



Authorized Test Lab Requirements

Version 2.2.00

2020-12-03

[LABREQS]

RESTRICTIONS ON USE

This document is copyright © 2010-2020 by the NFC Forum. Permission is granted TO NFC Forum members, while continuing to be members, and without charge, to copy (for internal purposes only) and share this document with your employees, and (to the extent related to the use of this document on your behalf) consultants. You may not modify or create derivative works of this document for external distribution. Use of the content of this document for performing testing and certification services, or to create and distribute products created from this document to third parties, is only permitted under a separate license agreement with NFC Forum.

NFC Forum, Inc.
401 Edgewater Place, Suite 600
Wakefield, MA, USA 01880

Contents

- 1 Introduction..... 1**
 - 1.1 Background 1
 - 1.2 Objective 1
 - 1.3 References 1
 - 1.3.1 Normative References..... 1
 - 1.3.2 Informative References..... 2
 - 1.4 Glossary..... 2
 - 1.5 Special Word Usage 2
- 2 Application Process 3**
 - 2.1 Submission 3
 - 2.2 Fees..... 3
- 3 Authorized Test Lab Requirements 4**
 - 3.1 Business Requirements..... 4
 - 3.1.1 NFC Forum Membership..... 4
 - 3.1.2 NFC Forum Member Meeting Attendance 4
 - 3.1.3 Compliance with NFC Forum Specifications and Policy 5
 - 3.1.4 Insurance Coverage..... 5
 - 3.1.5 Lab Accreditation 5
 - 3.1.6 Lab Facilities 5
 - 3.1.7 Certification Testing 5
 - 3.2 Capabilities Requirements..... 5
 - 3.2.1 Test Tools 6
 - 3.2.2 Disclosure of Test Results 6
 - 3.2.3 Analog Requirements 6
 - 3.2.4 Certification Release and Device Class Requirements 7
 - 3.3 Administrative Requirements..... 7
 - 3.3.1 Laboratory Authorization 7
 - 3.3.2 Listing 9
 - 3.3.3 Laboratory Authorization Renewal..... 9
 - 3.3.4 Revocation 10
 - 3.3.5 Remediation 10
- 4 Inter-Lab Comparison Test (ILCT) Requirements 11**
 - 4.1 Preparation..... 11
 - 4.2 ILCT 11
 - 4.3 Issues Resolutions 12
 - 4.4 Re-evaluation of the Test Results..... 12
 - 4.5 Cooperation Termination..... 13
 - 4.6 Tolerances 13
- A. Requirements Summary 14**
- B. Required ISO/IEC 17025:2017 Clauses for First-Party ATLS..... 15**
- C. Required ISO/IEC 17025:2017 Clauses for Third-Party ATLS 16**
- D. General Requirements 21**
 - D.1 Digital Protocol Testing 21
 - D.2 Type 1/2/3/4/5 Tag Testing 21
 - D.3 Logical Link Layer Control Protocol (LLCP) Testing..... 22

D.4 Simple NDEF Exchange Protocol Testing 22

D.5 Analog Testing 23

D.6 Tag Performance Testing 24

E. Inter-Lab Comparison Testing Procedure 25

E.1 Requirements 25

E.2 General Rules 25

E.3 Process 25

 E.3.1 Positioning System Verification 25

 E.3.2 Reference Equipment Verification 25

 E.3.3 Reference Measurements 26

 E.3.4 Discrepancies resolution 26

F. Revision History 27

Tables

Table 1: Requirements Summary 14

Table 2: ISO/IEC 17025:2017 Clauses for First-party ATLs 15

Table 3: ISO/IEC 17025:2017 Clauses for Third Party ATLs 20

Table 4: ILCT Tolerances 26

Table 5: Revision History 27

1 Introduction

1.1 Background

The NFC Forum was formed to advance the use of Near Field Communication technology by developing specifications, ensuring interoperability among devices and services, and educating the market about NFC technology. Formed in 2004, manufacturers, application developers, financial services institutions, and more all work together to promote the use of NFC technology in consumer electronics, mobile devices, PCs, and more.

The fundamental mission of the NFC Forum's Certification Program is to perform sufficient testing on NFC-enabled devices in order to protect the brand of the NFC Forum, while at the same time helping to grow the global market for NFC Forum certified devices, products, and services. The [CERT_POL] defines the policies that govern the operation of the NFC Forum Certification Program, including what can be certified, what it means to be certified, and the process for achieving and maintaining certification.

1.2 Objective

This document is intended for candidate and existing NFC Forum Test Laboratories (Test Labs) and sets forth the requirements that SHALL be satisfied in order to qualify for and maintain NFC Forum authorization. This document, in conjunction with the [CERT_POL], constitutes the set of requirements and obligations for Authorized Test Labs.

1.3 References

1.3.1 Normative References

[DEVREQ]	NFC Forum Device Requirements, Applicable version as identified by a Certification Release, NFC Forum
[CERT_POL]	NFC Forum Certification Policy Applicable version as identified by Compliance Program, NFC Forum
[ISO/IEC_17025:2017]	ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories 2017 ISO/IEC
[RFC2119]	Key words for use in RFCs to Indicate Requirement Levels, RFC 2119, S. Bradner, March 1997, Internet Engineering Task Force
[TCCL]	NFC Forum Test Case Category List Applicable version as identified by a Certification Release, NFC Forum
[TLATCLA]	Test Lab Authorization And Test Case License Agreement Applicable version as identified by Compliance Program, NFC Forum

1.3.2 Informative References

[GLOSS_CC]	Compliance Committee Glossary Latest version NFC Forum
[NCIRP]	NCIRP (NFC Forum Issue Resolution Panel) Guide, Latest version of the NCIRP Guide available to NFC Forum members, NFC Forum
[REVT]	Reference Equipment Verification Tests Latest version of the REVT available to NFC Forum members. NFC Forum

1.4 Glossary

For definitions of the test case terms see [GLOSS_CC].

1.5 Special Word Usage

The key words “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

2 Application Process

To be considered for NFC Forum Authorization, prospective test laboratories SHALL apply in writing. All application materials and the signed agreement SHALL be submitted in English. The agreement is binding in English even if the agreement was translated and reviewed in another language. All other documentation provided to the NFC Forum in a language other than English SHALL be accompanied by a certified English translation (for example, accreditation certificates or proof of insurance).

2.1 Submission

All application packages SHALL include a signed agreement and all other documentation. All application materials SHALL be submitted electronically. Applicants should submit their request to cert-admin@nfc-forum.org.

2.2 Fees

The NFC Forum reserves the right to charge, introduce or change a fee of its choosing, as described in [TLATCLA].

- **Application and Annual Fees**

At this time, there is no application or annual lab fees payable, but all authorized labs must be NFC Forum members in good standing – see Section 2.1.1- NFC Forum Membership.

- **Testing Service Fees**

In addition to any obligations arising from its status as an NFC Forum member, a Test Lab is required to sign the “NFC FORUM THIRD PARTY TEST LAB TEST CASE LICENSE AGREEMENT” to record, report and pay to the NFC Forum testing service fees.

3 Authorized Test Lab Requirements

An NFC Forum Authorized Test Lab is a laboratory that has satisfied and continues to satisfy all requirements set for in the [CERT_POL] and these Authorized Test Laboratory Requirements, and is thereby authorized to provide certification testing services to product manufacturers.

3.1 Business Requirements

3.1.1 NFC Forum Membership

All Test Labs that perform Certification Testing for NFC Forum Certification SHALL be members of the NFC Forum (as defined in the [NFC Forum By-laws](#) and described below). Membership and all associated fees SHALL be current.

The NFC Forum has two types of certification laboratories:

- **First-party Test Laboratories.** In-house test facilities owned and controlled by the manufacturer of the products being tested. This includes products that are manufactured and/or that are assembled to implement NFC Forum Specifications by or for the member company or any of its other subsidiaries, all of which may be tested by the affiliated First-party Test Laboratory. A First-party Test Laboratory SHALL be a Sponsor or Principal member of NFC Forum.
- **Third-party Test Laboratories.** Independent laboratories that provide testing services to manufacturers for the purpose of verifying that implementations conform to the NFC Forum specifications. A Third-party Test Laboratory SHALL be an NFC Forum member at the Associate level or higher.

3.1.2 NFC Forum Member Meeting Attendance

All Test Labs SHALL be contributing members of NFC Forum and attend NFC Forum meetings.

- Labs initially applying to become an NFC Forum Authorized Test Lab SHALL have attended the preceding three NFC Forum face-to-face member meetings. Applications will be considered after labs have attended the third consecutive NFC Forum face-to-face member meeting.
- In order to retain the NFC Forum Authorized status, all Test Labs are required to attend three NFC Forum meeting lab sessions annually, of which at least one (1) SHALL be a face-to-face member meeting lab session and the Compliance Committee sessions during a face-to-face member meeting while no more than two (2) NFC Forum organized webinars may be attended to substitute up to two (2) face-to-face lab sessions. An NFC Forum-organized webinar following a face-to-face lab session is identical in contents and serves as an alternative to the preceding face-to-face lab session. Therefore, participation in a face-to-face lab session or the webinar immediately following it counts as one (1) attendance only.
- Any Test Lab missing two (2) consecutive NFC Forum meeting lab sessions SHALL lose their Authorized Test Lab status.
- A single representative who SHALL be Authorized Test Lab technical personnel and irrespective of other responsibilities can represent all labs within its company membership, at the NFC Forum members' meetings. A webinar meeting attendance requirement SHALL be done by all affiliate Labs, however.

3.1.3 Compliance with NFC Forum Specifications and Policy

The NFC Forum Authorized Test Lab will utilize agreements of its choice with its customers and SHALL be free to establish its own terms and conditions for testing, including pricing, priorities, indemnities, etc., provided that such terms and conditions are not inconsistent with its obligations under the [CERT_POL].

3.1.4 Insurance Coverage

At all times that the Test Lab is listed as an NFC Forum Authorized Test Laboratory, it will maintain sufficient insurance that the NFC Forum reasonably requests to adequately ensure that the NFC Forum Authorized Test Lab is covered for its obligations and liabilities regarding NFC Forum certification testing, including without limitation its indemnification obligations.

Currently, the NFC Forum requires a minimum of US\$1 million per occurrence.

This requirement is not applicable to First-party Labs.

3.1.5 Lab Accreditation

To perform testing for NFC Forum certification:

- Third-party Test Labs SHALL have all the testing scopes corresponding to each Device Class supported within their ISO/IEC_17025:2017 accreditation in accordance with the principles therein.
- First-party Test Labs can have all the testing scopes corresponding to each Device Class supported within their ISO/IEC_17025:2017 accreditation in accordance with the principles therein; or minimally, SHALL follow the principles of ISO/IEC_17025:2017.

In case of addition of new testing scopes for existing Test Labs, it is acceptable to include them in the next validation cycle.

3.1.6 Lab Facilities

NFC Forum Authorized Test Labs SHALL provide information as to the lab's location and a description of the lab facilities.

3.1.7 Certification Testing

NFC Forum Authorized Test Labs SHALL perform certification testing based on [CERT_POL].

Authorized Test Labs will periodically receive requests from the NFC Forum to provide statistical information about products being tested or scheduled for testing, in order to obtain an overall view of market trends and the adoption of NFC technology. Surveys are distributed at a minimum prior to each Member meeting and it is mandatory for all Authorized Test Labs to complete and submit a response to each survey.

3.2 Capabilities Requirements

This section outlines the technical capabilities that SHALL be supported by a Test Lab.

3.2.1 Test Tools

Use only the validated Test Tools listed at <http://nfc-forum.org/our-work/compliance/certification-program/> for as long as they remain listed. NFC Forum reserves the sole right to add and delete Test Tools from the list and SHALL have no obligation or liability to any Test Lab for deleting a Test Tool from the list after Test Lab has purchased or licensed the same.

Test Labs are required to have a robot as part of their Analog test bench for executing certification testing.

At the time of application, the Test Lab SHALL provide proof of the tools installed for NFC Certification Testing.

3.2.2 Disclosure of Test Results

The NFC Forum Authorized Test Lab SHALL promptly communicate all test results (interim or final, as the case may be) to the IUT manufacturer. Under no circumstances SHALL NFC Forum Authorized Test Lab communicate or disclose to any third party, including to any other manufacturer or other NFC Forum member, any test results including that a IUT has or has not been approved by NFC Forum.

All final certification testing records (e.g., documents submitted by the manufacturer) and test results (e.g., reports generated during the evaluation) SHALL be maintained and made available to NFC Forum upon request for at least three (3) years from the date they are created, (a) provided that NFC Forum SHALL only be entitled to request such records in connection with enforcing or investigating matters relating to the NFC Forum Certification Program or (b) in connection with legal proceedings.

At the time of application, the Test Lab SHALL provide a description of the data retention processes and controls it has put into place.

3.2.3 Analog Requirements

3.2.3.1 Inter-Laboratory Comparison Testing (ILCT).

Applicants who apply for Authorized Test Lab SHALL participate in Inter-Laboratory Comparison Testing (ILCT) for accreditation as a pre-condition and then later as accreditation maintenance.

All new labs entering the program are required to successfully complete the ILCT for accreditation before being listed as an Authorized Test Lab.

Upon reasonable notice, and not more often than once every 12 months, the NFC Forum Authorized Test Labs SHALL participate in ILCT, if requested by the NFC Forum, by performing the ILCT for accreditation maintenance (see Section 4). The NFC Forum will provide the samples, will define the test cases to be run, and will collate the results. Labs are responsible for any costs associated with cross-testing. Labs need to complete the ILCT exercise for each approved tool they use for Analog certification testing.

3.2.3.2 Pre-scan service for finding reference position on IUT.

The [ICS] and [IXIT] information SHALL be provided by the applicant. However, if an applicant requests assistance in locating the reference position on the IUT, the NFC Forum Authorized Test Lab should provide pre-scan service to identify the optimal reference position on IUT so that the applicant can define the value for [IXIT].

3.2.4 Certification Release and Device Class Requirements

The Authorized Test Lab SHALL support certification testing for at least one Active Certification Release.

The Authorized Test Lab SHALL support certification testing for at least one Device Class.

3.3 Administrative Requirements

This section describes the process followed for lab authorization, including information submission, compliance assessment, and listing, as well as subsequent annual requalification requirements and revocation provisions.

3.3.1 Laboratory Authorization

Information Submission

Laboratories applying for approval as an NFC Forum Authorized Test Laboratory SHALL ensure that they qualify according to Section 3.1, Business Requirements, and Section 3.3, Capability Requirements, before making a submission to the NFC Forum.

Once a lab deems itself ready:

- Submit a document package to the NFC Forum containing the following:
- For First-party NFC Forum Authorized Test Lab
 - [TLATCLA]
 - ISO/IEC_17025:2017 accreditation certificate including the scope of accreditation, issued by a recognized Accrediting Body, or self-attestation of scope
 - Unambiguous description and layout of lab facilities and equipment
 - Evidence of approved test tool, as listed on the [NFC Forum website](#), installed at the lab including a valid ISO/IEC_17025:2017 or manufacture calibration report
 - Evidence of a robot as part of the Analog test bench for certification testing including a valid test tool vendor verification report
 - Evidence of participation under the 3 consecutive NFC Forum face-to-face member meeting based on NFC Forum meeting attendance requirement on Section 3.1.2
- For Third-party NFC Forum Authorized Test Lab
 - [TLATCLA]
 - ISO/IEC_17025:2017 accreditation certificate including the scope of accreditation, issued by a recognized Accrediting Body
 - Evidence of liability insurance as US\$1 million per occurrence
 - Unambiguous description and layout of lab facilities and equipment
 - Evidence of approved test tool, as listed on the [NFC Forum website](#), installed at the lab including a valid ISO/IEC_17025:2017 or manufacture calibration report
 - Evidence of a robot as part of the Analog test bench for certification testing including a valid test tool vendor verification report

- Evidence of participation under the 3 consecutive NFC Forum face-to-face member meeting based on NFC Forum meeting attendance requirement on Section 3.1.2
- For GCF (Global Certification Forum) RTO (Recognized Test Organization)
 - <https://nfc-forum.org/wp-content/uploads/2016/05/NFCF-RTO-Test-Spec-License-Final.pdf>
 - ISO/IEC_17025:2017 accreditation certificate including the scope of accreditation, issued by a recognized Accrediting Body
 - Evidence of liability insurance as US\$1 million per occurrence
 - Unambiguous description and layout of lab facilities and equipment
 - Evidence of approved test tool, as listed on the [NFC Forum website](#), installed at the lab including a valid ISO/IEC_17025:2017 or manufacture calibration report
 - Evidence of a robot as part of the Analog test bench for certification testing including a valid test tool vendor verification report
- Provide the contact information for the responsible laboratory person

The NFC Forum SHALL receive a complete application to determine if the lab is ready for ILCT testing (see [ANALOG], Section 3.2.3) and an on-site audit. Upon approval of the application package, scheduling for the ILCT testing and on-site audit will occur.

Compliance Assessment

NFC Forum Authorized Test Labs or applicants for NFC Forum authorized status SHALL permit an auditor authorized by NFC Forum (see list of [Qualified Auditors](#)) to assess the laboratory's compliance with [CERT_POL]. The Authorized Test Lab Requirements provides high level requirements, while the Test Lab Audit Checklist [TLAC] provides a detailed list of items for the audit.

Audits must be conducted and audit packages submitted to the NFC Forum prior to initial authorization as an NFC Forum lab, and then every 24 months thereafter. The lab is responsible for all costs associated with the assessment (audit fee, travel expenses, travel time, and any additional assessor hours) and will be invoiced directly by the Auditor. The NFC Forum Auditor may request an initial payment prior to scheduling an onsite audit, while the remaining amount that is owed will become payable upon completion of the audit. The NFC Forum will withhold initial lab authorization or requalification until all monies associated with the lab are paid to the auditor.

The NFC Forum will, as a courtesy, notify the Test Lab when an audit is required. The Test Labs are responsible for contacting a Qualified Auditor and requesting an assessment. The auditor will contact the Test Lab to schedule the audit on a mutually agreed date(s). The auditors will also request from the Test Lab all NFC-specific processes, organization charts, and equipment lists for their review prior to the visit.

The auditor will send a checklist that will be used during the assessment for review by the lab. This checklist is a working copy of the [TLAC] questions based on requirements in this document. The lab will be requested to fill in applicable references on the checklist to aid the assessor during their review. The auditor will conduct the assessment, completing their checklists and noting any deficiencies. The auditor will provide a list of any deficiencies observed as well as copies of the completed [TLAC] during the closeout meeting at completion of the audit.

The lab will address any deficiencies using their corrective action processes. The lab SHALL respond back to the auditor within thirty (30) calendar days, and SHALL, at a minimum, list the plans for all required corrective actions. The lab has a further sixty (60) calendar days to complete and close all corrective actions so that the auditor can submit the assessment package to the NFC Forum. Failure to do so may result in removal of “Authorized Test Lab” status or withholding of authorization in the case of a new lab applicant, until all actions are complete.

The assessment package will only be seen by the NFC Forum staff and will not be made available to the general membership to avoid any conflict of interest or confidentiality issues.

Regarding the first audit, it SHALL be required 3 days audit and later on from second audit, if there is not any change from test engineer, tool, facility, it SHALL not be exceeded 1.5 days.

3.3.2 Listing

Once the laboratory has met all the requirements as specified in this document, the lab will be added to the NFC Forum Authorized Test Laboratory list at <http://nfc-forum.org/our-work/compliance/certification-program/>. Once listed, the laboratory will be allowed to perform NFC Forum certification testing.

The following contact information SHALL be provided to the NFC Forum.

- Name
- Title
- Address
- Phone number
- Fax number
- Email address

For Third-party Labs, provide the requested information for the Technical Manager, the primary business contact, and the commercial contact. For First-party Labs, only provide the Technical Manager information.

The commercial contact information will be posted on the NFC Forum Authorized Test Laboratory List, available from <http://nfc-forum.org/our-work/compliance/certification-program/>.

The laboratory is responsible for ensuring that all contact information is current and SHALL notify the NFC Forum of any changes.

3.3.3 Laboratory Authorization Renewal

All labs SHALL re-qualify on an annual basis, based on the original re-qualification date.

The authorization renewal SHALL be based on proof of accreditation, insurance coverage, member in good standing, and feedback from audit assessments. All NFC Forum Authorized Test Laboratories SHALL provide following required documents for Authorization renewal application.

- The latest version of ISO17025 certificate for Third-party NFC Forum Authorized Test Lab and GCF RTO.
- The latest version of insurance certificate for Third-party NFC Forum Authorized Test Lab and GCF RTO.

- The latest version of audit report for First-party and Third-party NFC Forum Authorized Test Lab and GCF RTO.
- The NFC Forum will ask for the execution of an ILCT no more frequently than every 12 months. The ILCT tests SHALL be performed and a copy of comparison tests report SHALL be sent to the NFC Forum (NCIRP chair).

The requalification paperwork SHALL be received no later than thirty (30) days from the expiry date of the current listing. The Test Lab will be automatically delisted thirty (30) days after the expiry date if all applicable paperwork has not been submitted.

When the Laboratory fails to meet the requirements in sections 3.1.2, 3.3.1 and 3.3.3, the Laboratory will lose NFC Forum Authorized Test Lab accreditation status.

3.3.4 Revocation

When NFC Forum Test Laboratory status is revoked, the Test Lab will be removed from the NFC Forum Test Laboratory list. Once the NFC Forum Authorized Test Laboratory status is revoked, the Test Lab is no longer permitted to perform NFC Forum Certification Testing.

The revoked Test Lab may appeal the revocation but SHALL meet all qualification requirements prior to reinstatement.

A Test Lab may apply to be reinstated as an NFC Forum Authorized Test Lab after revocation. The lab has up to one (1) year from date of revocation to apply for reinstatement.

The NFC Forum reserves the right to revoke the NFC Forum Test Laboratory status and remove a Test Lab from the NFC Forum Test Laboratory list if the NFC Forum determines that the Test Lab is not performing NFC Forum Certification testing in accordance with the requirements of the NFC Forum Certification Program. The NFC Forum will notify the Test Lab of the violations attributed to the revocation, and the Test Lab will have the opportunity to appeal.

3.3.5 Remediation

When a Test Lab fails to meet the requirements specified in the NFC Forum Certification Program, they may be put in remediation.

During remediation, Test Labs are permitted to perform NFC Forum Certification testing. As part of remediation, the Test Lab SHALL submit a plan acceptable to the NFC Forum detailing how the Test Lab plans to address the violations within fourteen (14) days of being notified and respond with a twelve (12)-week plan to again fulfill all of the requirements. If the Test Lab accepts to be delisted or fails to fulfill all requirements within twelve (12) weeks, they will be removed from the NFC Forum website. The NFC Forum may also require the Test Lab to undergo an audit of their NFC Forum Certification testing services, at the sole expense of the Test Lab.

Requirements

4 Inter-Lab Comparison Test (ILCT) Requirements

The objective of the ILCT Requirements is to ensure that every Approved NFC Forum Test Lab yields similar results for analog parameters measured on the same device.

The procedures in the following sections are to specify the authorization process for Test Labs so the total time required for its authorization is kept within an acceptable time frame allowing a smooth rotation of the ILCT reference samples. Test Labs SHALL return the ILCT reference samples to the NFC Forum when it has completed the ILCT or upon the request of the NFC Forum.

The rules defined in this document are only for the part related with the technical competencies' demonstration, namely the ILCT exercise and applicable for both Third-party Labs as well as First-party Labs wishing to be authorized for certification testing.

4.1 Preparation

Before the ILCT can take place, several criteria SHALL be fulfilled by the NFC Forum and the Test Lab.

The NFC Forum responsibilities are to:

- Organize an ILCT not more often than once per year
- Distribute and control the NFC Forum certified ILCT sample
- Measure an ILCT sample for the ILCT with a test tool equal to the one used by the Test Lab
- Ship the ILCT sample to the Test Lab as soon as it is available
- Inform the Authorized Test Lab that an ILCT for accreditation is needed to proceed
- Send the template that SHALL be used
- Send instructions on how to operate the reference sample

The Test Lab responsibilities are to:

- Inform the NFC Forum that they are ready for the ILCT
- Learn about the NFC Forum Analog specifications and test specifications, from either within the NFC Forum or other subject matter experts
- Ensure that they have competence regarding their Analog test tool setup and operations
- Perform the test tool maintenance and calibration as specified by the manufacturer.

4.2 ILCT

The Test Lab responsibilities are:

Requirements

- On reception of the ILCT sample, the Test Lab SHALL execute the ILCT test cases within two weeks and deliver a test report.
- The Test Lab SHALL follow all the maintenance, calibrations, and testing setup as specified by the manufacturer and NFC Forum Analog test specifications.
- The Test Lab SHALL submit the test results when ready to the NFC Forum (NCIRP staff member). If the Test Lab does not respect the time period, the sample will be recalled and the Test Lab will be put last in the queue.

The NFC Forum responsibilities are:

- Acknowledge that the test report has been received.
- The NFC Forum NCIRP staff member SHALL remove any Test Lab identification text or signs from the report and submit the results to NCIRP.
- The NCIRP SHALL provide a response within five (5) working days.

4.3 Issues Resolutions

NFC Forum Responsibilities

The NFC Forum will provide to the Test Lab:

- The test cases where the results are out of tolerance.
- Any potential cause for failure that might be visible on the test results.

The NFC Forum will NOT provide to the Test Lab:

- Any values, differences, or any type of quantification of the deviation.
- Any information that can pinpoint the exact points of failure.

Test Lab Responsibilities

The Test Lab, upon receiving a negative ILCT exercise result and its information, SHALL contact its test tool manufacturer and assure their availability to support the Test Lab measurements capability improvements.

The Test Lab SHALL repeat the test cases reported with problems and return the new results to the NFC Forum with a description of the improvements made within 1 week.

4.4 Re-evaluation of the Test Results

NFC Forum Responsibilities

The NFC Forum staff should submit the test results “anonymized” to NCIRP that needs to analyze them within a week, and, if not satisfactory, needs to evaluate why the improvements reported did not result in a pass.

NCIRP SHALL reply to Test Lab within four (4) working days with the assessment of the improvements previously reported by the Test Lab.

Test Lab Responsibilities

Requirements

Within a week, schedule a videoconference call or a face-to-face meeting with the validation house, test tool manufacturer, and Test Lab to analyze the testing methods of the Test Labs and to discover anything that is not being properly measured. The improvements made by the Test Lab SHALL be distributed to the meeting / call participants and to the NFC Forum (NCIRP staff member).

Within two weeks of receiving a new negative answer, the Test Lab SHALL repeat the execution of the test cases with problems and return the new results.

4.5 Cooperation Termination

The Test Lab can repeat this cycle of improvements (namely new execution of the test cases, new evaluation by NCIRP, and reaction to their suggestions for improvements) several times.

After two months of the reception of the test sample, the lab SHALL return the sample even if the test results are not good enough to pass the ILCT exercise.

If still interested in becoming an NFC Forum Authorized Test Lab, the Test Lab SHALL review its internal procedures, test tools, and competencies and request a new ILCT sample to perform a second attempt. They will be put at the bottom of the exiting ILCT samples requests queue.

4.6 Tolerances

When doing the ILCT, the lab results SHALL be equal to the Validation House results with the tolerance as defined for the ILCT exercise (see appendix E).

A. Requirements Summary

Table 1 summarizes the requirements.

	Third (3rd) party Labs	First (1st) party Labs
Membership Level	Associate or higher	Principle or Sponsor only
Meeting Attendance	<ul style="list-style-type: none"> • Face-to-face member meeting lab session and the Compliance Committee sessions during Face-to-face member meeting • Webinars 	<ul style="list-style-type: none"> • Face-to-face member meeting lab session • Webinars
Test Tools	Use only approved tools	Use only approved tools
Compliance to NFC Forum Policies	Testing SHALL be conducted in a manner consistent with [CERT_POL]	Testing SHALL be conducted in a manner consistent with [CERT_POL]
Insurance	US\$1 million per occurrence	Not required
Accreditation	ISO/IEC_17025:2017; including all the testing scopes corresponding to each Device Class supported	Minimally SHALL follow ISO/IEC_17025:2017 principles
Contact Information	Technical manager, primary business contact, and commercial contact	Technical manager and primary business contact
Audits	Required prior to authorized status being assigned and then every 24 months	Required prior to authorized status being assigned and then every 24 months
ILCT	Required to pass prior to authorized status being assigned and then upon request	Required to pass prior to authorized status being assigned and then upon request

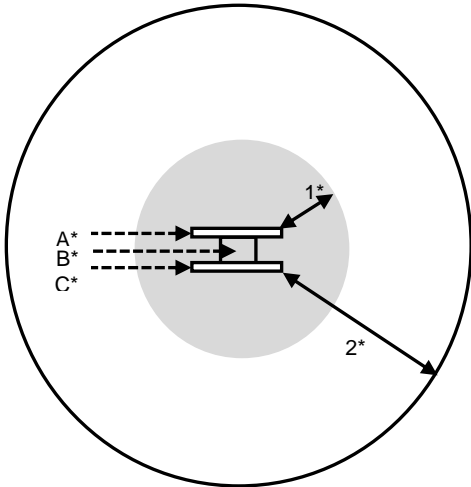
Table 1: Requirements Summary

B. Required ISO/IEC 17025:2017 Clauses for First-Party ATLS

[ISO/IEC_17025:2017] Section	Required Clauses
5 Structural Requirements	5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7
6 General	6.1, 6.2, 6.3, 6.4, 6.5, 6.6
7 Process Requirements	7.1, 7.2, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.11
8 Management System Requirements	8.1.2, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9

Table 2: ISO/IEC 17025:2017 Clauses for First-party ATLS

C. Required ISO/IEC 17025:2017 Clauses for Third-Party ATLS

[ISO/IEC_17025:2017] Section	Required Clauses/Additions
5 Structural Requirements	No additions
6 Resource Requirements	
6.1 General	No additions
6.2 Personnel	No additions
6.3 Facilities and environmental conditions	<p>a) NFC Forum Certification Testing should be performed under an environment that limits noise from 1MHz to 100MHz to avoid interference during testing.</p> <p>b) To avoid disturbing the magnetic field, the first free guard distance SHALL be observed around NFC Forum – Reference Equipment. This area SHALL not contain any other conductive materials than what is needed for NFC Forum certification testing</p> <p>c) In addition to the second free guard distance, no active electrical device, such as a cell phone, should be within 1 meter from the NFC Forum Reference Equipment, the DUT and the robot.</p> <p>d) There SHALL be controlled access to the laboratory.</p> <div data-bbox="764 1136 1232 1619" style="text-align: center;">  </div> <p>Key:</p>

[ISO/IEC_17025:2017] Section	Required Clauses/Additions
	<ul style="list-style-type: none"> • A*: NFC Forum Reference Equipment • B*: Operating Volume • C*: DUT • 1*: The first free guard distance against conductive materials: 150mm • 2*: The second free guard distance against active devices: 1m
6.4 Equipment	<ol style="list-style-type: none"> a) NFC Forum Certification testing SHALL be performed using approved and validated test platforms as listed on the NFC Forum website. b) Software Tool validation confirms that the software tools meet the specified requirements. Software tools SHALL be validated and documented, and should include the following objective evidence: <ul style="list-style-type: none"> • Custom software testing tools: Full validation effort. • Commercial off the Shelf (COTS) software tools used as is: Acceptance testing for each installed instance. • Modified off the Shelf (MOTS) software tools: Acceptance testing for each installed instance along with validation of the modification or tailoring. c) Each software test tool installation (or “instance”) SHALL undergo a documented installation and operational qualification prior to use. d) Software test tools can be installed on many systems. Each instance of the test tool software SHALL be uniquely identified on each target environment and be under configuration management. e) There SHALL be documented evidence of the configuration and inventory of each specific installed software or system, and suitable tests should be performed to confirm functionality. f) The Test Lab SHALL perform a reference antenna verification testing based on NFC Forum Reference Equipment Verification Tests [REVT] before certification testing. g) When software test tools are used by others outside of the laboratory’s control, configurations and adaptations SHALL be checked and possibly reset to ensure proper functioning. Note: For example, Test Labs should verify configurations and adaptations when another group

[ISO/IEC_17025:2017] Section	Required Clauses/Additions
	<p>outside of the lab's control has access rights to the testing environment.</p> <p>h) Software test tool configurations SHALL be safeguarded by user roles or other appropriate means.</p> <p>i) Software test tools significant to testing are considered equipment and SHALL follow the appropriate clauses in ISO/IEC_17025:2017, Section 5.5.</p> <p>j) The equipment records requirements in ISO/IEC_17025:2017 are defined as follows:</p> <ul style="list-style-type: none"> • Identity: Each instance of software / hardware • Manufacturer: Include manufacturer name, program name, and version number • Checks: Installation / operational qualifications • Location: Target system name or location • Manufacturer's instructions: User manuals • Calibrations: Applicable for Analog test equipment only • Maintenance Plan: None normally required • Damage: Applicable
6.5 Metrological traceability	<p>a) The quality control monitoring in this clause can be satisfied using "retained artifact", control charting or another recording method. This clause is applicable for ANALOG testing only. Quality control efforts for DIGITAL, SNEP and LLCP testing is "where possible" by the Test Lab.</p> <p>b) NFC Forum Certification testing SHALL be performed using approved and validated test platforms as listed on the NFC Forum website.</p> <p>c) NFC Forum Certification Testing SHALL be performed based on all NFC Forum procedures and the latest NFC Forum test specifications.</p> <p>d) NFC Forum Certification Testing SHALL be performed and executing in each applicable and available test specification by using the latest [TCCL] as a checklist.</p> <p>e) The Test Lab SHALL possess the procedure and solution to generate an Implementation Test Plan based on IUT's ICS values and applicable test specifications.</p>
6.6 Externally provided products and services	No additions

[ISO/IEC_17025:2017] Section	Required Clauses/Additions
7 Process Requirements	
7.1 Review of requests, tenders and contracts	
7.1.1 The laboratory SHALL have a procedure for the review of requests, tenders and contracts.	The contract SHALL define which components of the test environment are being supplied by the laboratory and which are being supplied by the client. This includes hardware and software. The test environment boundary interface points SHALL also be clearly defined
7.2 Selection, verification and validation of methods	
7.2.1 Selection and verification of methods	<p>a) NFC Forum Certification Testing SHALL be performed based on all NFC Forum procedures and the latest NFC Forum test specifications.</p> <p>b) NFC Forum Certification Testing SHALL be performed and executing in each applicable and available test specification by using the latest [TCCL] as a checklist.</p> <p>c) The Test Lab SHALL possess the procedure and solution to generate an Implementation Test Plan based on IUT's ICS values and applicable test specifications.</p> <p>NOTE: It is highly recommended to use an automated process to avoid human errors.</p>
7.2.2 Validation of methods	The Test Lab SHALL perform a reference antenna verification testing based on NFC Forum Reference Equipment Verification Tests [REVT] before certification testing.
7.3 Sampling	No additions
7.4 Handling of test or calibration items	No additions
7.5 Technical records	The quality control monitoring in this clause can be satisfied using "retained artifact", control charting or another recording method. This clause is applicable for ANALOG testing only. Quality control efforts for DIGITAL, SNEP and LLCP testing is "where possible" by the Test Lab.
7.6 Evaluation of measurement uncertainty	The concept of Measurement Uncertainty (MU) is applicable to ANALOG testing only. The concept of MU is not applicable to DIGITAL, SNEP or LLCP testing
7.7 Ensuring the validity of results	There are no commercial proficiency testing providers for NFC testing. However, the NFC Forum may commission Inter Lab Comparison Testing (ILCT) at its discretion.

[ISO/IEC_17025:2017] Section	Required Clauses/Additions
7.8 Reporting of results	The reported results will be covered by Certification Policy documents and the requirements in this document.
7.8.3 Specific requirements for test reports	The reporting of results shall conform to the Certification Policy Documents and the the requirements in this document.
7.9 Complaints	No additions
7.10 Nonconforming work	No additions
7.11 Control of data and information management	No additions
8 Management Requirements	
8.1.2 Option A	No additions
8.1.3 Option B	Not applicable
8.2 Management system documentation (option A)	No additions
8.3 Control of management system documents (option A)	No additions
8.4 Control of records (option A)	No additions
8.5 Actions to address risks and opportunities (option A)	No additions
8.6 Improvement (option A)	No additions
8.7 Corrective actions (option A)	No additions
8.8 Internal audits (option A)	No additions
8.9 Management reviews (option A)	No additions

Table 3: ISO/IEC 17025:2017 Clauses for Third Party ATLS

D. General Requirements

It is mandatory for a Test Lab to support at least one Device Class, but it is not mandatory to support all Device Classes.

- a) Does the Test Lab's ISO/IEC_17025:2017 accreditation Test Methods include the following NFC Test Cases Documents?
 - ANALOG
 - DIGITAL Protocol*
 - Type 1 Tag operation
 - Test Cases for Type 2 Tag and Type 2 Tag operation
 - Test Cases for Type 3 Tag and Type 3 Tag operation
 - Test Cases for Type 4 Tag and Type 4 Tag operation
 - Test Cases for Type 5 Tag and Type 5 Tag operation*
 - Tag Performance*
 - LLCP*
 - SNEP*

* Digital, Type 5 Tag, Tag Performance, LLCP, SNEP are not applicable for RTOs.
- b) Does the Test Lab know whether to check if the IUT supports the DTA or not?
- c) Does the Test Lab have the ability and supporting evidence for performing Pre-scan testing service to locate the reference position on the IUT?

D.1 Digital Protocol Testing

Digital Protocol Testing is mandatory for Third-party Test Labs, but is not applicable for RTOs.

- a) Is the Test Lab familiar with NFC Forum NFC Digital Protocol Specification and NFC Forum test cases for Digital Protocol?
- b) Does the Test Lab know the default environmental test conditions?
- c) Does the Test Lab know the default protocol test conditions?
- d) Does the Test Lab know the pre- and post-processing default timings?
- e) Does the Test Lab know the types of frames in the Scenarios?
- f) Does the Test Lab know the definitions for sequences timings application and measurement?
- g) Does the Test Lab know the parameters Values?
- h) Can the Test Lab perform and verify all the DP test cases?
- i) Is the Test Lab able to provide failed test case data and comments to the client to enable failure resolution?

D.2 Type 1/2/3/4/5 Tag Testing

NOTE For Type 1 Tags the following section is only applicable for Type 1 Tag Operations.

- a) Is the test lab familiar with NFC-Forum Type 1/2/3/4/5 Tag Specification and NFC-Forum Test Cases for Type 1/2/3/4/5 Tag testing?
- b) Does the Test Lab know the default environmental test conditions?
- c) Does the Test Lab know the default protocol test conditions?
- d) Does the Test Lab know the default timings?
- e) Does the Test Lab know the types of frames in the Scenarios?
- f) Does the Test Lab know the definitions for sequences timings application and measurement?
- g) Does the Test Lab know the T1T/T2T/T3T/T4T/T5T Memory Layouts?
- h) Does the Test Lab know the ICS and IXIT parameters and options?
- i) Can the Test Lab perform the manipulation of the IUT before and during the testing?
- j) Does the Test Lab know the Type 1/2/3/4/5 Tag Command/Response Exchanges?
- k) Does the Test Lab know the parameters Values?
- l) Can the Test Lab perform and verify all the T1T/T2T/T3T/T4T/T5T test cases?
- m) Is the Test Lab able to provide failed test case data and comments to the client to enable failure resolution?

D.3 Logical Link Layer Control Protocol (LLCP) Testing

Logical Link Control Protocol is mandatory for Third-party Test Labs, but not applicable for RTOs.

- a) Is the Test Lab familiar with NFC-Forum Logical Link Control Protocol Specification and NFC-Forum Test Cases for LLCP?
- b) Does the Test Lab know the default environmental test conditions?
- c) Does the Test Lab know the default test conditions for LT as target?
- d) Does the Test Lab know the default test conditions for LT as initiator?
- e) Does the Test Lab know the pre-and post-processing?
- f) Does the Test Lab know the default timing?
- g) Does the Test Lab know the parameters Values?
- h) Does the Test Lab know the definitions for sequences timings application and measurement?
- i) Can the Test Lab perform and verify all the LLCP test cases?
- j) Is the Test Lab able to provide failed test case data and comments to the client to enable failure resolution?

D.4 Simple NDEF Exchange Protocol Testing

This part is mandatory for Third-party Test Labs, but not applicable for RTOs

- a) Is the Test Lab familiar with NFC-Forum Simple NDEF Exchange Protocol Specification and NFC-Forum Test Cases for SNEP?
- b) Does the Test Lab know the default environmental test conditions?

- c) Does the Test Lab know the default protocol test conditions?
- d) Does the Test Lab know the pre-and post-processing?
- e) Does the Test Lab know the default timing?
- f) Does the Test Lab know the parameters Values?
- g) Does the Test Lab know the definitions for sequences timings application and measurement?
- h) Can the Test Lab perform and verify all the SNEP test cases?
- i) Is the Test Lab able to provide failed test case data and comments to the client to enable failure resolution?

D.5 Analog Testing

- a) Is the Test Lab familiar with NFC-Forum ANALOG Technical Specification and NFC-Forum Test Cases for ANALOG?
- b) Does the Test Lab know the default environmental test conditions?
- c) Does the Test Lab know NFC Forum Reference Equipment Verification Tests and has process and required facilities also verification records?
- d) The Test Lab SHALL perform a reference antenna verification based on calibration procedures defined in Analog technical specification, Annex B.4 and B.5, before certification testing.
- e) The Test Lab SHALL perform an 8-shaped coil verification based on step 2.5 defined in [REVT] before certification testing.
- f) Does the Test Lab know the default protocol values and test scenarios?
- g) Does the Test Lab know the default timing?
- h) Does the Test Lab know the positioning conventions and requirements?
- i) Does the Test Lab know the geometrical naming conventions?
- j) Does the Test Lab know the operating volume?
- k) Does the Test Lab know the position of each test point?
- l) Does the Test Lab have a verification process to control positioning deviation before testing?
- m) Does the Test Lab have solution to control positioning accuracy within 95% confidence level?
- n) Does the Test Lab know the signals description?
- o) Does the Test Lab calculate the uncertainties? Is there the uncertainty evaluation process and document for the ANALOG test tool?
- p) When a test case contains at least one position where the communication or where criteria are not met, can the Test Lab judge the test case?
- q) Can the Test Lab perform the power level measurement?
- r) Can the Test Lab perform the waveform characteristics measurement?
- s) Can the Test Lab perform the load modulation measurement for NFC-A, B, F, V?
- t) Can the Test Lab perform the carrier frequency measurement?

- u) If the tool requires the 8-shape coil, can the Test Lab demonstrate how and when to use the 8-shape coil?
- v) Can the Test Lab perform the power level adjustment?
- w) Can the Test Lab perform the waveform characteristics adjustment?
- x) Can the Test Lab perform the load modulation adjustment?
- y) Can the Test Lab perform and verify all the analogue test cases?
- z) Is the Test Lab able to provide failed test case data and comments to the client for failure resolution?

D.6 Tag Performance Testing

- a) Is the Test Lab familiar with NFC Forum Tag Performance Test Cases?
- b) Does the Test Lab know the default environmental test conditions?
- c) Does the Test Lab know the default protocol values and test scenarios?
- d) Does the Test Lab know the default timing?
- e) Does the Test Lab know the default parameter values?
- f) Does the Test Lab know the geometric naming conventions?
- g) Does the Test Lab know the operating volume?
- h) Does the Test Lab know the test position references?
- i) Does the Test Lab know how to interpret the measurement results?
- j) Can the Test Lab perform the power level adjustment?
- k) Can the Test Lab perform the waveform characteristics adjustment?
- l) Can the Test Lab perform the load modulation measurement?
- m) Can the Test Lab perform and verify all the Tag Performance test cases?
- n) Can the Test Lab judge whether a test case passes or fails?
- o) Is the Test Lab able to provide failed test cases data and comments to the client to enable failure resolution?

E. Inter-Lab Comparison Testing Procedure

E.1 Requirements

The following requirements SHALL be met by the Test Lab before proceeding with this procedure:

- Test Tool SHALL be installed on its final location.
- Test Lab SHALL have a valid Test Tool calibration certificate in place.
- Test Lab SHALL have a proof that Reference Equipment has successfully completed REVT.

E.2 General Rules

The following rules are applicable for this procedure:

- Any Test Lab SHALL successfully complete this procedure in order to get authorization for Analog testing for the first time.
- NCIRP may request from time to time that all current Test Labs complete this procedure in order to maintain their authorization. Additionally, if an issue is identified by the NCIRP for a particular laboratory, NCRIP may request the involved Test Lab to complete again this procedure.
- Test Tool SHALL remain of the same location during and after the execution of this procedure. If for any reason, the Test Tool has been moved, the Test Lab SHALL inform NCIRP and proceed with the verification of the positioning system.
- Test Labs SHALL verify at least every six months their Reference Equipment according to the procedures defined in NFC Analog Test Specifications.
- In case any Reference Equipment has been replaced, the Test Laboratory SHALL ensure that the new one has completed REVT, including the verification mentioned previously, prior to the execution of any testing session.

E.3 Process

The Test Laboratory SHALL complete the following stages and provide the NFC Forum (NCIRP staff member) with the outcome of each of them using the ILCT Results Template. For optimization purposes, Reference Measurements stage will not be started until both previous stages are successfully completed.

E.3.1 Positioning System Verification

The Test Lab SHALL provide a detailed verification demonstrating that the positioning tolerances defined by NFC Forum Test Cases for Analog for the particular positioning system under use are met. In case the Test Lab has several positioning systems, the verification has to be provided for each of them.

E.3.2 Reference Equipment Verification

The Test Lab SHALL execute the verification procedures as defined in NFC Forum Analog Test Spec for each of the Reference Equipment to be used for testing purposes and provide the results obtained to the NFC Forum (NCRIP staff member).

E.3.3 Reference Measurements

The Test Lab SHALL execute the following test cases and provide the results to the NFC Forum (NCIRP staff member) for evaluation. The reference samples to be used will be provided by the Validation House and SHALL be returned by the Test Lab once the measurements have been performed.

The allowed tolerances are detailed in the following table. The reference values for each combination of test case and sample will be provided to the NFC Forum (NCIRP staff member) by the Validation House.

Table 4: ILCT Tolerances

Test Case		Fres	Tolerances for Test Lab ILCT Results		Comment
No.	ID	MHz	Tolerance values	Unit	
1	TC_AN21_LIS_NFCA_07	N/A	7	%	NFC-A LMA TX
2	TC_AN21_LIS_NFCB_03		N/A	N/A	NFC-B max power RX
3	TC_AN21_LIS_NFCF_07_0		7	%	NFC-F LMA TX
4	TC_AN21_LIS_NFCV_01		N/A	N/A	NFC-V min power RX
5	TC_AN21_LIS_NFCV_07		7	%	NFC-V LMA TX
6	TC_AN21_LIS_UND_01		4	%	Loading effect
7	TC_AN21_POL_UND_01	13.56	4	%	Min power TX
8	TC_AN21_POL_NFCA_02	13.56	N/A	N/A	NFC-A LMA RX
9	TC_AN21_POL_NFCB_01	13.56	1	%	NFC-B waveform TX
10	TC_AN21_POL_NFCF_01_0	13.56	1	%	NFC-F waveform TX
11	TC_AN21_POL_UND_02	13.56	4	%	Maximum power TX
12	TC_AN21_POL_UND_03	13.56	100	Hz	Carrier frequency
13	TC_AN21_POL_UND_04	13.56	Timing: 1	%	Reset characteristics
			DFT: 0.16	mV (RMS)	
14	TC_AN21_POL_UND_06	16	1	%	Field Activation
15	TC_AN21_POL_NFCV_01	13.56	1	%	NFC-V waveform TX
Verdict rule: A maximum of six (6) out-of-range measurements are allowed in total of the 197 positions					

E.3.4 Discrepancies resolution

Whenever a discrepancy is identified, the Test Lab will be informed about the issue. The Test Lab will then make the necessary corrections and proceed again with the failing stage indicating the reason of those corrections along with the new results in the ILCT-2 template.

Based on the information provided, the NCIRP may decide at its own discretion whether any stage SHALL be repeated.

F. Revision History

Table outlines the revision history.

Table 5: Revision History

Document Name	Revision and Release Date	Status	Change Notice	Supersedes
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.0, Sept. 2012	Approved		
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.0.1, Feb. 2013	Final Draft	Language changes to align definition of First-party Test Lab with the definition used in the legal.	Version 1.0, September 2012
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.0.2, May 2014	Final		Version 1.0.1, February 2013
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.1.01, May 2014	Approved	Approved by the CC. Corrected the version number.	Version 1.0, September 2012
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.1.01, November 21, 2014	Approved	Added Section C, Required First Party ATL ISO/IEC 17025 Clauses	Version 1.1.01 September 2012
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.1.02, November 15, 2015	Final	Added §3, NFC Forum Test Lab RF ILCT exercise description and test case names in §3.6 Replaced logos and default language.	Version 1.1.01, November 21, 2014
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.1.03, March 16, 2016	Final	Updated §1.5.3, introducing quarterly Testing Service fees reporting and payment	Version 1.1.03, November 15, 2015
Inter-Lab Comparison Test (ILCT) Requirements	Version 1.1.04, 2017-05-18	Final	Added required documents for the initial and 2 nd Lab authorization process on Section 2.3.1 and Section A.4 Closeenvironment requirement, rephrased document name from ATR to TLR, technical requirement has been moved to CTR, updated and replaced by CC_Glossary_Terms on Section 1.3	Version 1.1.03, March 16, 2016
Test Lab Requirements	Version 1.1.05, 2017-10-12	Final	Changed exceeding limit from \$200000 to \$100000	Version 1.1.04, 2017-05-18

			Added new section 2.2.4 <i>Certification Release and Device Class Requirements</i>	
Test Lab Requirements	Version 1.1.06, 2017-12-11	Final	Clarifications on supported testing scopes Reworking on information submission Annexes A and C removed	Version 1.1.05, 2017-10-12
Test Lab Requirements	Version 2.0.00 2018-02-28	Final	ISO/IEC 17025:2017 additions	Version 1.1.06 2017-12-11
Test Lab Requirements	Version 2.0.01 2018-03-21	Final	ILCT Procedure added	Version 2.0.00 2018-03-21
Authorized Test Lab Requirements	Version 2.1.00 2020-08-27	Final	Changed document name from TLR back to ATLR. General updates for CR12.	Version 2.0.01 2018-03-21
Authorized Test Lab Requirements	Version 2.2.00 2020-12-03	Final	Added requirement that labs SHALL perform an 8-shaped coil verification before certification testing.	Version 2.1.00 2020-08-27