Technical Standard

**Bar Codes for Instant Tickets in the Lottery Industry
Version 2**

NASPL

THE *Open* GROUP

Technical Standard

Bar Codes for Instant Tickets in the Lottery Industry, Version 2

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Preface

North American Association of State and Provincial Lotteries (NASPL)

NASPL has approved the creation of a standards initiative, which is dedicated to the adoption or creation of Technical Standards, Best Practices, and Certification Programs that will further the lottery objectives of integrity, security, interoperability, and profitability.

The NASPL Standards Initiative (NSI) was approved and funded by NASPL and the vendor community as a collaborative development effort with participation from the lotteries, gaming vendors, and retail associations. Project management and facilitation services for standards development and certification are provided by The Open Group in conjunction with NASPL.

The NSI vision is to provide an interoperable lottery environment that is based on a set of open Technical Standards, approved Best Practices, and Certification Programs that, when implemented, will improve the quality and integrity of the lottery environment, and will provide increased efficiencies, resulting in reduced costs and increased profit margins for lotteries, vendors, and lottery retailers.

The NSI mission is to establish a resilient organizational structure, set of processes, and procedures that will engage all constituents (lotteries, vendors, and retail representatives) in an environment of open discussion and cooperative development.

Further information about NASPL is available at www.naspl.org.

The Open Group

The Open Group is a vendor-neutral and technology-neutral consortium, whose vision of Boundaryless Information Flow will enable access to integrated information within and between enterprises based on open standards and global interoperability. The Open Group works with customers, suppliers, consortia, and other standards bodies. Its role is to capture, understand, and address current and emerging requirements, establish policies, and share best practices; to facilitate interoperability, develop consensus, and evolve and integrate specifications and Open Source technologies; to offer a comprehensive set of services to enhance the operational efficiency of consortia; and to operate the industry's premier certification service, including UNIX certification.

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This Document

This document is the Technical Standard for Bar Codes in the Lottery Industry. It has been developed and approved by NASPL in association with The Open Group.

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In this document the letters "U.P.C." are used solely as an abbreviation for the "Universal Product Code" which is a product identification system. They do not refer to the U.P.C. that is a federally registered certification mark of the International Association of Plumbing and Mechanical Officials (IAPMO) to certify compliance with a Uniform Plumbing Code as authorized by IAPMO.

NASPL and The Open Group acknowledge that there may be other brand, company, and product names used in this document that may be covered by trademark protection and advises the reader to verify them independently.

Acknowledgements

Referenced Documents

The following document is referenced in this Technical Standard:

- NSI Requirements for Standardization of Universal Product Codes (U.P.C.) for the Lottery Industry [www.opengroup.org/naspl/call_for_barcode_reqs]

1   Introduction

In October 2002, the North American Association of State and Provincial Lotteries (NASPL) approved the creation of a standards initiative – the NASPL Standards Initiative (NSI) – which is dedicated to the adoption or creation of Technical Standards, Best Practices, and Certification Programs that will further the lottery objectives of integrity, security, interoperability, and profitability.

The NSI is comprised of a Steering Committee, a Technical Standards Working Group, a Best Practices Working Group, and the Retail Council, providing representation from the lotteries, gaming system vendors, lottery retailers, and lottery associations.

This document relates solely to standards for instant ticket bar codes, including evolution of the Universal Product Code (U.P.C.).

1.1   Objective

A Technical Standard provides a clear definition of a set of technical requirements which suppliers and implementers must adhere to in order to meet the procurement needs of the lottery industry.

A NASPL Technical Standard is a specification that applies to the lottery industry, which has been approved by the NSI, and which serves as a recommendation for adoption by the lottery industry. A NASPL Technical Standard is a specification that when implemented is intended to standardize technology or materials, and thus to provide increased efficiencies, resulting in reduced costs and increased profit margins for lotteries, vendors, and lottery retailers.

The development of a NASPL Technical Standard involves the following stages:

1.   The NSI, through the Technical Standards Working Group, selects a candidate specification area using specific assessment and acceptance criteria (as defined by the NASPL Steering Committee).

2.   The Technical Standards Working Group develops a Technical Standard document.

3.   Optionally, the Technical Standard document is subject to an informal review process by NASPL members and the NSI participants.

4.   The Technical Standard document is subject to a formal review process by members of the NSI Best Practice Review Board, which is typically composed of the NSI Steering Committee, the Technical Standards Working Group, and a subject area expert from the industry.

5.   Final voting on review comments is open to the NSI Steering Committee.

6. The NASPL Executive Committee acts as an "Approvals Board" in that they determine whether the review and approvals process was carried out according to the documented procedures, which is the final step in "approving" the Technical Standard for publication.

7. A set of conformance criteria and a conformance policy for the Technical Standard are defined.

Currently, this document is at Stage 7.

The approved NASPL Technical Standard defines technical requirements in enough detail to enable it to be readily deployed by both suppliers and procurers in the lottery industry.

This chapter describes this NASPL Technical Standard in terms of its purpose and its scope, and gives a definition of the terminology used throughout the document.

The objective of standardizing instant ticket bar codes is to improve the efficiency of the processes associated with instant tickets; that is, standardization followed by integration with software applications and best practices. By this means, the processes of accounting, inventory, distribution, and reporting associated with instant tickets will become more efficient. There are three areas of standardization defined in this document:

- Universal Product Code (U.P.C.)

- Additional lottery-specific information for inclusion in a lottery-specific bar code

- An integrated bar code for U.P.C. and additional lottery-specific information based on new bar code technology

The standards outlined in this document are intended to be technology-independent, although it is possible that the lottery industry will eventually converge on a 2D or 3D format to enable integration of U.P.C. and additional lottery-specific information, and to facilitate the inclusion of additional lottery-specific information in a single bar code. Reduced Space Symbology (RSS) is one example of technology that could be used to implement the integrated bar code.

1.2 Overview

The purpose of this Technical Standard is to provide a set of technical requirements for bar codes to be used on lottery instant tickets. These requirements will allow lotteries to procure tickets conforming to this Technical Standard from a variety of sources and for suppliers to be able to presume a standard implementation of the tickets when designing terminal equipment.

The level of standardization is to define the fields, the length of these fields, and recommended uses for the data represented. The actual format of the bar code that contains the fields is outside the scope of this document, as is the technology to print an integrated U.P.C. and lottery-specific bar code. This document concentrates on the content of the bar code in terms of field rather than the standard for the printing of the bar code.

The standardized bar code may also be of interest to suppliers of retail point-of-sale (POS) equipment wishing to make enhanced sales distribution and accounting information available based on lottery bar code information to the retail sales organization.

1.3　　Scope

One of the initial tasks of the NSI Working Groups was to ensure that requirements for the Technical Standards and Best Practices are complete and address the actual needs of the lottery business. It is important that we establish a linkage between the business, lottery, vendor, retailer, and user needs and standardization requirements. Toward that end, a Requirements Document for each Technical Standard and Best Practice area has been produced to help establish and maintain that linkage.

For reference and to provide additional context for this document, refer to NSI Requirements for Standardization of Universal Product Codes (U.P.C.) for the Lottery Industry (www.opengroup.org/naspl/call_for_barcode_reqs). This Requirements Document is an online survey that was used as input to validate some of the common usage and data field assumptions used in creating this Technical Standard.

The survey questions and a summary of the survey results are included in this document as Appendix A.

This Technical Standard provides a definition of the fields present in the lottery bar code, including their lengths and characteristics. It also references the standards recognized by the lottery industry for U.P.C. bar codes and how those standards are employed.

1.4　　Terminology

This section provides a set of terms and their definitions, which should be used when describing and interpreting the requirements specified in this Technical Standard.

Must	Indicates an absolute, mandatory requirement of the Technical Standard that has to be implemented in order to conform to the Technical Standard.
Should	Indicates a recommendation that ordinarily must be implemented. To conform to the Technical Standard, an acceptable justification must be presented if the requirement is not satisfied.
May	Indicates an optional requirement to be implemented at the discretion of the practitioner, and which has no impact on conformance to the Technical Standard.
Must not	Indicates an absolute preclusion of the Technical Standard, and if implemented would represent a non-conformity with the Technical Standard.
Should not	Indicates a practice explicitly recommended not to be implemented. To conform to the Technical Standard, an acceptable justification must be presented if the requirement is implemented.

2 Instant Ticket Bar Codes

This chapter addresses three areas of standardization for instant ticket bar codes as follows:

- Universal Product Code (U.P.C.)

- Additional lottery-specific information for inclusion in a lottery-specific bar code

- An integrated bar code for U.P.C. and additional lottery-specific information based on new bar code technology, of which RSS is an example

Each area for standardization is described using the following format:

Introduction	This section introduces the bar code.
Objectives	This section lists the objectives for the bar code standardization effort.
Business Drivers	This section contains some of the potential end-value benefits expected after standardization and market adoption of the standards and associated technology.
Definition	This section is critical, as it provides the Technical Standard definition for the bar code. This section is normative and the prescriptive terms within should be interpreted according to the definitions defined in Section 1.4 (Terminology).
Recommended Usage	This section presents recommended usage for the bar code. This section is informative.
Rationale	This section uses the survey results to provide background to the consensus reached. This section is informative.
Future Directions	This section records the Working Group's thoughts on future development. This does not represent a commitment to further work in this area. This section is informative.

2.1 Universal Product Code (U.P.C.)

2.1.1 Introduction

The Uniform Code Council (UCC) manages the standards for the Universal Product Code (U.P.C.) and the assignment of UCC Company Prefixes. Until now, some lotteries have been using the U.P.C. to include certain lottery information at variance with the standard retail use of the code.

The U.P.C. is a numerical system that uniquely identifies thousands of different vendors/suppliers and millions of different items that are warehoused, sold, delivered, and billed throughout the retail and commercial segments of the distribution channels. The U.P.C. provides an accurate, efficient, and economical means of controlling and tracking the flow of goods through the use of a product identification system.

2.1.2 Objectives

The objectives for defining a base U.P.C. standard are:

- To ensure a uniform implementation of the retail bar code across the lottery industry

- To allow retailers operating in multiple lottery jurisdictions to obtain identical data from all instant tickets sold

- Migration and adaptation to account for new technology at the point-of-sale (POS)

2.1.3 Business Drivers

Increased Sales of Instant Tickets at Existing Agents

The end-value benefit is to increase sales at existing lottery agent sites, by introducing U.P.C. bar code standards that provide the definition and capability for retailers to be able to extract and interpret the same information from their POS system, regardless of which jurisdiction the store is in, thus improving accounting and inventory methods in a way that reduces the time agents must spend on these support processes and increases the time they can spend on marketing and sales.

Revenue Generation through Increase in Number of New Agents

Currently there are many retail chains and independent stores that do not sell lottery tickets. If the selling, inventory, and accounting processes were made more seamless – e.g., by integrating the U.P.C. bar code capability at the POS – more of the non-participating retail establishments would agree to participate in lottery sales.

Improve Lottery-Retailer Customer Service Relationships

Most lotteries are facing challenges in their ability to offer additional financial compensation to retailers. Enhanced customer service appears to be one vehicle available to improve the retailer

to lottery relationship by offering tools to reduce the cost and improve the accuracy of selling lottery tickets.

Decrease Training Time for Retail Employees

The workforce turnover in the typical instant ticket retail outlet is approximately 130% per year. This equates to an average employee turnover rate of 8 months. The burden of constantly training new employees can be greatly reduced if widespread use of the U.P.C. information on the ticket can effectively reduce the transaction of selling the instant ticket to a simple bar code read at the POS device or lottery terminal. Relieving the burden of constant training could potentially attract new retailers.

2.1.4   Definition

The following elements define the U.P.C. Technical Standard:

- All lottery instant tickets must include the standard U.P.C., which is a U.P.C.-A (data carrier) carrying a UCC-12 data structure.

- The UCC-12 comprises the UCC Company Prefix, an Item Reference, and a Check Digit.

- The UCC Company Prefix varies in length from six (6) to ten (10) digits.

- The Item Reference varies from five (5) digits to one (1) digit.

- The length of the UCC Company Prefix plus Item Reference is always 11 digits.

- The U.P.C. bar code should not have the Price Point substituted for the Item Reference.

2.1.5   Recommended Usage

The U.P.C. bar code uses the UCC Company Prefix assigned to each company, coupled with an Item Reference to identify each of the company's products. The combination of these eleven digits, plus a Check Digit, forms the 12-digit number, which uniquely identifies one and only one item.

2.1.6   Rationale

Statistical analysis of the survey results shows that at least three quarters of lotteries currently include a U.P.C. bar code on their instant tickets.

The most common standard employed for the U.P.C. bar code on instant tickets is the 12-digit all-numeric code that uniquely identifies the company/product combination. We can say with statistical confidence that over 50% of lotteries that have a U.P.C. bar code will make use of the 12-digit standard.

We can be confident that, in addition to the Lottery ID and Game Number, minorities of lotteries also include Price Point information in the Item Reference.

The placement of the bar code is on the rear of the ticket in the majority of cases, although the exact placement on the rear of the ticket varies from lottery to lottery. We can be confident that few if any lotteries place the U.P.C. bar code on the front of the ticket.

Despite the majority of lotteries including a U.P.C. bar code on their instant tickets, we can infer from statistical analysis that very few lotteries actually scan the U.P.C. bar code on their lottery terminal, though the Game Number is invariably duplicated on the lottery-specific bar code which the majority of lotteries do scan. The driver for including the U.P.C. bar code on the ticket is for the convenience of those retailers who choose to scan the U.P.C. bar code. Some large retail chains have a policy of always scanning the U.P.C. bar code; others do not. The proportion of retailers that do use the U.P.C. bar code is impossible to infer statistically from the survey data, but the Working Group representatives believe that it is a small minority. Clearly in the case of an integrated U.P.C. and lottery-specific bar code, the lottery and the retailers would have access to all the U.P.C. data on scan, and duplication could be illuminated.

Statistically few if any lotteries consider that the existing U.P.C. standard can convey useful additional information to that which the standard requires. Likewise, few cite any reason – such as printing cost of ticket space – as an impediment to including the U.P.C. bar code on instant tickets.

2.1.7 Future Directions

It is expected that as bar code expansion to 2D progresses and market adoption from retailers for the associated technology increases, the potential for expanded definition and integration will also increase – see Section 2.3.

2.2 Lottery-Specific Bar Code

2.2.1 Introduction

In addition to the U.P.C. printed on each of the instant tickets, almost all lotteries make use of a lottery-specific bar code that is imaged on the back of the ticket, and is specific to each lottery. This bar code currently contains proprietary and secure information that is encrypted and which allows for the validation and accounting of each instant ticket within an instant game.

This bar code also allows the instant ticket printer to inventory all tickets delivered to the lottery. Unlike the U.P.C. bar code described above, the lottery-specific bar code is different for every ticket in the game and is "imaged" using a high-speed ink jet imager rather than "printed" by conventional printing methods.

The content of this information – which is in addition to that provided on the U.P.C. bar code – is standardized in a way that allows the definition of the fields and specific elements to be standardized, so that certain fields can remain proprietary and others can be standardized and open for purposes of improving processes such as accounting and reporting.

2.2.2 Objectives

The objectives for defining the additional information to be included on a lottery-specific bar code are:

- To ensure a uniform implementation of the lottery-specific bar code across the lottery industry

- To increase the information content of the lottery-specific bar code

- Migration and adaptation to account for new technology at the POS and lottery terminal

2.2.3 Business Drivers

Increase Lottery Effectiveness

The end-value benefit to lotteries specifically is the ability to include additional useful information in the bar code, such as ticket length, pack size (quantity), or other items. This information would be especially useful with Instant Ticket Vending Machines (ITVMs) for tracking, loading, and reporting.

Furthermore, this bar code could increase efficiencies through automation in return processing (warehouse and field), inventory control, distribution control, and accounting.

Reduced Costs of Terminal Equipment

Currently there is considerable variation between the format and content of the lottery-specific bar code and the uses for the information it contains. Further, there are differences in the bar code symbology used such that not all terminals are capable of reading all the bar code variants. Vendors must therefore develop multiple variants of terminal equipment to meet the specific

needs of each lottery. A standard lottery-specific bar code would provide vendors with the opportunity to reduce the engineering required to address each bar code variant. This means reductions in development effort and economy of scale of manufacture. The consequent cost savings for vendors could be passed onto the lottery in the form of reduced equipment cost.

Greater Freedom-of-Choice in Procurement

Currently there is considerable variation between the format and content of the lottery-specific bar code and the uses for the information it contains. Not all terminals are capable of reading all the variants of codes. This means that vendors who want to compete for system upgrade or re-equipment procurements for a lottery jurisdiction that they do not serve must redesign existing hardware and software applications to the specific bar code in use. The incumbent vendor does not have these costs to the same degree. The effect of this is to favor the incumbent supplier and thus to restrict the lottery's choice in procurement. If vendors can base their design on a single standard for the lottery bar code that will apply across all lotteries, the "playing field is leveled" allowing lotteries the opportunity to multi-source from multiple suppliers. The improved competition can drive innovation and provide downward cost pressures.

Reduced Printing Costs

While ticket formats may continue to vary between different lotteries, a single standard for the lottery bar code will provide some economy-of-scale and may avoid printers having to re-tool to print for different lotteries.

Standard Application Design

The benefits of standardization for hardware equipment also apply to the applications that make use of the data presented by lottery terminal equipment. It would be possible for the equipment supplier's software developers to assume a standard data content and structure enabling a single general bar code content application to be made portable across all lotteries. This will reduce the time needed to develop the software for different lotteries and would standardize the testing process when lotteries make bar code content changes. Furthermore, it enhances the opportunity for third-party software developers to design portable software applications and components broadening the choice lotteries have in procurement and facilitating suppliers re-use of software components and libraries. The resultant cost savings could be passed on to lotteries.

Timeliness of Adoption

It is not anticipated that any lottery will modify its pre-existing ticket systems to align with this standard, unless they perceive that the benefits outweigh the costs. Rather, lotteries may more likely choose to require adherence to this lottery-specific bar code standard for their next procurement cycle, or alternatively move to an integrated U.P.C. and lottery-specific bar code in accordance with this standard. The vendor representatives who worked on this standard expressed a potential willingness on behalf of their organizations to conform to the lotteries' wishes in this respect.

2.2.4　Definition

2.2.4.1　*Standardization Requirements for Fields*

The lottery-specific bar code for lottery instant tickets must implement the following mandatory fields consistent with the layout and guidelines defined in Section 2.2.4.2:

- Game Number – A lottery-specific identifier for a specific game of which the ticket is a part

- Pack Number – An identifier for the distribution unit in which the ticket is included

- Ticket Number – A unique number within the pack that distinguishes the ticket from the others in the pack for inventory control purposes

- Format ID – A reference to the particular implementation of this Technical Standard (see Section 2.2.4.3 for details)

- Validation Number – A lottery-specific number used to identify the ticket within the ticket validation process to verify whether or not the ticket is a prize winner

- Check Digits – A lottery-specific set of numbers used to authenticate the bar code or Validation Number

The lottery-specific bar code for lottery instant tickets may include the following optional fields:

- Price Point – The sale price of the ticket

- Jurisdiction Code – A unique identifier used to distinguish the issuing lottery from other lotteries

  A lottery might choose to include the Jurisdiction Code in the lottery-specific bar code to prevent unauthorized cashing in a wrong jurisdiction, or, more importantly, to provide the capability for two or more jurisdictions to agree to cash each others' tickets (cross-validation). If the Jurisdiction Code field is implemented, the lottery must obtain their Jurisdiction Code from NASPL.

2.2.4.2　*Standardization Requirements for Field Lengths*

2.2.4.2.1　Instant Ticket Bar Code Header

The four fields listed below constitute the header for the lottery-specific bar code for lottery instant tickets. These fields must be formatted in the specified order with the specific lengths detailed below:

- Five (5) numeric digits between 0 and 9 for the Game Number

- Seven (7) numeric digits between 0 and 9 for the Pack Number

- Three (3) numeric digits between 0 and 9 for the Ticket Number

- Four (4) numeric digits between 0 and 9 for the Format ID used

Fields with content that does not fill the required length must be right-justified with leading zero (0) digits to meet the length requirements.

The following table diagrams the content and ordering for the header of the lottery-specific bar code:

Game Number	Pack Number	Ticket Number	Format ID
GGGGG	PPPPPPP	TTT	OOOO

For example, the following digits could represent the bar code header:

00123000000010010001

In this example:

- The Game Number is "00123".

- The Pack Number is "0000001".

- The Ticket Number is "001".

- The Format ID is "0001".

2.2.4.2.2   Recommended Formatting for the Remaining Fields

The remaining four fields defined in the lottery-specific bar code are specified in a manner that allows some flexibility in the implementation of the Technical Standard. The following layout is the recommended approach and should be implemented as detailed below with the specified number of digits:

- Ten (10) numeric digits between 0 and 9 for the Validation Number

- Three (3) numeric digits between 0 and 9 for the Price Point

- Three (3) numeric digits between 0 and 9 for the Jurisdiction Code

- Three (3) numeric digits between 0 and 9 for the Check Digits

The following diagram illustrates the contents of the recommended implementation of the 38-digit bar code:

Game Number	Pack Number	Ticket Number	Format ID	Validation Number	Price Point	Jurisdiction Code	Check Digits
GGGGG	PPPPPPP	TTT	OOOO	VVVVVVVVVV	RRR	JJJ	CCC

For example, the following digits could represent the full 38-digit standard bar code:

00123000000100100011234567890005010123

In this example:

- The Game Number is "00123".

- The Pack Number is "0000001".

- The Ticket Number is "001".

- The Format ID is "0001".

- The Validation Number is "1234567890".

- The Price Point is "005".

- The Jurisdiction Code is "010".

- The Check Digits field is "123".

2.2.4.2.3   Flexibility Options

The lottery may choose not to implement the Price Point or Jurisdiction Code, which are optional fields. Additionally, the lottery may increase the number of digits for the Validation Number and/or Check Digits fields from the recommendation in Section 2.2.4.2.2 by eliminating or reducing the recommended field size for the optional fields; if so, this must be reflected in the Format ID field as defined in Section 2.2.4.3.

The length indicated in the Format ID value for the Jurisdiction Code must not be in conflict with the field length of the Jurisdiction Code supplied by NASPL.

2.2.4.2.4   Overall Length and Format Requirements

The overall bar code length must be 38 numeric digits, each between 0 and 9. This length is fixed and independent of any flexibility options selected. Use of the Format ID field, as defined in Section 2.2.4.3, provides the means to maintain this overall length.

Due to limited space on instant tickets, the defined fields and length requirements may exceed the limits for some lottery-specific bar codes, so some form of composite bar code may be required to implement this standard (see Section 2.3).

2.2.4.3   *Standardization Requirements for the Format ID Field*

The Format ID field is reserved for indicating which variant of the standard a lottery is following. This means that applications could (if they were programmed correctly) make use of this field to interpret which variant is in use on a ticket.

One of the Format ID field values from this section must be included in the bar code.

Currently defined values for the Format ID field for the lottery-specific bar code are:

0001   Lottery-specific bar code elements with all mandatory and optional fields
                  defined according to the length requirements specified in Section 2.2.4.2.

0002   Lottery-specific bar code elements with all mandatory fields and Jurisdiction
                  Code defined according to the length requirements specified in Section 2.2.4.2,
                  but not implementing the Price Point by padding that field with zero (0) digits.

0003   Lottery-specific bar code elements with all mandatory fields and Price Point defined according to the length requirements specified in Section 2.2.4.2, but not implementing the Jurisdiction Code by padding that field with zero (0) digits.

0004   Lottery-specific bar code elements with all mandatory fields defined according to the length requirements specified in Section 2.2.4.2, but not implementing the Price Point or Jurisdiction Code by padding those fields with zero (0) digits.

0005 – 0067   Validation Number and/or Check Digit fields vary from the recommended length in Section 2.2.4.2. The variation must be indicated by specifying the appropriate type of variation from the table below.

               Note that the following table is only applicable if specific applications need to increase the size of the Validation Number and/or the Check Digits fields. Choose the Format ID value that achieves the proper size for the Validation Number and/or Check Digits fields by affecting the Price Point and/or Jurisdiction Code as desired to maintain the overall bar code length.

Type	Validation Number	Check Digits	Price Point	Jurisdiction Code
0005	10	4	2	3
0006	10	4	3	2
0007	10	5	1	3
0008	10	5	2	2
0009	10	5	3	1
0010	10	6	0	3
0011	10	6	1	2
0012	10	6	2	1
0013	10	6	3	0
0014	10	7	0	2
0015	10	7	1	1
0016	10	7	2	0
0017	10	8	0	1
0018	10	8	1	0
0019	10	9	0	0
0020	11	3	2	3
0021	11	3	3	2
0022	11	4	1	3
0023	11	4	2	2
0024	11	4	3	1

Type	Validation Number	Check Digits	Price Point	Jurisdiction Code
0025	11	5	0	3
0026	11	5	1	2
0027	11	5	2	1
0028	11	5	3	0
0029	11	6	0	2
0030	11	6	1	1
0031	11	6	2	0
0032	11	7	0	1
0033	11	7	1	0
0034	11	8	0	0
0035	12	3	1	3
0036	12	3	2	2
0037	12	3	3	1
0038	12	4	0	3
0039	12	4	1	2
0040	12	4	2	1
0041	12	4	3	0
0042	12	5	0	2
0043	12	5	1	1
0044	12	5	2	0
0045	12	6	0	1
0046	12	6	1	0
0047	12	7	0	0
0048	13	3	0	3
0049	13	3	1	2
0050	13	3	2	1
0051	13	3	3	0
0052	13	4	0	2
0053	13	4	1	1
0054	13	4	2	0
0055	13	5	0	1
0056	13	5	1	0

Type	Validation Number	Check Digits	Price Point	Jurisdiction Code
0057	13	6	0	0
0058	14	3	0	2
0059	14	3	1	1
0060	14	3	2	0
0061	14	4	0	1
0062	14	4	1	0
0063	14	5	0	0
0064	15	3	0	1
0065	15	3	1	0
0066	15	4	0	0
0067	16	3	0	0

0068 to 9999   Currently unspecified.

2.2.5   Recommended Usage

It is recommended that accounting and other software applications for instant ticket gaming provide functionality that addresses the following:

- Validation

- Activation

It is good practice for applications for instant ticket gaming to also provide functionality that addresses the following:

- Return Processing (Warehouse)

- Inventory Control

- Accounting

- Distribution Control

- Delivery Confirmation

- Return Processing (Field)

Applications for instant ticket gaming could additionally provide functionality that addresses the following:

- Reporting

- Order Packing

- Settlement

2.2.6   Rationale

In the vast majority of cases (statistically almost 80%) the current lottery-specific bar code on most instant tickets is in the form of an Interleaved 2-of-5 bar code.

Over 90% of lotteries currently encode inventory and ticket validation information within the lottery-specific bar code. In practice, the bar codes are scanned for QA purposes during the manufacturing and distribution process and are also scanned at the retail lottery terminal for ticket winner validation. In this manner, the bar code information may be typically used for validation or stock control purposes, though other uses are possible. This is a distinct bar code from the retail-related U.P.C. bar code and retailers do not ordinarily scan it at the POS device. Flatbed scanners may not be able to scan this code; normally, only the lottery terminal scans the bar code. Standardization of the code should bring possible benefits to lotteries in standardization of lottery terminal hardware and lottery software applications.

We can statistically infer from the survey results that all current additional lottery-specific information could be contained within 24 digits for the vast majority (80% of lotteries), though in practice we could expect that this will be the case for all lotteries. However, statistically almost 75% of lotteries could encompass all their current data in 22 digits or more.

Taking each field in turn:

- The majority (just fewer than 75%) use three (3) digits in their lottery bar code for the Game Number. One of the respondents uses four (4) digits and the U.P.C. representation of Game Number (Item Reference) is five (5) digits, so a recommendation of five (5) digits will in all probability suit all lotteries.

- The majority (just fewer than 75%) use six (6) digits in their lottery bar code for the Pack Number. One of the respondents uses seven (7) digits, so a recommendation of seven (7) digits will in all probability suit all lotteries.

- All those who responded to the survey question use three (3) digits for the Ticket Number, so that is the recommendation.

- The statistical majority of lotteries use eight (8) digits or below for the Validation Number, but two of the respondents use nine (9) digits. A recommendation of ten (10) digits will probably meet all the current lotteries' needs.

- There is no statistically significant consensus for the number of digits for the Price Point, but no one reported using more than three (3) digits.

- The most popular number of digits used for a Check was two (2), but three (3) digits should satisfy at least 80% of lotteries. Given that one (1) digit is also included in the U.P.C. bar code, a further two (2) digits should be a safe recommendation.

- Additional fields to render the standard independent and capable of future evolution are a Format ID field to define the standard variant selected showing how the standard is formatted in the bar code. This will also permit some trade-off between the lengths of the Validation Number field and the Check Digits field if desired. A four (4)-digit field is recommended for the Format ID.

We can be confident that most, if not all, of the lotteries use the current lottery-specific bar code for Validation and Activation. A further use for the majority of lotteries is Return Processing (Warehouse) and Inventory Control.

Other uses include Accounting, Distribution Control, Reporting, Order Packing, Delivery Confirmation, Settlement, and Return Processing (Field). A simple majority of all survey respondents have such a use, but there is an insufficient number to imply any universal use across the population of lotteries as a whole. However, when asked about future usage, the majority of respondents cited Accounting, Distribution Control, Delivery Confirmation, and Return Processing (Field) as desirable.

2.2.7 Future Directions

Due to the limited space on instant tickets, it is expected that the lottery-specific bar code standard will not change significantly in the future, unless it is accompanied by the ability to capture and scan data in a reduced space format using technology such a Reduced Space Symbology (RSS) or some other form or new technology that allows more data to be stored, read, and interpreted – see Section 2.3.

2.3 Integrated U.P.C. and Lottery-Specific Bar Code

2.3.1 Introduction

It is possible that future technologies will converge on an integrated U.P.C. and lottery-specific bar code that can be scanned by both the lottery terminal and the retailer's POS device. In principle, such a bar code could be scanned only once to meet the needs of both the lottery and the retailer, but there are security and other technical barriers to this level of integration.

At this point in time, this Technical Standard does not presume an underlying bar code technology for an integrated bar code containing retailer and lottery information. However, RSS has been identified as one possible bar code technology that would meet the needs of the Technical Standard.

2.3.2 Objectives

The objectives for defining the additional information to be included on an integrated bar code are:

- To ensure a uniform implementation of an integrated lottery and retail bar code across the lottery industry

- To increase the information content provided by the integrated U.P.C. and lottery-specific bar code

- Migration and adaptation to account for new technology at the POS and lottery terminal

2.3.3 Business Drivers

Improved Data for Retailers and Lotteries

Currently the U.P.C. standard does not allow for information in addition to the UCC Company Prefix and Item Reference for each item. There are other aspects of lottery-specific information that may be of use to retailers in their accounting practices were that information made available to them by means of a scan at the POS. An integrated U.P.C. and lottery-specific bar code could be read by the retailer's scanner, enabling unencrypted information – such as Game Number, Ticket Number, etc. – to be used by the retailer, which would be particularly beneficial in providing accounting information that could automate the inventory, distribution, and re-ordering processes. The ability to scan in elements such as Price Point would increase ease-of-use and would decrease time and effort spent by the retailers and lotteries on accounting and reconciliation efforts. The increased ease-of-use may also increase the number of retailers selling lottery tickets, which in turn would increase sales, benefiting retailers, lotteries, and vendors.

Opportunity for Integration of Retail and Lottery Accounting, Resulting in Increased Sales

While there may be fundamental security and other concerns that would need to be addressed, in principle, an integrated U.P.C. and lottery-specific bar code gives an opportunity for a single

scan at the POS to meet all the needs of both retailers and lotteries. This could be achieved by means of a standardized interface between the lottery terminal and the retailers' POS or in a utopian vision putting the lottery applications on the retailer's back-office systems and dispensing with the lottery terminal altogether. Clearly, whatever level of integration is achieved, it will have direct business benefits in the form of reduced sales costs for retailers through ease-of-use. Integration will result in increased sales and sales incentive, a benefit which could also translate into an increased number of retailers signing up to sell lottery tickets. This increase in sales would benefit lotteries, retailers, and vendors.

2.3.4 Definition

2.3.4.1 General Standardization Requirements

The integrated U.P.C. and lottery-specific bar code must combine an evolved U.P.C. as defined in Section 2.3.4.2 with a lottery-specific bar code as defined in Section 2.2.4.

2.3.4.2 Standardization Requirements for Fields and Field Lengths

The U.P.C. portion of the integrated bar code must include the following fields that must be composed of the following number of digits:

- Fourteen (14) digits for the Global Trade Item Number (GTIN):

  — One (1) digit for the Indicator digit

  — Twelve (12) digits for the EAN.UCC Company Prefix and Item Reference

  — One (1) digit for the GTIN Check Digit

The integrated U.P.C. portion must be followed by the lottery-specific bar code portion as defined in Section 2.2.4.1 and Section 2.2.4.2 and consistent with the definition of the Format ID field as defined in Section 2.2.4.3.

The overall bar code length must be 52 numeric digits, each between zero (0) and nine (9). This length is fixed and independent of any flexibility options selected. Use of the Format ID field, as defined in Section 2.2.4.3, provides the means to maintain this overall length.

2.3.4.3 Standardization Requirements for Format

The integrated U.P.C. and lottery-specific bar code must combine the bar code elements in the order specified in the following table:

GTIN Indicator	Company Prefix & Item Reference	GTIN Check Digit	Game Number	Pack Number	Ticket Number	Format ID	Validation Number	Price Point	Jurisdiction Code	Check Digits
N	YYYYYYYYYYYY	C	GGGGG	PPPPPPP	TTT	OOOO	VVVVVVVVV	RRR	JJJ	CCC

For example, the following digits could represent the 52-digit standard integrated bar code:

```
1123456789012100123000000100100011234567890005010123
```

In this example:

- The GTIN Indicator is "1".

- The Company Prefix and Item Reference is "123456789012".

- The GTIN Check Digit is "1".

- The Game Number is "00123".

- The Pack Number is "0000001".

- The Ticket Number is "001".

- The Format ID is "0001".

- The Validation Number is "1234567890".

- The Price Point is "005".

- The Jurisdiction Code is "010".

- The Check Digits are "123".

2.3.4.4   *Standardization Requirements for Field Syntax*

Conformity to this standard necessitates that readers and applications are capable of parsing and processing the field lengths that it defines. It does not necessarily require that all the numeric digits of each field are significant. If the field content does not use all the digits of the required field length, the field must be right-justified with leading zero (0) digits to bring it to the normative length.

2.3.5   Recommended Usage

It is recommended that accounting and other software applications for instant ticket gaming provide functionality that addresses the following:

- Validation

- Activation

It is good practice for applications for instant ticket gaming to also provide functionality that addresses the following:

- Return Processing (Warehouse)

- Inventory Control

- Accounting

- Distribution Control

- Delivery Confirmation

- Return Processing (Field)

Applications for instant ticket gaming could additionally provide functionality that addresses the following:

- Reporting

- Order Packing

- Settlement

2.3.6 Rationale

The definition of the fields for an integrated bar code is the consensus of both the U.P.C.-related retailer information and the lottery-specific information. However, while the U.P.C. bar code encodes the GTIN as a UCC-12 data structure, which is limited to a total of 12 digits, new technologies such as RSS enable the GTIN to be encoded as an EAN/UCC-14 data structure. The EAN/UCC-14 data structure comprises an Indicator digit, EAN.UCC Company Prefix, and Check Digit. RSS requires the use of GTINs as EAN/UCC-14 data structures.

On the other hand, there is no need for the Game Number and product ID to have separate fields, as they are effectively a duplication of each other for retailer and lottery information. A single five (5)-digit field should suffice for the Game Number and three (3) digits for the Ticket Number.

We can be confident that most, if not all, of the lotteries use the current lottery-specific bar code for validation and activation. A further use for the majority of lotteries is Return Processing (Warehouse) and Inventory Control.

Other uses include Accounting, Distribution Control, Reporting, Order Packing, Delivery Confirmation, Settlement, and Return Processing (Field). A simple majority of all survey respondents have such a use, but there is an insufficient number to imply any universal use across the population of lotteries as a whole. However, when asked about future usage, the majority of respondents cited Accounting, Distribution Control, Delivery Confirmation, and Return Processing (Field) as desirable.

The statistical majority of lotteries cite the potential for integration of POS and lottery terminal scanning (e.g., using the POS scanner to capture the lottery data) as the driver to the use of an integrated bar code, but by the same token the majority cited hardware upgrade costs as a reason not to adopt this approach.

2.3.7 Future Directions

RSS is a candidate technology for adoption by lotteries. It is gaining market adoption in the medical and some general retail arenas, and scanners recently manufactured have the built-in capability to be able to scan this code. The Working Group will consider adoption of this or an alternative appropriate bar code format to support the use of an integrated code on instant tickets as a future work item.

Additional areas for future standardization include:

- **Pack bar code:** Some lotteries place a bar code on the ticket pack itself to identify the Pack Number; it may also indicate the Ticket Number range it contains.

- **Online tickets:** Integration of online tickets and retailers' U.P.C. bar code, either by means of a bar code or a direct interface.

- **Further definition of the bar code Format ID field:** Additional values for the Format ID field in general will be defined (as innovation dictates) and included in future versions of this standard.

- **Integrated bar code delivery technology:** The actual technical solution to reprint both the U.P.C. and lottery data in a single long bar code will be specified once a consensus on the best approach is agreed (RSS is an example of a possible technical solution).

If the industry moves to a high-density bar code such as the lottery-specific bar code, the options for quantity of data are broader. Perhaps another five (5) digits (maybe even ten (10)) for future use (to be defined) would ensure viability far into the future. Using a high-density bar code will broaden options on data length. RSS can handle up to 74 characters.

2.4   Issues

It is not currently known if the real estate provisions on low-cost lottery tickets are sufficient to permit the printing of the integrated or lottery-specific bar code. Individual lotteries may make trade-off decisions between a desire to conform to this standard and the need to keep other printing.

3   Conformance Overview

Defining conformance and creating a Certification Policy and Program for this Technical Standard is the next step in establishing an effective NSI Technical Standard. Without the associated conformance criteria and certification processes, there is no assurance that a supplier or lottery has implemented practices or solutions according to the approved Technical Standard.

Certification provides formal recognition of conformance to an industry Technical Standard or Best Practice, which allows:

- Suppliers and practitioners to make and substantiate clear claims of conformance to a Technical Standard or Best Practice

- Buyers to specify and successfully procure from vendors who conform to the Best Practice or provide solutions that conform to the Technical Standard

Following the approval of this Technical Standard, the NSI will work with The Open Group to establish conformance criteria and define an associated Certification Program for this Technical Standard. Conformance assessment is the act of determining the conformance of an implementation to a specification, or the adherence of a business operation to a best practice or process definition. There are many techniques for assessing such conformance, including the use of a standardized test method, quality assessment by industry experts, and vendors' claims of conformance made within a defined legal framework. The techniques to be used will be chosen during the process of defining the Certification Program.

Following implementation of the Certification Program, practitioners wishing to have their implementations certified as conformant to the Technical Standard will be able to apply for certification, at which time a conformance assessment will be performed.

A   Bar Code Online Survey

A.1   Introduction

One of the initial tasks of the NSI Working Groups was to ensure that requirements for the Technical Standards and Best Practices are complete and that they address the actual needs of the lottery business. It is important that we establish a linkage between the business, lottery, vendor, retailer, and user needs and standardization requirements.

The strategy used to ensure that the proposed Technical Standard is aligned to real business needs was to fact-find the common practice for instant ticket bar codes and their use, and to draw up comprehensive data. This data was then used to identify common and best practices. This common and best practice was used to form the basis of the Technical Standard.

To this end, an online web survey was made available on The Open Group/NASPL web site and all 48 NASPL lotteries and the NSI Retail Council were invited to complete the survey.

The response from retailers was good and sufficient to provide a comprehensive picture of instant ticket bar code format and usage.

The approach was not to make subjective assumptions based on the data that resulted from the survey. Rather objective, repeatable mathematical statistical methods were used to refine the data to represent known facts for the complete set of operating lotteries in NASPL, with a specified level of confidence in accuracy. This was then used to directly define the basis for the Technical Standard.

A.2   Confidence Level

The statistical inference used throughout this document is a 90% confidence level. This is a little lower than that normally used (in market statistics 95%) but is sufficient for NASPL purposes, given the relatively high sample size of a small population. If we presume a standard population distribution, then we can infer certain expectations about the population of lotteries as a whole and we can be 90% certain we are right. In other cases, either opinions were too evenly divided or the number of responses was too small to make any statistical (mathematically quantified) inference. What we can say is where we do have a statistically significant result then we can be reasonably certain that this statistic holds true for all NASPL lotteries, whether or not they submitted a survey response. This statistically significant data will be used as the basis of the Technical Standard that will attract broad support.

A.3   Survey Results

Question 1   What type of instant ticket bar code readers do your lottery terminals use?

Results   While CCD is the most popular hardware device, given the sample size; no statistical inference can be drawn.

Question 2   If you believe that you have one of the better practices and effective bar code definition schemes, please provide a testimony (in 200 words or less) of why you believe it is so effective from a business/operational perspective.

Results   Only two of the responders had an opinion, which was not sufficient to establish any consensus.

Question 3   Which bar codes are present on your instant tickets? Universal Product Code (U.P.C.); Lottery-specific bar code [not normally read by point-of-sale (POS) scanners, but by lottery terminals); Other (please describe).

Results   In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that at least 70% of all NASPL lotteries have a U.P.C. bar code on their instant tickets and an even higher number (almost 80%) have a lottery-specific bar code on their instant tickets. We can further say that the vast majority (again almost 80%) do not have any other type of bar code on their instant ticket (e.g., RSS).

Question 4   Are there any bar codes present upon the instant tickets that you sell?

Results   In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that the vast majority of lotteries (again almost 80%) have one or more bar codes on their instant ticket.

Question 5   Do your instant tickets have a standard U.P.C. for the Price Point, etc.?

Results   In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that the majority of lotteries (at least 62%) have a U.P.C. bar code on their instant ticket. We can also say that at least 50% codify the Lottery ID. We can also say that at least 50% of lotteries place this bar code on the back of the ticket.

Question 6   Can your instant ticket scanner (lottery terminal) read the U.P.C. symbol?

Results   In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that most lotteries (at least 82%) do not have a lottery terminal that is capable of scanning the U.P.C. bar code.

Question 7   If you answered Yes to Question 6, do you use the lottery terminal scanner to read the U.P.C.?

Results   In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that very few lotteries (no more than a

third) read the U.P.C. bar code with their lottery terminal. In fact, none of the responders to the questionnaire does.

Question 8	If you answered Yes to Question 7, what does the lottery use this bar code for?
Results	There are no results that can be determined from this question as none of the responders answered Yes to Question 7.
Question 9	In 200 words or less, describe the procedure that retailers are currently expected to use when selling an instant ticket, including what also happens when there is a winner. Please be explicit about the various devices that are involved, and the types of bar codes that are scanned at each device.
Results	This was a free-text question so we can't draw any statistical conclusions. The broad consensus of the responders was that the retailer is required to scan the ticket on the lottery terminal in order to validate a winner. Some also require scanning of the lottery ticket on the terminal for other reasons; for example, confirmation of receipt of tickets. No lottery required the retailer to scan the U.P.C. bar code; some retailers do and some don't. The primary reason cited for the retailer to scan the U.P.C. bar code is to get Price Point information.
Question 10	What potential uses could your lottery see for the U.P.C.? Inventory Control; Accounting; Distribution Control; Reporting; Validation; Order Packing; Delivery Confirmation; Activation; Settlement (Manual); Return Processing (Field); Return Processing (Warehouse); Online Tickets; Other (please describe).
Results	Of those expressing an opinion there was a simple majority in favor of Inventory Control, Accounting, and Reporting. However, this majority was not sufficient to be statistically significant at the sample level and thus may not be used to derive a conclusion for the population of lotteries as a whole.
Question 11	Is there any information beyond the standard U.P.C. data that the U.P.C. could desirably contain within its current constraints?
Results	In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that very few lotteries (less than 30%) consider that there is. Of the two responders that did perceive additional information, one mentioned Ticket number, and the other Price Point.
Question 12	If you do not use the U.P.C. with your instant ticket, what aspects of the U.P.C. would cause your lottery to invest in it? The tracking of instant tickets in the gaming vendor's Gaming Computer System; The symbol could be used to assist in the validation of an instant ticket winner; The retailer would consider the U.P.C. a benefit; Other (please describe).
Results	In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that the majority of lotteries (over 50%) would invest in a U.P.C. bar code if the retailer would consider the U.P.C. a benefit.

Question 13   What aspects of the U.P.C. would cause your lottery not to invest in it? Printing costs; Lack of space on the instant ticket; Other (please describe).

Results   Of the relatively small number of lotteries who responded to this question, the majority cited lack of space. However, this small number of responders renders that result not statistically significant and we cannot presume that it in any way is a generally held opinion in the population of lotteries as a whole.

Question 14   In 200 words or less, describe the procedure you would ideally like retailers to use when selling an instant ticket, including what happens when there is a winner. Please be explicit about the various devices that would be involved, and the types of bar codes that would be scanned at each device.

Results   This was a free-text question so we can't draw any statistical conclusions. Less that half the lotteries that responded gave an opinion. Mentioned several times were the potential advantages of scanning a single bar code once. Also mentioned more than once were the possible advantages of capturing the information for lottery use from the retailer's POS system. None of this can be presumed to be representative of the population of lotteries as a whole.

Question 15   Do your instant tickets have a lottery-specific bar code for Price Point, etc.? If Yes, how many digits does the bar code contain? Information Content (and digits); Game Number; Pack Number; Ticket Number; Validation Number; Check Digit; Other; Not sure/Don't know.

    What is the bar code location? Ticket dead center; Left; Right; Bottom; Top; Front of ticket; Back of ticket; Under latex; Not under latex; Other (please describe).

Results   In statistical terms we can draw some conclusions from the responses. We can say with a high confidence level (90%) that the vast majority of all NASPL lotteries use a lottery-specific bar code (at least 83%). Similarly we can conclude that at least 80% of them have a bar code that is 24 characters in length or less. Within this, over 80% will have: (a) a game number field of four (4) or less characters in length; (b) a Pack number field of four (4) or less characters in length; (c) a Ticket number of three (3) or less characters in length. We can further say with 90% confidence that over 75% of all lotteries will have: (a) a Validation number of nine (9) or less characters in length; (b) a Check Digit of three (3) or less characters in length.

    Finally, we can infer that at least 60% of lotteries will place this bar code on the back of the ticket.

    While four lotteries stated another use for this bar code, statistically we can infer such use is very limited across all lotteries.

Question 16   Which of the following bar code types can your lottery terminal scanners read? EAN/UCC-128 lottery-specific bar code; Interleaved 2-of-5 lottery-specific bar code; PDF417 (a stacked linear code); Other (please describe); Not sure/Don't know.

Results   We can infer with a 90% confidence level that at least 75% of lotteries use an interleaved lottery-specific bar code that they require retailers to read on the lottery terminal in certain circumstances. While some lotteries support alternate technologies instead of, or as well as, the Interleaved 2-of-5 code, not enough do so for us to draw any statistical conclusions for the population of lotteries as a whole.

Question 17   Do you scan lottery-specific bar codes on instant tickets?

Results   We can statistically infer with a 90% confidence level that at least 80% of lotteries do.

Question 18   If you answered Yes to Question 17, what do you use this bar code for? Inventory Control; Accounting; Distribution Control; Reporting; Validation; Order Packing; Delivery Confirmation; Activation; Settlement (Manual); Return Processing (Field); Return Processing (Warehouse); Other (please describe); Not sure/Don't know.

Results   We can be 90% confident that over half of all lotteries use the code for Inventory Control, and Return Processing (Warehouse). We can further infer that roughly three quarters of all lotteries also use the code for Validation and Activation. While a good number of respondents, who expressed an opinion, have other uses, not enough did for us to make any statistical inference as to use in the NASPL lottery population as a whole.

Question 19   In 200 words or less, describe the procedure your retailers are currently expected to use with respect to any use of the bar code when selling an instant ticket, including what also happens when there is a winner. Please be explicit about the various devices that are involved, and the types of bar codes that are scanned at each device.

Results   This was a free-text question so we can't draw any statistical conclusions. Only four of the 18 respondents failed to provide an answer. The majority of those responding stated that the lottery bar code was used primarily for Validation, though a small number also cited additional times when the bar code is scanned; for example, Inventory Control.

Question 20   Would you like to make use of a lottery-specific bar code if you currently do not do so? If Yes, please describe.

Results   Since most do make use of such a code there were insufficient responses to this question to make any statistical inference.

Question 21	Is there any additional information that the lottery-specific bar code could desirably contain, and how many digits would be needed? Game Number; Price; Ticket Number; Other (please describe).
Results	There were insufficient numbers of respondents who expressed an opinion to make any statistical inference from the results.
Question 22	What would you like to use this bar code for? Inventory Control; Accounting; Distribution Control; Reporting; Validation; Order Packing; Delivery Confirmation; Activation; Settlement (Manual); Return Processing (Field); Return Processing (Warehouse); Other (please describe).
Results	There were insufficient numbers of respondents who expressed an opinion to make any statistical inference from the results. However, we can statistically infer that a simple majority of all lotteries would be interested in additional use of the bar code for Return Processing (Field).
Question 23	If you do not use the lottery-specific bar code with your instant ticket, what aspects of the lottery-specific bar code would cause your lottery to invest in it? The tracking of instant tickets in the gaming vendor's Gaming Computer System; The bar code could be used to assist in the validation of an instant ticket winner; The retailer would consider the U.P.C. symbol a benefit; Other (please describe).
Results	Since most do make use of such a code there were insufficient responses to this question to make any statistical inference.
Question 24	What aspects of the lottery-specific bar code would cause your lottery not to invest in it? Printing costs; Lack of space on the instant ticket; Other (please describe).
Results	Since most do make use of such a code, there were insufficient responses to this question to make any statistical inference.
Question 25	In 200 words or less, describe the procedure you would ideally like retailers to use when selling an instant ticket, including what happens when there is a winner. Please be explicit about the various devices that would be involved, and the types of bar codes that would be scanned at each device.
Results	This was a free-text question so we can't draw any statistical conclusions. Less that half the lotteries that responded gave an opinion. Mentioned several times were the potential advantages of scanning a single bar code, once. Also mentioned more than once were the possible advantages of capturing the information for lottery use from the retailer's POS system. None of this can be presumed to be representative of the population of lotteries as a whole.

Question 26	Do your instant tickets have a standard RSS bar code? If Yes, how many digits does the bar code contain? Information Content (and digits); Game Number; Pack Number; Ticket Number; Validation Number; Check Digit; Other; Not sure/Don't know.
	What is the bar code type? RSS Expanded format; RSS Composite format; Other RSS.
	What is the bar code location? Ticket dead center; Left; Right; Bottom; Top; Front of ticket; Back of ticket; Under latex; Not under latex; Other (please describe).
Results	None of the respondents do make use of RSS, from which we can statistically infer that less than 15% at most of the whole population of lotteries do.
Question 27	Do you scan RSS bar codes on instant tickets?
Results	None of the respondents do make use of RSS from which we can statistically infer that less than 15% at most of the whole population of lotteries do.
Question 28	If you answered Yes to Question 27, what do you use this bar code for? Inventory Control; Accounting; Distribution Control; Reporting; Validation; Order Packing; Delivery Confirmation; Activation; Settlement (Manual); Return Processing (Field); Return Processing (Warehouse); Other (please describe).
Results	Since none make use of such a code there were insufficient responses to this question to make any statistical inference.
Question 29	In 200 words or less, describe the procedure you would ideally like retailers to use when selling instant tickets, including what happens when there is a winner. Please be explicit about the various devices that would be involved, and the types of bar codes that would be scanned at each device.
Results	This was a free-text question so we can't draw any statistical conclusions. Only five of the lotteries that responded gave an opinion. Three of the five cited single scanning as being the big potential pay-off for RSS. This cannot be presumed to be representative of the population of lotteries as a whole.
Question 30	Would there be any benefit to combining the data from each type of bar code into one?
Results	From the 12 lotteries that gave an opinion we can statistically infer that the majority of all lotteries (over 60% as a minimum) do think that there would be benefits.
Question 31	Would you like to make use of an RSS bar code if you currently do not do so?
Results	Of those expressing an opinion it was too evenly balanced to draw any statistical inference for the population of lotteries as a whole of either a positive or negative nature.

Question 32	If you answered Yes to Question 31, what information beyond standard U.P.C. data should the RSS bar code desirably contain, and how many digits would be needed? Please describe.
Results	This was a free-text question so we can't draw any statistical conclusions. Only six out of 18 lotteries that responded gave an opinion. Most referred to the ability of RSS to include more data than the Interleaved 2-of-5 code, but there was no consensus for what would be required.
Question 33	If you answered Yes to Question 31, what would you like to use this bar code for? (Check all that apply.) Inventory Control; Accounting; Distribution Control; Reporting; Validation; Order Packing; Delivery Confirmation; Activation; Settlement (Manual); Return Processing (Field); Return Processing (Warehouse); Other (please describe).
Results	We can be 90% confident that over half of all lotteries would like to use the bar code for Delivery Confirmation, Activation, Return Processing (Field), Return Processing (Warehouse), and Distribution Control, and that three quarters would like to use it for Inventory Control and Accounting. Though there was support for other uses it was insufficient to draw any statistical inference as to the desirability of that use in the lottery population as a whole.
Question 34	If you do not use the RSS bar code with your instant ticket, what aspects of the RSS bar code would cause your lottery to invest in it? The tracking of instant tickets in the gaming vendor's Gaming Computer System; The bar code could be used to assist in the validation of an instant ticket winner; The retailer would consider the U.P.C. symbol a benefit; The integrated U.P.C. RSS bar code is a benefit to the lotteries by potentially dispensing with the need for a lottery terminal distinct from the retailer's POS system; Other (please describe).
Results	We can be 90% confident that over half of all lotteries would invest in the bar code if the integrated U.P.C. RSS bar code is a benefit to the lotteries by potentially dispensing with the need for a lottery terminal distinct from the retailer's POS system. No other factors get sufficient support to infer any statistical conclusion.
Question 35	What aspects of the RSS bar code would cause your lottery not to invest in it? Printing costs; Lack of space on the instant ticket; Hardware upgrade cost; Software upgrade cost; Other (please describe).
Results	We can be 90% confident that over half of all lotteries consider lack of space on the ticket to be the major issue. Some consider other factors significant but not enough to draw any statistical inference in the lottery population as a whole.

Question 36   In 200 words or less, describe the procedure you would ideally like retailers to use when selling instant tickets, including what happens when there is a winner. Please be explicit about the various devices that would be involved, and the types of bar codes that would be scanned at each device.

Results   This was a free-text question so we can't draw any statistical conclusions. Less than half the lotteries that responded gave an opinion. Most repeated what was said in other free-text questions.

A.4   Conclusions

Where we have identified data that is of statistical significance, what we can say is that the conclusion reached is likely to be consistent with the population of lotteries as whole, even for those that did not respond to the survey. This is a mathematical relationship that we can be 90% certain holds true.

Therefore, such statistically significant data tells us what bar code fields are needed for the lotteries, the size of those fields, what is desired and how it is used. It tells us that if we publish a Technical Standard based on the statistically significant data it should meet with broad support.

The proposition to consider is: now is the time to consolidate the work in a bar code data definition and usage Technical Standard to be used in future technical procurement. However, this does not have to assume the use of any particular bar code standard (with the exception of the U.P.C. data). The technology standard could be technology-independent, concentrating on the bar code content and use irrespective of how it is coded.