

NSI Policy  
Supplement for Bar Code Certification  
May 7, 2007  
Revision 1.2

## Table of Contents

1. Overview .....	3
1.1 Introduction .....	3
1.2 Scope.....	3
1.2.1 Scope of certification of Bar Code Technology .....	4
1.3 Terminology and Definitions .....	5
1.4 Referenced Documents.....	5
2. Certification Process Workflow.....	5
3. Validation Process and Conformance Review .....	8
3.1 Validation Method for Bar Code Technology .....	8
3.1.1 Validation Environment.....	8
3.1.2 Validation Harness .....	8
3.1.3 Validation Data and Validation Results .....	9
3.1.4 Submission of the Validation Report and Supporting Documentation.....	9
3.2 Conformance Review for Bar Code Technology .....	9
4. Archiving Certification Materials.....	9
5. Certification Requirements for Modifications of a Certified Entity .....	10
5.1 Modifications to a Ticket Bar Code Design .....	11
5.2 Material Changes to a Certified Entity .....	11
5.3 Non-material change to the Conformance Statement of a Certified Entity ..	12
5.4 Material Change in Scope of Certified Entity .....	13
5.5 Re-Badged or OEM'ed Certified Entity.....	13
5.6 Administrative Changes .....	13
5.7 Other Variants .....	14
6. Renewal .....	14
6.1 Duration of Certification.....	14
6.2 Renewal Process .....	14

## 1. Overview

### 1.1 Introduction

The objective of the North American Association of State and Provincial Lotteries (NASPL) Standards Initiative Certification and Verification Program is to encourage and facilitate the adoption and implementation of NASPL Standards Initiative (NSI) Best Practices and Technical Standards in lotteries, lottery industry vendors, and other lottery industry expert organizations that provide software, hardware, or services to lotteries. The program provides formal recognition of an Organization's conformance to an industry Best Practice or Technical Standard. The Certification Program is for vendors and other organizations that wish to demonstrate and receive recognition for the conformance of their business practices and technologies to the NSI Best Practices and Technical Standards, whereas the Verification Program is the parallel program providing the means for lotteries to demonstrate conformance in the areas applicable to lotteries.

This document is a supplement to the general NSI Certification/Verification Policy document. Whereas the general NSI Certification/Verification Policy document defines the generic NSI certification/verification policies, this document, the NSI Policy Supplement for Bar Code Certification, defines the specific policy elements that pertain only to the Bar Code certification. In conjunction with the general NSI Certification/Verification Policy document, this document defines the policies that govern the operation of the NSI Bar Code Certification Program.

These policies define what can be certified, what it means to be certified, and the process for achieving and maintaining certification. These policies also define the obligations on Organizations, including a requirement for an Organization to warrant and represent that its Certified Entity meets the applicable Conformance Requirements, which include conformance to the applicable NSI Best Practice(s) or Technical Standard(s) as interpreted by the NSI from time to time.

This document, along with the general NSI Certification/Verification Policy document, is intended primarily for Organizations that would like to certify one or more of their technologies. This collective policy represented by both documents - in conjunction with the Certification/Verification Agreement and applicable Trademark License Agreement - constitutes the set of requirements and obligations for achieving certification. Buyers intending to procure from Organizations with Certified Entities, and other stakeholders who want assurance of an Organization's capabilities, will also find this document useful for understanding what they can expect from a Certified Entity.

### 1.2 Scope

Certification is available for the following types of Bar Code Technology:

- **Ticket Bar Code Design:** Comprises (1) the bar code content and (2) the physical printed bar code.
- **Bar Code Reader:** An optical device for scanning a printed bar code that, with the aid of an internal or external driver, provides data that can be processed by Terminal Software or a Server-Side Software Application.
- **Terminal Software:** Interprets data from a Bar Code Reader and processes that data for application-specific purposes.

- **Bar Code Terminal:** Combines a Bar Code Reader and Terminal Software in a single physical unit.
- **Server-Side Software Application:** Accepts bar code data as input and processes that data for application-specific purposes.
- **Integrated Gaming System:** Comprises an integrated collection of components that may include instances of the other types of Bar Code Technology.

Bar Code Terminal certification and Integrated Gaming System certification each provide certification for a set of components. The individual components within these technologies are not certified by virtue of the set being certified and cannot be represented as certified unless they have also been separately certified.

In addition, verification is available to lotteries for:

- **Lottery Procurement Practice: Bar Code Technology:** A lottery business practice to procure certified solutions when requesting bar code related products in RFPs. Verification for a Lottery Procurement Practice encompasses a review of the language used in those RFPs requesting bar code technology to ensure the language requires the successful bidder to obtain Bar Code Certification. Verification also affords the lottery the opportunity to register a unique Jurisdiction Code with NASPL.

The policies for Lottery Procurement Practice verification are contained in the NSI Policy Supplement for Lottery Procurement Practice Verification.

Bar Code Certification covers the following NSI Technical Standard:

- Bar Codes for Instant Tickets in the Lottery Industry

Conformance Requirements have been defined for the following Bar Code areas in which *NSI certification* is currently available:

- Bar Code Technology

Conformance Requirements have been defined for the following Bar Code areas in which *NSI verification* is currently available:

- Lottery Procurement Practice: Bar Code Technology

### **1.2.1 Scope of certification of Bar Code Technology**

A Certified Entity must be defined so as to clearly identify the scope of the entity covered by certification. For a Bar Code Technology, the scope of the Certified Entity is defined in the Conformance Statement. Certification thus means that the Organization guarantees conformance for the entity as defined in the Conformance Statement and operating in the specified operational environment.

A Bar Code Reader, Terminal Software, Bar Code Terminal, Server-Side Software Application or Integrated Gaming System is defined in terms of its constituent components.

As part of completing the Conformance Statement Questionnaire, the Applicant must list every component that is impacted by the Bar Code Technical Standard and should include the release number and version for each component.

These components could consist of one or more from the following non-exhaustive list:

- Hardware
- Drivers (software or hardware or both)
- Application software
- Interfaces (hardware or software)
- Protocol engines
- Data processing algorithms
- Firmware
- Software libraries
- Software objects
- System software
- Compilers
- Data translators
- Other

### **1.3 Terminology and Definitions**

Refer to the general NSI Certification/Verification Policy document.

### **1.4 Referenced Documents**

This document should be used in conjunction with the general NSI Certification/Verification Policy document and is not intended for stand-alone use.

For details on Lottery Procurement Practice verification, please consult the NSI Policy Supplement for Lottery Procurement Practice Verification.

The following documents should be consulted for more detailed information on the Validation Process for Bar Code Technology:

- NSI Bar Code Validation Specification
- NSI Guide Supplement for Bar Code Certification

## **2. Certification Process Workflow**

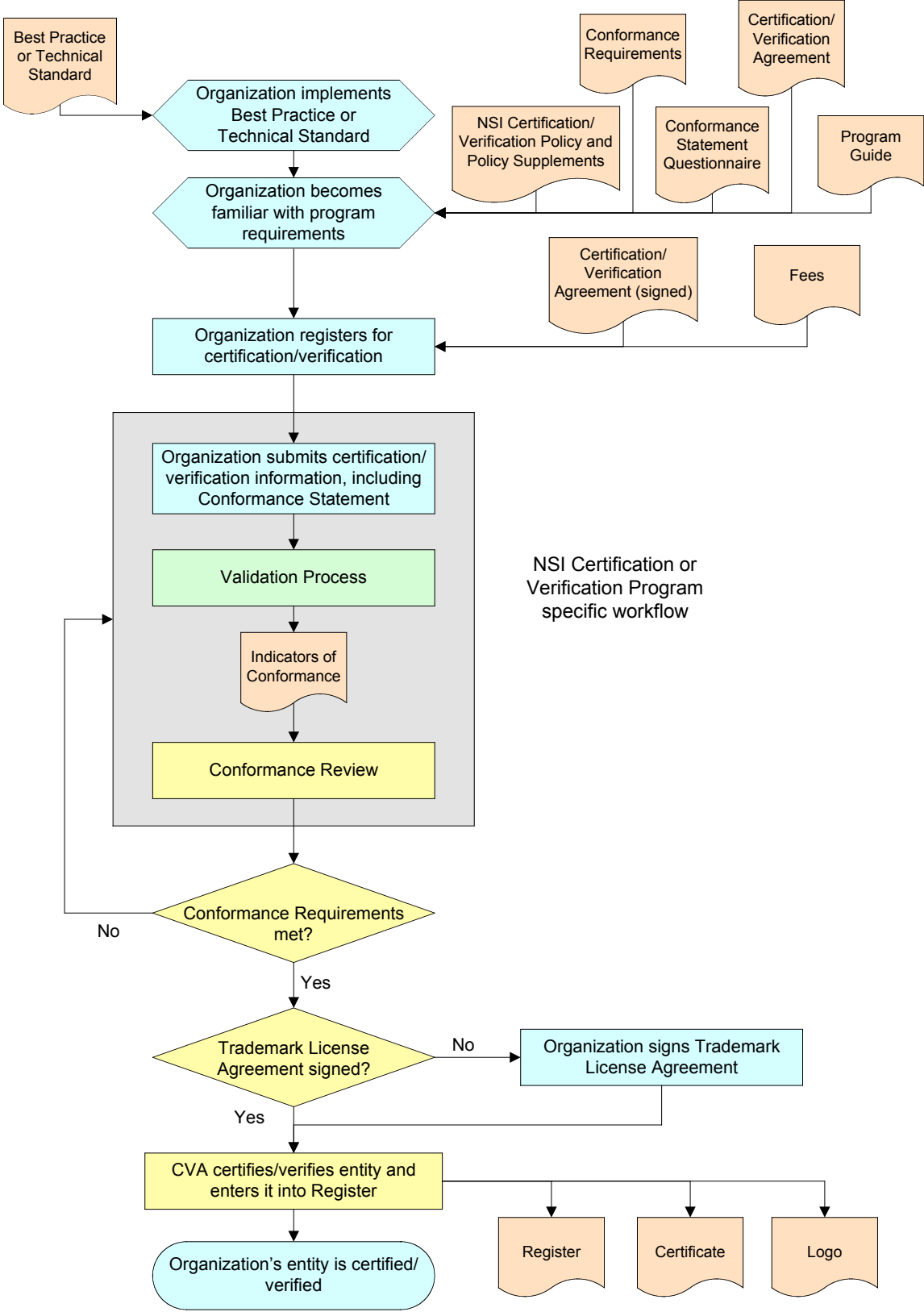
This section defines the process an Organization must follow to achieve certification against the NSI Bar Code Technical Standard. The parties involved in the process are:

- Organization
- Certification and Verification Authority
- Specification Authority
- Validation Method Maintenance Authority

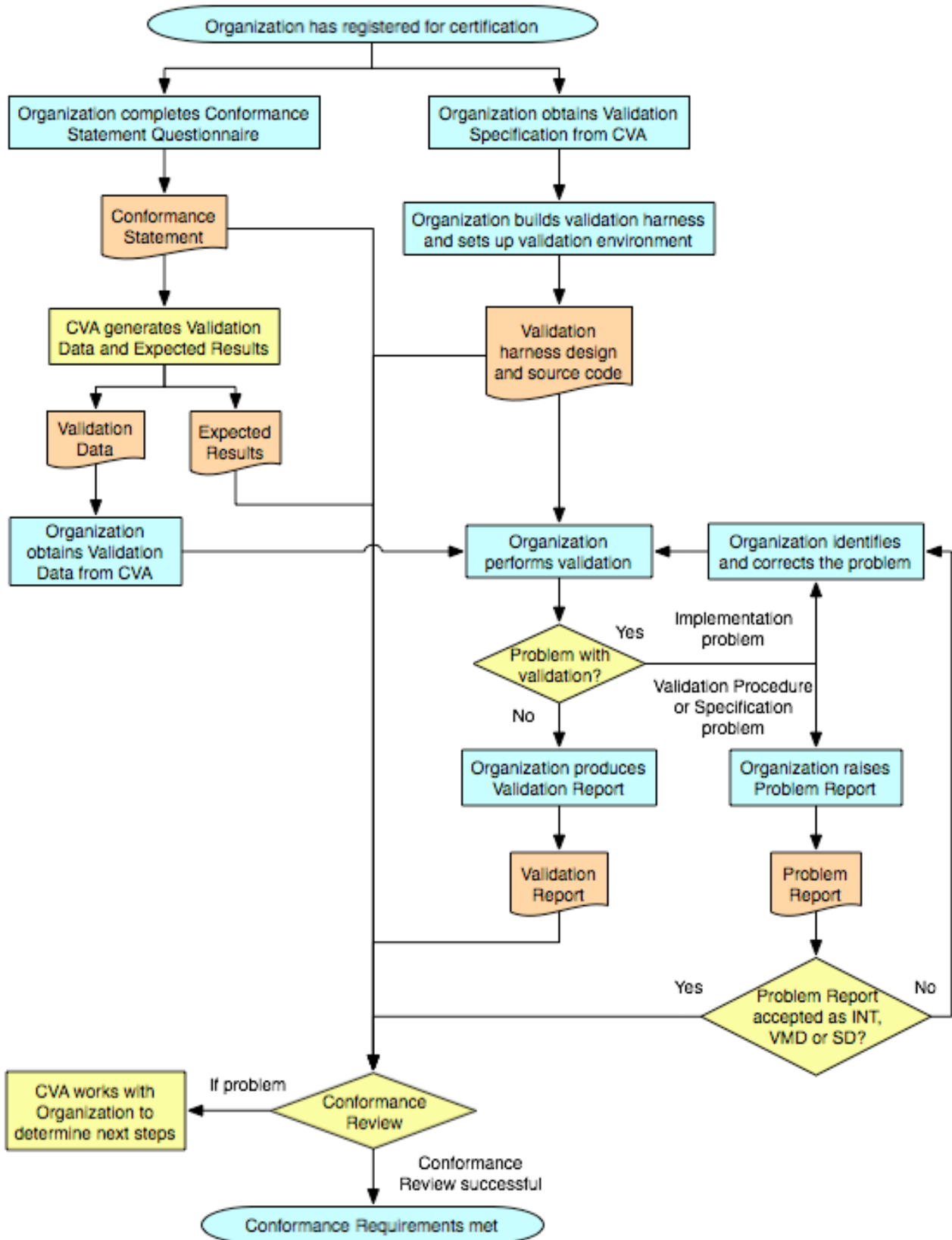
The following diagrams show the overall certification workflow and the workflows specific to Bar Code Certification. In addition to the general workflow diagram, there is a Bar Code specific workflow diagram:

- Bar Code Technology Workflow

# NSI Certification Process



## Bar Code Technology Workflow



### **3. Validation Process and Conformance Review**

All NSI Certification and Verification Programs require the completion of a Conformance Statement Questionnaire in order to produce a Conformance Statement that is specific to the business practice or technology. This process is described in detail in the general NSI Certification/Verification Policy document.

Described below are the specific processes, methods, and policies by which conformance is demonstrated and validated for each of the following technologies:

- Ticket Bar Code Design
- Bar Code Reader
- Terminal Software
- Bar Code Terminal
- Server-Side Software Application
- Integrated Gaming System

The NSI Bar Code Validation Specification defines:

- The requirements for the Validation Environment that the Applicant will need to set up and the Validation Harness that the Applicant will need to design and implement in order to validate its ability to generate or use bar codes and/or bar code data conforming to the NSI Bar Code Technical Standard.
- A set of validation instructions for executing the validation process.
- The requirements for submission of the Validation Report and supporting documentation.

#### **3.1 Validation Method for Bar Code Technology**

This Validation Method is defined in the NSI Bar Code Validation Specification. This document specifies requirements for:

1. The Validation Environment
2. The Validation Harness
3. Input and Output Formats for Validation Data and Validation Results
4. Submission of the Validation Report and Validation Harness Documentation

##### **3.1.1 Validation Environment**

The Applicant will set up a Validation Environment, in conformance with the Validation Specification, which may include the use of additional gaming system components to perform the validation. Any such gaming system component that represents a Bar Code Technology must itself be NSI certified. The responsibility for ensuring that the Validation Environment is adequate for the purpose rests entirely with the Applicant.

##### **3.1.2 Validation Harness**

The Applicant will design, implement, and run their own Validation Harness, in conformance with the Validation Specification, to input Validation Data and extract Validation Results from the Validation Environment. The specific point of observation for the Validation Results is dependent on the technology. It is the responsibility of the Applicant to thoroughly test the Validation Harness to ensure that the results correctly capture the data from generated instances of conformant bar codes and

that the Validation Report is a true rendition of this data and is formatted according to the Validation Specification requirements for submission.

### **3.1.3 Validation Data and Validation Results**

Once the Applicant has registered for certification, the Certification and Verification Authority will provide the Organization with access to a set of Validation Data for input into the Validation Environment. This data will ensure that the boundary conditions within the Bar Code Technical Standard and all the options for which support is claimed in the Conformance Statement are sufficiently exercised. The format for the Validation Data is defined in the Validation Specification.

The Applicant should follow the validation procedures defined in the Validation Specification, thus generating the Validation Results.

The Validation Specification defines a format for the Validation Results that is appropriate for the technology being certified. The data in the Validation Results must be syntactically and semantically identical to the Certification and Verification Authority's specification.

### **3.1.4 Submission of the Validation Report and Supporting Documentation**

When the validation process is complete, the Applicant must submit the following files to the Certification and Verification Authority for analysis:

- A completed Validation Report, including:
  - The Validation Results captured during the execution of the validation procedures and presented in the format specified in the Validation Specification
  - A description of the Validation Environment, including the precise definition of any hardware and/or software that was used in the Validation Environment beyond the technology
  - Optionally, additional supporting information concerning the Validation Results and their interpretation
- Documentation for the Validation Harness:
  - The design documentation for the Validation Harness that was used to generate the Validation Results
  - A copy of the source code for the Validation Harness software.

## **3.2 Conformance Review for Bar Code Technology**

The Certification and Verification Authority will review all certification information submitted by the Organization, along with any applicable Interpretations, System Deficiencies, or Validation Method Deficiencies, to validate that the evidence indicates that the technology meets the applicable Conformance Requirements.

The Certification and Verification Authority will compare the result from the input data against the expected results. This set of expected results is confidential to the Certification and Verification Authority.

## **4. Archiving Certification Materials**

By default, the Certification and Verification Authority will maintain the archive for all certification materials submitted in conjunction with a new or updated certification, as described in the general NSI Certification/Verification Policy document.

## 5. Certification Requirements for Modifications of a Certified Entity

This section defines the requirements for maintaining certification when there are changes to any of the elements upon which a technology's certification was based.

The following table summarizes the types of modifications that may occur in relation to a Certified Entity:

Section	Type of Modification	Certifiable Entities to which this Applies	Validation Requirement	Certification Requirement
5.1	Modifications to a Ticket Bar Code Design	Ticket Bar Code Design	None – for non-material change Full Validation Process – for material change	None – for non-material change New Certification – for material change
5.2	Material Changes to a Certified Entity	<ul style="list-style-type: none"> <li>• Bar Code Reader</li> <li>• Terminal Software</li> <li>• Bar Code Terminal</li> <li>• Server-Side Software Application</li> <li>• Integrated Gaming System</li> </ul>	Full Validation Process	Certification Information update
5.3	Non-material change to the Conformance Statement of a Certified Entity	<ul style="list-style-type: none"> <li>• Bar Code Reader</li> <li>• Terminal Software</li> <li>• Bar Code Terminal</li> <li>• Server-Side Software Application</li> <li>• Integrated Gaming System</li> </ul>	None	Certification Information update
5.4	Material Change in Scope of Certified Entity	<ul style="list-style-type: none"> <li>• Bar Code Reader</li> <li>• Terminal Software</li> <li>• Bar Code Terminal</li> <li>• Server-Side Software</li> </ul>	Full Validation Process	New Certification

		Application • Integrated Gaming System		
5.5	Re-Badged or OEM'ed Certified Entity	<ul style="list-style-type: none"> <li>• Bar Code Reader</li> <li>• Terminal Software</li> <li>• Bar Code Terminal</li> <li>• Server-Side Software Application</li> <li>• Integrated Gaming System</li> </ul>	Reference to previous validation results	New Certification
5.6	Administrative Changes	All	None	Conformance Statement update
5.7	Other Variants	All	As determined by Certification and Verification Authority	As determined by Certification and Verification Authority

### 5.1 Modifications to a Ticket Bar Code Design

If the modifications in a maintenance release or new version of a certified Ticket Bar Code Design consist entirely of changes to layout, format, and/or graphic design outside the scope of the current Technical Standard and there is no change to the bar code itself, then there is no impact on the certification of the Ticket Bar Code Design. Such releases do not require revalidation or re-certification.

Any modification to a certified Ticket Bar Code Design other than what is identified above is considered a material change and the corresponding new release is considered a new design for the purposes of certification. Such new release is subject to the full validation and certification process, in which case, the Organization must complete a new certification registration and submit a new Conformance Statement and Validation Report. Upon successful completion of the certification process, the Certification and Verification Authority will create a new entry in the Certification Register for the modified design and issue a new Certificate. The Certification Register entry for the original Ticket Bar Code Design will remain in the register unchanged, unless the Organization explicitly requests to have it deleted.

### 5.2 Material Changes to a Certified Entity

Modifications may be made to a Certified Entity, for example, to upgrade a technology or to modify a technology. The nature of the modifications will determine the impact on the technology's certification.

The scope of a Bar Code Reader, Terminal Software, Bar Code Terminal, Server-Side Software Application or Integrated Gaming System is defined by the constituent components identified on the Conformance Statement (see Section 1.2.1). This

section covers material changes to the components identified on the Conformance Statement. Changes to the defined scope of the technology are covered in Sections 5.3 and 5.4.

A material change is one that may affect the technology's conformance to the Technical Standard or that may affect the outcome of the validation process. It is the responsibility of the Organization to ensure that the technology remains conformant and thus to determine whether a modification constitutes a material change. It is good practice for an Organization, as part of its normal quality assurance activities, to regression test modified versions of a technology. Regression testing should include utilizing the applicable NSI Bar Code Technology Validation Methods to help the Organization ensure continued conformance to the Technical Standard.

For clarification, a material change includes, but is not limited to, a change that may:

- Impact the behavior of the currently supported mandatory and optional features of the Technical Standard
- Add or remove support for optional features of the Technical Standard
- Have a direct or indirect impact on the results of validation

The following do not constitute a material change under this definition and thus do not require revalidation:

- Changes outside the scope of certification, i.e., changes that do not affect any of the components identified on the Conformance Statement
- Changes to any of the components identified on the Conformance Statement representing functionality entirely outside the scope of the Technical Standard, AND which are entirely decoupled from the technology that implements the Technical Standard

If a modification to a technology involves a material change, then the Organization must perform a revalidation of the technology in order for the entity to remain certified. It remains the responsibility of the Organization to submit the revalidation results to the Certification and Verification Authority for conformance review prior to the final release of the modified technology.

In order to update the applicable Register entry to reflect the modified release of the technology, the Organization must complete a new registration indicating that it is for a new release of an existing Certified Entity. The Organization must also provide a new Validation Report. If the result of the conformance review is a success, the Certification and Verification Authority will update the Conformance Statement and applicable Register entry for the technology to reflect the modified release, and issue a new Certificate.

### **5.3 Non-material change to the Conformance Statement of a Certified Entity**

If an Organization wishes to change information on the Conformance Statement and there is no material change to the Certified Entity, the certification may be amended upon request to the Certification and Verification Authority. The Organization will be required to provide a written statement to the Certification and Verification Authority indicating that there have been no material changes to the technology.

The Certification and Verification Authority will then update the Conformance Statement and, if appropriate, update the applicable Register and issue a new Certificate.

#### **5.4 Material Change in Scope of Certified Entity**

The scope of a Bar Code Reader, Terminal Software, Bar Code Terminal, Server-Side Software Application or Integrated Gaming System is defined by the constituent components identified on the Conformance Statement (see Section 1.2.1). If an Organization makes a material change to a Certified Entity and in doing so alters the set of components that define the technology, the modified technology is considered a new release for the purposes of certification and is subject to the full validation and certification process.

A change in scope that does not involve a material change to the technology is covered in Section 5.3.

To achieve certification for the modified technology, the Organization must complete a new registration and submit a new Conformance Statement and Validation Report. Upon successful completion of the certification process, the Certification and Verification Authority will create a new entry in the applicable Register for the modified technology and issue a new Certificate. The entry for the original Certified Entity will remain in the applicable Register unchanged, unless the Organization explicitly requests to have it deleted.

#### **5.5 Re-Badged or OEM'ed Certified Entity**

If technically identical Certified Entities are to be provided by more than one Organization, each Organization will have to register for certification, in order to have their technology listed in the applicable Register. Since the new Organization assumes the warranty for the technology, a re-badged or OEM'ed technology provided by that Organization constitutes a new Certified Entity. Such a technology will not require revalidation, but reference must be provided to the validation results of the existing Certified Entity to which it is technically identical, and with the agreement of the Organization responsible for originally registering the existing technology.

In this case, the new Organization must complete a new registration, indicating that the technology is identical to an existing Certified Entity. The new Organization must submit the following:

- A Conformance Statement that is technically identical to that of the existing Certified Entity, apart from the technology name and Organization information
- A written statement indicating that the re-badged or OEM'ed technology is indeed technically identical to the existing Certified Entity
- A reference to the validation results from the original certification of the existing Certified Entity
- A signed notification from the Organization that registered the existing Certified Entity authorizing the validation results from the original certification to be referenced for the new certification

If all requirements are met, the Certification and Verification Authority will update the applicable Register to reflect the re-badged or OEM'ed technology and issue a new Certificate.

#### **5.6 Administrative Changes**

If an Organization wishes to make changes to the Conformance Statement that do not have a material affect on the conformance of the Certified Entity, the Organization must notify the Certification and Verification Authority within 30

calendar days of such change occurring. The Certification and Verification Authority will update the Conformance Statement to reflect the requested changes.

For other administrative changes, such as those to the designated certification contacts, an Organization may request such changes at any time by sending an email to the Certification and Verification Authority.

### 5.7 Other Variants

Except where specifically stated in this document, any other change to any of the elements upon which a Certified Entity's certification was based must be communicated to the Certification and Verification Authority within 30 calendar days of such change occurring. If the Certification and Verification Authority believes that the change may have a material affect on the conformance of the technology to the NSI Bar Code Technical Standard, the technology will be subject to the full validation and certification process, or any subset thereof, as deemed appropriate by the Certification and Verification Authority.

## 6. Renewal

### 6.1 Duration of Certification

Certification is valid for a specific period of time from the date on which the Certification and Verification Authority provides written notice to the Organization that certification has been achieved, unless certification is subsequently revoked. This period is subject to the Certification Requirements for Modifications of a Certified Entity defined in Section 5.

The last day of this period is referred to as the renewal date and represents the date on which the certification will cease to be valid, unless the Organization renews the certification.

The duration of certification for specific Certified Entities is as follows:

<b>Certified Entity</b>	<b>Duration of Certification</b>
Ticket Bar Code Design	Four (4) years
Bar Code Reader	Four (4) years
Terminal Software	Two (2) years
Bar Code Terminal	Two (2) years
Server-Side Software Application	Four (4) years
Integrated Gaming System	Two (2) years

### 6.2 Renewal Process

An Organization with a Certified Entity is required to renew the certification on or before the renewal date. Renewal will be performed in accordance with the renewal process defined in Section 9 of the NSI Certification/Verification Policy document.

Whether renewal requires revalidation or not is dependent upon changes in the Certified Entity, changes in the validation methodology, and any Interpretations that have been granted since the previous certification. Thus, at the time of renewal, the Certification and Verification Authority will evaluate the affect of any such changes and based on the evaluation will define the requirements for renewal, including whether revalidation is required. For example, a material change in an Integrated Gaming System will require revalidation. The Certification and Verification Authority will not unreasonably request that a Certified Entity be revalidated.

If revalidation is required, the Certification and Verification Authority will notify the Organization of the specific requirements. If revalidation is not required, the only requirement on the Organization is to register for renewal and pay the certification renewal fee.