IEC Quality Assessment System for Electronic Components (IECQ System)

Assessment Procedures for acceptance of Candidate Technical Experts (TE) in the IECQ Aerospace, Defense, and High Performance (ADHP) Electronics Scheme
IECQ OPERATIONAL DOCUMENT

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INTERNATIONAL ELECTROTECHNICAL COMMISSION
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FOREWORD

This publication has been prepared by the IECQ Management Committee (IECQ MC) of the IEC Quality Assessment System for Electronic Components (IECQ).

This publication is directly related to the IECQ System management Basic Rules contained in publications (IEC CA 01 + IECQ 01-S), IEC Harmonised Basic Rules (IEC CA 01) plus the IECQ Supplement (IECQ 01-S)

IECQ Operational Document IECQ OD 3403 has been prepared by IECQ working group WG04, of IECQ Management Committee (IECQ MC).

This 4th edition cancels and replaces the 3rd edition, effective from its publication. Provision is provided for a 12month transition period for competence of existing appointed IECQ ADHP Technical Resources. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Added the requirement for attainment of IECQ ADHP & CAP Certificate of Training.

b) Alignment to current industry expect competence & experience criteria – reduced the prior experience to 5 years and added a requirement for AS/EN/JISQ9100 auditing experience which is summarised in Table 1.

c) Restructured document to align with ISO/IEC 17021 Resources competence principles.

The text of this International Standard is based on the following documents:

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<tr>
<th>Document</th>
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<tr>
<td>IECQ MC/443/CA</td>
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Full information on the report of IECQ MC approval of this publication can be found in the report indicated in the above table.
INTRODUCTION

Taking into account the object of the International Electrotechnical Commission (IEC) as given in Article 2 of the Statutes, the particular object of the IECQ System, operated in conformity with the Statutes and under the authority of the IEC, is to facilitate international trade in electronic components of assessed quality, by providing a global framework for independent assessment and certification.

The object is achieved by the implementation of quality assessment procedures in such a manner that organizations, processes, and components certified as conforming to the requirements of an applicable standard or specification, are acceptable to all participants.

The IECQ System provides manufacturers with a “Supply chain verification tool” for seeking assurance that electronic components, assemblies, processes and related materials conform to declared technical Standards and Specifications.

These assessment procedures for acceptance of candidate IECQ ADHP Technical Resources in the IECQ Aerospace, Defense, and High Performance (ADHP) Electronics Scheme are designed to evaluate candidate Technical Resources for their competence and capability to undertake assessment work in the IECQ ADHP Scheme.

Further information concerning these procedures or any other aspect of the IECQ Scheme, may be obtained at: http://www.IECQ.org

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<tr>
<td>2007-10</td>
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<td>2008-09</td>
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<tr>
<td>2018-12</td>
<td>Updated to address multi Plan qualification requirements &amp; IEC CA 01 inclusions.</td>
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<td>2019-03</td>
<td>Restructured document to align with ISO/IEC 17021 Resources competence, Add provision for IECQ ADHP Implementation Assessment resources, Inclusion of attainment of IECQ ADHP &amp; CAP Certificate of Training, Alignment to current industry expect competence &amp; experience criteria.</td>
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IECQ Secretariat  c/o IEC Sydney Office
The Executive Centre, Australia Square, Level 33
264 George Street, Sydney, NSW 2000 Australia
E-mail: info@iecq.org | Tel:+61 2 4628 4690 | Fx: +61 2 4627 5285 | http://www.iecq.org
IECQ OPERATIONAL DOCUMENT –

Part 3403: Assessment Procedures for acceptance of Candidate Technical Resources in the IECQ Aerospace, Defense, and High Performance (ADHP) Electronics Scheme

1 Scope

This IECQ Operational Document (OD) contains principles and requirements for the competence and consistency of IECQ ADHP Technical Resources (IECQ ADHP Assessors and Technical Experts) conducting (IECQ third-party) assessments within the IECQ ADHP Scheme. The skill set, qualification criteria, application, assessment and surveillance processes for technical resource personal seeking to be accepted and maintain acceptance as IECQ ADHP Assessors and Technical Experts (TEs) in support of the IECQ Aerospace, Defense, and High Performance (ADHP) electronics Scheme are contained in this Operational Document.

The requirements of this OD are to be used in conjunction with applicable IECQ System management Basic Rules (IEC CA 01 + IECQ 01-S), General Rules of Procedures (IECQ 03-1), IECQ ADHP Rules of Procedure (IECQ 03-4) and Operational Documents (OD) as listed in normative references Clause 2.

The qualification of IECQ ADHP Technical Resources is a process in accordance with ISO/IEC 17021.

In the event of conflict between the provisions of this document and any other directly or indirectly referenced provisions, the provisions of this document shall take precedence.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. The IECQ Management Committee shall decide the timetable for the introduction of revised editions of the documents. For undated references, the latest edition of the referenced document (including any amendments) applies.

The IECQ System management Basic Rules and Procedures prescribed in the following documentation shall be used for the IECQ AP assessments where applicable.

IEC CA 01, IEC Conformity Assessment Systems – Basic Rules
IECQ 01-S, IECQ Supplement to Harmonized Basic Rules IEC CA 01
IECQ 02, General Requirements for the Acceptance of IECQ Certification Bodies into the IECQ System
IECQ 03-1, General Requirements for all IECQ Schemes
IECQ 03-4, IECQ Aerospace, Defense, and High Performance (ADHP) Component Management Scheme
IECQ OD 3405, IECQ Operational Document Part: 3405 - Procedures for the issuing of IECQ Certificates of Conformity for Aerospace, Defence, and High-Performance electronics Control Plans
IECQ OD 3406, IECQ Operational Document Part: 3406 - Procedures for the issuing of IECQ Certificates of Implementation for Aerospace, Defence, and High-Performance electronics Control Plans
3 Terms and definitions

The basic definitions concerning conformity assessment contained in ISO 9000 / ISO/IEC 17000 apply.

For the purpose of the IECQ Approved Process Scheme, the definitions contained in IEC CA 01, IECQ 01-S, IECQ 02, IECQ 03-1 and IECQ 03-4 apply.

3.1 client
organization whose management system is being audited for certification purposes

3.2 auditor
person who conducts an audit

3.3 competence
ability to apply knowledge and skills to achieve intended results

3.4 technical expert
person who provides specific knowledge or expertise to the audit team

Note 1 to entry: Specific knowledge or expertise is that which relates to the organization, the process or activity to be audited.

4 Principles

4.1 General

4.1.1 The principles described in this clause provide the basis for the subsequent specific resource competence and descriptive requirements in this operational document of the IECQ ADHP Scheme. These principles should be applied as guidance for the decisions of IECQ WG04 and IECQ MC that may need to be made for unanticipated situations. Principles are not requirements.

4.1.2 The overall aim of IECQ ADHP Technical Resource qualification and appointment under the IECQ System is to give confidence to all parties that technical resources within the IECQ ADHP Scheme have adequate consistent competence and knowledge to undertake certification services. The value of certification is the degree of industry confidence and trust that is established by an impartial and competent assessment by a third-party. Parties that have an interest in certification include, but are not limited to

a) the clients of the certification bodies;

b) the customers of the organizations whose ECMP / Plans are certified;

c) governmental authorities;
d) non-governmental organizations;
e) consumers and other members of the public.

4.1.3 Principles for inspiring confidence include:

- impartiality;
- competence;
- responsibility;
- openness;
- confidentiality;
- responsiveness to complaints;
- risk-based approach.

4.2 Impartiality

Being impartial, and being perceived to be impartial, is necessary for all IECQ ADHP Technical Resources to deliver certification that provides confidence. It is important that all internal and external IECQ ADHP Technical Resources are aware of the need for impartiality.

It is important that Plan Owners are able to provide open access to Plan records. The employer or other background of the IECQ ADHP Technical Resources may inhibit this. Details of the IECQ ADHP Technical Resource’s background shall be available, to enable the applicant requesting an ADHP Plan assessment to confirm the commercial acceptability of the technical resource.

4.3 Confidentiality

To gain the privileged access to information that is needed for the assessment team to assess conformity to requirements for certification adequately, it is essential that a IECQ ADHP Technical Resource does not disclose any confidential information.

4.4 Risk-based approach

IECQ ADHP Technical Resources need to take into account the risks associated with providing competent, consistent and impartial assessment certification services. Risks may include, but are not limited to, those associated with:

- the objectives of the audit;
- the sampling used in the audit process;
- real and perceived impartiality;
- legal, regulatory and liability issues;
- the client organization being audited and its operating environment;
- impact of the audit on the client and its activities;
- health and safety of the audit teams;
- perception of interested parties;
- misleading statements by the certified client;

5 Roles and Responsibilities

This Section applies to all IECQ ADHP Technical Resources that have been appointed by the IECQ Scheme for provision of service resources within the IECQ ADHP Scheme.

5.1 IECQ ADHP Qualified Lead Assessor

General management of assessment process including but not limited to:
– Planning of the assessment in technical consultation with any appointed TE’s, including confirmation of technical scope, quotation and determination of required time etc.
– Develop and issue the assessment (Audit) plan in technical consultation with any appointed TE’s
– Assuring all elements of the assessment plan and applicable ECMP / Plan(s) processes are covered during the assessment
– Assuring all elements of the IECQ ADHP Scheme requirements are covered i.e. compliance with the IECQ ADHP Rules of Procedure IECQ03-1 and IECQ 03-4 etc.
– Provide supervision and support for any appointed TE’s and assist in the collection of objective evidence to demonstrate conformity.

5.2 IECQ ADHP Technical Expert’s

IECQ ADHP Technical Expert provides the assessment team, the necessary expertise, knowledge, and experience regarding the following based on the external standards referenced in clause 10 References:
– Electronic Component Management Plans (ECMP);
– Counterfeit Parts Control Plans (CPCP);
– Lead-free Control Plans (LFCP);
– Obsolescence Management Plans (OMP); and
– COTS Assembly Management Plans (CAMP).
– Subcontractor ECMP Programme Assessment,

This includes assessment of Plan compliance to the relevant industry standard(s), as well as implementation of the Plan into the Plan Owner’s operations

Industries to which this document could apply are avionics, telecommunications, military, aerospace, biomedical, nuclear, automotive, and other similar ADHP industries.

The TE shall provide the necessary technical input on any questionable issues involving the subject matter.

The TE shall at all times act in a professional and impartial manner respecting the confidence of the organisations the TE have assessed.

In order to allow open access to the ADHP Control Plan records the organization being audited may require the TE to sign a non-disclosure agreement.

Should an TE believe that there is a potential for a conflict of interest or a possibility for confidentially to have been breached, the TE shall immediately notify the IECQ Certification Body for whom they have been engaged.

IECQ ADHP technical experts are responsible for all technical elements of the assessment related to demonstration of compliance with the declared industry standards / specifications throughout the assessment process, including but not limited to, for example:
– Consultation in the technical planning of the assessment including but not limited to, for example, determination of technical scope, technical input for quotation, determination of required assessment time and locations etc.
– Consultation and endorsement of the technical elements in the assessment (Audit) plan
– Detailed technical assessment to validate the ECMP
– Detailed technical assessment to validate related ECMP procedures
– Detailed technical assessment to validate any applicable component up-rating procedures
– In consultation with the assessment team leader determine the technical details/elements of any technical non-conformities (TNCs) found relating to the IECQ audit scope
– Endorsement of the technical elements of any issued TNC notices
– In consultation with the assessment team leader review the technical details/elements of any corrective actions provided for raised TNCs
– Endorsement of the technical closure to any raised TNC’s
– In consultation with the appointed assessment team leader review and confirm via endorsement, acceptance of the technical details/elements presented within the final client assessment report to ensure validation of compliance has appropriately been determined.

Technical experts shall work under the supervision of a qualified IECQ ADHP assessor. The minimum requirements for technical experts are listed in 7.1

6 Registration

A register of appointed IECQ ADHP Technical Resources and their commercial allegiance shall be maintained by the IECQ Secretariat. www.iecq.org/members/technicalexperts/te-list.htm

7 IECQ ADHP Resource requirements

7.1 Competence of IECQ ADHP Technical Resources

7.1.1 General considerations

IECQ ADHP Technical Resources shall have appropriate knowledge and skills relevant to the type of IECQ Assessment, their role within the assessment team and geographic areas in which they operate.

7.1.1.1 General competence requirements

IECQ ADHP Technical Resources shall ensure they have knowledge of the technological, legal and regulatory developments relevant to the ADHP sectors with respect to the type of IECQ Assessment and their role.

IECQ ADHP Technical Resources shall be able to demonstrate their competence and knowledge of the criteria stated in 7.1.2 to 7.1.10, as applicable to the scope of their IECQ ADHP appointment.

7.1.2 Competence for IECQ OD 3405 Conformity audits

IECQ ADHP Technical Resources shall demonstrate significant experience in all the following areas:

a) Electronic Component Management Plans (ECMP), prepared according to the requirements of Clause 10 References 1) and/or 2);

b) Counterfeit Parts Control Plans (CPCP) prepared according to the requirements of Clause 10 References 3) and/or 4);

c) Lead-free Control Plans (LFCP), prepared according to the requirements of Clause 10 References 5) and/or 6);

d) Obsolescence Management Plans (OMP), prepared according to the requirements of Clause 10 References 7) and/or 8); and

e) COTS Assembly Management Plans (CAMP), prepared according to the requirements of Clause 10 References 9) and/or 10).
7.1.3 Competence for IECQ OD 3407-1 subcontractor assembly ECMP conformity audits.

IECQ ADHP Technical Resources shall demonstrate significant experience in all the following areas:

a) The requirements of 7.1.2 above for IECQ OD 3405 conformity audits;
b) Subcontractor ECMP Programme Assessment, prepared according to the requirements of Clause 10 References 11).

7.1.4 Competence for IECQ OD 3406 Implementation audits

IECQ ADHP Technical Resources shall demonstrate significant experience in the following areas:

a) Electronic Component Management Plans (ECMP), prepared according to the requirements of Clause 10 References 1) and/or 2);

IECQ ADHP Technical Resources shall demonstrate significant detailed experience in the following areas which they additionally wish to audit:

a) Counterfeit Parts Control Plans (CPCP) prepared according to the requirements of Clause 10 References 3) and/or 4);
b) Lead-free Control Plans (LFCP), prepared according to the requirements of Clause 10 References 5) and/or 6);
c) Obsolescence Management Plans (OMP), prepared according to the requirements of Clause 10 References 7) and/or 8); and
d) COTS Assembly Management Plans (CAMP), prepared according to the requirements of Clause 10 References 9) and/or 10).

7.1.5 Competence for Electronic Component Management Plans

IECQ ADHP Technical Resources shall demonstrate minimum detailed knowledge including:

1) Knowledge of electronic component selection, qualification, and application; including knowledge of relevant component industry standards e.g. JEDEC, USA MIL specifications, IEC and IECQ CECC specifications, AEC-Q100, AEC-Q101 and AEC Q200 automotive specifications, SAE Semiconductor wear out standards and qualification standards etc.
2) Understanding of the effects of environmental and operating stresses on electronic components in ADHP systems, and how they can be accounted for in component application;
3) Understanding of component anti-counterfeit mitigation techniques;
4) Understanding of the processes used to qualify electronic components and/or component manufacturers.
5) Understanding of the concept and processes used for component quality assurance, including assessment of quality management systems;
6) Understanding of the concept of electronic component reliability assessment, its application and the use of reliability analyses and derived requirements for component specification including atmospheric radiation SEE effects and Semiconductor wear-out effects;
7) Understanding component compatibility with manufacturing including lead-free management mitigations.
8) Understanding of the configuration control methods used by electronic component suppliers and their uses, such as alternative sources, change documentation, customer notification and approvals, and the focal organization.

7.1.6 Competence for Counterfeit Parts Control Plans

IECQ ADHP Technical Resources shall demonstrate minimum detailed knowledge including:
1) Knowledge of methods to avoid, detect, mitigate effects of, and disposition counterfeit parts.

7.1.7 Competence for Lead-free Control Plans

IECQ ADHP Technical Resources shall demonstrate minimum detailed knowledge including:

1) Knowledge of Lead-free control plans and typical mitigation techniques
2) Knowledge of reliability analysis, testing, and acceleration models for lead-free solder alloys in avionics systems;
3) Knowledge of tin whisker avoidance and mitigation methods;
4) Knowledge of configuration control data and processes for avionics systems containing lead-free alloys;
5) Knowledge of repair, rework, maintenance, and support of avionics systems containing lead-free alloys.

7.1.8 Competence for Obsolescence Management Plans

IECQ ADHP Technical Resources shall demonstrate minimum detailed knowledge including:

1) Knowledge of obsolescence program concepts and design methods to reduce risks due to obsolescence;
2) Knowledge of obsolescence data management methods; use of external tools;
3) Knowledge of supply chain management methods to reduce impact of obsolescence;
4) Knowledge of program sustainment and data management methods to reduce impact of obsolescence.

7.1.9 Competence for COTS Assembly Management Plans

IECQ ADHP Technical Resources shall demonstrate minimum detailed knowledge including:

1) Knowledge of COTS assembly selection, qualification, and application;
2) Understanding of the effects of environmental and operating stresses on COTS assemblies in avionics systems, and how they can be accounted for in component application; and how the user can use mitigation techniques to manage any gaps between the requirements that the COTS assembly manufacturer has designed and tested the COTS assembly for compared to those of the Avionics environment.
3) Understanding of the concept and processes used for COTS assembly quality assurance, including assessment of quality management systems;
4) Understanding of the methods used to determine reliability of COTS assemblies and their assessment;
5) Understanding of the configuration control methods used by COTS assembly suppliers, and processes necessary to assure acceptable configuration control of COTS assemblies in their applications.

7.1.10 Competence for Subcontractor ECMP Programme Assessment

IECQ ADHP Technical Resources shall demonstrate minimum detailed knowledge including:

1) Knowledge of ECMP and which aspects are appropriate to flow down to a subcontract assembler;
2) Knowledge of typical subcontract assembly operations, their quality management systems and typical subcontractor contract flow-down;
3) Understanding of how subcontractors manage contract flow-down internally in their operations including:
   a) Control of customer drawings, the link to their internal drawings, BOMs, Work Instructions, lot travellers and their configuration control processes,
   b) How the use of alternative components is managed and approved by the customer
c) Component and stockroom management,

d) Lead-free management,

e) Calibration procedures,

f) Assembly and test procedures,

g) AS9102 First Article Inspections (FAI)

h) Rework, repairs and returns

i) Customer interaction and notifications including how waivers and deviations are approved prior to shipping product.

4) Understanding of ESD and MSL requirements for assembly operations and stockrooms;

5) Knowledge of methods to avoid, detect, mitigate effects of, and disposition counterfeit parts.

7.2 IECQ Appointment of Technical Resources involved in the certification activities

IECQ ADHP Technical Resources shall not be considered fully competent until their knowledge and experience has been demonstrated, reviewed and appointment made by IECQ MC. Until appointment has been made, any applicant IECQ ADHP Technical Resources shall only participate in assessments under the full responsibility of an appointed IECQ ADHP Resource.

Note: The ideal IECQ ADHP Technical Resources applicant should be a registered IAQG competent AS9100 Lead auditor that has attainment of an IECQ ADHP & CAP Certificate of Training and has participated in four IECQ ADHP assessments, one of which was a witnessed assessment.

7.2.1 Demonstration of Technical Resource knowledge and experience

IECQ ADHP Technical Resources shall demonstrate their knowledge and experience through:

a) submission of a completed (a) MC/266x/Q, IECQ ADHP Lead Assessor and TE Application/Reconfirmation Form;

i) Their prior auditing experiences

ii) Level of knowledge of the external standards, see clause 10 References

iii) Level of knowledge of AS/EN/JISQ 9100 and 9110.

b) registration as a lead auditor (not required for TE or Internal Assessor);

c) participation in ADHP Industry training courses and attainment of relevant personal credentials, including as a minimum the endorsed IECQ ADHP & CAP Training;

d) up to date professional development records;

e) IECQ Assessors and TE’s be witnessed at least once by an already appointed IECQ Assessor or TE holding witnessing capability, see clause 9 (not required for Internal Assessor). Refer to Table 1 for witness requirements depending on prior experience and capability. No later than the third anniversary of the original witness date and every 3-year interval thereafter, appointed IECQ Assessors and TE’s shall be witness, see clause 9.

IECQ WG04 convenor in conjunction with the IECQ secretariat shall review IECQ ADHP Technical Resources applications for compliance with the competence requirements of this operational document. The appointment review requirements shall be based on clause 7 and Table 1.

Note: Special circumstance consideration for / of alternative experience and quality management system qualifications can be submitted to the IECQ WG04 approval process above.

Successful applications should be provided with recommendation for appointment to IECQ WG04. Upon agreement with IECQ WG04, a recommendation to IECQ MC should be provided.

Un-successful applications should be returned with the areas of non-fulfilment indicated.

Upon appointment by IECQ MC an applicant will be issued with a Certificate of Appointment and be added to the IECQ Technical Resources register.
Figure 1 – Process of demonstration of technical resource knowledge and experience

7.2.1.1 Selecting ADHP Assessors

In addition to 7.1, the criteria for selecting auditors shall ensure that each auditor:

a) has professional education or training to an equivalent level of university education, Preferably a relevant engineering or science degree (physics, electrical / electronic / mechanical engineering, materials engineering, etc.);

b) has successfully completed structured auditor training covering audit techniques according to ISO 19011 (which may include internal training courses run by Certification Bodies for their auditors).

c) has successfully completed structured training to AS9100 and/or AS9110 (or other QMS with appropriate conversion training) (which may include internal training courses run by Certification Bodies for their auditors) and have demonstrated a working knowledge of AS 9100 and/or 9110;

d) has at least five years full time practical workplace experience in selecting, qualifying, and applying electronic components in an ADHP industry with Avionics quality management knowledge based on AS/EN/JISQ9100 and/or AS/EN/JISQ9110, of which at least two years are in a role or function relating to quality, inspection, certification, production, process, component engineering, reliability engineering, hardware design engineer.

Note: IAQG certification to AS/EN/JISQ 9100 and/or 9110 auditor or lead auditor is preferred;

e) where d) is not applicable, has at least five years full time practical workplace experience in selecting, qualifying, and applying electronic components in other relevant industries which may include telecommunications, military aerospace, biomedical and automotive...
industries, of which at least two years are in a role or function relating to quality, inspection, certification, production, process, component engineering, reliability engineering, hardware design engineer.

Note 1: ASQ, AITF 16949 and ISO 13485 Lead Auditors are good backgrounds for prior IECQ ADHP & CAP auditing experience.

Note 2: These candidates shall also undergo Avionics quality management knowledge awareness training based on AS/EN/JISQ9100 and 9110 where:

i) IAQG certified AS/EN/JISQ9100 or 9110 lead auditor training is preferred or
ii) IAQG certified AS/EN/JISQ9100 or 9110 auditor training is the next preferred
iii) Completing an AS9100 awareness event and examination from a recognized training provider or
iv) Completing a 1day supplemental IECQ AS9100 awareness training event and examination.

f) has gained experience in the entire process of assessing IECQ ADHP Certification prior to assuming responsibility for performing as an assessor. This experience should have been gained by participation in a minimum of four IECQ ADHP Certification audits, including re-certification and surveillance audits, for a total of at least 20 days of which at most 5 days may come from surveillance audits. The participation shall include review of documentation and risk assessment, implementation assessment and audit reporting.

Note: assessment experience stated above are external assessments. Internal assessments do not count towards the required experience above.

g) has relevant and current experience;

h) keeps current knowledge and skills in ADHP sector and auditing up to date through continual professional development.

7.2.1.2 Selecting ADHP TE’s

In addition to 7.1, the criteria for selecting Technical Experts shall ensure that each expert complies with criteria of clause 7.2.1.1 a), d), f), g) and h).

7.2.1.3 Selecting ADHP Internal Assessors

In addition to 7.1, the criteria for selecting internal auditors shall ensure that each auditor complies with criteria of clause 7.2.1.1 a), d), e), g), h) and the following:

b) has successfully completed structured auditor training covering audit techniques according to ISO 19011 (which may include training courses run by Certification Bodies for internal auditors).

c) has successfully completed structured internal auditor training to AS9100 and/or AS9110 (or other QMS with appropriate conversion training) (which may include training courses run by Certification Bodies for internal auditors) and have demonstrated a working knowledge of AS 9100 and/or 9110;

7.2.1.4 Selecting ADHP CB Technical Reviewer’s

In addition to 7.1, the criteria for selecting Technical Reviewer’s shall ensure that each reviewer complies with criteria of clause 7.2.1.1 a), d) or e), f), g), h) and the following which replaces that of Clause 7.2.1 c):

a) participation in ADHP Industry training courses and attainment of relevant personal credentials, including as a minimum the endorsed IECQ ADHP & CAP Training and achieve an IECQ attendance certificate (sitting the IECQ ECMP & CAP training exams is optional);

7.2.1.5 Selecting ADHP CB Contract Reviewer’s

In addition to 7.1, the criteria for selecting Contract Reviewer’s shall ensure that each reviewer:

a) has professional education or training to an appropriate level to undertake the role. Preferably a background with engineering or science degree or equivalent (physics, electrical / electronic / mechanical engineering, materials engineering, etc.);
b) participation in ADHP Industry training courses and attainment of relevant personal credentials, including as a minimum the endorsed IECQ ADHP & CAP Training and achieve an IECQ attendance certificate (sitting the IECQ ECMP & CAP training exams is optional);

c) has gained experience in the entire process of providing IECQ ADHP Certification prior to assuming responsibility for performing as a contract reviewer. This experience may be gained though guidance and supervision by a qualified IECQ ADHP Auditor or Technical Reviewer or equivalent IECQ qualified resource. Preferably have observed at least 2 IECQ ADHP audits if practical.

8 Periodic verification of IECQ ADHP Technical Resources appointment

No later than the third anniversary of the original appointment date and every three year interval thereafter, the IECQ appointed IECQ ADHP Technical Resources shall furnish evidence of compliance with the requirements for continuing competence demonstration in accordance with clause 7.2. This shall include a witness assessment. This evidence shall be furnished to IECQ Secretariat e-mail: Info@iecq.org by completing a MC/266x/Q, IECQ ADHP Lead Assessor and TE Application/Reconfirmation Form.

9 Witness Assessment

IECQ Assessors and TE’s shall be witnessed by an already appointed IECQ Assessor or TE holding witnessing capability for IECQ OD 3404 as defined on their Certificate of Appointment.

Witness Assessments shall be recorded on using the IECQ OD 3404 form and be submitted to the IECQ Secretariat e-mail: Info@iecq.org

10 References

1) SAE EIA-STD-4899, Requirements for an Electronic Components Management Plan
2) IEC TS 62239-1, Process management for avionics – Management plan – Part 1: Preparation and maintenance of an electronic components management plan
3) SAE AS5553, Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition
4) IEC TS 62668-1, Process management for avionics – Counterfeit prevention – Part 1: Avoiding the use of counterfeit, fraudulent and recycled electronic components
5) SAE STD-0005-1, Performance Standard for Aerospace and High-Performance Electronic Systems Containing Lead-free Solder
6) IEC TS 62647-1, Process management for avionics – Aerospace and defence electronic systems containing lead-free solder – Part 1: Preparation for a lead-free control plan
7) SAE STD-0016, Standard for Preparing a DMSMS Management Plan
8) IEC 62402, Obsolescence management - Application guide
9) SAE EIA-933, Requirements for a COTS Assembly Management Plan
11) IECQ OD3407-1, IECQ Operational Document Part: 3407-1 - IECQ Subcontractor ECMP Programme Assessment, Evidence of Compliance Summary and Assessment Reporting Form, related to Assembly Subcontractor Quality and Process Management
### Table 1 – IECQ ADHP Technical Resources competence and experience matrix

<table>
<thead>
<tr>
<th>Category</th>
<th>Type of prior auditing experience</th>
<th>Already an IAQG AS9100/9110 certified lead auditor?</th>
<th>Already an IAQG AS9100/9110 certified auditor?</th>
<th>Working knowledge of Avionics industry?</th>
<th>IECQ ADHP Training Certificate required?</th>
<th>Additional Avionics training required?</th>
<th>Detail of additional AS9100 auditor training course required, see 7.2.1.1:</th>
<th>Minimum number of CB ADHP external audits required see 7.2.1.1</th>
<th>Minimum number of witnessed assessments by an ADHP TE, see 7.2.1.1</th>
<th>Type of IECQ ADHP Resources level achieved</th>
</tr>
</thead>
</table>
| 1        | AS9100 audits of Avionics OEM working for a CB  
Shall have not been directly employed by an ADHP OEM for 3+ Years. | Yes | N/A – already a lead auditor | YES | Yes | No | No – already certified | 4 | 1 | External Lead Assessor (LA) / Technical Expert (TE)  
IECQ ADHP TE / AS9100 Lead Assessor  
Perform audits by themselves |
| 2        | AS9100 audits of Avionics OEM working for a CB  
Shall have not been directly employed by an ADHP OEM for 3+ Years. | No | Yes | YES | Yes | No | Only if wish to convert to an IAQG AS9100 Lead Assessor | 4 | 1 | External Assessor (A) / Technical Expert (TE)  
ADHP TE / AS9100 Assessor.  
They need to be accompanied by an IECQ ADHP Lead Assessor. |
| 3        | AS9100 audits of Avionics suppliers, typically conducted as an internal supplier quality auditor of an Avionics OEM | No | No | YES – but not officially an IAQG AS9100 certified auditor | Yes | Yes | Yes, options include:  
1-day IECQ AS9100 course as a minimum or  
Preferably certified as an IAQG AS9100 Lead auditor or auditor | 4 | 1 | External LA or A / TE  
Once IAQG AS9100/9110 certified LA / A.  
Shall have not been directly employed by an ADHP OEM for 3+ Years.  
They need to be accompanied by an IECQ ADHP Lead Assessor.  
Technical Expert  
Shall have not been directly employed by an ADHP OEM for 3+ Years.  
They need to be accompanied by an IECQ ADHP Lead Assessor.  
Internal Assessor  
Resource directly employed by an OEM.  
The may conduct internal assessments for their organization. |
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<th>IECQ ADHP Training Certificate required?</th>
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<th>Detail of additional AS9100 auditor training course required, see 7.2.1.1</th>
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<th>Type of IECQ ADHP Resources level achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Avionics ECMP &amp; CAP technical audits of Avionics electrical/electronic suppliers which use AS9100 QMS, typically a company Component engineer or ECMP specialist</td>
<td>No</td>
<td>No</td>
<td>YES</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, options include: 1-day IECQ AS9100 course as a minimum or Preferably accredited as an IAQG AS9100 Lead auditor or auditor</td>
<td>4 Minimum of 5 up to 6 depending on candidate’s performance and AS9100 knowledge application</td>
<td>1 Internal Assessor</td>
<td></td>
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<td>1 External LA or A / TE Once IAQG AS9100/9110 certified LA / A. Shall have not been directly employed by an ADHP OEM for 3+ Years. Technical Expert Shall have not been directly employed by an ADHP OEM for 3+ Years. They need to be accompanied by an IECQ ADHP Lead Assessor. Internal Assessor Resource directly employed by an ADHP OEM. They may conduct internal assessments for their organization.</td>
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<td>5</td>
<td>Auditing of other electronic/electrical sectors for products or components, e.g. IECQ Approved Components or automotive PPAP auditing or TS16949 auditors of electronic components or assembly lines or Medical devices ISO 13485 etc. Component Test house auditing</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>YES</td>
<td>YES, options include: 1-day IECQ AS9100 course as a minimum or Preferably accredited as an IAQG AS9100 Lead auditor or auditor</td>
<td>2 Minimum of 5 up to 6 depending on candidate’s performance and AS9100 knowledge application</td>
<td>2 External LA or A / TE Once IAQG AS9100/9110 certified LA / A. Shall have not been directly employed by an ADHP OEM for 3+ Years. Technical Expert Shall have not been directly employed by an ADHP OEM for 3+ Years. They need to be accompanied by an IECQ ADHP Lead Assessor. Internal Assessor Resource directly employed by an ADHP OEM. They may conduct internal assessments for their organization.</td>
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<tr>
<td>6</td>
<td>AS9100 audits</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>YES, options include: 1-day IECQ AS9100 course as a minimum or Or AS9100 awareness course.</td>
<td>0</td>
<td>Preferably at least observed 2 ADHP audits.</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>Prior auditing experience is not mandatory, however must have working knowledge of compliance certification process.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>YES, options include: 1-day IECQ AS9100 course as a minimum or Or AS9100 awareness course.</td>
<td>0</td>
<td>Preferably at least observed 2 audits.</td>
<td>N/A</td>
</tr>
</tbody>
</table>