TÜRK AKREDİTASYON KURUMU

yerelden evrensele • from local to universal

TURKISH ACCREDITATION AGENCY

EUROLAB National Members' Meeting

New Generation Approaches in Sustainable Laboratory Understanding and ISO/IEC 17025 Accreditation

20 October 2022

İstanbul

TÜRK AKREDİTASYON KURUMU
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Outline of Presentation

01 Green Transformation and Sustainability

02 Sustainable Laboratory Approach

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04 Digital Transformation

05 New Generation Approaches in ISO/IEC 17025 Accreditation

Green Transformation and Sustainability

Green transformation; Green growth strategies, which are created under different names such as green economy, low emission, low carbon and climate resistant development plan, may vary depending on the political and institutional structure of the countries, the level of development, resources owned and environmental effects.

When country examples are examined, it is seen that the green transformation strategy development and implementation processes show similar characteristics and include common steps.

Green Transformation and Sustainability

Among the most common targets used by countries are economic output, poverty reduction, employment, greenhouse gas and other pollutant emission reductions, industrial growth, and natural resource protection, which varies widely in the way these are combined and over timeframes.

Sustainable Laboratory Approach

Sustainability, in its simplest form, is the whole of efforts to increase today's welfare without compromising the welfare of future generations.

Sustainable Laboratory Approach

Care should be taken to ensure that the infrastructure of laboratories is both user-oriented and environment-oriented.

- Analyzing the energy for the purpose of energy saving and reporting the obtained energy data, controlling these data remotely and over the mobile system.
- Providing the lighting rate according to the need.
- Remote control of chemical warehouses and working environment conditions and sending information to the user by e-mail, SMS or telephone in case of non-compliance.
- Ability to monitor chemicals/hazardous substance stocks to be used in the laboratory from a single point with software.

Sustainable Laboratory Approach

- Using recycled (and recyclable) materials.
- Raising awareness for water use.
- Inclusion of personnel with automation knowledge in the laboratory team.
- Purchase of energy efficient equipment and regular maintenance and service of equipment.
- Commissioning of smart system designs that can carry heavy loads with a robot.
- Tendency towards new generation technologies in educational institutions such as technical high schools and universities in order to train intermediate staff in the fields of electronics, mechanics and computers.

Sustainable Laboratory Approach

- Inclusion of posters, information notes supporting sustainability in the laboratory environment.
- Supporting the understanding of sustainability in the laboratory by the management and using communication resources for this purpose, holding meetings with the staff, etc. carrying out the works.
- Turning off the laboratory equipment that is not affected by the interruption at the end of the day and adding reminder notes on the relevant equipment.
- Informing all personnel about the disposal of laboratory wastes and following the practices.
- Including the scope of “sustainability” in the orientation training of laboratory staff

Sustainable Laboratory Approach

First steps to a safer, more sustainable lab

1. Manage your fume cupboard

   Close the sash when away, and switch off the extract fan when not in use. Do not use the fume cupboard as a ventilated chemical store – use a bespoke ventilated chemical storage cabinet instead, saving 99% of the energy!

2. Reduce, reuse and substitute lab plastics

   Much lab plastic waste is avoidable, e.g. through decontamination and reuse, or substitution with non-plastic items. **edin.ac/lab-plastic**

Find out more at
www.edin.ac/labs

3. Manage your freezers

   Create a sample management database/freezer map to ensure you don't need to keep the freezer door open for a long time when locating a sample. Consider increasing the temperature of ULT freezers from –80 to –70 to achieve a 25-30% energy saving (see our database for sample safety info).

4. Purchase energy and water efficient equipment

   Apply to the Sustainable Campus Fund for funding.

5. Power down wherever possible, particularly on weekends and at night.

   Plug-in timers can help.

6. Be conscious of what you use and why

   Plan experiments to avoid repeats, use appropriate amounts, and avoid unnecessary usage of disposable items.

7. Avoid scrapping operational but unwanted equipment

   This can be through sharing, donation, or even resale. **edin.ac/reallocate-sell-FAQ**

8. Manage your chemicals

   Use/order appropriate quantities, and check

   - availability of the chemical in neighbouring labs
   - chemical waste is disposed of correctly

World Accreditation Day, June 9, 2021 Theme: Accreditation: Supporting the Implementation of SDGs

Goal 2: Zero Hunger

Food availability and food safety

Laboratory analysis (food&pesticides), inspection and certification are inevitable in ensuring food safety.

- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*
- *ISO / IEC 17021 Accreditation of Management Systems*
- *FSSC 22000 Food safety management*

Goal 3: Good Health and Well-being

Reliability of medical laboratories activities, Covid-19 tests, suitability of calibrations of equipment used, assessment of pharmaceutical analysis, medical devices.

- *ISO 15189 Accreditation of Medical Laboratories*
- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*
- *ISO / IEC 17021 Accreditation of Management Systems*
- *ISO 13485- Medical Devices*

Goal 6: Clean Water and Sanitation

Access to clean water, water quality controls (water, pool water, waste water)

- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*

Goal 7: Affordable and Clean Energy

Certification is essential for any company to prove that it produces clean energy.

- *ISO / IEC 17021 Accreditation of Management Systems*
- *ISO 50001 Energy Management Systems*
- *ISO/IEC 17029 Accreditation of Greenhouse Gas Verifying Bodies*

Goal 8: Decent Work and Economic Growth

Protection of occupational health and safety, establishment of a suitable system for the work area and assessment of personal protective equipment

- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*
- *ISO/IEC 17065 Accreditation of Product, Service and Inspection Organizations*
- *ISO / IEC 17021 Accreditation of Management Systems*

Goal 9: Industry, Innovation and Infrastructure

The infrastructure of solidly built industrial establishments, transportation, energy resources, sewage, etc.

Control of conformity assessments of new products, a quality infrastructure that keeps up with technological developments. Quality of cement, steel and construction materials, assessment of soil analysis

- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*
- *ISO/IEC 17065 Accreditation of Product, Service and Inspection Organizations*

Goal 11: Sustainable Cities and Communities

Environmental impact of cities and communities, zero energy use, recycling and reuse of liquid and solid waste

- *ISO / IEC 17021 Accreditation of Management Systems*
- *ISO 14001 Environmental Management Systems*

Goal 13: Climate Action

Assessment of greenhouse gas emission measurements

- *ISO / IEC 17021 Accreditation of Management Systems*
- *ISO 50001 Energy Management Systems*
- *ISO/IEC 17029 Accreditation of Greenhouse Gas Verifying Bodies*

Goal 14: Life Below Water

Sea water is meant. The cleanliness of the seas, the health of existing beneficial microorganisms and all living things in these waters, the sustainability of ecosystems

- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*
- *ISO/IEC 17065 Accreditation of Product, Service and Inspection Organizations*

Goal 15: Life on Land

Soil, mountain, lake, river, fresh water resources

Measurement of air quality, sustainable agriculture and forestry

- *ISO / IEC 17025 Accreditation of Testing and Calibration Laboratories*
- *ISO/IEC 17065 Accreditation of Product, Service and Inspection Organizations - Certification of Agricultural Products, Organic Agriculture, Good Agricultural Practices and GLOBAL G.A.P.*
- *ISO / IEC 17021 Accreditation of Management Systems*

Goal 17: Partnerships for the Goals

- ISO 9000 family — Quality management
- ISO/IEC 27001 — Information security management
- ISO 50001 — Energy management
- ISO 14000 family — Environmental management
- ISO 22000 — Food safety management
- ISO 45000 family — Occupational health and safety
- ISO 37001 — Anti-bribery management systems
- ISO 31000 — Risk management
- ISO 37101 - Sustainable development in communities

Not only conformity assessment, but also all institutions of quality infrastructure have an indispensable role and contribution.

See ISO's website for all standards.

https://www.iso.org/standards.html

New Generation Approaches in ISO/IEC 17025 Accreditation


TS EN ISO/IEC 17025 : 2017-12

INTERNATIONAL STANDARD

ISO/IEC 17025

Third edition
2017-11

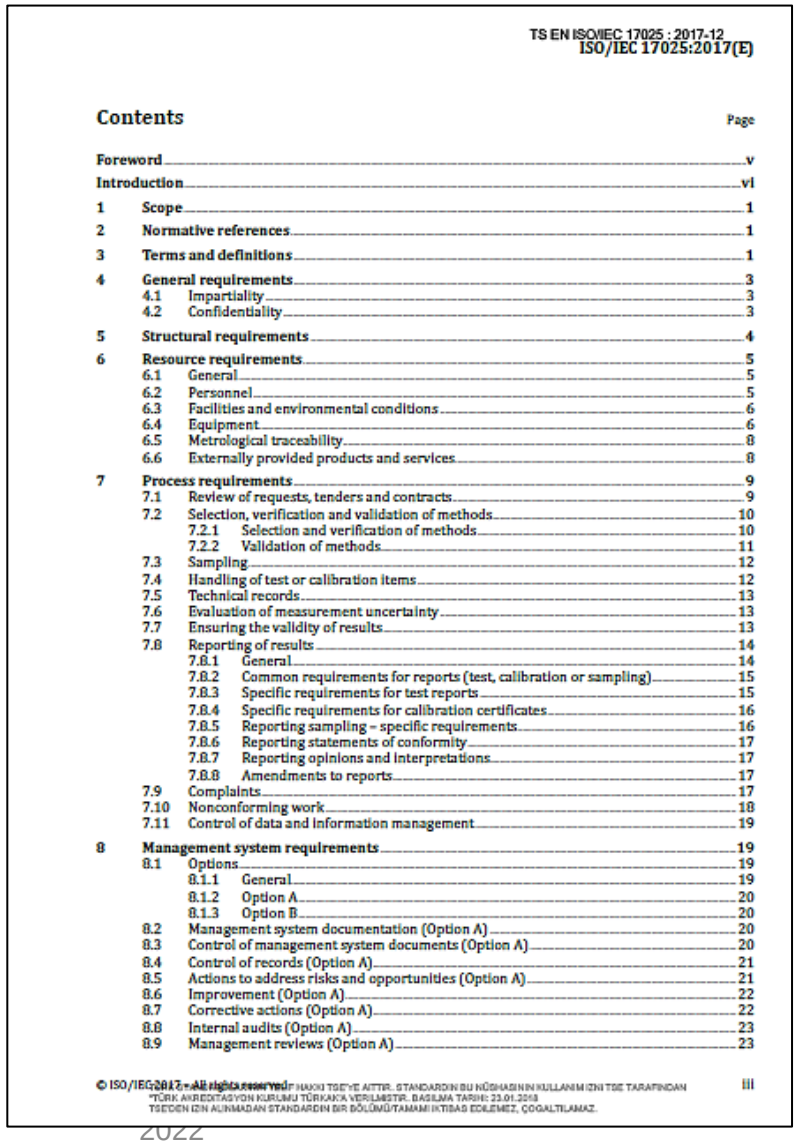
General requirements for the competence of testing and calibration laboratories

Exigences générales concernant la compétence des laboratoires d'étalonnages et d'essais

ISO IEC

Reference number
ISO/IEC 17025:2017(E)

ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories



TS EN ISO/IEC 17025 : 2017-12
ISO/IEC 17025:2017(E)

Contents Page

This document specifies the general requirements for the competence, impartiality and consistent operation of laboratories.

5 Structural requirements

5.4 Laboratory activities shall be carried out in such a way as to meet the requirements of this document, the laboratory's customers, **regulatory authorities and organizations providing recognition.**

- Legal authority/national and international requirements supporting sustainability
- TURKAK, EA and ILAC policies

eg. Waste Management Regulation, Occupational Health and Safety Regulation etc.

6.2 Personnel

6.2.2 The laboratory shall document the competence requirements for each function influencing the results of laboratory activities, including requirements for education, qualification, training, technical knowledge, skills and experience.

- The inclusion of trainings on sustainable laboratory understanding within the scope of personnel orientation trainings can be encouraged.
- Preventing excessive chemical consumption during personnel authorization and competency monitoring studies.

6.3 Facilities and environmental conditions

6.3.1 The facilities and **environmental conditions** shall be suitable for the laboratory activities and shall not adversely affect the validity of results.

*NOTE Influences that can adversely affect the validity of results can include, but are not limited to, microbial **contamination,** dust, electromagnetic disturbances, radiation, humidity, **electrical supply, temperature**, sound and vibration.*

6.3.3 The laboratory shall monitor, control and record **environmental conditions in accordance with relevant specifications**, methods or procedures or where they influence the validity of the results.

6.3.4 Measures to control facilities shall be implemented, monitored and periodically reviewed

6.4 Equipment

6.4.3 The laboratory shall have a procedure for handling, transport, storage, use and planned maintenance of equipment in order to ensure proper functioning and to prevent contamination or deterioration.

6.4.4 The laboratory shall verify that equipment conforms **to specified requirements** before being placed or returned into service.

6.4.9 Equipment that has been subjected to overloading or mishandling, gives questionable results, or has been shown to be defective or outside specified requirements, shall be taken out of service.

- Policies to recycle broken or end-of-life equipment should be encouraged.
- Delays in maintenance and repair of equipment should be avoided.
- Equipment sharing within the laboratory should be supported.

6.6 Externally provided products and services

6.6.2 The laboratory shall have a procedure and retain records for:

a) defining, reviewing and approving the laboratory's requirements for externally provided products and services;

c) ensuring that externally provided products and services conform to the laboratory's established requirements, or when applicable, to the relevant requirements of this document, before they are used or directly provided to the customer;

At the stage of purchasing the equipment;

- Laboratories can be directed to purchase energy-efficient equipment.
- Existence of control mechanisms should be questioned for effective monitoring of material stock control.

7.4 Handling of test or calibration items

7.4.1 The laboratory shall have a procedure for the transportation, receipt, handling, protection, storage, retention, and disposal or return of test or calibration items, including all provisions necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the Customer. Handling instructions provided with the item shall be followed.

- The use of new generation approaches in the tracking system for sample integrity should be encouraged.
- The use of software programs to ensure traceability should be supported.
- Compliance with regulatory authority requirements for sample disposal should be checked.
- Intelligent storage systems should be used.
- An energy saving approach should be adopted in maintaining the cold chain.
- The recycling policies of laboratory equipment should be questioned.

7.5 Technical records

7.5.1 The technical records shall include the date and the identity of personnel responsible for each laboratory activity and for checking data and results. Original observations, data and calculations shall be recorded at the time they are made and shall be identifiable with the specific task.

7.5.2 The laboratory shall ensure that amendments to technical records can be tracked to previous versions or to original observations. Both the original and amended data and files shall be retained, including the date of alteration, an indication of the altered aspects and the personnel responsible for the alterations.

- Informing assessment teams about the audit trail (TÜRKAK)
- The Audit Trail provides secure logging of lifecycle details such as creating, adding, deleting or modifying information in a record without hiding or overwriting the original record. The Audit Trail allows reconstructing the history of events related to the record, such as the “who, what, when and why” of the action.

7.8 Reporting of results

7.8.1.2 All issued reports shall be retained as technical records.

NOTE 2 Reports can be issued as hard copies or by electronic means, provided that the requirements of this document are met.

- The use of electronic reports should be encouraged.
- Reducing hard copies of reports, double-sided use of printer auto-adjustment should be supported.
- Laboratory policy towards reducing paper consumption can be assesssed.

7.11 Control of data and information management

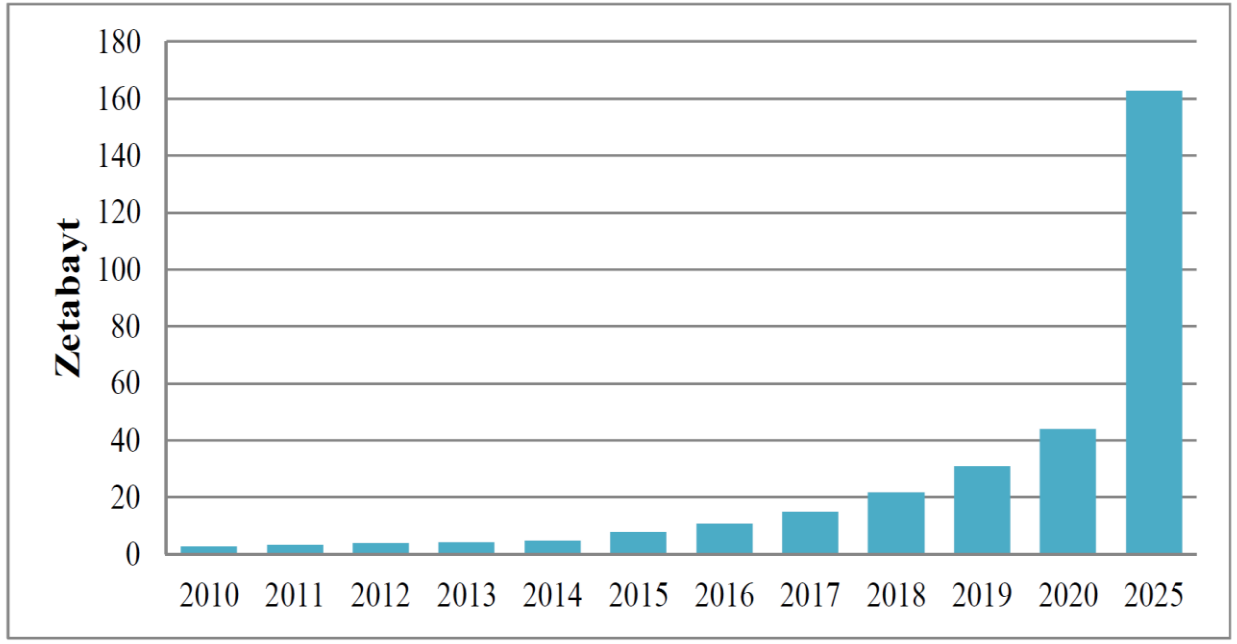
Digital Transformation in Laboratories

Electronic Data

The world, which is increasingly digitized in line with technological developments, contains faster, diverse and large amounts of digital data than ever before.

It is seen that the digital data produced worldwide has an exponential increase from year to year.

It is predicted that the amount of digital data produced in 2020 will be more than 40 ZB (zettabyte = approximately one trillion gigabytes), and this value will be more than 160 ZB in 2025.



Dünyada dijital verilerin yıllara göre artışı

The data must have the following characteristics: (ALCOA +)

A- attributable to the person generating the data

L- legible and permanent / must be legible and permanent

C- contemporaneous / should be recorded as soon as it is made

O- original record (or certified true copy) / original record or certified true copy

A- must be accurate.

In addition, data governance measures should ensure that throughout the data lifecycle:

Complete – data must be complete

Consistent – data must be self-consistent

Enduring – must be durable, sustainable throughout the data lifecycle

Available – must already be available for audit or review purposes

7.11 Control of data and information management

7.11.1 The laboratory shall have **access** to the data and information needed to perform laboratory activities.

7.11.2 The laboratory information management system(s) used for the collection, processing, recording, reporting, storage or retrieval of data shall be validated for functionality, including the proper functioning of interfaces within the laboratory information management system(s) by the laboratory before introduction.

7.11.4 When a laboratory information management system is managed and maintained off-site or through an external provider, the laboratory shall ensure that the provider or operator of the system complies with all applicable requirements of this document.

7.11.5 The laboratory shall ensure that instructions, manuals and reference data relevant to the laboratory information management system(s) are made readily available to personnel.

7.11.6 Calculations and data transfers shall be checked in an appropriate and systematic manner.

7.11 Control of data and information management

- For example, audit trail record for HPLC study; It should include the username, the date / time of the work, the integration parameters used, and the details of the reprocessing, if any.
- Audit trail functionality should be verified during system validation to ensure that all changes and deletions of critical data related to each manual activity are recorded and comply with data integrity principles.
- The use of up-to-date systems should be encouraged.
- It is necessary to use validated software.
- Cloud systems need to be verified for data transmission and data loss.
- It is important to eliminate the inability of the personnel responsible for reviewing the data to identify problems and the lack of personnel training/qualification.
- Re-testing of samples should be avoided. (without reason).
- Controls should be provided for deletion of out-of-specification results, reporting while testing is in progress (before results are out).

Cloud Computing:

Labs using cloud computing should consider data integrity risks by making supplier assessments in any case.

In cloud computing, laboratories do not need to deal with the issues such as where, how they work and how they are cooled, how many personnel are employed for their work, and these issues are the responsibility of the service provider. Therefore, the responsibility of laboratories here is supplier evaluation.

- When using external databases such as cloud computing, there must be a contract between the laboratories and the service provider.
- Activities should be monitored with risk assessment at regular periods.

Hybrid Systems:

Procedures and records should be in place to manage and appropriately control the interface between manual and automated systems, particularly steps related to:

- Manual entry of manually generated data into computerized systems,
- Transfer of data produced by automatic systems to paper records,
- Automatic detection and decoding transfer (transcription) of printed data to computerized systems.

8.9 Management reviews

8.9.2 The inputs to management review shall be recorded and shall include information related to the following:

a) changes in internal and external issues that are relevant to the laboratory;

b) fulfilment of objectives;

c) suitability of policies and procedures;

l) adequacy of resources;

- Within the scope of changes in foreign matters, international agreements to which our country is a party, UN sustainable development goals, etc. It is important to follow the issues closely and integrate them into laboratory activities without delay.
- The adoption of the principle of sustainable laboratory understanding should be encouraged in the setting and follow-up of laboratory objectives, policies and procedures.
- Supervision of requirements for effective use and management of laboratory resources.
- Providing management support.

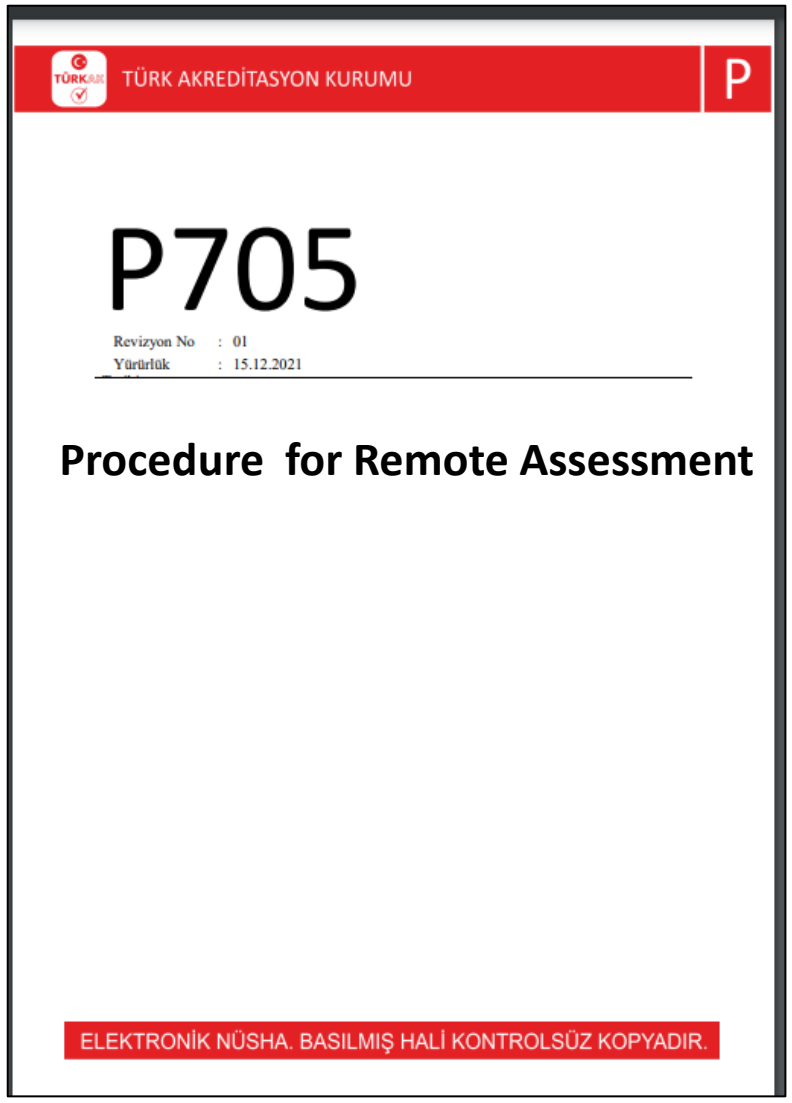
ILAC/IAF/ISO Survey on Remote Assessments (October 2021)

ILAC, IAF and ISO conducted a survey with 4320 respondents to better understand the views on the use of remote techniques for audit/assessment activities affecting conformity assessment activities.

According to the report published in October 2021, while the **satisfaction rate** regarding remote assessments was determined **as 70.7%,** it was stated that when the **Covid-19 conditions disappeared, remote assessments could be continued** at a rate of **19.2**%, and the **remote / on-site assessments technique could be used together at a rate of 56.9%.**

ILAC-IAF-ISO_Survey_Report_Aug_2021

Covid-19 Pandemic Management


TÜRK AKREDİTASYON KURUMU P

P705

Revizyon No : 01
Yürürlük : 15.12.2021

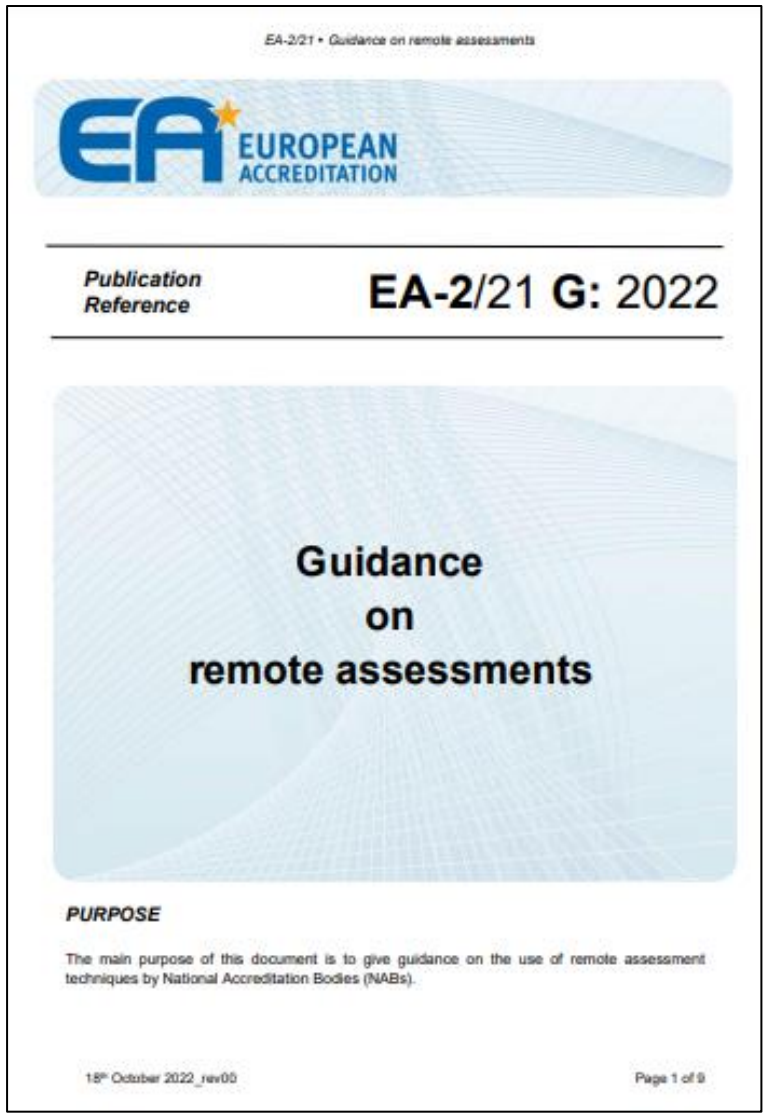
Procedure for Remote Assessment

ELEKTRONİK NÜSHA. BASILMIŞ HALİ KONTROLSÜZ KOPYADIR.

Totally 801 Assessment

Year	Conducted Remote Assessments
2020	331
2021	465
2022	5

EA 2/21:G Guidance on remote assessments (October 18th, 2022)


EA-2/21 • Guidance on remote assessments

EUROPEAN ACCREDITATION

Publication Reference EA-2/21 G: 2022

Guidance on remote assessments

PURPOSE

The main purpose of this document is to give guidance on the use of remote assessment techniques by National Accreditation Bodies (NABs).

18th October 2022_rev00 Page 1 of 9

- If the assessment is for initial accreditation and extension =on-site elements.
- Mainly based on the review of documents, records and interviews = remote assessment
- The adequacy of facilities, equipment or witnessing of the conformity assessment activities = on-site assessment.
- Witnessing of activity should be based on in-advance risk analysis.
- Remote assessment techniques and the whole process shall be compliant to data protection legislations (e.g. GDPR).
- The decision on the use of remote assessment techniques rests with the NAB.
- Confirm confidentiality matters.

https://european-accreditation.org/wp-content/uploads/2022/10/EA-2_21-Guidance-on-Remote-Assessments-rev00_18th-October-2022.pdf

TURKAK Accreditation Bulletin Issue:2

Article

Preparing for the Future: Accreditation Bodies

Preparing for the Future: Accreditation Bodies

Soner Karataş
Accreditation Expert

The accreditation system, which provides assurance on the quality of the products and services we purchase, has an important role in today's world. Accreditation agencies are the key actors in the establishment and maintenance of this system. Each country makes an effort and works for the establishment and continuity of accreditation agencies in line with their own needs. While some countries are still in the initial stages, some countries may be progressed in this issue. Now, there are two options for the countries and accreditation agencies that established and have been operating the accreditation system and have achieved a certain level in their work. The first option is to continue the process in a stable manner with the performance they have achieved in their normal daily work, not to fall behind the current situation, and to try to catch up by following the agenda. On the other hand, the second option is to explore and use new possibilities, constantly push oneself to go one step further and steer the world of accreditation. Although it seems like a simple choice of option, it should be stated that its results and effects are very important. Such that, aspects such as the view of the employees on the work, the management of the processes by the assessors, the adoption of the system by conformity assessment bodies, and the construction of the country's future will be affected by this choice. So, what should the accreditation agency of tomorrow be like?

The preference of an accreditation agency that was established and has been operating its system should, of course, be the second option being an accreditation agency that adopts continuous development and steers the accreditation world. The main components of the system that can achieve this will be staff, training, and technological orientations. The most important resource of an accreditation agency is its qualified staff. The staff includes not only the employees working in the accreditation agency but also the assessors in the entire assessor pool. What can be done to prepare the staff for the future becomes a prominent issue here. First of all, all the personnel of the agency should be evaluated within the system, the goals to be achieved should be specified, and these goals should be adopted. It should be stated that ensuring development with new ideas and projects is expected. The changes needed in practice should be made taking into account their opinions and suggestions. Also, continuous training should be provided to the staff to deepen their perspective. Opportunities should be offered for them to take part in international platforms so that they can share their knowledge and experience and exchange their ideas. There are various ways to achieve this. Temporary personnel exchange by making bilateral cooperation with accreditation agencies can be one of these ways. In this way, the staff may have a good command of a foreign language, as well as examining the system of the other accreditation agencies. These cooperations can also be performed in a way to contribute to the accreditation system by having education or taking part in assessments abroad. Another way is to deepen the knowledge by participating in international meetings, workshops, commissions, panels, working group meetings. Holding international meetings by the accreditation agency is another way that serves this purpose.

The assessor pool is one of the most important resources of the accreditation agency. The competence and technical knowledge of the assessor pool directly affect the results of the accreditation body's work. Therefore, one of the most important issues to be addressed in the construction phase of the future will be the assessor pool. The accreditation body should be in constant communication with the assessors. Training programs on personal development, accreditation system, corporate objectives, technical regulations should be provided to assessors. Regular technical meetings should be held for the assessors, and information sharing should be allowed among the assessors. It is important to take steps to improve the system by taking into account the opinions and suggestions of the assessors. Also, it is essential to convey the corporate culture to the members of the assessment team representing the accreditation agency in the field and to increase the sense of belonging of the members of the assessment team.

Accreditation agencies collaborate with conformity assessment bodies (CABs) due to the service they provide. Communication channels with conformity assessment bodies should be open to steer the service they provide, to notice new needs, and to understand the trend of technology. These processes can be carried out by holding regular meetings with CABs. Another important issue is offering the opportunity to come together with the stakeholders involved in the accreditation system and get their opinions. Thus it facilitates bringing public authorities, professional associations, universities, chambers of commerce, etc. within the accreditation system together and getting their opinions on the development of the system.

Technology, as well as staff and training issues, has an important role in the design of the future. The accreditation agency should determine how it will benefit from technology for its activities and aim to keep this benefit at the maximum level. Analyses can be conducted by transferring all produced data to the electronic environment, and deficiencies and areas open to improvement can be determined. Also, time and effort can be saved using electronic signature and accreditation system software. Moreover, with the use of electronic media, all stakeholders can be reached instantly and information can be shared more quickly. The transportation, accommodation, time, and cost issues experienced in physical training can be overcome with online training sessions, and more training programs can be offered to the staff and assessors.

The most obvious difference between the static accreditation agency and the progressing accreditation agency can be observed in its works in the field of business development. With the implementation of the above-mentioned issues, qualified, competent, trained staff and assessors can be obtained; also with the support of technology, it may be possible to steer the accreditation system in the international arena. The accreditation agency will be in the position of being the pioneer, not the follower, with its manpower with the confidence in their knowledge and training, and expressing themselves easily with a good command of foreign languages. Thus it will be in a position to be followed and appreciated for its contributions to the international system. The future will belong to the accreditation agencies that carry out these works.

70 July 2021 akreditasyon

71 akreditasyon July 2021

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TURKAK Accreditation Bulletin Issue:2

Article

Accreditation Supports the Global Goal of Responsible Production and Consumption

#SDG12

Sustainable development is defined as ensuring the present economic development without ignoring the needs of future generations.

Ömer Karavelioğlu
Corporate Communications Manager

The United Nations' 2030 Sustainable Development Goals are a universal call to action to eradicate the poverty, protect our planet, and ensure that all people live in peace and prosperity. These goals consist of 17 interrelated goals and aim at solving the problems facing humanity.

One of them is "Responsible Consumption and Production". This global purpose has the following targets:

- Implementation of the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns,
- Effective use of natural resources, reduction of food waste and losses,
- Responsible management of chemical wastes,
- Reduction of waste generation through e.g. recycling, integrating sustainable knowledge and practices into reporting cycles of the companies,
- Dissemination of scientific technological production methods,sustainable public procurement,supporting a life in harmony with nature,
- Developing countries' orientation towards more sustainable production and consumption, sustainable tourism,
- Elimination of harmful incentives that have negative effects on the environment and making them more efficient- in humanity's sight.

Accreditation:

supporting the implementation of the Sustainable Development Goals.

#wad2021

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

In the world we live in, the natural resources that human beings use to meet their production and consumption needs are limited. At the same time, the world population is increasing. In addition to these, we have been faced with a covid-19 pandemic that has greatly changed our consumption habits for the last 16 months. With the advancement of technology, products are under much more intense scrutiny as consumers are now more inclined to weigh the features of the products. In such an environment, it is necessary to ensure the smooth continuation of commercial life, while at the same time protecting public health and the economic interests of consumers. Moreover, in order to achieve sustainable development, we need to consume sparingly, responsibly, without harming the nature, and reduce our ecological footprint by changing the way we produce.

We can define the concept of ecological footprint as a method developed to calculate the ecosystem balances that are deteriorated as a result of human activities and to determine the amount that needs to be returned to the ecosystem. We can also reconcile this concept with the concept of 'entropy' in thermodynamics. The second law of thermodynamics is considered one of the most fundamental laws in the universe and is also known as 'entropy'. In short, we can perceive a transition from regular to disordered as decay, and the entropy is increasing gradually.

Fortunately, there are "standards" for designing our processes. Standards take their place in our lives as technical criteria that include the methods, processes and practices put forward by the representatives of the parties they represent, such as manufacturers, sellers, buyers, customers, trade associations, users, or regulatory authorities, who are competent in their fields and know their needs.

Accreditation may be defined as a quality infrastructure created to support the reliability and validity of conformity confirmation certificates issued for works performed according to internationally accepted standards by conformity assessment bodies.

Carrying out the consistent processes in accordance with the good practice examples through accredited conformity assessment, has the potential to keep malfunctions and disruptions to a minimum, control costs and encourage innovation, and guide manufacturers. It also assures consumers by maintaining consistently high standards in the quality of products and services.

In this regard, accreditation serves a "Responsible Consumption and Production" sustainable development goal as well as all other global goals of the UN. In terms of prevention and mitigation of the negative environmental impacts, controlling of the design, manufacturing, distribution, consumption and disposal of products and services, from production to processing, from storage to distribution and consumption at all stages of food safety and the production of the food using natural substances and processes which have a limited environmental impacts etc. through the accreditation of the schemes such as "Environmental Management Systems" and "Food Safety Management Systems".

We have science, we have accepted methods, so we have hope, and the most important, we still have time. Accreditation strongly supports the UN's global goal of 'Responsible Consumption and Production'.

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For Sustainable Accreditation: TURKAK Corporate Service Portal

In order to adopt the sustainable accreditation approach and include all the parties we work with (laboratories and expert pool) in this approach, we have electronicized all the processes in which we carry out accreditation activities.

- A portal suitable for advanced and new technologies
- Internet-based infrastructure to reduce manual work and use resources more efficiently
- E-signature infrastructure to reduce paper usage
- Integration with banks for payments.
- Online execution of all processes (application, accreditation, assessor, training, etc.)
- Monitoring performance with reporting and statistical analysis
- Speeding up processes

TÜRK AKREDİTASYON KURUMU
yerelden evrensele • from local to universal
TURKISH ACCREDITATION AGENCY

THANK YOU..

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