



**MOBIUS INSTITUTE
BOARD of CERTIFICATION**

1525 Frankston-Flinders Road
Tyabb
Victoria 3913
AUSTRALIA
Tel: +61 3 5977 4606
e-mail: certification.manager@mobiuscertification.org

**ED161 - MIBOC CERTIFICATION OF
RELIABILITY PRACTITIONERS**

**Requirements for qualification and assessment of
Reliability Practitioners**

**Part 3 – Classifications of Personnel for Asset
Reliability Practitioners: Category ARP-Ex, ARP-Lx**

**Version 2
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1. Introduction

The Mobius Institute Board of Certification (MIBoC) Scheme is managed and administered by the Mobius Institute Board of Certification, which takes into consideration the needs of industry through advice and guidance provided by a Governing Body, Scheme Committee and Technical Committee. The charters of these groups are outlined in documents ED121 – *Governing Body Charter*, ED167 – *Reliability Scheme Committee Charter*, and ED168 – *Reliability Technical Committee Charter*, respectively. Membership of committees is open to the participation of individuals and organisations, and further information is available from the Certification Manager of the Mobius Institute Board of Certification.

The MIBoC Scheme provides a Mobius Institute Board of Certification standard and associated programme, non-discriminatory and internationally available, for the certification of reliability practitioners according to the aims & context outlined in this document. The programme conforms to the requirements of *ISO/IEC 17024 - Conformity assessment – General requirements for bodies operating certification of persons*.

If further information or advice is required on any certification matter, please contact the Certification Manager of MIBoC on telephone number +61 3 5977 4606, or email certification.manager@mobiuscertification.org.

2. Scope

This document describes the general requirements of a scheme for the qualification and MIBoC certification of Reliability Practitioners, that conforms to the requirements of ISO/IEC 17024.

Further documents provide general scheme requirements and other details of the classification of personnel within the scheme:

ED161-1: MIBOC CERTIFICATION OF RELIABILITY PRACTITIONERS: Requirements for qualification and assessment of Reliability Practitioners - Part 1: General Scheme Requirements

ED161-2: MIBOC CERTIFICATION OF RELIABILITY PRACTITIONERS: Requirements for qualification and assessment of Reliability Practitioners - Part 2: Classifications of Personnel for Asset Reliability Practitioners: Category ARP-A, ARP-E, ARP-L

The scheme will adopt new versions of these documents and normative references as they are published.

3. References

Normative References:

- ISO/IEC 17024, Conformity Assessment – General requirements for bodies operating certification of persons.
- ED161-1: MIBOC CERTIFICATION OF RELIABILITY PRACTITIONERS: Requirements for qualification and assessment of Reliability Practitioners – General Scheme Requirements
- ED161-2: MIBOC CERTIFICATION OF RELIABILITY PRACTITIONERS: Requirements for qualification and assessment of Reliability Practitioners - Part 2: Classifications of Personnel for Asset Reliability Practitioners: Category *ARP-A, ARP-E, ARP-L*

MIBoC Documents:

- *ED121 – Governing Body Charter, Charter of MIBoC’s Governing Body*
- *ED167 – Reliability Scheme Committee Charter, Charter of MIBoC’s Reliability Scheme Committee*
- *ED168 – Reliability Technical Committee Charter, Charter of MIBoC’s Reliability Technical Committee*
- *EDXXX – Experience Competency Assessment report format*

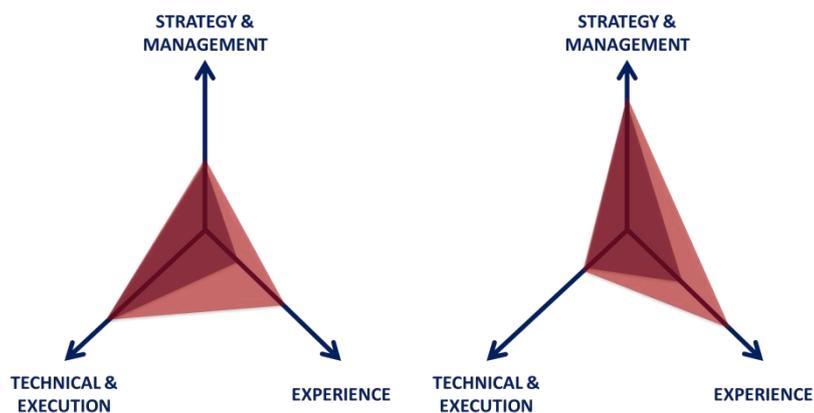
4. Terms, definitions and abbreviations

For the purposes of this document, the definitions and abbreviations listed in ED161-1 apply.

5. Eligibility for certification

5.1. Proven experience certification for Category ARP-Ex and ARP-Lx

The “x-level” Category ARP-Ex and ARP-Lx certification is over and above general ARP-E and ARP-L certification and recognises an individual who has acquired both knowledge and practical experience and has proven competence in reliability improvement.



Increase in experience requirement when moving from an ARP-E to Ex or ARP-L to Lx.

The process to become certified as ARP-Ex or ARP-Lx involves four mandatory steps/requirements, and one optional step:

1. The candidate shall be certified at ARP-E to be eligible for Ex and ARP-L to be eligible for Lx
2. The candidate must meet the minimum duration (defined in Table 1) of verified experience performing tasks listed in section 5.2 and 5.3 for ARP-Ex and ARP-Lx in document ED161 respectively.
3. The candidate may *optionally* complete an Experience and Competency Pre-assessment, without charge, to assess the likelihood of passing the Experience and Competency Assessment.

4. The candidate must complete the Experience and Competency Application, and have it verified, to determine if the final step should be undertaken. MIBoC will score the application and verify all of the information provided in the application, and if satisfactory, will invite the candidate to formally apply for certification.
5. The candidate must then complete a more detailed Experience and Competency Assessment based on the requirements of the scheme and the response given in the Experience and Competency Application.

The entire process is explained in greater detail in Section 6 below.

5.2. Experience requirements

The number of months of experience required at the ARP-Ex and Lx levels *in the role that meets the description of a certified Asset Reliability Practitioner ARP-E and ARP-L (per sections 5.2 and 5.3 respectively in document ED161-2)* are listed in Table 1 below.

Table 1 – Minimum duration of specific reliability improvement experience (months) required for x-level certification

ARP-A	ARP-Ex	ARP-Lx
N/A	36	36

Note: The months shown represent the number of months of experience required in a role corresponding to that category; they are not cumulative

6. Conduct and scoring of Experience and Competency Assessments

The aim of this process is to assess whether the candidate has been actively working as a “reliability engineer” as per section 5.2 in ED161-2, or a “reliability program leader” as per section 5.3 in ED161-2, and that they have been effective in that role; i.e. they do not just have experience, they also have competence.

6.1. Summary

The process required to assess the experience and competency of a candidate will work as follows:

1. The candidate can optionally perform a self-assessment in order to decide whether they should apply for certification at the Category ARP-Ex or ARP-Lx level.
2. The formal “Experience and Competency Assessment” is performed in two parts, with two fees, enabling the candidate to reduce their costs should they fail the first stage.
3. In the first stage, the candidate can formally apply for certification by completing an “Experience and Competency Application” which is designed to capture the essential details of their experience in their role as “reliability engineer” or the “reliability program leader”. As part of that process they will:
 - a. Complete a series of multiple-choice questions that indicate the nature of the tasks they have performed. The questions are broken into the same sections as used in Appendix A. (The questions are a super-set of the self-assessment questions.)
 - b. Add comments to explain their experience.

- c. Upload PDF reports that demonstrate their achievements.
 - d. Provide the names of two people who can verify that the information provided is accurate.
4. The candidate's certification status will be checked and the application will be scored by MIBoC. If the minimum required score is exceeded, the candidate's references will be checked.
5. If the candidate passes the application, they will be invited to formerly apply for the second stage of the assessment.
6. An independent, qualified "Experience and Competence Assessor" will be assigned to the candidate. The assessor will review the application, read the comments, read the PDF reports, and then interview the candidate.
7. The interview will be conducted in a fair, unbiased, and auditable manner:
 - a. An on-line series of questions will be followed, and the responses will be captured
 - b. The computer screen and the audio of the interview will be captured to enable the process to be audited, and to allow review of individual interviews and assessments should the candidate challenge a failed assessment.
8. At the conclusion of this process, the assessor will make the determination whether or not to grant certification at the ARP-Ex (or Lx) level.

6.2. Defining the Assessment

The questions used in the Experience and Competency Self-assessment, Application, and Assessment are designed to meet the following requirements:

1. There are questions from each of the nine subject areas (as listed in Appendix A of ED161-2)
2. The questions are used to measure what the candidate has *done*, and what they have *achieved*, in their role as "reliability engineer" or "reliability program leader".
3. This process is defined by the Scheme Committee.
4. The questions are defined by the Technical Committee.

6.3. Scoring the assessment

The questions used in the Experience and Competency Self-assessment and Application can be individually scored from 0 to 5. A score of 0 would indicate that the candidate has no experience at all, and a score of 5 indicates the highest level of competence.

In order to be eligible for assessment, the candidate must exceed a minimum score in each subject area, and the candidate must exceed a threshold score in subject areas that are considered the primary domain for that category of certification. For example, "Asset strategy development" is a key area for a ARP-E reliability engineer, and "People management" is a key area for a ARP-L reliability program leader.

6.4. Experience and Competency Self-assessment

The Self-assessment provides a means for practicing reliability engineers and program leaders to assess whether they are ready to apply for certification at the ARP-Ex and ARP-Lx level. It is a free on-line process.

If the candidate wishes to know their score they can provide their name and e-mail address as part of the online survey process. It is expected that most people will be able to make the assessment themselves as they will understand the scoring system and will therefore assess whether they have achieved a high enough score.

6.5. Experience and Competency Application

If the candidate believes they have sufficient experience and competence to be certified at the ARP-Ex or ARP-Lx level, they can pay a fee to complete the on-line application. The questions will be similar to the self-assessment, however they will also:

1. Quantify their experience by recording their achievements
2. Record comments associated with each area that is scored
3. Provide evidence of their achievements in the form of PDF documents (see the next section)
4. Provide the name and contact details of two people who can verify that the answers/responses/reports provided as part of the application are a fair indication of the candidate's experience and competence.

MIBoC staff will review the application and perform an assessment as to whether the applicant has met the minimum requirements in order to move to the interview stage (which will cost the applicant additional fees). The review will include:

1. Have they met the scoring criteria
2. Are they already certified ARP-E or ARP-L
3. Do the references provided by the candidate verify/validate the responses given by the candidate
4. Has the candidate provided sufficient information in the form of comments and PDF reports

If the candidate passes these requirements they will be invited to apply to complete the second stage of the assessment; the interview with a MIBoC approved Experience and Competency Assessor.

6.6. Candidate reports

As evidence to validate their experience in the key subject areas, and to demonstrate that they have achieved a sufficient level of competence, the candidate should submit documents (in PDF format) of reports, case histories, before/after photos, etc.

The options and format are covered in document ED### (TBA).

In summary, the reports may include:

- Case studies: condition monitoring "saves", reliability improvements, production/quality improvements
- Examples of work: master asset lists, criticality rankings, asset strategy/RCM reports
- Evidence of improvements: use of CM tools, alignment tools, lubrication tools, etc. plus before/after photos of lube storage room, spares storage, workshops, dirty/clean machines, etc.
- KPI trends and benchmark assessments

- Root cause failure analysis reports: failure, evidence, logic, conclusions, options, implementation, proof of improvement
- Business performance improvements
- Training records, skills assessment reports

The reports will be reviewed by the Assessor, and the candidate will be required to answer questions about the evidence submitted during the Experience and Competence Assessment interview. For example, if the candidate provided a report related to an improvement project that was based on a root cause failure analysis, the candidate could be asked questions about the evidence that was used, the decision-making process, the options considered, and so on.

6.7. Experience and Competency interview process

MIBoC will appoint an Experience and Competency Assessor to conduct an interview with the Candidate. The Assessor will be selected according to:

1. Independence: the Assessor must be completely independent. They may not work for the same organization as the candidate or a competitive organization, or have any other associations which could compromise independence or impartiality.
2. Category: the Assessor must be able to perform the assessment at the category level (ARP-E or ARP-L) for which the candidate has applied for.
3. Industry: where possible, the Assessor will have experience in the industry in which the candidate works.
4. Time zone & Language: where possible, the Assessor will live/work in a similar time zone and speak the same language as the candidate. If necessary, the candidate may arrange to use the services of a translator.
5. Availability: MIBoC will share the work amongst qualified Assessors, and of course, the Assessor must be available to do the work.

The Assessor will review the information provided by the candidate:

1. Their responses (answers, score and comments) on the application
2. Their PDF reports

The Assessor will develop a list of questions that would be appropriate for the candidate based on the information available. The questions might include:

1. The way in which the criticality ranking was performed
2. Details of the asset strategy that was developed; how much the candidate was involved, how decisions were made, who else was consulted during the process
3. Issues raised by employees during the culture change process
4. The level of support shown by senior management
5. Examples of problems that have been overcome
6. Specific questions about the case studies, including: who else was involved, how the savings were arrived at, what resistance was met when the failure was initially reported, etc.

The interview will be conducted utilizing an on-line tool that includes similar questions to the application (so that their responses can be verified and challenged), but also includes the ability to record notes during the interview.

The conversation, and the Assessor's computer screen, will be recorded so that it can be seen how the Assessor responded to the information provided by the candidate. By recording it will also be possible to:

1. Audit the interview for quality control and training purposes
2. Enable the candidate to challenge the Assessment if they fail, or for a concerned person to challenge the successful certification of another person. This process is described in section 6.8 below.

As part of the interview process, after the call has ended *but the computer screen and audio are still being recorded*, the Assessor must decide whether the candidate should be certified at the ARP-Ex or ARP-Lx level. The guidelines are:

1. If the Assessor feels that the candidate has not been honest on their application, or in the answers provided during the interview (beyond normal levels of minor "human exaggeration"), then the candidate will fail.
2. If the Assessor feels that the answers provided do not demonstrate that the candidate is competent to perform the role as defined under 5.2 and 5.3 for ARP-Ex and ARP-Lx in document ED161-2 respectively, then the Assessor will write notes to that effect (in the space provided in the on-line interview tool), also verbalizing their concerns (i.e. they will keep talking).
3. Otherwise, if they do believe they have experience and demonstrated competence, then again the Assessor will make notes and verbal comments to that effect.

The Assessor will inform MIBoC of his/her recommendation, and MIBoC will inform the candidate. It is up to the Assessor whether he/she informs the candidate at the conclusion of the interview whether they passed or failed. It may be preferential, and informative/constructive, to do it in person (virtually, at least).

Note: The recording of the interview will be saved and backed up so that it can be utilized at any time in the future.

6.8. Experience and Competency Assessor qualifications

It is essential that the Experience and Competency Assessors are competent to perform this critical role. Assessors will either be qualified to perform the assessments of ARP-E or ARP-L candidates, or both.

Initially the chairperson of the Technical Committee will act as the Assessor, and that person will perform the audit of other Assessors who apply for the role. The Assessors could be:

- Scheme or Technical Committee members
- Consultants
- Other people who are appropriately skilled

The Assessors must go through the same interview process as described above, however it will be necessary for the Assessors to meet additional requirements:

1. They must score a minimum of 3 out of 5 in every subject area
2. They must have twice the years of experience as required for normal candidates
3. They must take the corresponding knowledge-based exam (ARP-E or ARP-L) and score 85% or higher

6.9. Challenging the final assessment

If a candidate fails the Experience and Competence Assessment they can challenge the result with MIBoC. MIBoC will respond as follows:

1. If the candidate failed because of perceived dishonesty, the candidate will be informed and given the opportunity to clarify any misunderstandings.
2. If the candidate failed based on the assessment of the Assessor, they will be given the opportunity to pay a refundable appeal fee to be reassessed.
3. A new Assessor will be asked to review the case. They will review the original application and supporting information, and they will view the recorded interview. There are a number of possibilities:
 - a. They support the original assessment. The candidate will be informed that they will not be certified.
 - b. The Assessor concludes that the ruling should be overturned.
 - i. The Assessor will present the case to the Technical Committee
 - ii. The Assessor highlights the portions of the recorded interview where it is believed the original Assessor was too harsh in their judgement
 - iii. The original Assessor will be asked to present why they believed their assessment was fair
 - iv. The Technical Committee will make the final judgement
 - v. There are three possible outcomes:
 1. The TC supports the original assessment and the candidate will be informed that they will not be certified – as per a. above
 2. The verdict is overturned. The candidate will be certified and their appeal fee will be refunded.
 3. The Assessor will re-interview the candidate. If they pass the interview, the appeal fee will be refunded and the candidate will be certified. If they fail, the candidate will be informed and the appeal fee will not be refunded.

If the result is overturned then the Assessor who originally failed the Candidate will be coached, as necessary.