessment is required for higher SIL levels.

✓ **EN 50129 Standard**

EN 50129, titled "**Railway Applications – Communication, Signaling, and Processing Systems – Safety-Related Electronic Systems for Signaling,**" specifies the safety requirements for electronic systems used in railway signaling. It is part of the CENELEC standards designed for safety-critical railway systems.

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Features:

Safety Integrity Levels (SILs):

- Defines SIL levels (SIL 0 to SIL 4) to classify the safety-criticality of electronic systems, with SIL 4 being the highest.
- Higher SIL levels require more rigorous safety assessments and validations.

Safety Case Development:

- Requires the creation of a Safety Case, a structured document providing evidence that the system meets safety requirements.
- The Safety Case includes:
 - Risk assessments.
 - System architecture and design.
 - Validation and verification results.
 - Maintenance and operational procedures.

Hazard Management:

Focuses on identifying, analyzing, and mitigating hazards throughout the system's lifecycle. Ensures that residual risks are acceptable.

Lifecycle Focus:

Addresses safety at all stages, from concept and design to operation and decommissioning.

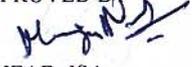
Independent Assessment:

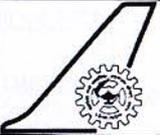
Requires external safety audits to validate compliance, particularly for higher SIL levels.

5 CORE ACTIVITIES

5.1 ISA Activities

- Document Reviews and provide feedback
- Review the V&V activities and provide feedback
- Review the QA activities and provide feedback
- Review the CM activities and provide feedback
- Software validation and report generation

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- Hardware validation and report generation
- System validation and report generation
- Audit of lab level functionality
- Audit of End-to-End field testing
- Generation of Evaluation report and issue an ISA certificate

The client has to address the feedback provided by the ISA/Certification body.

6 PROCEDURE CARRIED OUT FOR ISA

The applicant must specify the certification for which the product or system is being submitted. The prospective stakeholder is required to provide complete and accurate information in the application form to enable preparation of a quotation.

CSIR-NAL will review the application to determine whether it meets the defined eligibility criteria. Only applications that are fully completed and include all necessary supporting documents will be considered. If the criteria are met, CSIR-NAL will prepare and send a proposal to the stakeholder for the requested certification. If the criteria are not fulfilled, or if CSIR-NAL lacks prior experience with the stakeholder 's specific requirements, the stakeholder will be informed, and the request will be declined for further evaluation.

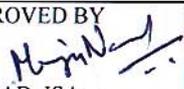
The proposal will be formulated based on the information provided by the stakeholder, in accordance with CSIR-NAL's procedures and applicable regulations.

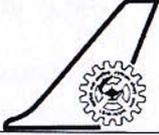
CSIR-NAL reserves the right to modify the proposal if discrepancies are found between the submitted and actual information.

The proposal will be accompanied by the applicable terms and conditions and a draft contract. Upon acceptance of the proposal, a formal contract shall be signed by both parties: CSIR-NAL and the stakeholder. The contract will define the terms and conditions for the use of the certification logo and the certificate.

➤ Preparation of Software Safety Assessment Plan

The scope of this Assessment Plan is to provide activities that will be carried out for the assessment activities addressed in Sec 5.1.

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➤ **Preparation of Initial Contractor Plan**

The scope of this Contractor Plan is to Review and provide feedback for Plan documents like Safety, RAM plan etc.

➤ **Preparation of Design Assessment**

The scope of this Design Assessment is to Review and provide feedback for Design & Specification documents like SRS, SAD, IDD etc.

➤ **Preparation of Test Assessment**

The scope of this Test Assessment is to Review and provide feedback for Test Reports like Application test report, System Acceptance Test Report etc.

➤ **Preparation of Evaluation Report**

The scope of this Evaluation Report is to present the final assessment of the ISA project, covering all ISA activities conducted throughout the process.

➤ **ISA Certificate**

The purpose of the certificate is to assure customers that the system complies with all specified requirements, providing both evidence and confidence in its reliability.

7 SCOPE OF CERTIFICATION

Review of formal proofs of safety

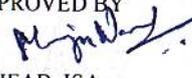
- RAMS analyses
- FTA
- FMEA/FMECA
- PHA
- Hazard Log
- Safety management audits
- Auditing of the software development processes
- RAMS Plan
- Safety V & V Plan

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- V & V Reports
- Design Safety Studies & Report
- Safety Case / Reports
- Certification of Generic Signaling Products and Systems for Indian Railways.

8 ISA ACTIVITIES

Phase	Stages	ISA Activities
Planning phase	Initial contractor plan <ul style="list-style-type: none"> ➤ Quality Assurance Plan ➤ Configuration Management Plan ➤ Verification Plan ➤ Validation Plan ➤ Maintenance Plan ➤ System Safety Plan ➤ Organization Chart ➤ SIL Competence Development and Training Plan ➤ SIL Allocation Approach paper ➤ Application Preparation Plan ➤ RAM Plan ➤ RAM Validation Plan 	1. Assessment of the initial plans 2. Plan assessment report
	Development Phase	
Testing Phase		Test Assessment <ul style="list-style-type: none"> ➤ Software/Hardware Integration Test Report ➤ System Maintenance Verification Records/Record ➤ Deployment Verification Report ➤ System Integration Test Report

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	<ul style="list-style-type: none"> ➤ System Component Test Report ➤ System Acceptance Test Report ➤ Application Test Report ➤ System Deployment Manual ➤ Application Preparation Verification Report ➤ Quality Assurance Verification Report ➤ System Requirements Verification Report ➤ System Architecture Design Verification Report ➤ Overall System Test Report ➤ System Validation Report ➤ Tools Validation Report ➤ SRD Verification Report ➤ Safety Case 	<ol style="list-style-type: none"> 1. ISA shall perform Audit as well as Testing at site location and supply audit report based on the findings. 2. Testing and Hazards closeout process report
Safety Case & Certificate Phase	Progress Report, Evaluation Report & ISA Certificate	<ol style="list-style-type: none"> 1. Assessment of Client identified hazards and its mitigation. 2. Physical implementation safety case assessment report for each stage. 3. Preparation of Evaluation report. 4. ISA Certificate with Evaluation Report.

Table 4: ISA Activities

8.1 Stakeholder Details

Sl. No	Stakeholder	Roles
1.	Gas Turbine Research Establishment (GTRE)	Customer
2.	Central Electronics Limited (CEL)	Customer
3.	Bharat Heavy Electricals Limited (BHEL)	Customer
4.	Bharat Electricals Limited (BEL)	Customer
5.	Indian Institute of Technology, Madras	Customer
6.	South Western Railway	Customer
7.	TUV	CENELEC certification training academy

8.	Punyam Academy	IEC/ISO certification training academy
9.	Research Design and Standard Organization (RDSO)	Regulatory Body
10.	Delhi Metro Rail Corporation (DMRC)	Regulatory Body
11.	RCMA-CEMILAC	Regulatory Body
12.	IIT, Delhi	Sub-Contractor
13.	Humming Bird	Sub-Contractor
14.	Hewlett-Packed Global Soft Limited	Sub-Contractor

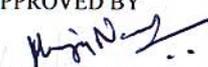
Table 5 : Stakeholder Details

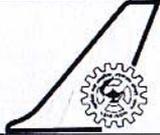
Sl.No	Project Name	OEM	Customer	V&V	ISA	Approving Authority
1.	MSDAC	CEL	Indian Railways	Hewlett-Packed Global Soft Limited	CSIR-NAL	RDSO
2.	DMI	BEL,Kotdwara	DMRC	BEL,Ghaziabad	CSIR-NAL	DMRC
3.	ngSSDAC	CEL	Indian Railways	IIT-Delhi	CSIR-NAL	RDSO
4.	ngHASSDAC	CEL	Indian Railways	IIT-Delhi	CSIR-NAL	RDSO
5.	nMSDAC	CEL	Indian Railways	IIT-Delhi	CSIR-NAL	RDSO
6.	MSDAC with S002 Field unit	CEL	Indian Railways	Humming Bird	CSIR-NAL	RDSO

Table 6: Project Details

8.2 QA Records

- Safety Assessment Plan
- Document Track log
- Initial Contractor Plan
- Design Assessment
- Test Assessment
- Evaluation Report
- ISA Certificate

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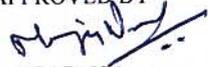
8.3 Expert Consultancy for Independent Safety Assessment.

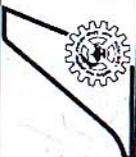
1. Cross Reference

CRM: Cross Reference Matrix (BCB F 010A)

2. Procedure to initiate the ISA project

- Request from the user.
- Preparation of Project Proposal and approval from the organization.
- Letter of project Approval.
- Process establishment / ISA records.
- Generate the Milestone Report with respect to the Letter of Approval.
- Project Closure Report with consolidated Milestone Reports.
- Document the Customer Feedback Report.

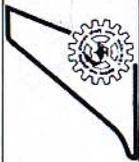
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9 GENERIC SIGNALLING PRODUCTS AND SYSTEMS (PRODUCT DETAILS)

Sl.No	Name of the project	Details of Safety assessment activities	Length of the Projects (KM) (Duration mentioned)	Commencement and Completion dates	Systems details	Type of work and its SIL level
1	Expert Consultancy for Establishment of DO178B process for Development of CAPS software for AFADEC system of Kaveri Engine for GHATAK (GTRE) – M/s. GTRE-DRDO	Guiding in establishing SDLC processes as per DO178B Level-A standard guidelines	4 years	01/11/2016 To 31/12/2020	Development of CAPS software for AFADEC system of Kaveri Engine for GHATAK (GTRE)	Guidance provided for Establishing DO 178B process for AFADEC system Level A, which is SIL 4
2	Independent Safety Assessment of modified system of Multi Section Digital Axle Counter (MSDAC) for M/s. CEL, Sahibabad	The objective of this consultancy is to establish the CENELEC SIL-4 adhering to EN50126, EN50128 and EN50129 standards at CEL for their modified MSDAC design	2 months	05-MAR-2022 To 30-APR-2022	MSDAC digital Axle counter	Independent Safety Assessment SIL – 4 Level

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3	Independent Safety Assessment of New generation Single Section Digital Axle Counter(ngSSDAC) for M/s. CEL, Sahibabad	The objective of this consultancy is to establish the CENELEC SIL-4 adhering to EN50126, EN50128 and EN50129 standards at CEL for their modified MSDAC design	3 months	20-Jan-2023 To 20-Apr-2023	ngSSDAC digital Axle counter	Independent Safety Assessment SIL – 4 Level
4	Independent Safety Assessment of New generation High Availability Single Section Digital Axle Counter(ngHASSDAC) for M/s. CEL, Sahibabad	The objective of this consultancy is to establish the CENELEC SIL-4 adhering to EN50126, EN50128 and EN50129 standards at CEL for their modified MSDAC design	3 months	20-Jan-2023 To 20-Apr-2023	ngHASSDAC digital Axle counter	Independent Safety Assessment SIL – 4 Level
5	Independent Safety Assessment of new Multi Section Digital Axle Counter (nMSDAC) for M/s. CEL, Sahibabad	The objective of this consultancy is to establish the CENELEC SIL-4 adhering to EN50126, EN50128 and EN50129 standards at CEL for their modified MSDAC design	3 months	20-Jan-2023 To 20-Apr-2023	nMSDAC digital Axle counter	Independent Safety Assessment SIL – 4 Level
6	Multi Section Digital Axle Counter (MSDAC) with S002 field unit software for M/s. CEL, Sahibabad	The objective of this consultancy is to establish the CENELEC SIL-4 adhering to EN50126, EN50128 and EN50129 standards at CEL for their modified MSDAC design	1 month	01-Nov-2024 To 30-Nov-2024	MSDAC digital Axle counter with S002 field unit software	Independent Safety Assessment SIL – 4 Level

PREPARED BY

G.A.A
(Dr. Anand G)

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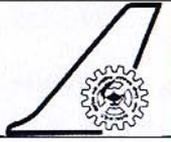
HEAD, ISA
(Dr. Manju Nanda)

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		EN50128 and EN50129 standards at CEL for their modified software for MSDAC design				SIL – 4 Level
7	Independent Safety Assessment of Generic Driver Machine Interface (DMI) for M/s. BEL, Kotdwar	The objective of this consultancy is to establish the CENELEC SIL-2 adhering to EN50126, EN50128 and EN50129 standards at BEL for Generic DMI	3 months	08-Nov-2024 To 08-Feb-2025	Generic Driver Machine Interface (DMI)	Independent Safety Assessment SIL – 2 Level
8	Fully automated level crossing gate operation system for South Western Railway in collaboration with IIT Madras	Kick off meeting started in the month of February 2023 - MOU has been signed between IIT-Madras and SWR in the month of August 2023	2 Years	April 2024 to March 2026	AI based Automatic LC Control	Independent Safety Assessment SIL – 4 Level

Table 7: ISA Project Details

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10 ANNEXURE

10.1 User Certificate



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09.07.2024

This is to certify that M/s. CENTRAL ELECTRONICS LIMITED, Sahibabad, have successfully obtained the ISA certification for safety integrity level SIL-4 of CENELAC standard prEN50126 from M/s. CSIR-NATIONAL AEROSPACE LABORATORIES, Bangalore for the following axle counter systems used in Indian Railways:

1. Modified Multi Section Digital Axle Counter system for fail safe axle detector.
2. New generation Single Section Digital Axle Counters (ngSSDAC)
3. New generation High Availability Single Section Digital Axle Counter (ngHASSDAC)
4. New Multi Section Digital Axle Counter(New MSDAC)

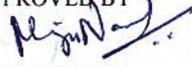
Usage and current status of the products:

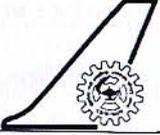
- The Modified Multi Section Digital Axle Counter system for fail safe axle detector has been approved by RDSO in Year 2022 and currently used in Indian Railways.
- The ngSSDAC, ngHASSDAC received their ISA certificates in March 2023, have completed field trials, and are currently under RDSO approval.
- New MSDAC received ISA certificate in March 2023 and currently under RDSO approval.

Darpan Rathankoti

(Darpan Rathankoti)
General Manager (P, R&D)

निम्नलिखित कार्यालय एवं पता: 4, औद्योगिक क्षेत्र, सहिबाद-201010 (उ.प.) भारत
 Corporate Office & Correspondence Address : 4, Industrial Area, Sahibabad-201010 (U.P.) INDIA
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10.2 Memorandum Article of Association

MEMORANDUM OF ASSOCIATION

RULES & REGULATIONS AND BYE-LAWS

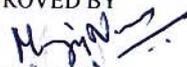
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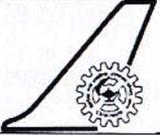
2005

Hindi version of the CSIR Rules & Regulations and Bye-laws is based on the original in English. In case of any doubt, the English version will be treated as authentic.

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CSIR.

Dr. K.S. Krishnan Marg, New Delhi-110 012

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Certificate of Registration of Societies

Act XXI of 1860

No. X of 1941-1942

Hereby certify that *The Council of Scientific and Industrial Research* has this day been registered under the Societies Registration Act XXI of 1860.

Given under my hand at Delhi this twelfth day of March One Thousand Nine Hundred and Forty Two.

Fee Rs.50/- paid

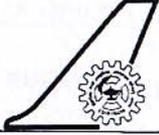
Sd/-

Registrar of Joint Stock Companies

Delhi

'Seal'

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10.3 Declaration of Shareholders

D-13023/3/2025-Sr.CoA

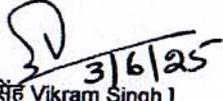
03rd June, 2025

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Sub.: Empanelment of ISA for Generic Signalling Projects/Systemes/Product
No.RDSO-SIG0MISC(ISA)/1/2020 dated 20-03-2023

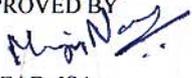
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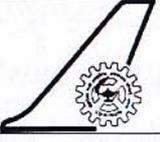
Council of Scientific and Industrial Research (CSIR) is an autonomous body under Govt. of India with the Hon'ble Prime Minister of India as its President.


[विक्रम सिंह Vikram Singh]

वरिष्ठ प्रशासन नियंत्रक Senior Controller of Administration

वरिष्ठ प्रशासन नियंत्रक / Senior Controller of Administration
सी एन आई आर - राष्ट्रीय वैज्ञानिक प्रयोगशालाएँ
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10.4 Business Liability Insurance

D-13023/3/2025-Sr.CoA

29th May, 2025

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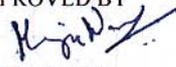
CSIR – National Aerospace Laboratories, Bengaluru 560 017, is a constituent Laboratory of Council of Scientific and Industrial Research (CSIR), an autonomous body under the Administrative Control of Department of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India located at HAL Airport Road, Bengaluru.

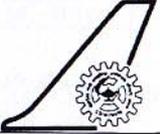
CSIR – NAL is solely and vicariously liable for all the acts done in pursuance of all mandated R & D activities and the same is met entirely by CSIR – NAL and on case to case basis CSIR – NAL also insures its assets/activities with the requisite insurance providers.


29/5/25

[विक्रम सिंह/Vikram Singh]
वरिष्ठ प्रशासन नियंत्रक/Sr. Controller of Administration

वरिष्ठ प्रशासन नियंत्रक /Senior Controller of Administration
सी एस आई आर - राष्ट्रीय वांतरिस प्रयोगशालाएं
CSIR-National Aerospace Laboratories
P.B. NO. 1779 - बेंगलूरु / Bengaluru - 560017

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR – NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU – 560017.				

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.:	ISSUE : 02
			ISA/ALD/DQM/01	REVISION : 01
QUALITY DOCUMENT			Page 30 of 41	

10.5 Letter of Authorization

D-13023/3/2025-Sr.CoA

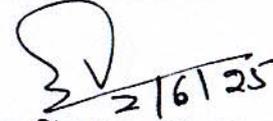
02nd June, 2025

TO WHOMSOEVER IT MAY CONCERN

Sub.: Empanelment of ISA for Generic Signalling Projects/Systemes/Product
No.RDSO-SIG0MISC(ISA)/1/2020 dated 20-03-2023

CSIR – National Aerospace Laboratories, Bengaluru 560 017 is a Constituent Laboratory of Council of Scientific and Industrial Reseach (CSIR), an autonomous body under the Administrative Control of Department of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India, located at HAL Airport Road, Bengaluru.

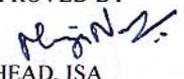
As per RDSO guidelines dated 20-03-2023 (Table C – ISA Panel for Generic Signalling Products / Systems SIG0MISC(ISA)/1/2020, CSIR – NAL, Bengaluru is applying for ISO/IEC 17065 Accreditation and Dr. (Smt.) Manju Nanda, Chief Scientist of our laboratory is authorised as the Nodal Officer for carrying out the ISA activities for ISO / IEC 17065.

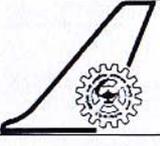


[विक्रम सिंह Vikram Singh]

वरिष्ठ प्रशासन नियंत्रक Senior Controller of Administration

वरिष्ठ प्रशासन नियंत्रक / Senior Controller of Administration
सी एन आई लैब - राष्ट्रीय वास्तविक प्रयोगशालाएं
CSIR-National Aerospace Laboratories
P.B. NO. 1779 - बेंगलूरु / Bengaluru - 560017

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR – NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU – 560017.				

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.: ISA/ALD/DQM/01	ISSUE : 02
				REVISION : 01
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10.6 Financial Statement

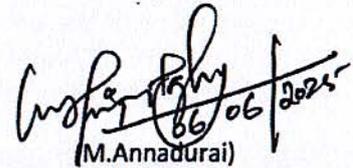
TO WHOMSOEVER IT MAY CONCERN

CSIR-National Aerospace Laboratories (NAL), Bengaluru is a premier R&D Organisation under the aegis of Council of Scientific & Industrial Research (CSIR), New Delhi DSIR, Ministry of Science & Technology (DSIR).

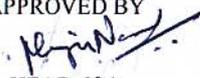
The source of funding for R&D activities is from grants released by Govt. of India, financial year wise through DSIR.

Since CSIR and its constituent laboratories including CSIR-NAL are functioning as autonomous body through the Societies Registration Act, 1860, there is no concept of turnover.

It is further stated that there is an Excess of Expenditure Over Income for the financial year 2024-25, to the tune of Rs. (-) 180.500 Crore. (copy of Income of Expenditure enclosed)


(M. Annadurai)

Controller of Finance & Accounts
एम. अण्णादुरै / M. ANNADURAI
वित्त एवं लेखा नियंत्रक
Controller of Finance & Accounts
सीएसआईआर-राष्ट्रीय अंतरिक्ष प्रयोगशालाएं
CSIR-National Aerospace Laboratories
बंगलूरु/Bengaluru-560 017

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR – NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU – 560017.				

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.: ISA/ALD/DQM/01	ISSUE : 02
				REVISION : 01
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10.7 PAN

Phone : 3710407
Fax : 3710560



Council of Scientific & Industrial Research

Anusandhan Bhavan, Rafi Ahmed Kidwai Marg,
New Delhi - 110 001

F.No. 1(5)/2002-Finance
Dated the 29th July, 2002.

The Directors/Heads of all National Labs./Instts.

Sub: Permanent Account Number (PAN) - AAATC2716R

Sr. B.S.G.

IT file

msd

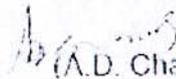
Sir,

As you are aware that CSIR is exempt from payment of Income Tax under section 35(I) (ii) of the Income Tax Act and an exemption certificate is issued by Govt. of India, Ministry of Finance, Deptt. of Revenue, CBDT periodically on regular intervals. Last such certificate was issued vide Notification No. 11433(F.No. 203/85)2000-II-II) dated 7.7.2000 for the period from 1.4.2000 to 31.3.2003 which was circulated vide letter No. 1(5)/92-Finance dated 11.7.2000.

2. It has been brought to our notice that at times some of the parties inadvertently or otherwise recover Income Tax at source where no tax is recoverable in respect of transactions covered under section 35(I)(II) or any other relevant section of the Act requiring filing of refund claim by laboratories/institutes for which PAN Number is required to be mentioned in the refund claim.

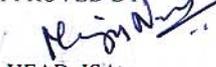
3. CSIR has therefore, obtained PAN Number from Income Tax authorities. A copy of PAN Card bearing Number AAATC2716R is forwarded herewith for your information and record.

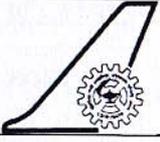
Yours faithfully,


(A.D. Chawla)

Sr. Dy. Financial Adviser

Encl. as above

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR - NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU - 560017.				

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.: ISA/ALD/DQM/01	ISSUE : 02
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PERMANENT ACCOUNT NUMBER
AAATC2719R



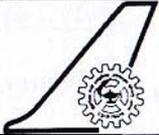
COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

DATE OF REGISTRATION
12-03-1942

Handwritten signature

Head, ISA
Independent Safety Assessment Division

PREPARED BY <i>G. A. S.</i> (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY <i>Manju Nanda</i> HEAD, ISA (Dr. Manju Nanda)
	CSIR - NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU - 560017.			

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.:	ISSUE : 02
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10.8 TAN



TDS

Centralized Processing Cell

TRACES

TDS Reconciliation Analysis and Correction Enabling System

Dashboard

Statements / Payments

Defaults

Communications

For

Welcome CSIR - NATIONAL AEROSPACE LABORATORIES (BLRN001138)

Status of Statement Filed

Please select one of the below Search Options

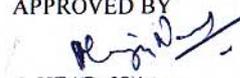
- Statement
 Token Number
 Statement Status
 During Last 3 Months

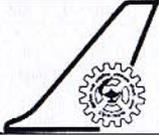
Financial Year*
 Quarter*
 Form Type*
[View Stater](#)

Status for Q4 of FY 2024-25 for Form 24Q

Token Number	Statement Type	Financial Year	Quarter	Form Type	Date of Filing	Status
7700XXXXXXXX8613	Regular	2024-25	Q4	24Q	16-Apr-2025	Processed Without Del

Page 1 of 1

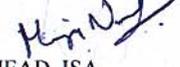
PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR - NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU - 560017.				

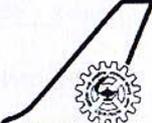
	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.: ISA/ALD/DQM/01	ISSUE : 02
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10.9 GST

Registration Number :29AAATC2716R1ZB

1.	Legal Name	COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH			
2.	Trade Name, if any	NATIONAL AEROSPACE LABORATORIES			
3.	Additional trade names, if any				
4.	Constitution of Business	Others			
5.	Address of Principal Place of Business	CSIR NATIONAL AEROSPACE LABORATORIES, PB NO 1779, VIMANAPURA POST OFFICE, HAL AIRPORT ROAD, Bengaluru Urban, Karnataka, 560017			
6.	Date of Liability	01/07/2017			
7.	Date of Validity	From	01/07/2017	To	Not Applicable
8.	Type of Registration	Regular	 Signature Not Verified		
9.	Particulars of Approving Authority	Digitally signed by ISA, GOODS AND SERVICES TAX NETWORK-07 Date: 2023.01.16 19:18:35 IST			
Signature					
Name		SAIPRASAD BEJGAM			
Designation		Assistant Commissioner			
Jurisdictional Office		LGSTO 046 - Bengaluru			
9. Date of issue of Certificate		16/01/2023			
Note: The registration certificate is required to be prominently displayed at all places of Business/Office(s) in the State.					

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR – NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU – 560017.				

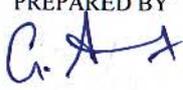
	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.: ISA/ALD/DQM/01	ISSUE : 02
				REVISION : 01
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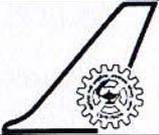


GSTIN 29AAATC2716R1ZB
Legal Name COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
Trade Name, if any NATIONAL AEROSPACE LABORATORIES
Additional trade names, if any

Details of Person in Charge

1 	Name	ABHAY ANANT PASHILKAR
	Designation/Status	Director
	Resident of State	Karnataka

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
	CSIR – NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU – 560017.			

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.: ISA/ALD/DQM/01	ISSUE : 02
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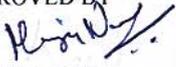
10.10 MARK

TO WHOMSOEVER IT MAY CONCERN

**MARK is not Applicable. ISA Certificate will
be issued with Signature and Seal.**

Manju Nanda

डॉ. मंजु नंदा / Dr. MANJU NANDA
स्वातंत्र्य सुरक्षा निरीक्षक, आरडीएसओ
Independent Safety Assessor, RDSO
सीएसआर-राष्ट्रीय अंतरिक्ष प्रयोगशालाएं
CSIR-National Aerospace Laboratories
बंगलूरु/Bengaluru-560 017

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR – NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU – 560017.				

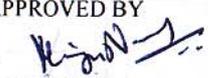
10.11 Purchase Order

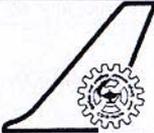
PO: 4800082805 / 19.09.2024

SERVICE ORDER

PAGE : 1 / 17

VENDOR DETAILS :- NATIONAL AEROSPACE LABORATORIES AIRPORT ROAD, POST BAG NO. 1779 BANGALORE Karnataka India 560017		NA0459 FAX 080-25086009 Vendor's GST Number 28AAAATG2718R1ZB ECC Code PAH No TIN No Phone No. 080-25088147 Email id matbur@nsl.res.in (matbur@nsl.res.in)		 BHARAT ELECTRONICS (A GOVT. OF INDIA ENTERPRISE) DIST. PUNEI GANAGAL, BODDIBEL - 246 149, UTTARAKHAND TEL : 01382-231124 Website : http://www.bel-india.in					
PO No : 4800082805	1500	BEPO	KT2	Our Enq Ref	UNIT: BEL - KODIHALLI / KOT - UNIT				
Original PO Date 19.09.2024	INR	Manual	TAN	Plan's GSTN 05AAAACB5985C12V	TIN				
Latest Amendment Var No. 0	19.09.2024	Your Qtn Ref	PAH	ECC					
Please supply the following materials in accordance with the instruction given below: 1. The order shall be governed by our terms and conditions and instructions attached			Phone No 01382-231124 Fax 01-1382-231132 Email mmkotpo@bel.co.in Range Division						
SI No	Services	Tax Code	Qty	Delivery Date	Quantity	UOM	Unit Rate (INR)	RI	Value (INR)
1	ISA Certification of DMI	G3 E	1	19-12-2024	1	AU	2,526,800.00	1	2,526,800.00
10	Payment Against Milestone-1		1		1	NO	505,360.00	1	505,360.00
20	Payment Against Milestone-2		1		1	NO	1,516,080.00	1	1,516,080.00
30	Payment Against Milestone-3		1		1	NO	505,360.00	1	505,360.00
Total Value									2,526,800.00
Discount									0.00
Other Charges									0.00
Net Value									2,526,800.00
AMOUNT IN WORDS : RUPEES TWO MILLION FIVE HUNDRED TWENTY-SIX THOUSAND EIGHT HUNDRED ONLY									

PREPARED BY  (Dr. Anand G)	Rev No: 01 COPY STATUS <div style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;">CONTROLLED</div>	Issue No: 02 Date: 19/01/2026 CSIR - NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU - 560017.	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
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	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.:	ISSUE : 02
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10.12 Panel of ISA by RDSO

I/70879/2025

File No.RDSO-SIGOMISC(ISA)/1/2020-O/o ED/Signal/RDSO

4855

Fax: +91-522-2452332 E-mail: triambak.tiwari@gov.in Mob: 9794863310		भारत सरकार, रेलमंत्रालय, Government of India - Ministry of Railways Research Designs & Standards Organisation अनुसंधान, अभिकल्प और मानक संगठन, लखनऊ-226011 LUCKNOW - 226011	
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No: RDSO-SIGOMISC (ISA)/1/2020

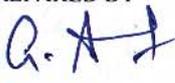
(Through email)
Date: 14.01.2025

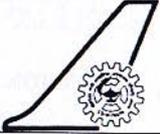
Sub: Revised Panel of Independent Safety Assessors (ISAs) for Signalling Projects and Products.

- Ref: (i)** This office letter of even no. dated 23.01.2023, 20.03.2023, 19.12.2023 and 22.01.2024.
(ii) M/s. Jodova Technologies Pvt. Ltd., Bangalore's letter no. Nil, Dated 26.08.2024.
(iii) M/s. DNV Business Assurance India Pvt. Ltd., Mumbai's letter no. DNV/RDSO/ISA/001/R1, Dated 13.12.2024 & 26.08.2024.

Based on the documents submitted by the firm in above referred applications (ii) and (iii), competent authority has given provisional approval to M/s. Jodova Technologies Pvt. Ltd., Bangalore and M/s. DNV Business Assurance India Pvt. Ltd., Mumbai for doing assessment and certification work in signalling and train control scope for maximum four projects/ products each in ISA-Metro, ISA-Mainline Railway and ISA-Generic Product categories. Accordingly, name of M/s. Jodova Technologies Pvt. Ltd. and M/s. DNV Business Assurance India Pvt. Ltd. has been included in the existing ISA panel as a provisionally approved firm. Terms and conditions of the existing ISA panel, issued vide this office letter referred above at ref-(i), shall be applicable for these firms along with terms and conditions for provisional approval as specified in RDSO's "Method for shortlisting ISA".

The validity of panel will remain as it is i.e. up to 22.01.2026 (three years from the original date of issue).

PREPARED BY  (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY  HEAD, ISA (Dr. Manju Nanda)
CSIR - NATIONAL AEROSPACE LABORATORIES PB 1779, HAL AIRPORT ROAD, KODIHALLI, BENGALURU - 560017.				

	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.:	ISSUE : 02
			ISA/ALD/DQM/01	REVISION : 01
QUALITY DOCUMENT			Page 40 of 41	

M/s BUREAU VERITAS INSPECCION Y TESTING, S.L.
Unipersonal C/Valportillo Primera 22-24. Poligono Industrial La
Granja 28108 Alcobendas (Madrid), Spain.

Tele: 34 91 27022 00

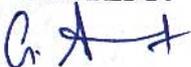
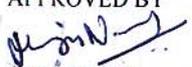
Email: miguel-angel.berzosa@bureauveritas.com

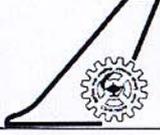
CSIR-National Aerospace laboratories
P.B. No. 1779, HAL airport road, kodihalli, Bengaluru-
560017, India Tele:+91-80- 25086523, 25086527, 2508
6147, Fax:+91-80-2508 6009
Email:(i) manjun@nal.res.in (ii) neelakanta@nal.res.in
(iii) g.anand777@nal.res.in

TUV India Private Limited
801, Raheja Plaza-1, L.B.S. Marg, Ghatkopar (W),
Mumbai-400086 Tele: 022-66477000, 080-
46023416, FAX: 022-66477009
Email: viswanathan@tuv-nord.com

Jodova Technologies Private Limited
L-78, 15 th Cross 5 th Main HSR Layout 6th Sector Bangalore -
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	CSIR-NATIONAL AEROSPACE LABORATORIES	INDEPENDENT SAFETY ASSESSMENT DIVISIONAL QUALITY MANUAL	Document No.:	ISSUE : 02
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10.13 ISO/IEC 17065 Internal Auditor training Certificate



10.14 Interview Brochure for Supporting Staff



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Date of Publication: 05/12/2025

ADVT. No. 14/2025

WALK-IN-INTERVIEW FOR PROJECT STAFF

CSIR-NAL is a unit under the Council of Scientific and Industrial Research (CSIR), an autonomous body under the Ministry of Science and Technology, Govt. of India. Applications are invited from qualified candidates (Indian nationals) who meet the necessary educational and work experience for engagement of Project Staff to work in various projects at CSIR-NAL. The engagement of Project Staff is purely on temporary and contract basis under the CSIR/Externally funded/Other projects undertaken by CSIR-NAL. The engagement shall be for short period and co-terminus with the project.

Candidates who fulfil the under-mentioned educational qualifications and experience etc. may attend the Walk-in-Interview during 15/12/2025 to 22/12/2025 along with the application, in the prescribed format enclosed.

PREPARED BY <i>A. A. I.</i> (Dr. Anand G)	Rev No: 01	COPY STATUS CONTROLLED	Issue No:02 Date: 19/01/2026	APPROVED BY <i>Manju Nanda</i> HEAD, ISA (Dr. Manju Nanda)
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