Galaxy Aerospace
maintenance . repair . overhaul

# CALIBRATION LABORATORY PROCEDURES

GAM/CL/P

ISSUE 1

REVISION 0

**GALAXY AEROSPACE SDN. BHD**

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## AUTHORIZATION APPROVALS

Electronic authorization approval is the preferred method for approving quality system documents. Signed hardcopies are only available upon request.

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| ……<br>Workshop In charge<br>(HAMIDAH BINTI HAMA)<br>Date: | ……<br>Quality Manager<br>(OMAR BIN AHMAD)<br>Date: |

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| Prepared by: | Approved by: |
|---|---|
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# CALIBRATION LABORATORY PROCEDURES

# INTRODUCTION

# CLP-01

## STANDARD AND REFERENCES

i. ISO/IEC 17025:2017 - General requirements for the competence of testing and calibration laboratories.

ii. Skim Akreditasi Makmal Malaysia (SAMM)

iii. GAM/CLQM: Calibration Laboratory Quality Manual

iv. ISO 6789-2:2017 - Assembly tools for screws and nuts

v. ISO GUM - Guide to the Expression of Uncertainty in Measurement

vi. ISO 1966-173 - Crimped Joints for Aircraft

vii. DKD-R 6-1, Calibration of Pressure Gauge

viii. ASME B89.1.14-2018 – Callipers

ix. ASME B89.1.13-2013 – Micrometres.

## DEFINITIONS, ABBREVIATIONS AND SYMBOLS

### DEFINITIONS

i. Calibration Laboratory Documents

Calibration Laboratory Documents are documents defined for specific details of operation within GAM CL including the Quality Manual (QM), the Calibration Procedures (CP), technical Work Instructions (WI), Standard Operating Procedure (SOP) and Forms.

ii. Calibrate

Check, adjust, or systematically standardize the output of a measuring or test instrument.

iii. Torque measurement system (Ref: ISO 6789-2)

Combination of a torque measurement device and the loading system for application of torque that acts as the measurement standard for the hand torque tool.

iv. Torque measurement device (Ref: ISO 6789-2)

Working measurement standard provided either mechanically or by an electronic torque transducer and display.

v. Declaration of conformance (Ref: ISO 6789-2)

Documented information provided by the manufacturer that the torque tool complies with the requirements of this document.

vi. Pressure Gauge (Ref: DKD-R 6-1, Calibration of Pressure Gauge)

A Gauge to measure and indicate pressure greater than ambient using ambient pressure as the datum point.

vii. Pressure Switch

A pressure switch is a form of switch that closes an electrical contact when a certain set pressure has been reached on its input. The switch may be designed to make contact either on pressure rise or on pressure fall.

viii. Ambient Pressure

Ambient pressure is the pressure surrounding the measuring element.

ix. Gauge Pressure

Gauge pressure is zero reference at ambient pressure which is equal to absolute pressure minus atmospheric pressure.

x. Absolute Pressure

Absolute pressure is zero reference against a perfect vacuum. It is equal to gauge pressure + atmospheric pressure.

xi. Differential Pressure

It is the difference in pressure between two points.

xii. Vacuum Gauge

A gauge to measure and indicate pressure less than ambient using ambient pressure as the datum point.

xiii. Compound Gauge

A gauge to measure and indicate pressure greater than and less than ambient using ambient pressure as datum point.

xiv. Differential Gauge

A gauge having two connections and a means to measure and indicate the difference between the two pressures.

xv. Barometer

A gauge to measure and indicate Atmospheric pressure.

xvi. Pressure Transducer

Converts the measured pressure into analog electrical signal proportional to the applied pressure.

xvii. Nonconformity

A nonconformity is any failure to meet a requirement. A requirement can be that of a customer's, statutory or regulatory body, ISO 17025 or GAM CL's.

xviii. Auditor

A person who carries out an audit.

xix. Auditee

A person who is audited.

xx. Risk

A risk is the possible factor that affects the policies, objectives, aims or management system of the organization's service activity such as lack of resources (e.g., financial budget, equipment, competent personnel), uncontrollable external policy or staff's impartiality (queueing, purchasing, consulting etc.), which could be avoid through the preventive actions.

xxi. Preventive Action

A preventive action is a proactive process to identify opportunity for improvement rather than a simple reaction to identified problems or complaints. Apart from the review of the operational procedures, the preventive action might involve analysis of data, including trend and risk analysis, report on evaluation and improvement of internal control and interlaboratory comparison results.

xxii. Type A evaluation (of uncertainty)

Method of evaluation of uncertainty by the statistical analysis of series of observations.

xxiii. Type B evaluation (of uncertainty)

Method of evaluation of uncertainty by means other than the statistical analysis of series of observations.

xxiv. Measurement error

Measured quantity value minus a reference quantity value.

xxv. Deviation error

Unit under test quantity value minus a reference quantity value.

xxvi. Nominal Value

A value use to designate a characteristic of a device or to give a guide to its intended use.

xxvii. Incoming Area

Preliminary acceptance check shall be carried out.

xxviii. Outgoing Area

Prior return to store after calibration.

xxix. Holding Area

An area used for the temporary storage due to waiting for its turn or awaiting part before proceeding for calibration.

xxx. Quarantine Area

An area where a defected or finding items place before proceeding return to store.

## ABBREVIATIONS

| CAR | Corrective Action Request |
|---|---|
| **CL** | Calibration Laboratory |
| **CP** | Calibration Procedures |
| **EM** | Engineering Manager |
| **GAM** | Galaxy Aerospace (M) Sdn. Bhd. |
| **HQ** | Headquarters |
| **N/A** | Not Applicable |
| **PP** | Production Planner |
| **QAM** | Quality Assurance Manager |
| **QM** | Quality Manual |
| **SI** | Store Inspector |
| **SV** | Calibration Laboratory Supervisor |
| **TECH** | Technician |
| **WI** | Work Instructions |
| **WIC** | Workshop In Charge |
| **RM** | Reference measurement |

# CALIBRATION LABORATORY PROCEDURES

# POLICY STATEMENT

# CLP-02

# POLICY STATEMENTS

GAM ensures the protection of its customers' confidential information and proprietary rights, including protecting the electronic storage and transmission of results (see 4.2).

GAM avoids involvement in any activities that would diminish confidence in its competence, impartiality, judgment, or operational integrity (see 4.1).

All requests, tenders and contracts are considered in detail even if the requirements exceed the capabilities of laboratory (see 7.1).

Any deviations from requested services and supplies are discussed with the Workshop In charge (see 6.6). Services and supplies with deviations deemed significant to the calibration work are rejected. Corrective action will be initiated as deemed appropriate.

All complaints received from customers or other parties are considered in detail (see 7.9).

When any aspect of calibration work, or the results of this work, do not conform to GAM laboratory procedures or the agreed requirements of the customer an information about it immediately passes to quality manager/Workshop In charge (see 7.10).

When nonconforming work or departures from the policies and procedures in the management system or technical operations have been identified the correction action is implemented immediately together with a decision about the acceptability of the nonconforming work (see 8.7).

For identifying training needs and providing training of personnel the verbal communication is used and captured in GAM/Q-18 Record of Engineering (see 6.2).

# QUALITY POLICY STATEMENT

AS ACCOUNTABLE MANAGER OF GAM (GALAXY Aerospace (M) Sdn Bhd), I pledge my full commitment to this Quality Policy and will endeavour to entrench this statement throughout all levels of our organisation.

It is our policy to understand and meet the requirements of our customers. We are committed to consistently satisfying the changing needs of our customers with good professional practices, together with absolute honesty and integrity.

It is our intention to become recognised as a leader in the field of calibration in compliance with the applicable standards. Therefore, our commitment is vital to the following overall objectives in providing a calibration service: -

- To fully meet the requirements of MS ISO/IEC 17025.
- To establish partnerships with our customer and our people.
- To improve structures and procedures on an on-going basis through regular reviews and evaluation of our Quality Systems.
- To encourage participation of staff through providing necessary training to consistently produce true and accurate calibration results.
- To allow personnel the time to familiarize themselves with the requirements of the management system so they can implement the requirements of the policies and procedures in their work.
- To ensure good laboratory practices and customer satisfaction.

The above objectives are monitored through regular reviews and feedback to both our team and me in the effectiveness of our Quality management system.

Signed: Date:

DATO' SHAMSUL KAMAR BIN SAMSUDIN

# IMPARTIALITY POLICY

The purpose of this policy is to give confidence to all participants who engage with the Galaxy Aerospace (M) Sdn Bhd (GAM) Calibration Laboratory that GAM CL understands the importance of ensuring impartiality in implementation of their professional activities and strictly adheres to international standard MS ISO/IEC 17025 and Accreditation Body requirements by Standard Malaysia.

**Commitment**

The laboratory is an integral part of GAM and has explicit vertical organisation structure. GAM guarantees that all laboratory activity is carried out without any kind of management pressure or discrimination. For this reason, the company management, inparticular the GAM, strive to create professional enviroment and culture that prevent preferential treatment or conflict of interests when interacting with both internal and external parties.

The GAM laboratory follows its established policies and procedures equally with regard to all its customers and suppliers, and services are available to all companies in equal manner. All points of interaction are registered and controlled by the internal ERP and CRM system and may be reviewed at anytime by company management for identifying and preventing any potential conflict of interest.

In the event that customers or other interested parties are concerned about impartiality or objectivity, the company performs procedures for handling complaints and appeals without discrimination.

The GAM laboratory provides its staff the knowledge required to operate impartially and asks its staff to promptly inform management of any circumstances which may constitute a conflict of interests.

The GAM laboratory provides a mechanism in a form of supplementary metrological software to conduct its professional activities and safeguard the impartiality for both customers and staff. Unified software for all customers without prevalence of individual interests is utilized. Additionally, the laboratory utilizes multi-level internal controls when reviewing all technical records prior to issuance.

The GAM laboratory develops and follows an impartiality risks assessment strategy. If a risk to impartiality is identified, the laboratory takes appropriate measures to eliminate or minimize it by providing specific direction to laboratory staff in accordance with the company's policies. Results of the risk analysis are presented at annual management review meeting for clear understanding of services provided and impartiality issues encountered.

If you need any clarification on the impartiality policy covered here, please contact the company's technical support service group at support@galaxyaerospace.my.

DATO' SHAMSUL KAMAR BIN SAMSUDIN, Signature:

( Accountable Manager)

# CALIBRATION LABORATORY PROCEDURES

# STRUCTURAL REQUIREMENTS

# CLP-03

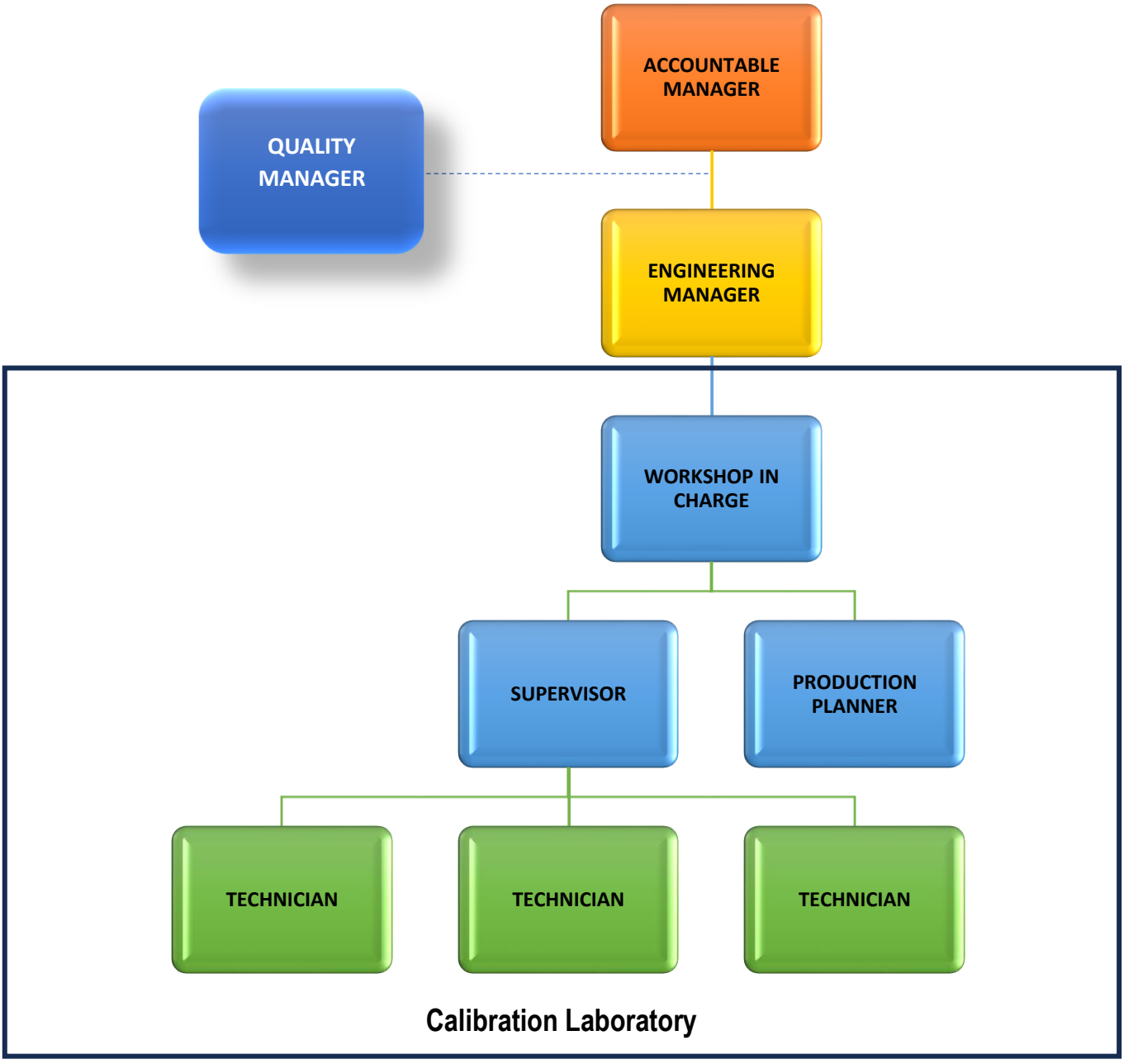
## PURPOSE

GAM Laboratory is a defined as part of the Galaxy Aerospace (M) Sdn Bhd that is legally responsible for its laboratory activities.

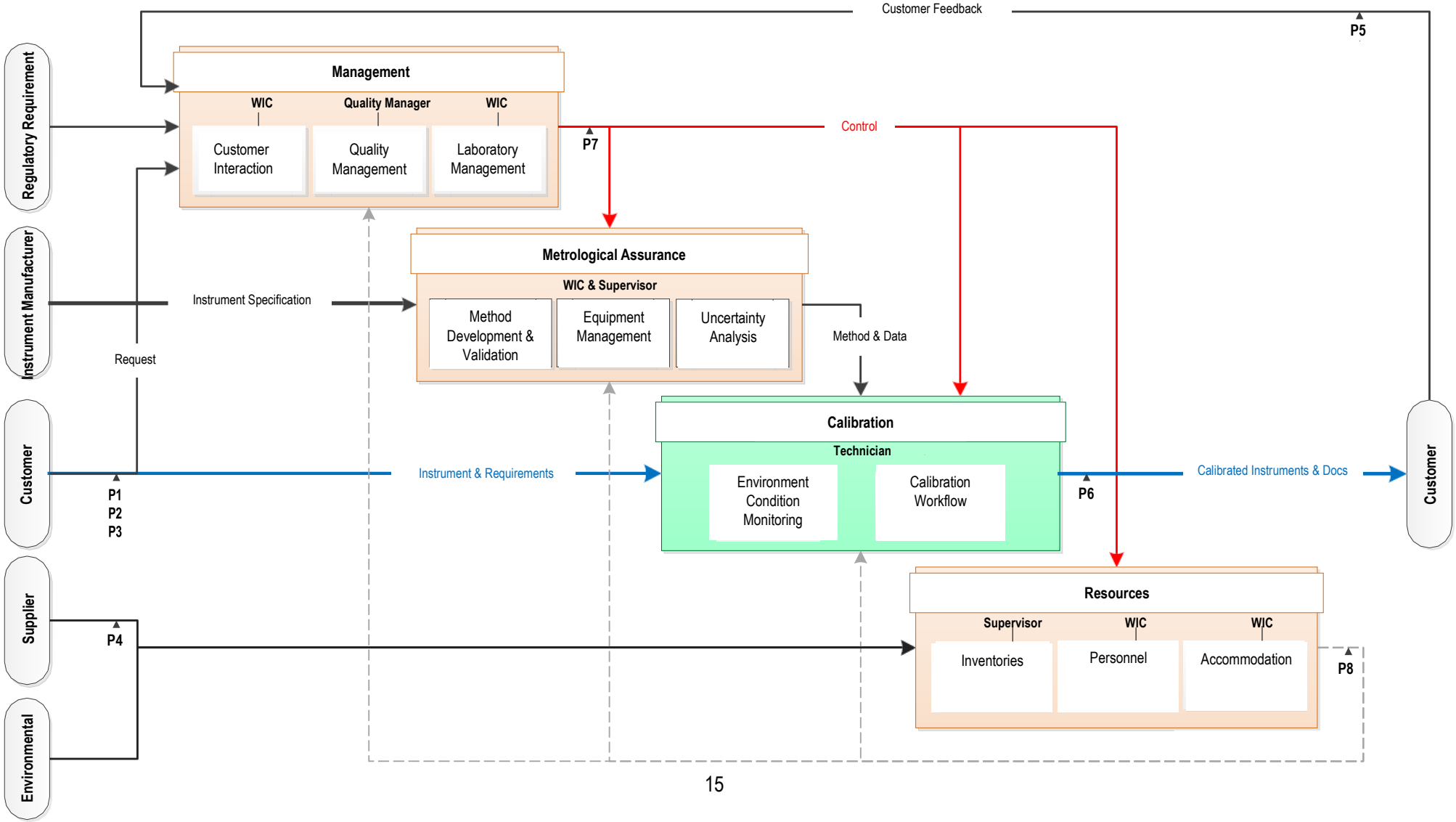
## SCOPE

This procedure has identified management that has overall responsibility for the GAM Laboratory.

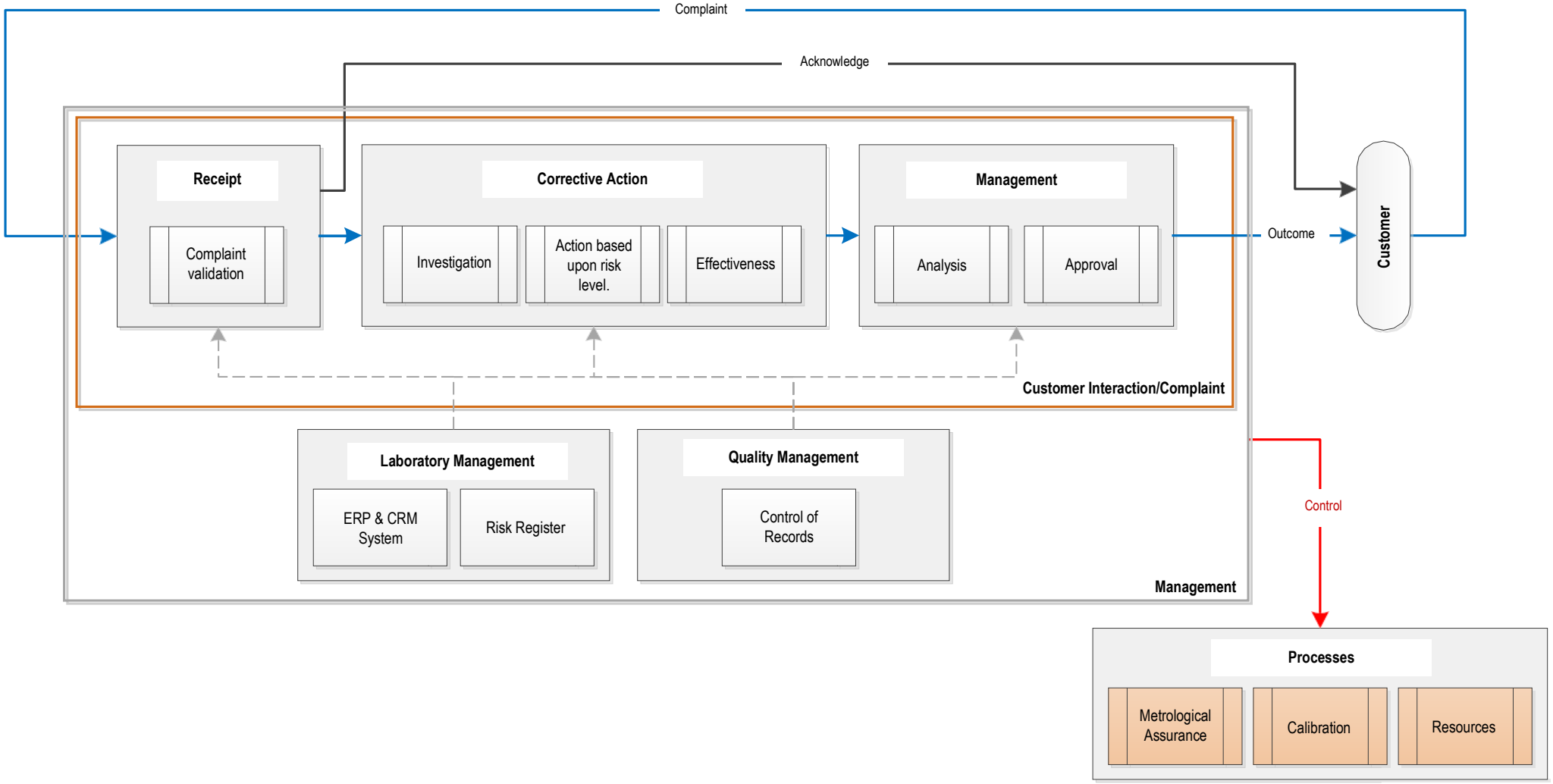
## GAM ORGANIZATION CHART



## PROCESSES INTERACTION



## COMPLAINT HANDLING



## Processes Interaction Chart shows:

1. Relationships between quality management, technical operations, and support services (see 5.5 a). Four main processes are defined:
   i. Management,
   ii. Metrological Assurance,
   iii. Calibration
   iv. Resources, including the subprocesses;

2. Responsibility of all personnel who manage, perform or verify work affecting the quality of the calibrations (see 5.5 b) and performance of management system (see 5.6);

3. Interaction lines between main processes.

i. Lines demonstrate both flows of instruments, requirements, and resources (direction of the flow is shown with arrow).

ii. Communication activity (communication is bi-directional, its direction is not shown. If interaction line exists, then communication is made);

iii. Policies (P1…P8) as the control gates of processes or the special rules for ingoing or outgoing process data. This new approach is applied to find the proper place for the policy statements in daily laboratory work. The policies are under WIC supervision.

## Policy Statements:

**P1**: GAM ensures the protection of its customers' confidential information and proprietary rights, including protecting the electronic storage and transmission of results (see 4.2).
**P2:** GAM avoids involvement in any activities that would diminish confidence in its competence, impartiality, judgment, or operational integrity (see 4.1).
**P3**: All requests, tenders and contracts are considered in detail even if the requirements exceed the capabilities of laboratory (see 7.1).
**P4**: Any deviations from requested services and supplies are discussed with the Head of Laboratory (see 6.6). Services and supplies with deviations deemed significant to the calibration work are rejected. Corrective action will be initiated as deemed appropriate.
**P5**: All complaints received from customers or other parties are considered in detail (see 7.9).
**P6**: When any aspect of calibration work, or the results of this work, do not conform to GAM laboratory procedures or the agreed requirements of the customer an information about it immediately passes to quality manager (see 7.10).
**P7**: When nonconforming work or departures from the policies and procedures in the management system or technical operations have been identified the correction action is implemented immediately together with a decision about the acceptability of the nonconforming work (see 8.7).
**P8**: For identifying training needs and providing training of personnel the verbal communication is used and captured in GAM/Q-18 Record of Engineering (see 6.2).

## Processes Description:

In this document the process approach for describing the quality management system is implemented. Processes and subprocesses are defined, authorities are assigned. Because of size of the calibration laboratory an employee at certain position participates at several main processes. Therefore, it is impractical to document the procedures separately. Under the conditions the best solution is to describe process steps for every employee at certain position. (Refer to "Processes Matrix").
To guarantee the proper implementation for all of processes that are covered with quality management system and described in these procedures the brief instructions (comments) are provided for each of documents or folders with that the employee must work. Comments are part of the document and additional identification is not needed.

Implementation of all processes, subprocesses and procedures is guaranteed and is confirmed by documents maintenance and compliance with requirements to structure and rules of access to the laboratory documentation. All documentation is divided between employees and is used and is managed by them in daily work.

## 1. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Workshop In Charge** | | | | | |
| Management | Customer Interaction | impartiality | 4.1 | 1 Define personal responsibility for every activity.<br>2 Define deputy for every position.<br>3 Provide full access to information linked with laboratory activity.<br>4 Systematically conduct training.<br>5 Use semi-automatic calibration software.<br>6 Monitor risks to impartiality | P2<br>RCD.010<br>RCD.110 |
| | | confidentiality | 4.2 | 1 Define rules of access for employees.<br>2 Provide data security through internal networking systems that are installed behind an Internet firewall.<br>3 Define Privacy policy and publish it in Website. | P1<br>Privacy Policy |
| | | Review of request, tenders and contracts | 7.1 | 1 Define and understand the requirements (together with supervisor and technician).<br>2 Analyze resources and opportunities using scope of accreditation and current workload.<br>3 Communicate with customer if external provider performs specific lab activities, gain customer's approval. External provider should be evaluated as in CLQM-6.6.<br>4 Select an appropriate calibration method. Inform customer of the method chosen. Communicate with customers when method requested is inappropriate or out of date. | P3<br>Scope of accreaditation<br>RCD.040<br>RCD.042<br>RCD.044<br>RCD.060<br>RCD.062<br>EPR&CRM Sys |

## 2. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Workshop In Charge** | | | | | |
| | | Review of request, tenders and contracts | 7.1 | 5 Define both the specification or standard and the corresponding decision rule if statement of conformity is requested. The decision rule selected should be agreed with the customer.<br>6 Document in any way the review, including any significant changes.<br>7 Inform the customer of any deviation from the contract.<br>8 Repeat contract review and communicate to all affected person when any amendments.<br>9 Be in touch with customers. | P3 |
| | | Improvement (Option A) | 8.6 | 1 Accept every request, feedback in different ways (website, phone, e-mail, etc). Use and analyze it to improve work processes.<br>2 Identify needed improvements and potential sources of non-conformities.<br>3 Allow to visit calibration facilities.<br>4 Maintain Contact Us webpage. | Website<br>RCD.070 |
| | | Complaints | 7.9 | 1 Receive and document the complaint according to the company's information system rules.<br>2 Validate the complaint: check that described case is exactly related to laboratory activity.<br>3 Perform cause analysis (together with quality manager). | RCD.061<br>RCD.070<br>RCD.071<br>RCD.110 |

## 3. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Workshop In Charge** | | | | | |
| | | Complaints | 7.9 | 4 Implement corrective actions (together with quality manager) if necessary.<br>Pay attention, the actions should be based upon risk level (see Risk Register for potential complaints cases).<br>5 Ensure that the actions taken will resolve the complaint.<br>6 Save all records, including actions undertaken.<br>7 Communicate outcome to customer.<br>8 Be in touch with customer. | |
| | Laboratory Management | Management reviews (Option A) | 8.9 | 1 Analyze information (Refer CLQM-8.9.2).<br>2 Define weaknesses.<br>3 Define changes or improvements.<br>4 Fix the results (Refer CLQM-8.9.3).<br>5 Check for implementation. | RCD.090<br>RCD.091 |
| | | Action to address risks and opportunities (Option A) | 8.5 | 1 Analyze results of reviews and define and classify risks and opportunities for next key directions:<br>- lab and company essence.<br>- lab activities including risk to its impartiality.<br>- management system effectiveness.<br>2 Plan actions to prevent risks achieved and improve opportunities defined.<br>3 Evaluate the effectiveness of these actions during management review. | RCD.110 |

## 4. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Workshop In Charge** | | | | | |
| Recourse | Personnel | Personnel | 6.2 | 1 Monitor actuality of competence requirements. Redefine if needed.<br>2 Assess the competence of personnel once a year or before new authorization.<br>Assessment methods to be used:<br>- direct supervision.<br>- classroom discussion.<br>- 1-on-1 training, etc.<br>Use competence requirements when a new worker is being accepted for employment.<br>3 Perform training if needed:<br>- Assess needs for training.<br>- Define training topic and training schedule.<br>- Perform training.<br>- Assess effectiveness of training in follow-up audit.<br>4 Ensure supervision of how personnel work in daily routine.<br>8 Assign the authorization and deputy authorization for every person.<br>9 Monitor the competence of personnel. Reassess immediately if there is found competence's decline. | P8<br>RCD.010 |
| | Accommodation | Facilities and Environment condition | 6.3 | CLP-04 – RESOURCES<br>CLQM-6.3 Facilities and environmental conditions | RCD.020 |

## 5. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Quality Manager** | | | | | |
| Management | Quality Management | Documents and Records | 7.5, 7.11, 8.3, 8.4 | 1 Use rules of access for employees.<br>2 Use semi-automatic calibration software.<br>3 Use data security through internal networking systems that are installed behind an Internet firewall.<br>To control the documents and records in the proper way.<br>1 Define list of all laboratory documents.<br>2 Check current revision status of document.<br>3 Enter the change to document and identified it if necessary (together Supervisor if needed).<br>4 Approve document, put into folder.<br>5 Assign the last actualization date.<br>6 Assign document owner and storage folder.<br>7 Perform back up where applicable.<br>8 Perform periodically review. | RCD.050<br>RCD.051<br>RCD.052 |

## 6. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Quality Manager** | | | | | |
| Management | Quality Management | Nonconforming | 7.10 | To manage the non-conforming calibration work in the proper way.<br>1 Fix the nonconforming work and, as applicable:<br>- takes action to control and correct it.<br>- addresses the consequences.<br>2 Assign responsible person.<br>3 Evaluate significance of nonconformity work including an impact analysis on previous results based on a risk-oriented approach. Take a decision on the possibility of continuing calibration (together with WIC if needed).<br>4 Perform cause analysis to evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by:<br>- reviewing and analyzing the nonconformity.<br>- determining the causes of the nonconformity.<br>- determining if similar nonconformities exist or could potentially occur.<br>5 Take a decision about the acceptability of nonconformity work. | P6<br>RCD.070 |

## 7. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Quality Manager** | | | | | |
| | | | | 6 Notify customers and recall work if needed.<br>7 Implement corrective action if evaluation indicates possibility of recursion and / or nonconformity with management system requirements.<br>8 Give info gathered to lab head to take his/her per-mission on work resumption. | |
| | | Corrective actions (Option A) | 8.7 | To manage the corrective action in the proper way.<br>1 Collect all complaints and non-conformity records.<br>2 Perform cause analysis.<br>3 Prepare correction action plan.<br>4 Monitor plan fulfillments.<br>5 Review the effectiveness of any corrective action taken.<br>6 Update risks and opportunities determined during planning, if necessary.<br>7 Make changes to the management system, if necessary.<br>6 Perform audit (Refer CLQM-8.8) if necessary. | P7<br>RCD.061<br>RCD.070<br>RCD.071 |

## 8. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Quality Manager** | | | | | |
| | | Internal Audits (Option A) | 8.8 | To manage the internal audit in the proper way it is necessary to fill in the RCD.080 and RCD.081 records.<br>1 Define internal audit schedule.<br>2 Define processes to be controlled, audit criteria relayed.<br>3 Carry out internal audit. Methods used during audit are next: interview, observe and docs' review. Take into consideration the importance of lab activities concerned, changes affecting and results of previous audits.<br>4 Assess effectiveness of corrective actions.<br>5 Bring audit data to WIC.<br>6 Implement appropriate correction and corrective actions without undue delay.<br>7 Verify audit data (corrective action implementation, effectiveness, etc.) in follow-up audit. | RCD.080<br>RCD.081 |

## 9. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Supervisor** | | | | | |
| Metrological Assurance | Equipment Management | Equipment, Metrological traceability | 6.4, 6.5 | Establishing and changing of calibration interval:<br>1 Define equipment manufacturer recommendations.<br>2 Analyze intensiveness of equipment exploitation, data of previous calibrations, maintenance, and repair.<br>3 Establish interval according manufacturer recommendations if analysis data are satisfactory and exploitation is performed on regular base.<br>4 When analytical data are suspicious, reduce interval to the next. Interval is defined as 6, 12, 18 or 24 months, or other interval as deemed appropriate.<br>5 When analysis data are satisfactory and exploitation is performed rarely, increase interval to the next. Interval is defined as 6, 12, 18 or 24 months, or other interval as deemed appropriate. | RCD.030<br>RCD.032<br>RCD.033 |
| | Uncertainty Analysis | Evaluation of measurement uncertainty | 7.6 | Refer to CLQM-5.3 for scope of calibration | Scope of accreditation |

## 10. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Supervisor** | | | | | |
| Metrological Assurance | | Equipment, Metrological traceability (Ensuring the validity of results) | 7.7 | 1 Define schedule for monitoring the validity of results:<br>- take a part in proficiency testing in regular base.<br>- perform functional check(s) and/or intermediate checks on equipment.<br>- use one from different methods and/or different equipment (where applicable);<br>- review and investigate reported results.<br>2 Determine criteria for each discipline in accordance with the scope.<br>3 Analyze results obtained during monitoring, including trend behavior.<br>4 Use statistical software (where applicable).<br>5 Implement corrective actions if needed.<br>6 Present the monitoring analysis data in management review. | |
| | Method Development and Validation | Selection, verification, and validation of methods | 7.2 | 1 Define an instrument specification to be checked during calibration.<br>2 Define a method for calibration from RCD.043 or develop a new method. (Fill in RCD.043 for new method)<br>3 If parameter defined by new method is used or planned to be used in lab scope of accreditation: | RCD.043 |

## 11. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| | | | **Supervisor** | | |
| | | Selection, verification, and validation of methods | 7.2 | a) Save obtained verification / validation / proficiency test data for new method.<br>b) Compare data with specified requirements in scope of accreditation/scope of calibration (or in project of scope);<br>c) Define the uncertainty and traceability requirements in QMS.TRC.01 for the new method.<br>5 Add new issue into the QMS.CAL.01 and QMS.GNR.01. | |
| Resources | Inventories | Externally provided products and services | 6.6 | 1 Monitor actuality of laboratory requirements. Redefine if needed.<br>2 Select type, specs and manufacturer if required for absent inventories (equipment, consumable materials, etc.) or define requirements for externally provided services.<br>3 Use EPR&CRM system to place orders for absent inventories or services required, together with detailed description and/or bring the information to WIC.<br>4 Monitor current status of request to ensure that it was reviewed and approved or to be able correct or cancel it promptly. Communicate with WIC if necessary.<br>5 If the item requested should be bought from a supplier which is absent in the list of approved suppliers the sufficient approving should be performed before. | P4<br>RCD.030<br>RCD.032<br>RCD.033<br>RCD.043<br>RCD.050<br>RCD.100 |

## 12. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| | | | | **Supervisor** | |
| Resources | Inventories | Externally provided products and services | 6.6 | 6 Discuss any actions arising from approving with WIC.<br>7 Communicate with supplier to clearance lab requirements.<br>8 Receive requested item.<br>9 Verify item and its docs. If the item is not complied with its specs and lab requirements, do not use it in laboratory activities.<br>10 Deliver items to workplaces or directly provide to customer.<br>11 Fill in RCD.030, RCD.032, RCD.030, RCD.043, RCD.050, RCD.100, if applicable. | |

## 13. Processes Matrix

| Parent Process | Parent Subprocess | Procedure Title | Procedure Description | Instructions | Related Documents and Records |
|---|---|---|---|---|---|
| **Technician** | | | | | |
| Calibration | Calibration Workflow | Calibration Procedure | 7.5, 7.8 | CLP-04<br>Fill in RCD.040 record for calibration data (technical records). | P6<br>RCD.040<br>RCD.041<br>Calibration data |
| | | Handling of calibration items | 7.4 | Calibration Technical Procedures.<br>CLP-TP | CLP-TP |
| | Environment Conditions Monitoring | Environment Conditions Monitoring | 6.3.3 | Fill in the temperature and humidity record (GAM/E-026).<br>CLP-04 | RCD.020,<br>Logger data,<br>CLP-TP,<br>GAM/E-026 |

# CALIBRATION LABORATORY PROCEDURES

# RESOURCES

# CLP-04

# PURPOSE

GAM Laboratory has sufficient personnel, facilities, equipment, systems support services to manage and perform laboratory activities.

# SCOPE

This procedure has provided necessary information and documentary evidence to compliance with the necessary legal requirements for GAM Laboratory.

## 1. PERSONNEL

All personnel of the GAM Laboratory either internal or external, that could influence the laboratory activities act impartially, are competent and work in accordance with the GAM laboratory's management system.

## REQUIREMENTS FOR AUTHORISED PERSONNEL AND SIGNATORY

### 1.1 Legal Requirements

These requirements shall be read in conjunction with any other legal requirements relating to the Authorised personnel and signatory of test report or calibration certificate.
Granting of signatory does not absolve the signatory and laboratory from complying with legal requirements relating to the signatory of test report or calibration certificate. Compliance with legal requirements shall be the sole responsibility of the signatory and laboratory.

1.2 The GAM laboratories shall provide necessary information and documentary evidence to Standard Malaysia or other Regulatory for compliance with the necessary legal requirements.

### 1. Qualification and experience

1.1 Education qualifications and working experience.

i. SPM or equivalent in science or technical stream, with at least eight (8) years of experience working in the relevant fields; or
ii. STPM or diploma in science or equivalent discipline, with at least three (3) years working experience in relevant fields; or
iii. Degree holders in science or equivalent discipline with at least six (6) month relevant working experience in relevant fields; or
iv. Other requirements as stipulated in the relevant specific technical requirements.

### 2. Technical and Operational requirements

2.1 Knowledge and understanding of the technical and laboratory operational requirements:

i. Requirements of MS ISO/IEC 17025 and all related SAMM requirements and relevant regulatory requirements.
ii. The principles of testing, calibration or measurement.
iii. The standards, methods and specifications for accreditation sought or held.
iv. The estimation of measurement uncertainties for the accreditation sought or held.

2.2 Working at least three (3) months in the current laboratory and be knowledgeable of its management system.

# 2. PERSONNEL COMPETENCE

## 2.1 Competence requirements

GAM laboratory shall ensure that the personnel have the competence to perform laboratory activities for which they are responsible and to evaluate the significance of deviations. Refer to RCD 0.10 Records of Engineering Personnel (Workshop).

| | Workshop In charge | Quality Manager | Supervisor | Technician | Planner |
|---|---|---|---|---|---|
| **Education** | | | | | |
| Technical | √ | √ | √ | √ | √ |
| **Qualification** | | | | | |
| Electrical Engineering or a related field | √ | √ | √ | √ | √ |
| ISO/IEC 17025 external training | √ | √ | √ | | √ |
| Internal/External training “Introduction to ISO/IEC 17025 | √ | √ | √ | | √ |
| Internal/External training “Quality management system (NC, CA, PA)” | | | | | |
| Internal/External training “Complaint” | √ | √ | √ | | |
| Internal/External training “Conducting Audit” | √ | √ | √ | | |
| Internal/External training “Proficiency testing: what it is and why it’s important” | √ | | √ | | |
| **Technical Knowledge** | | | | | |
| Pressure measurement and uncertainty calculations | √ | | √ | √ | |
| Torque measurement and uncertainty calculations | √ | | √ | √ | |
| Dimensional measurement and uncertainty calculations | √ | | √ | √ | |
| **Skill** | | | | | |
| Receipt and handling of equipment and accessories | √ | | √ | √ | √ |
| Housekeeping, access control, PC maintenance, environmental conditions | √ | | √ | √ | √ |
| Packaging, return shipment | √ | | √ | √ | √ |
| **Experience** | | | | | |
| Ability to process orders, review of RFQ | √ | | | | √ |
| Ability to use GAM Apps, Google Drive (QMS), Understanding of its organization, permissions existing | √ | √ | √ | | √ |
| Ability to perform document control | √ | √ | √ | | √ |
| Ability to perform equipment maintenance, its intermediate checking, understanding traceability requirements | √ | | √ | | |
| Ability to compile and control workflow checklist, understanding CAL and GNR documents | √ | √ | √ | | √ |

**2.2 Relevant Authorization**

GAM laboratory personnel are authorized to perform specific laboratory activities:

1. Calibration activity – a. includes calibration procedure together with reporting;
   b. handling of test or calibration items;
   c. environment conditions monitoring

2. Equipment Maintenance activity – a. includes equipment management, metrological traceability;
   b. evaluation of measurement uncertainty;
   c. ensuring the validity of results;
   d. selection, verification and validation of methods;
   e. externally provided products and services;

3. Certificate issuing activity – a. includes reviewing and authorization of calibration results and continuing analysis of results, including statements of conformity or opinion and interpretations.

4. All the specifications of personnel authorized, and activities should be referenced to RCD 0.11 Competency evaluation and records that shall be kept by Laboratory in hardcopy and softcopy (Google drive).

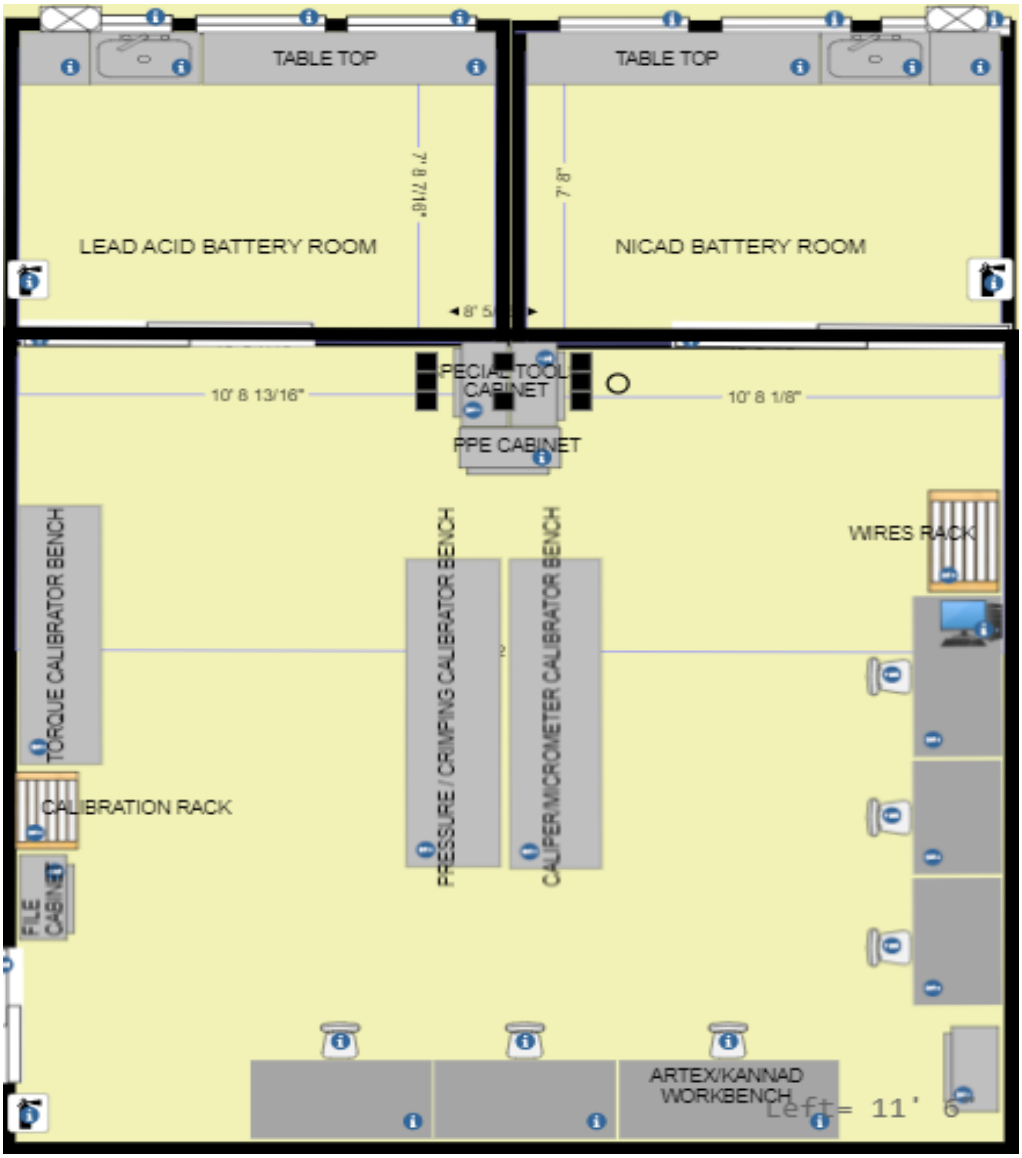
# 3. FACILITIES

## 3.1 Facilities and environmental conditions

### 3.1.1 Facilities

GALAXY AEROSPSCE (M) SDN BHD.
No. 11-14, Helicopter Centre,
Malaysian International Aerospace Centre,
Sultan Abdul Aziz Shah Airport,
47200, SUBANG,
Selangor Darul Ehsan, Malaysia
Tel: +603-7887 0426, Fax No: +603-7887 0526

### 3.1.2. Calibration Laboratory Floor Plan



GAM Calibration Laboratory generally has an incoming area, holding area, outgoing area and quarantine area to segregate the work that shall be handle by technician. Refer to Floor Plan 1.2 – Calibration Rack (CLP.04).


Figure 1 Calibration Rack

### 3.2 Environmental Conditions.

The GAM facilities and environmental conditions are suitable for laboratory activities and do not adversely affect the validity of results. The GAM Laboratory were equipped with air-conditioning rooms to control the temperature and Digital Hygrometer to monitor any changes of temperature in the laboratory (RCD 0.20-logger database). The GAM Laboratory also equipped with Dehumidifier to control, monitor and regulate the humidity of the laboratory before, during and after activities calibration.

3.2.2 The requirements for facilities and environmental conditions necessary for the performance of the laboratory activities are as follows:

Temperature and Humidity maintained in the laboratory as follows:

a. Mechanical/Hand Tools Lab 20ºC± 2ºC;
b. Dimensional/Gage Block 20ºC±1ºC;
c. Pressure/Force Lab 20ºC± 2ºC;

3.2.4 Humidity is monitored: Steps shall be taken to change the humidity when the WIC feels it is a threat to the calibrations or equipment:

a. Electronic Electrical Labs ≤ 65%;
b. Dimensional Labs ≤ 65%.

3.3 GAM Laboratory has defined that the range of laboratory activities for which it conforms with specific equipment requirements:

i. Torque Calibrator Range:

| Components | Range | Part Number |
|---|---|---|
| Transducer (4–in- 1) | 4-50 in.lb. | 2000-400-02 |
| | 30-400 in.lb. | |
| | 80-1000 in.lb. | |
| | 20-250 ft. lb. | |
| Single Transducer | 60-600 ft. lb. | 2000-14-02 |

ii. Pressure Calibrator Range:

| Components | Range | Part Number |
|---|---|---|
| Pressure Module | 0 – 135 bars | PM620-17G |
| | 0 – 350 bars | PM620-20A |
| | 0 – 700 bars | PM620-22A |

iii. Dimensional Range for Caliper and Micrometer:

| Components | Range | Part Number |
|---|---|---|
| Gauge Block | 0.5000 mm – 100.0000 mm | 516-950-10 |
| | 25.000 mm – 200.000 mm | 516-1115-10 |
| | 0.0625 inch – 2.000 inch | 516-934-16 |
| | 1.000 inch – 8.000 inch | 516-126-16 |
| Caliper Checker | 0.5000 mm – 300.0000 mm | C1103010300 |
| Optical Flat | 45 mm (0.2 µm) | 158-117 |

| Components | Range | Part Number |
|---|---|---|
| Optical Parallel | 25.00, 25.12, 25.25, 13.37mm, | MTY157-904 |
| Pin Gauge | 10mm | PING-G10-10.00 |

iv. Pull and Break for Crimper and Lugger:

| Component | Description | Part Number | Range |
|---|---|---|---|
| Crimping and Lugging Tools | Crimping Tool | YJQ-W2A | 26AWG – 12AWG |
| | Ratchet Crimp Tool | 499-2313 | 1.5 – 6mm² |
| | Crimping Tool | M22520/7-01 | 28AWG – 16AWG |
| | Crimping Tool | M22520/1-01 | 26AWG – 12AWG |
| | Coax Connectors Crimping Tool | 6PK-230PA | BNC 6.48, 5.4, 2.49, 1.72, 8.22mm<br><br>RG :55, 58, 59, 5, 6, 21,141, 142, 143, 210, 212, 222, 223, 303, 304, 400<br><br>Belden :8279, 8281, 9231 and 9141 |
| | Crimping Tool | M22520/31-01 | 26AWG |

3.3.1 Measures to control facilities are implemented, monitored, and periodically reviewed and include, but not be limited to:

a. Access to and use of areas affecting laboratory activities:
b. Prevention of contamination, interference, or adverse influences on laboratory activities.
c. Effective separation between areas with incompatible laboratory activities.

3.4 When the laboratory performs activities at sites or outside facilities, its permanent control ensures that requirements related to facilities and environmental conditions of these procedures are met.

## 4. EQUIPMENT

**4.1** GAM Laboratory equipped with Local standard and international standard requirements.
The GAM laboratory has access to equipment (including, but not limited to, measuring instruments, software, measurement standards, reference materials, reference data, reagents, consumables, or auxiliary apparatus) that is required for the correct performance of GAM laboratory activities and that can influence the results.(Refer to Equipment List RCD:030)

**4.2** When GAM laboratory uses equipment outside its permanent control, it ensures that the requirements for equipment in this document are met.

**4.3** GAM has a procedure for handling, transport, storage, use, and planned maintenance of equipment in order to ensure the proper functioning and to prevent contamination or deterioration. (Refer to MOE 2.2.1 thru 2.3.7 and EPM 7.0 thru 10.0)

**4.4** The GAM laboratory verifies that equipment conforms to specified requirements before being placed or returned into service.

**4.5** The equipment used for measurement is capable of achieving the measurement accuracy and/or measurement uncertainty required to provide a valid result. (Refer to Equipment calibration Schedule RCD: 042).

**4.6** Measuring equipment is calibrated when:
− the measurement accuracy or measurement uncertainty affects the validity of the reported results, and/or
− calibration of the equipment is required to establish the metrological traceability of the reported results.

**4.7** The GAM laboratory establishes a calibration program annually, which is reviewed and adjusted as necessary in order to maintain confidence in the status of calibration.

**4.8** All equipment requiring calibration, or which has a defined period of validity is labelled, coded, or otherwise identified to allow the user of the equipment to readily identify the status of calibration or period of validity.

**4.9** Equipment that has been subjected to overloading or mishandling, gives questionable results or has been shown to be defective or outside specified requirements, is taken out of service. It is isolated to prevent its use or clearly labelled or marked as being out of service until it has been verified to perform correctly. The GAM laboratory examines the effect of the defect or deviation from specified requirements and initiates the management of nonconforming work procedures (see 7.10).

**4.10** When intermediate checks are necessary to maintain confidence in the performance of the equipment, these checks are carried out according to a procedure.

**4.11** When calibration and reference material data include reference values or correction factors, the laboratory ensures the reference values and correction factors are updated and implemented, as appropriate, to meet specified requirements.

**4.12** The GAM laboratory takes practicable measures to prevent unintended adjustments of equipment from invalidating results.
**4.13** Records are retained for equipment that can influence GAM laboratory activities. The records include the following, where applicable:
a) the identity of equipment, including software and firmware version;
b) the manufacturer's name, type identification, and serial number or other unique identification;
c) evidence of verification that equipment conforms with specified requirements;

d) the current location. GAM uses only one location for all calibration activities, thus, as a current location.

e) calibration dates, results of calibrations, adjustments, acceptance criteria, and the due date of the next calibration or the calibration interval;

f) documentation of reference materials, results, acceptance criteria, relevant dates, and the period of validity; GAM does not use reference material in its laboratory activities, thus, section 6.4.13 f) is not applicable.

g) the maintenance plan and maintenance carried out to date, where relevant to the performance of the equipment;

h) details of any damage, malfunction, modification to, or repair of, the equipment.

# CALIBRATION LABORATORY PROCEDURES

# METROLOGICAL TRACEBILITY

# CLP-05

## PURPOSE

Metrological traceability of measurement results is an important requirement to ensure confidence in calibrations and testing performed.
The concepts require an unbroken chain of calibrations or comparisons to stated references, all having stated uncertainties. Metrological traceability pertains to reference quantity values of measurement standards and results, not organisation providing the results.

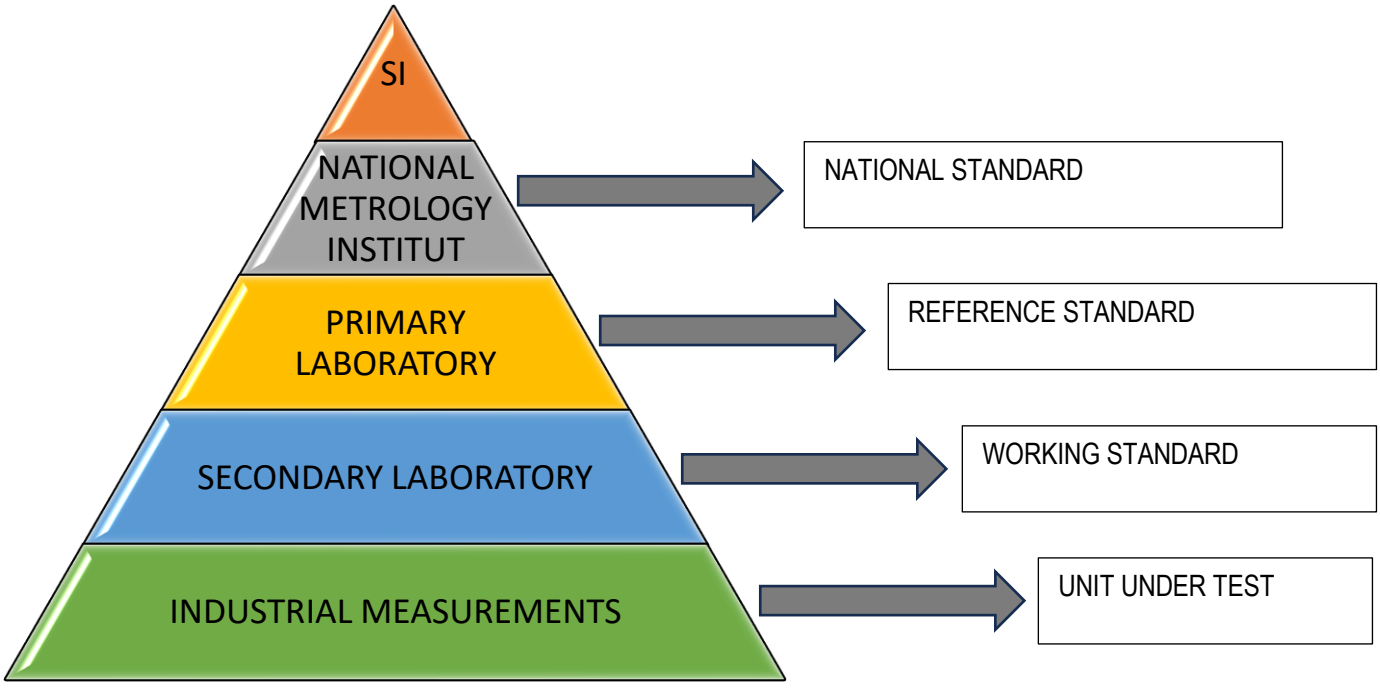
## 5. SCOPE

This procedure has provided necessary information and documentary evidence to compliance with the necessary legal requirements for GAM Laboratory.

### 5.1 Metrological traceability chain

Sequence of measurement standards and calibrations that is used to relate a measurement result to a reference.

Notes: For definition a “reference” can be a “ definition of a measurement unit through its practical realisation or a measurement procedure including the measurement unit for a non-ordinal quantity or a measurement standard.



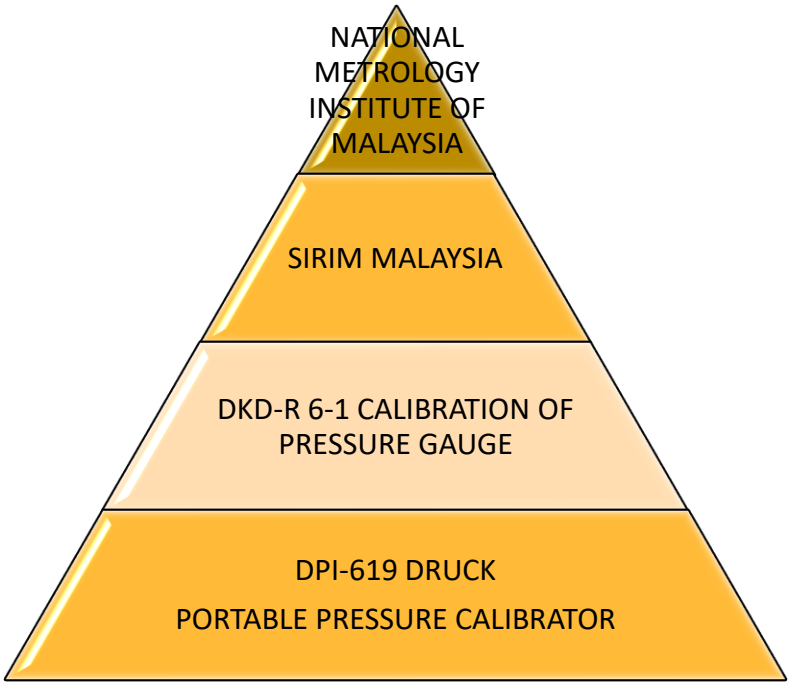

### 5.2 Metrological traceability to a measure unit

Metrological traceability where the reference is the definition of a measurement unit through its practical realisation.

Note 1: The expression ”traceability to the SI” means ‘ Metrological traceability to a measurement unit of the International System of Units’.

### 5.3 GAM Traceability

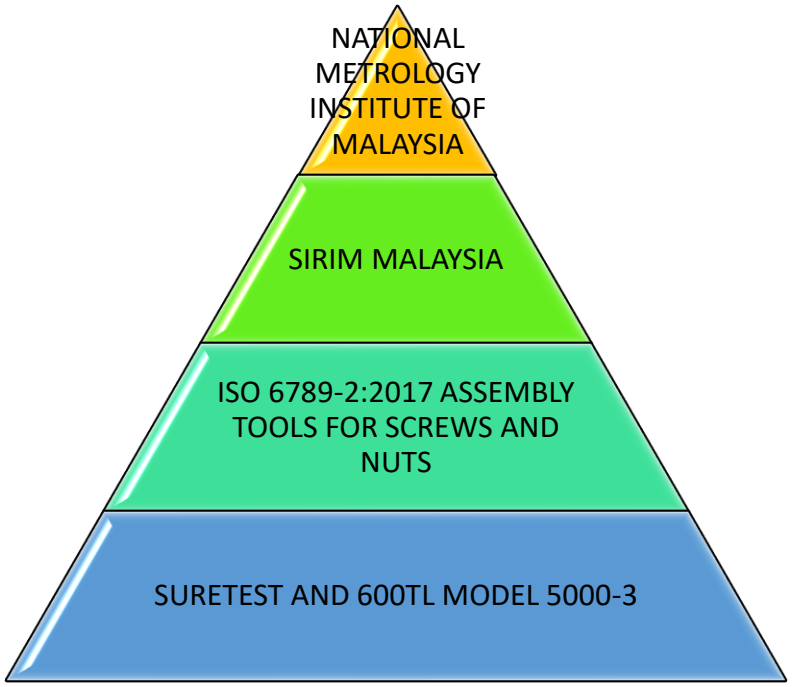
### 5.3.1 PRESSURE




| NATIONAL STANDARD | NMIM | NMIM | NMIM |
|---|---|---|---|
| REFERENCE STANDARD | SIRIM MALAYSIA | SENDI MAHIR SDN BHD | GALAXY AEROSPACE |
| WORKING STANDARD | DKD-R-6-1 CALIBRATION FOR PRESSURE | DPI-619 PORTABLE PRESSURE CALIBRATOR | WORKING INSTRUCTION |
| UUT | DPI-619 PORTABLE PRESSURE CALIBRATOR | 0-135 BAR<br>0-350 BAR<br>0-700 BAR | PRESSURE GAUGE |

5.2.2 All the Equipment Maintenance shall be recorded in the Equipment Verification Records (as required). Refer to ILAC-G24:2022/OIML D 10:2022, PARA 4, page 11.

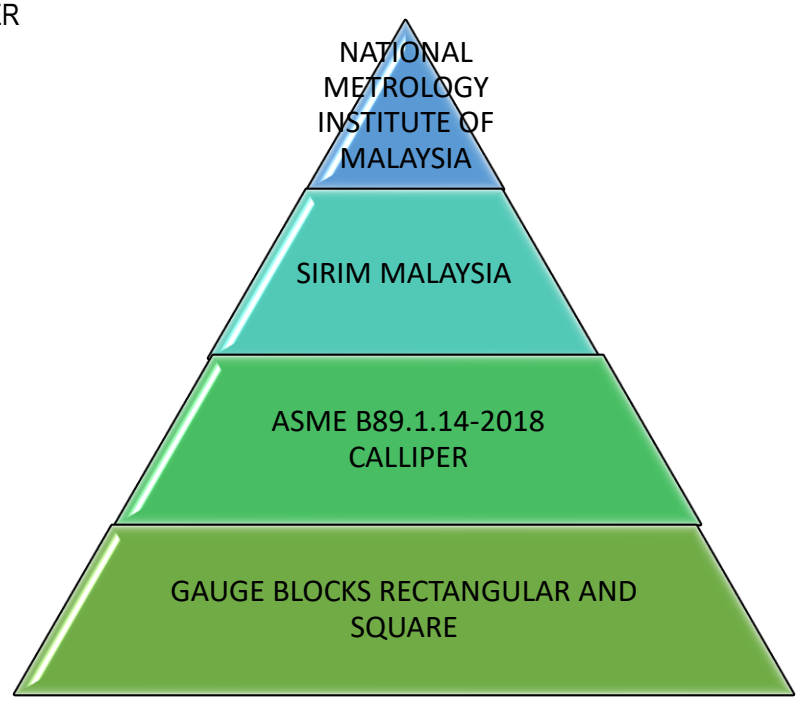
## 5.3.2 TORQUE




| NATIONAL STANDARD | NMIM | NMIM | NMIM |
|---|---|---|---|
| REFERENCE STANDARD | SIRIM MALAYSIA | SENDI MAHIR SDN BHD | GALAXY AEROSPACE |
| WORKING STANDARD | ISO 6789-2:2017 ASSEMBLY TOOLS | SURETEST AND 600TL MODEL 5000-3 | WORKING INSTRUCTION |
| UUT | SURETEST AND 600TL MODEL 5000-3 | 4-50 IN.LB<br>30-400 IN.LB<br>80-1000 IN.LB<br>20-250 IN.LB<br>60-600 FT.LB. | TORQUE WRENCH |

### 5.3.3 DIMENSIONAL

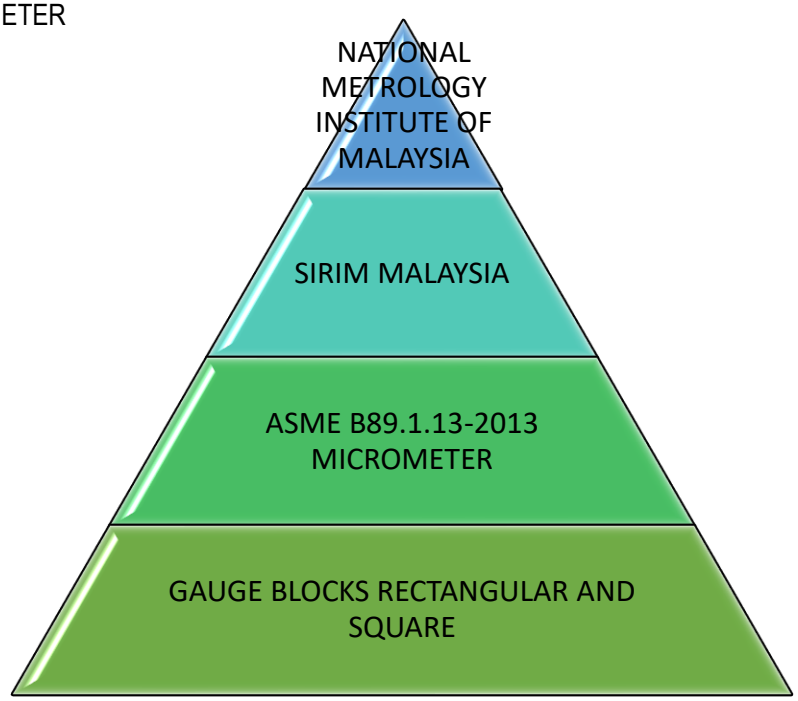
A. CALLIPER




| NATIONAL STANDARD | NMIM | NMIM | NMIM |
|---|---|---|---|
| REFERENCE STANDARD | SIRIM MALAYSIA | SENDI MAHIR SDN BHD | GALAXY AEROSPACE |
| WORKING STANDARD | ASME B89.1.14-2018 | GAUGE BLOCKS RECTANGULAR AND SQUARE MITUTOYO CALLIPER CHECKER | WORKING INSTRUCTION |
| UUT | GAUGE BLOCKS RECTANGULAR AND SQUARE MITUTOYO CALLIPER CHECKER | 0 – 300 MM<br>25 MM – 200 MM<br>1 INCHES – 8 INCHES<br>0.0625 INCHES – 2 INCHES<br>0.5 MM – 100 MM | CALLIPER |

### 5.3.4 DIMENSIONAL

B. MICROMETER




| NATIONAL STANDARD | NMIM | NMIM | NMIM |
|---|---|---|---|
| REFERENCE STANDARD | SIRIM MALAYSIA | SENDI MAHIR SDN BHD | GALAXY AEROSPACE |
| WORKING STANDARD | ASME B89.1.13-2013 MICROMETER | GAUGE BLOCKS RECTANGULAR AND SQUARE MITUTOYO | WORKING INSTRUCTION |
| UUT | GAUGE BLOCKS RECTANGULAR AND SQUARE MITUTOYO | 25 MM – 200 MM<br>1 INCHES – 8 INCHES<br>0.0625 INCHES – 2 INCHES<br>0.5 MM – 100 MM | MICROMETER |

### 5.4 POLICY FOR METROLOGICAL TRACEBILITY

5.4.1 For equipment and reference standards that must be calibrated, the policy is that the calibration shall be carried out by:

5.4.1.1 An NMI whose service is suitable for the intended use and is covered by the CIPM Mutual Recognition Arrangement (MRA). Services covered by the CIPM MRA can be viewed in Bureau International des Poids et Mesures Key Comparison Database (BIPM KCDB) which includes Calibration and Measurement Capabilities (CMCs) for each listed service.

Note 1: Some NMIs may also indicate that their service is covered by the CIPM MRA by including the CIPM MRA logo on their calibration certificates, however the fixing of the logo is not mandatory and the BIPM KCDB remains the authoritative source of verification.

Note 2: NMIs from Member States participating in the Metre Convention may take metrological traceability directly from measurements made at the BIPM. The KCDB provides an automatic link to the relevant BIPM calibration services (including the range and uncertainty). Individual calibration certificates issued by the BIPM are also listed.

or

5.4.1.2 An accredited calibration laboratory whose service is suitable for the intended use (i.e., the scope of accreditation specifically covers the appropriate calibration) and the Accreditation Body is covered by the ILAC Arrangement or by Regional Arrangements recognised by ILAC.

Note 3: Only certificates bearing the accreditation symbol or a text reference to the accreditation of the calibration laboratory can benefit fully from the recognition that the ILAC MRA and its regional counterparts bring. Calibration laboratories can indicate that their service is covered by ILAC Arrangement by including on the calibration certificate:

a) The combined ILAC MRA mark, or
b) The accreditation mark of the Accreditation Body (that is signatory to ILAC Arrangement) or the reference to its accreditation status.

Both of these options can be taken as evidence of metrological traceability (ILAC P8).

Or

5.4.1.3 An NMI whose service is suitable for the intended use but not covered by the CIPM MRA. In this case, the CAB shall provide appropriate evidence for the technical competence of the NMI and the claimed metrological traceability covering at least the following items (numbers refer to clauses in MS ISO/IEC 17025:2017):

a) Records of calibration method validation (7.2.2.4)
b) Procedures for evaluation of measurement uncertainty (7.6)
c) Documentation and records for metrological traceability of measurements results (6.5)
d) Documentation and records for ensuring the validity of results (7.7)
e) Documentation and records for competence of personnel (6.2)
f) Records for equipment which can influence laboratory activities (6.4)
g) Documentation and records for facilities and environmental conditions (6.3)
h) Audits of the calibration laboratory (6.6 and 8.8)

Or

5.4.1.4 A laboratory whose calibration service is suitable for the intended use but not covered by the ILAC Arrangement or by Regional Arrangements recognised by ILAC. In this case, the CAB shall provide appropriate evidence for the technical competence of the laboratory and the claimed metrological traceability covering at least the same items as listed in the bullet points in 4.1.3.

5.4.2 The choice of route 4.1.3 or 4.1.4 shall not be made on purely economic grounds and shall only be a last resort if other routes are unavailable.

Standards Malaysia will assess the evidence as listed in 4.1.3 and the CAB's ability to evaluate it.

# CALIBRATION LABORATORY PROCEDURES

# DOCUMENT CONTROL PROCEDURE

# CLP-06

# 1. DOCUMENT CONTROL

## PURPOSE

The purpose of this Document Control Procedure is to establish and maintain a system to control all documents that relate to Galaxy Aerospace (M) Sdn. Bhd. Calibration Laboratory (GAM CL).

## SCOPE

This procedure applies to all documents which are under the responsibility of GAM CL.

### 1.1 PROCEDURE

#### 1.1.1 General Procedure

i. The designated personnel prepare a draft of new or re-issued departmental quality document. (Hereafter referred to as document) as requested by the QAM.

- The document is uniquely identified by the title, current edition and revision status by referring to the record file GAM/CL-F01: Documents Master List, date of issue, page numbering with the total number of pages.
- Forms required by the document are issued with individual form number, year of issue and revision identification.
- GAM/CLP: Calibration Procedures consists of description of the department / group, premises and environmental condition, equipment, calibration and/or measurement procedures, handling of the service items and recording and filing system.
- GAM/CL-TP: consist of calibration description, equipment requirements, preliminary operations, calibration procedure in details, basic equations or measurement model(s) and description of measurement uncertainty budget depend on different method.
- In case of a re-issued document, the designated personnel shall have access to pertinent background information prior to instigating a change. Changes to each document are made as a whole document, and the number of revisions is changed accordingly. The altered or new text is marked in such a way to make the change observable.

ii. The WIC shall review the QM,CLP,CL-TP, WI and Form then approved by QAM. This document will be considered as the original document.

iii. The PP updates the Documents Master List, makes the QM,CLP,CL-TP, WI and Form available to all staff in the department on the appropriate departmental directory on GAM CL server(s).

- The PP protects the corresponding electronic file of the approved QM to allow only reading and printing, and then places it in the departmental directory on GAM CL server.
- When the QM is printed, it will be an uncontrolled copy (using the watermark).
- In case of the QM, the Document Control Personnel keeps the original document. Obsolete original QM is retained and clearly marked as cancelled.

- In case of the QM,CLP,CL-TP, WI and Form the original document is given to the staff who performs the operation. Obsolete document (if any) is promptly removed from the point of use. It should be clearly marked as cancelled when it is retained for knowledge preservation purposes. The minimum retention period is 5 years.
- The electronic file of the original document maintained in computerized system is duplicated for back-up purpose prior to any changes. The computerized system is protected using password to prevent unauthorized access.
- The document may be given with the permission from the WCI to external organizations and customers for information purposes. Unless otherwise specified, such document will be uncontrolled copy which is not successively updated.
- The whole documents are re-issued for a new edition after a practical number of changes, but not more than 10 times.

iv. The WIC shall review QM,CLP,CL-TP, WI and Form (including the quality documents from external sources) to ensure continuing suitability and compliance with applicable requirements by a period not exceeded 12 months.

**v.** The quality documents from external sources, such as regulations, standards, and equipment's instruction/operation manuals (only the ones which need to control the versions), will be marked as controlled document. The PP will control these documents by the use of the record file GAM/CL-F01: Documents Master List.

### a. Document Review Procedure

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
| Prepare a draft of document | SV | • Documents Master List<br>• New / reissued document |
| Review the document | WIC | • QM, CP, PP, WI, and Forms. |
| Approve the document | QAM | • QM, CP, PP, WI, and Forms. |
| Updates Master List, and makes the documents available to the staff via the server | PP | • Documents Master List<br>• Electronic document<br>• Original document file |
| Review the document periodically. | WIC | • Documents Master List |

## vi. FORMS

i. GAM/CL-F01: Documents Master List.

# 2. COMPLAINTS HANDLING

## PURPOSE

The purpose of this Complaints Handling Procedure is to establish procedure to ensure that any complaints received by Galaxy Aerospace (M) Sdn. Bhd. Calibration Laboratory (GAM CL) from customer or other parties are considered, justified and resolved promptly and effectively.

This document specifies this document is to specify requirements with which a laboratory has to operate and demonstrate its competency to carry out calibration in accordance with ISO/IEC 17025:2017.

## SCOPE

This procedure applies to all complaints received from customers or other parties, which can be verbally or in writing.

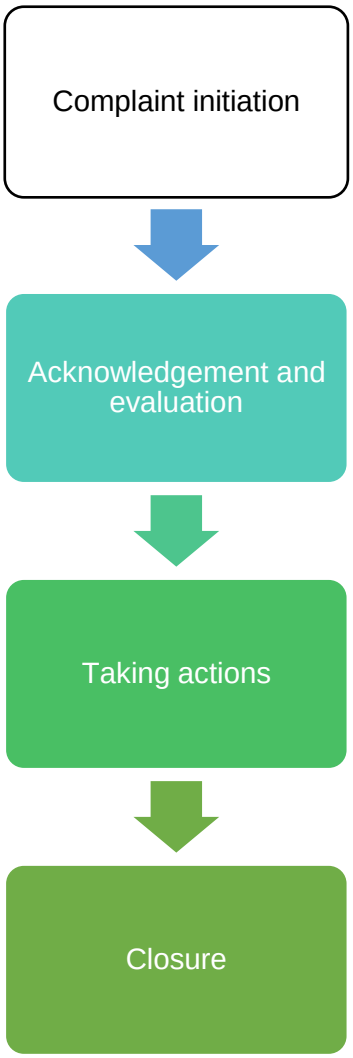
## 2.1 PROCEDURE

### 2.1.1 General Procedure

1. The WIC receiving a complaint shall fill-in the detailed description of the complaint in the Section 1 of the form GAM/CL-F02: Complaint Form. When the section 1 is completed, the form shall be sent to the QAM (either via e-mail if using the electronic format or by person if using the paper format).
2. The QAM shall investigate the complaint and justify the significance of the complaint. The QAM shall determine the nature of the complaint and justify whether it leads to any nonconformity or noncompliance or not. Required actions follow the following circumstances:
   a. If the complaint leads to a nonconforming work, the QAM shall enter the complaint in the form GAM/CL-F04: Non-conforming Work Report and concurrently follows CLP-06, Para 3, Non-conforming Work Procedure.
   b. If the complaint leads to any other noncompliance (aspect related to quality system), the QAM shall issue CAR and concurrently follows CLP-06, Para 4,Corrective Action Procedure.
   c. For any other cases, it implies that the complaint needs only an immediate correction and therefore the process can go directly to the last step.
3. The QAM shall then fill-in the detail of the investigation and the result of his/her justification into section 2 of the received form and keeps the form on record until the process reaches the last step which depends on whether NCR or CAR is issued or not.
4. The QAM shall acknowledge the complainants the receipt of their complaint(s).
5. The assigned laboratory staff performs the necessary actions according to the investigation and the result of justification of the QAM.
6. Whenever possible, the progress reports and the approved outcome of the complaint handling shall be provided and communicated to the complainant.
7. The QAM reviews and approves the outcome and completes the handling of the complaint by filling in section 4. For the case of 0.1 ii. a or 0.1b, the complaint is approved only when CAR is completed. After all sections

of the Complaint Form have been completed, the QAM shall keep the appropriate record of the Complaint Form and give formal notice of the end of the complaint handling to the complainant.

## 2.2 HANDLING OF COMPLAINT PROCESS FLOW

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
|  | WIC | • Complaint Form (Section 1) |
| | QAM | • Complaint Form (Section 2)<br>• Complaint Log<br>• Non-conforming Work Report<br>• Corrective Action Request |
| | Technician | • Complaint Form (Section 3)<br>• Non-conforming Work Report<br>• Corrective Action Request |
| | QAM | • Complaint Form (Section 4)<br>• Complaint Log |

## 2.3 FORMS

i. GAM/CL-F02: Complaint Form
ii. GAM/CL-F03: Complaint Log
iii. GAM/CL-F04: Non-conforming Work Report

# 3. NON-CONFORMING WORK

## PURPOSE

The purpose of this Non-conforming Work Procedure is to provide a system for ensuring that nonconforming measurement work is promptly identified, documented and corrected in accordance Galaxy Aerospace (M) Sdn. Bhd. Calibration Laboratory (GAM CL) policy and the requirements of the customer.

## SCOPE

This procedure applies to all nonconformities detected in measurement work or problems with the management system or with the calibration activities in GAM CL.

## 3.1 PROCEDURE

### 3.1.1 General Procedure

3.1.1.1 GAM CL Staff who discovers that any aspect of a measurement work or the result of such work does not conform to the defined procedures, or the agreed requirements of the customer can raise the nonconformity by filling-in the section 1 of the form GAM/CL-F04: Non-conforming Work Report and the running number shall be in the format of NCR-DDYYYY-###. The new report number shall be recorded on to the GAM/CL-F05: Non-conforming Report Log. The filled form shall then be submitted to the SV either by sending the saved file as an e-mail attachment or by submitting the paper form in person.

3.1.1.2 The SV investigates the laboratory own measurement system, measurement standards, and measurement procedures used for the nonconforming work and justify the significance of the nonconformity by the following criteria:

- Insignificant nonconformity has no direct effect on the accuracy, trueness and precision of the measurement and its reported uncertainty budget e.g., the discovery that the standard used in the measurement work drifted unexpectedly, but the uncertainty component due to the drift of the standard is a minor component in the uncertainty budget. In this case, the work shall be considered “accepted-as-it-is”.
- Significant nonconformity has direct effect on the accuracy, trueness and precision of the measurement and its reported uncertainty budget. In this case, WIC shall decide whether or not to halt the calibration works being affected, to withhold the calibration certificates and to resume works. He / She shall then propose to the QAM.

3.1.1.3 Disposition of the major nonconforming measurement work may be one of the following;

- “rework” means the measurement, or its report shall be reproduced for the nonconforming measurement item;
- “reject” means the nonconforming measurement item is proved to be nonconforming by itself; the reproduction of the measurement cannot resolve the nonconformity and therefore, the item shall be rejected and returned to the customer.

3.1.1.4 For the case of significant nonconformity, the WIC shall inform PP to notify the customer regarding the matter.

3.1.1.5 After the completion of the investigation, the WIC fill-in the result of the investigation and the detail of the proposed disposition in the section 2 of Complaint Log and continue sending the form to the QAM.

3.1.1.6 The QAM shall evaluate the proposed report from the WIC. If the report indicates that the nonconforming work could recur or that there is doubt about the compliance of GAM CL operations with its own policies and procedures, the QAM shall issue CAR by filling-in necessary information into the section 3 of the received Complaint Log before sending it to the WIC and send the form back with the complete information in the section 3.

3.1.1.7 Meanwhile, CLP-06, Para 4, Corrective Action Procedure shall be followed. When the WIC gets the form back from the QAM, he/she shall then send the form to the SV. However, if the CAR is not necessary, the WIC can directly send the form to the assigned laboratory staff.

3.1.1.8 The SV shall perform necessary actions as assigned by the WIC and when the action is completed, he/she shall report the result of the taken action into the section 4 of the received form and returns the form to the WIC.

3.1.1.9 The WIC shall verify the effectiveness of the taken action by filling-in the section 5 of the received form and continues on sending the form to the QAM for acknowledgement. In case of the CAR has been issued in step 3.1.1.7, the WIC shall ensure that the CAR is closed prior to the verification. In case of the effectiveness of taken action is not approved, the WIC shall decide whether or not to raise the new nonconformity to resolve as unapproved issue.

3.1.1.10 The QAM acknowledges the control of the nonconforming work by completing in the section 6 of the received form. At the end, the QAM has to send the completed form back to the WIC who will then save the form in the appropriate record file. The Non-conforming Report Log shall be updated.

### 3.2 NON-CONFORMING WORK PROCESS FLOW

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
| Raise a nonconformity | SV | • Non-conforming Work Report (Section 1)<br>• Non-conforming Report Log |
| Evaluate the nonconformity and propose an optimized disposition. | WIC | • Non-conforming Work Report (Section 2) |
| Approve the proposed disposition/ Issue CAR | QAM | • Non-conforming Work Report (Section 3) |
| Perform the necessary action. | SV | • Non-conforming Work Report (Section 4) |
| Verify the effectiveness of the resolution to the nonconformity and maintain the record. | WIC | • Non-conforming Work Report (Section 5) |
| Acknowledge the verification of the effectiveness of the resolution. | QAM | • Non-conforming Work Report (Section 6)<br>• Non-conforming Report Log |

### 3.3 FORMS

3.3.1 GAM/CL-F05: Non-conforming Report Log
3.3.2 GAM/CL-F04: Non-conforming Work Report

# 4. CORRECTIVE ACTION PROCEDURE

## PURPOSE

The purpose of this Corrective Action Procedure is to provide a system for controlling condition within the laboratory, which are adverse to quality by finding the root cause(s) of the problem and taking corrective action to eliminate the problem and taking necessary actions to prevent a recurrence of the problem.

## SCOPE

This procedure applies to any problem found in the management system which includes but not limited to the following:

i. non–compliances found during auditing the management system;

ii. complaints;

iii. problems identified by management/laboratory staff including nonconforming works.

### 4.1 PROCEDURE

#### 4.1.1 General Procedure

1. The QAM issues CAR when it is determined that an adverse quality condition exists. The QAM can do so by filling-in detailed information in the section 1 of the form GAM/CL-F06: Corrective Action Request.

Note: For the case of the CAR arising from the internal audit, the form shall be firstly filled by the internal auditor who raises the CAR.

2. The QAM shall submit the form either by e-mail or in person to the WIC. Additionally, the QAM enters CAR in the log file GAM/CL-F07: Corrective Action Status Log in order to monitor the status of the CAR.

3. CAR issued according to the process of handling the Complaint or arising from the Nonconformity Report, QAM can refer to the detail description in each Complaint No.-xx or NCR No.-xx in section 1 and attached the appropriated document without filling-in.

4. When the WIC receives the CAR form, he/she shall then review the CAR. Additionally, the WIC and the QAM shall verbally discuss about the tentative dateline for the completion of the corrective action and once the agreement has been reached, he/she shall accept the CAR by filling-in the section 2 of the received form. Nevertheless, if he/she does not agree with the issued CAR, he/she can initiate the discussion meeting with the QAM to resolve the disagreement issue.

5. After the review, the WIC shall assign the SV for taking the corrective action plan and Staff Assignment to Execute the plan.

6. SV shall investigate the root cause(s), specify the corrective action plan and assign the responsible staff to implement the corrective action. The selected corrective action shall be to a degree appropriate to the magnitude and the risk of the problem, and it must include immediate correction to the problem as necessary.

7. In some cases, root cause cannot be explicitly determined, and, in such cases, the corrective actions should be to a degree appropriate to the magnitude and risk of the problem.

8. Once the corrective action has been implemented, the assigned staff shall report in detail by filling in the section 4 of the received form and send it to the EM for evaluation (approval/not approval) of effectiveness of the corrective action.

9. The WIC shall evaluate effectiveness of the corrective action and analyse the risk and opportunities that may arise by filling-in the section 5 of the received form and send it either to the appropriate internal auditor who raised the CAR for the CAR arising from the internal audit or to the QAM for all other CARs.

10. In case of the CAR arising from the internal audit, the auditor shall preliminarily verify the effectiveness of the corrective action by filling-in the section 6 of the received form before submitting the CAR form to the QAM.

11. The QAM shall monitor the process of the corrective action by reviewing the CAR Status Log on a regular basis.

12. If a response to any CARs be overdue, a reminder shall be sent to WIC requesting a response. If no response is received within two weeks of the reminder date, the subject shall be passed to the relevant higher management for further action.

13. When the process is completed, the QAM shall verify the effectiveness of the corrective action and

a) if the action taken is verified to be effective and satisfactory, the QAM shall close-out the CAR.

b) if the verification indicates that the action taken has not been effective in correcting the deficiency and/or preventing recurrence, this shall be recorded, and this CAR shall be closed-out and the QM shall re-issue a new CAR for the continuing deficiency. The number of the new CAR shall be cross referenced to the old CAR and vice versa.

14. If the follow-up CAR indicates that the action taken is still unsatisfactory; the CAR should be followed to the relevant higher management for further action. Where the result of investigations casts doubts on the laboratory's compliance with the GAM CL policies and procedures, or on its compliance with the ISO/IEC 17025, the appropriate areas of activities in questions shall be audited in accordance with Internal Audit Procedure as soon as possible.

15. The QAM shall update the Corrective Action Status Log and maintain the record of the Corrective Action.

*16.* The QAM shall fill-in the details of the CAR close-out in the section 7 of the received form. Once the CAR form has been closed, the QAM shall save the form and maintain it in an appropriate record file.

### 4.2 CORRECTIVE ACTION PROCESS FLOW

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
| Issue CAR | QAM | • NC Report/ Internal Audit Report/ External Audit Report/ Management Review<br>• Report/ Customer's complaint<br>• Corrective Action Request (Section 1) |
| Accept CAR | WIC | • Corrective Action Request (Section 2) |
| Investigate root cause(s), specify corrective action plan and assign the responsible staff | SV | • Corrective Action Request (Section 3) |
| Implement the corrective action | Assigned Staff | • Corrective Action Request (Section 4) |
| Approve the effectiveness of the corrective action | WIC | • Corrective Action Request (Section 5) |
| Preliminarily verify the effectiveness of the correction | Auditors* | • Corrective Action Request (Section 6) |
| Monitor the corrective action process and close-out the CAR | QAM | • Corrective Action Request (Section 7)<br>• Corrective Action Status Log |

* *For internal audit only.*

### 4.3 FORMS

i. GAM/CL-F06: Corrective Action Request (CAR)
ii. GAM/CL-F07: Corrective Action Status Log

# 5. INTERNAL AUDIT PROCEDURE

## PURPOSE

The purpose of this Internal Audit Procedure is to establish methods and responsibilities for the execution of internal quality audits to surveillance the implementation and effectiveness of the management system.

## SCOPE

This procedure applies to all internal quality audits performed by GAM CL.

### 5.1 PROCEDURE

#### 5.1.2. General Procedure

1. The QAM establishes and maintains an audit program to ensure that all aspects in the quality system which are related to the requirement of ISO/IEC 17025:2017 are subjected to audit at least every 12 months in advance. The audit program shall be prepared by using the form GAM/Q-007: Audit Plan.
2. The QAM then selects teams of internal auditors from the available metrologists within the list of qualified metrologists who attend the Internal Auditor Training Course and the ISO/IEC 17025:2017 Training Course organized by SIRIM STS or the equivalent training courses organized by other organizations that authorised by Department of Standard Malaysia. The Internal Auditors shall be nominated and authorized by Top Management at least 2 weeks prior to conduct the internal audit activities.
3. Once the auditor teams have been found and the tentative schedule has been made up in accordance with the Audit Program. Each team of auditors arranges proper schedule within reasonable time frame with the auditee.
4. The auditee is then audited according to the appointment with the auditor. The auditor performs the audition by the followings:

a) The auditor shall seek evidence of compliance with the requirements of procedures, instructions, method, etc. Such evidence shall be sought against a prepared checklist taken from laboratory procedures and other documented requirements.

b) Compliance checks shall be sought by sampling records and observation of activity.

c) The results of the sampling and observation shall be recorded on the form GAM/Q-008D: Audit Check List.

d) The auditor shall classify audit findings as follows:

- Compliance: no non-compliances detected,
- Noncompliance: where there is a breakdown in the system caused by nonadherence to procedures and planned arrangements,

- Observation: where the basic intent has been met but the procedure or practice could be improved to provide better assurance of compliance.

5. Upon the completion of the audit, the auditor shall allow the auditee to skim through the information noted in the Audit Check List. The auditee and auditor shall verbally discuss on all non-compliance issues and if an agreement cannot be reached on any issue, the QAM and WIC shall be invited to resolve the matter.

6. The auditor shall complete the audit report by filling in the form GAM/CL-F10: Internal Audit Report using the information noted in the Audit Check List and shall determine whether each non-compliance has a potential for recurrence or whether it casts doubt on the effectiveness of the operation or on the correctness of the measurements' results.

7. If that is the case, the auditor must preliminary fill-in the non-compliance information in the form GAM/CL-F06: Corrective Action Request, otherwise there will be no need to issue CAR. The report number shall be in the form CL-AUD-YY-### and the new number shall be registered into the Audit Report Log using the form GAM/Q-009: Audit Report Log.

8. The auditor then submits the formal audit report which includes the completed Audit Check List, Internal Audit Report, and Corrective Action Request Forms to the QAM within one calendar month.

9. Distribution of the audit report shall be as determined by the QAM but only the brief summary of the report will always be presented at management review meeting.

10. The QAM keeps the record of the internal audit including all related documents and process the raised CAR according to CLP-06, Para 4,Corrective Action Procedure.

11. When the follow-up audit indicates that the actions taken have been implemented and are effective, the QAM shall close out the CAR.

12. A copy of the closed-out CAR is filed with the initial audit report.

### 5.2 INTERNAL AUDIT PROCESS FLOW

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
| Prepare Audit Program and select Audit Teams | QAM | • Audit Plan |
| Contact laboratory staff and make appointment. | Auditor | • Audit Check List |
| Perform internal audit | Auditee and Auditor | • Audit Check List |
| Prepare official audit report and submit to the QAM. | Assigned GAM CL Staff | • Nonconforming Audit Check List<br>• Internal Audit Report<br>• Corrective Action Request<br>• Audit Report Log |
| Maintain the record and process CAR according to Procedure for Corrective Actions. | QAM | • Audit Check List<br>• Internal Audit Report<br>• Corrective Action Request |

### 5.3 FORMS

i. GAM/Q-007: Audit Plan.
ii. GAM/Q-008D: Audit Check List.
iii. GAM/CL-F10: Internal Audit Report.
iv. GAM/Q-009: Audit Report Log.
v. GAM/CL-F06: Corrective Action Request.

# 6. MANAGEMENT REVIEWS PROCEDURE

## PURPOSE

The purpose of this Management Review Procedure is to provide the method of periodic review of the management system by GAM CL Top Management to ensure its continuing suitability and effectiveness.

## SCOPE

This procedure applies to the management review meeting of the management system performed by GAM CL Top Management and Technical Management Team.

## 6.1 PROCEDURE

### 6.1.1 General Procedure

1. The Quality Manager shall initiate a management review meeting, based on any of the following criteria;

a) a predetermined schedule every twelve-months (annual review);

b) excessive customer complaints;

c) serious quality issues or statistical trends requiring a review of the management system.

2. The QAM shall initiate the meeting by filling in the form Management Review Invitation: Management Review Invitation and sending the invitation to GAM CL Top Management, Technical Management Team, and any relevant personnel.

3. The meeting shall be used as a tool to review and evaluate the entire management system, to reconfirm its adequacy and conformity to the current requirements of the laboratory.

4. Each annual review meeting shall address the following matters;

a) status of actions from previous management reviews; (Quality Manager)

b) changes in both internal and external issues that are relevant to the laboratory; (WIC/Lab Technical Team)

c) fulfilment of objectives; (Quality Manager)

d) the suitability of policies and procedures; (Quality Manager)

e) reports from managerial and supervisory; personnel which included matters arising from monthly meeting; (WIC/Lab Technical Team)

f) the outcome of recent internal audits; (Quality Manager)

g) corrective actions; (Quality Manager)

h) results of risk identification; (Quality Manager)

i) assessment by external bodies; (Quality Manager)

j) the results of inter-laboratory comparison or proficiency test; (WIC)

k) changes in the volume and type of work or in the range of laboratory activities; (WIC)

l) customer's and personnel's feedback; (Quality Manager)

m) complaints; (Quality Manager)

n) effectiveness of any improvement's implementation; (Quality Manager) (WIC)

o) adequacy of resources;

p) outcomes of the assurance of the results' validity;

q) other relevant matters such as quality control activities, resources and staff trainings and where required, technical issues relating to the competence of the subcontractor and distributor of the reference materials; (WIC/Lab Technical Team)

5. Before the meeting actually commence, the Quality Manager can nominate a staff to take responsibility for collecting data for the meeting for him/her. The assigned staff is responsible to pass all collected information to the Quality Manager when the meeting is completed.

6. The Top Management shall then consider whether to issue any additional quality management policies or to adjust the current quality management policies or not. If there are any additions or changes, the Top Management shall direct all involved personnel to implement the new or adjusted policies.

7. The Quality Manager shall record minutes of all discussion items, resolutions and actions related to at least;

a) the effectiveness of the management system and its processes;

b) improvement of the laboratory activities related to the fulfilment of the requirements of this document;

- provision of required resources; and
- any need for change.

8. The Quality Manager shall issue copies of the minutes to concerned personnel as appropriate, where action is required. Minutes of reviews and their results of the action taken shall be retained by the Quality Manager for the period of at least 5 years.

9. Implementation of resolutions

a) Some resolutions may result in a change to work practices and/or procedures. In such cases all relevant manuals and procedures shall be reviewed and reissued in accordance with Document Control Procedure.

b) The Quality Manager is responsible for initiating corrective action for any problems identified during the management review meeting according to Corrective Action Procedure.

c) When management identifies a problem but cannot determine the precise root cause, the Quality Manager shall arrange an unscheduled internal quality audit in accordance with Internal Audit Procedure.

10. The concerned committee and staff shall be assigned to account for those findings within the timescale defined by the Management Committee. The Quality Manager is responsible for ensuring that those actions are carried out efficiently within the defined timescale.

## 6.2 MANAGEMENT REVIEW PROCESS FLOW

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
| Collect information and prepare the schedule and the agenda and initiate the meeting. | QAM | • Management Review Agenda |
| Participate in the management review meeting. | Top Management, Technical Management Team, Any relevant personnel | • Minutes of the previous meeting.<br>• Other meeting documents.<br>• Meeting video or audio records.<br>• Meeting Notes |
| Establish or adjust the quality management policies as necessary and order the Technical Management Team and relevant personnel to implement the new policies | Top Management | Nil. |
| Prepare the minute of the meeting, initiate all resolutions arising from the meeting and keep all records. | QAM | • Minutes of the meeting.<br>• All documents arising from the meeting. |

## 6.3 FORMS

1. GAM/CL-F12: Management Review Invitation

# 7. ADDRESSING RISK AND OPPORTUNITIES PROCEDURE

## PURPOSE

The purpose of this Addressing Risk and Opportunities Procedures is to provide a pro-active process to assess and evaluate probable incidents that could lead to catastrophic failure of any part of the system as well as to identify opportunities for improvement and taking preventive action. It is not intended to provide a reaction to the identification of problems and complaints.

## SCOPE

This procedure applies to any improvement opportunities which are identified by reviewing of the operational procedure and data, risk analysis and potential sources of nonconformities.

## 7.1. PROCEDURE

### 7.1.1. General Procedure

1. Any member of GAM CL staff can assess risk and identify improvement opportunities and propose action plan by filling-in details of risk assessment and proposal of the preventive action plan in the section 1 of the form GAM/CL-F13: Preventive Action Request . The running number shall be in the format of PAR-DD-YYYY-### and the new running shall be registered into form GAM/CL-F14: Preventive Action Log. After the section 1 is filled, the filled form shall be sent to the SV.
2. Another path for the preventive action can go through the Risk Management and/ or Report on evaluation and improvement of internal control that is run by the assigned Risk Management Committee and/or Internal Auditor. Any member of Risk Management Committee who has found that there is a risk issue can raise the issue to the Risk Management Committee or Internal Auditor.
3. The SV shall then review and decide whether to approve the proposed preventive action plan or not by filling in the information in the section 2 of the received form. If the SV approves the proposed preventive action plan, he/she shall continue sending the form back to the responsible member of the staff who is assigned to hold the responsibility for implementing the approved preventive action plan.
4. The Risk Management Committee has regular meetings throughout the year to gather and assess all risk issues and prioritize all issues to make the Annual Risk Management Plan that will be proposed to the director.
5. The relevant member of the staff shall implement the approved preventive action plan. And when the implementation is completed, he/she shall report, in details, the result of the implementation in the section 3 of the received form and sends the form to the SV.
6. All relevant staff as indicated in the approved Annual Risk Management Plan shall implement the actions according to the plan.
7. The SV shall monitor and verify the effectiveness of the preventive action. He/she shall complete the section 4 of the received form and once the process is completed, he/she shall save the form in an appropriate record file and the Preventive Action Log shall be updated accordingly.
8. The Risk Management Committee has a function to monitor the effectiveness of the implemented actions and summarize the results into the Annual Risk Management Report.

## 7.2. RISK MANAGEMENT PROCESS FLOW

| PROCESS FLOW | PIC | DOC. REF. |
|---|---|---|
| Identify and assess risk and identify improvement opportunities and propose action plan. | Any staff and/or Risk Management Committee | • Preventive Action Request (Section 1) and/or<br>• Risk Issues<br>• Preventive Action Log |
| Approve preventive action. | SV and/or Risk Management Committee | • Preventive Action Request (Section 2) and/or<br>• Annual Risk Management Plan |
| Implement the preventive action. | Relevant staff | • Preventive Action Request (Section 3) |
| Evaluate the effectiveness of the implemented action | SV and/or Risk Management Committee | • Preventive Action Request (Section 4) and/or<br>• Annual Risk Management Report<br>• Preventive Action Log |

## 7.3. FORMS

1. GAM/CL-F13: Preventive Action Request
2. GAM/CL-F14: Preventive Action Log
3. GAM/CL-F15: Annual Risk Management Plan.
4. GAM/CL-F16: Annual Risk Management Report