

**Gaming Policy and Enforcement Branch (GPEB)**

# **TGS5**

## **Technical Gaming Standards for Internet Gaming Systems (IGSs)**

**Technical Standards Document (TSD) Version 1.0**



### **Ministry of Housing and Social Development**

**Gaming Policy and Enforcement Branch**

3<sup>rd</sup> Floor, 910 Government Street  
P.O. Box 9202 Stn. Prov. Govt.  
Victoria, British Columbia, Canada  
V8W 9J1

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# 1 Overview of TSD

## 1.1 Introduction

### 1.1.1 General Statements I

The General Statements are as follows:

- a) Before being permitted to operate in the live environment, all Internet Gaming Systems (IGSs) used in the Province of British Columbia must be tested to the applicable requirements set forth in this Technical Standards Document (TSD).
- b) The British Columbia Lottery Corporation (BCLC) may select an appropriate Accredited Testing Facility (ATF), or other equivalent body, to perform this testing; provided that the ATF, or other equivalent body, has been registered as a Class B gaming services provider for the Province of British Columbia by the Gaming Policy and Enforcement Branch (GPEB).
- c) The appointed testing body must provide their evaluation results to BCLC, who in turn must provide these evaluation results to GPEB for review, and where required, subsequent discussion.
- d) The British Columbia Lottery Corporation (BCLC) may elect to perform internal quality assurance testing on an IGS; however, reliance on the test results for the purposes of certification will rest solely with GPEB.
- e) Although the appointed testing body may recommend the approval of any IGS for use in the Province of British Columbia, the ultimate authority to approve IGSs rests solely with GPEB. Only GPEB can issue a Certificate of Technical Integrity pursuant to the **Gaming Control Act of British Columbia**.

### 1.1.2 General Statement II

It is the policy of GPEB, in consultation with BCLC, to update this TSD at minimum once annually, to reflect any changes in technology, testing methods, or known cheating methods.

Note: GPEB reserves the right to modify (or selectively apply) the requirements set forth in this TSD as deemed necessary to ensure the integrity of gaming in the Province of British Columbia. However, in order to ensure consistency and compliance, GPEB will not modify or selectively apply the requirements set forth in this TSD without first providing reasonable prior written notice to BCLC, on an as-needed and case-by-case basis.

## 1.2 Acknowledgment of Other TSDs Reviewed

### 1.2.1 General Statement

This TSD has been developed by reviewing and using portions of the Alderney Gambling Control Commission (AGCC)'s TSD named 'Control System Guidelines for Interactive Gaming'.

## 1.3 Purpose of TSD

### 1.3.1 Purpose

The Purpose of this TSD is as follows:

- a) To eliminate subjective criteria in analyzing and certifying IGS operation.
- b) To test those criteria that impact the credibility and integrity of IGS operation from both the Revenue Collection and Player's play point of view.
- c) To create a TSD that will help ensure that IGSs operating in the live environment are fair, honest, secure, safe, auditable, and able to operate correctly.
- d) To recognize that non-gaming testing (such as Electrical Testing) should not be incorporated into this TSD but left to appropriate test laboratories that specialize in that type of testing.
- e) To recognize that except where specifically identified in this TSD, testing is not directed at health or safety matters. These matters are the responsibility of the manufacturer of the equipment.

- f) To construct a TSD that can be easily changed or modified to allow for new technology or functionality.
- g) To construct a TSD that does not specify any particular method or technology for any element or component of an IGS. The intent is instead to allow a wide range of methods and technologies to be used to comply with this TSD, while at the same time, to encourage new methods and technologies to be developed.

### **1.3.2 No Limitation of Technology**

One should be cautioned that this TSD should not be read in such a way that limits the use of future technology. The TSD should not be interpreted that if the technology is not mentioned, then it is not allowed. As new technology is developed, GPEB, in consultation with BCLC, will review this TSD, make any changes deemed necessary, and incorporate new minimum standards for the new technology.

Note: Although BCLC may recommend that particular changes be made to this TSD, the ultimate authority to approve changes rests solely with GPEB.

## **1.4 Other Documents That May Apply**

### **1.4.1 Other TSDs**

This TSD, as well as the other TSDs listed below, are to be interpreted so that all of the provisions are given as full effect as possible. In the event of a conflict or inconsistency between the foregoing, unless expressly stated to the contrary, the order of precedence shall be as follows:

- a) This TSD (i.e.: TGS5 – Internet Gaming Systems (IGSs));
- b) TGS1 – Technical Gaming Standards for Electronic Gaming Devices (EGDs) in Gaming Venues;
- c) TGS2 – Technical Gaming Standards for Progressive Gaming Devices in Gaming Venues;
- d) TGS4 – Technical Gaming Standards for Electronic Bingo Systems in Gaming Venues; and
- e) TGS3 – Technical Gaming Standards for On-line Monitoring and Control Systems (MCSs) and Validation Systems in Gaming Venues.

### **1.4.2 GPEB Standards**

This TSD must not contradict any provisions of the following GPEB standards:

- a) Advertising and Marketing Standards for the BC Gambling Industry; and
- b) Responsible Gambling Standards.

### **1.4.3 Legislated Acts or Regulations**

This TSD must not contradict any provisions of the following legislation:

- a) The Criminal Code of Canada;
- b) The Gaming Control Act and Gaming Control Regulation of British Columbia; and
- c) The British Columbia Freedom of Information and Protection of Privacy Act.

### **1.4.4 Information Systems Security (ISS) Industry Standards**

The Administrative Controls, Technical Controls and Physical & Environment Controls for the IGS must comply with all applicable and relevant ISS industry standards, as dictated by such sources as (listed in order by detail):

- a) AS / NZS 4360:2004 Risk Management,
- b) Control Objectives for Information and Related Technology (COBIT),
- c) Open Source Security Testing Methodology Manual (OSSTMM), and
- d) International Standards Organization (ISO) 17799 Standard – Information Technology – Code of Practice for Information Security Management.

## 2 Submission Requirements

### 2.1 Introduction

#### 2.1.1 General Statement

This section shall govern the types of information that are, or may be required to be submitted by the submitting party in order to have equipment tested to this TSD. Where the information has not been submitted or is not otherwise in the possession of BCLC (together with GPEB) and / or the ATF, the submitting party shall be asked to supply additional information. Failure to supply the information can result in denial in whole or in part of the submission and/or lead to testing delays.

#### 2.1.2 Previous Submission

Where BCLC (together with GPEB) and / or the ATF has been previously supplied with the information on a previous submission, duplicate documentation is NOT required, provided that the previous information is referred to by the submitting party, and those documents are easily located at BCLC's facilities, GPEB's facilities and/or the ATF's facilities. Every effort shall be made to reduce the redundancy of submission information.

### 2.2 Prototype (Full Submission) Submissions

#### 2.2.1 General Statement

A Prototype (full submission) submission is a first time submission of a particular piece of hardware or software that has not previously been reviewed by BCLC (together with GPEB) and/or the ATF. For Modifications of previous submissions, including required changes to a previously submitted Prototype (full submission) certification, whether certified or pending certification, please refer to **Section 2.3 Submissions of Modifications (Partial Submissions) to a Previously Certified Item**.

Note: The testing of the submission may take place in the BCLC testing facilities, or at the ATF's facilities, or both.

#### 2.2.2 Submission Letter

Each request for certification shall include a submission letter / email, on company letterhead, forwarded to BCLC or GPEB. The letter must include the following:

- a) A formal request for certification specifying British Columbia as the jurisdiction for which the gaming equipment will be approved; and
- b) The gaming equipment requested for certification. In the case of software, the submitting party shall include Identification (ID) numbers and revision levels, if applicable. In the case of proprietary hardware, the submitting party shall indicate the manufacturer, supplier, model number(s), part number(s) and revision number(s) of the associated components of hardware; and
- c) A contact person who will serve as the main point of contact for engineering questions raised during evaluation of the submission. This may be either the person who signed the letter or another specified contact.

#### 2.2.3 Base Website Submission Requirements

'Base Website' refers to IGS elements that drive the features that are common to all of the games, and form the primary interface to the IGS for both the player and BCLC:

- a) The Base Website provides the player with the means to register an account, log in to / out of their account, modify their account information, deposit and withdraw funds to / from their account, request account activity statements / reports, and close their account. In addition, any web pages displayed to the player that relate to gaming offered on the IGS (excluding advertising), but are not an actual game screen, are considered to be part of the Base Website, and

- b) The Base Website provides BCLC with the means to review player accounts, enable / disable games, generate various gaming / financial transaction and account reports, input game outcomes for sports betting events, enable / disable player accounts, and set any configurable parameters.

The following sections outline the submission requirements for a base website.

#### **2.2.3.1 Source Code**

The following requirements apply to all base website source code submitted to the ATF:

- a) All base website source code shall be reviewed by the ATF in a secure, controlled and supervised manner that is agreeable to BCLC, the ATF and the software vendor;
- b) All submitted base website source code shall contain the following information (at a minimum):
  - i) File / module / function name(s);
  - ii) Brief description of file / module / function purpose(s); and
  - iii) Edit History, including who modified it, when and why.
- c) All submitted base website source code shall be commented in an informative and useful manner; and
- d) All submitted base website source code shall be correct, complete and able to be compiled.

#### **2.2.3.2 Documentation**

The following documentation must be submitted for the base website:

- a) A list of all games hosted / offered on the base website,
- b) An all-inclusive functional description of the base website (including website home page and all website peripheral pages),
- c) Detailed functional descriptions of the following technical functionality available on the base website:
  - i) Player Account Registration;
  - ii) Player Account Login (Username & Password);
  - iii) Player Interface to Player Account;
  - iv) Operator Interface to Player Account;
  - v) IGS Accounting and Financial Reporting Capabilities;
  - vi) Player Protection / Exclusion Systems;
  - vii) IGS Payment Systems & Financial Institution Interfacing;
  - viii) Player Location & Identity Verification Software; and
  - ix) Player Account Deactivation.

#### **2.2.4 Game Submission Requirements**

'Games' refer to IGS software that is specific to each individual game that is hosted / offered on the base website. Each game is to be treated as a separate and distinct entity. Any information and materials required to be submitted with respect to the games (as outlined herein) must be submitted for each individual game hosted / offered on the base website.

The following sections outline the submission requirements for the games.

##### **2.2.4.1 Source Code**

The following requirements apply to all game source code submitted to the ATF:

- a) All game source code shall be reviewed by the ATF in a secure, controlled and supervised manner that is agreeable to BCLC, the ATF and the software vendor;
- b) All submitted game source code shall contain the following information (at a minimum):
  - i) File / module / function name(s);
  - ii) Brief description of file / module / function purpose(s); and
  - iii) Edit History, including who modified it, when and why.
- c) All submitted game source code shall be commented in an informative and useful manner; and
- d) All submitted game source code shall be correct, complete and able to be compiled.

#### **2.2.4.2 Documentation**

The following documentation must be submitted for each individual game hosted / offered on the base website:

- a) Game name;
- b) Game version number(s);
- c) Paytable version number(s);
- d) Detailed game rules, including all options and bonus features;
- e) Detailed breakdown of all paytables, payouts and mapped symbols present in the game; and
- f) A formal mathematical treatise of the derivation of the theoretical Percentage Return to Player (%RTP) of the game.

#### **2.2.4.3 Emulation Capability**

The purpose of 'Emulation Capability' is to facilitate the testing process.

Emulation Capability is a mode of game operation that is alternate to the standard / live version of the game (i.e.: to be activated and operated in the test environment only) whereby the game outcomes can be artificially introduced into the system by the user (i.e.: the tester), processed by the same game logic as the standard / live version of the game, and then displayed to the user for testing purposes.

Unless a game makes use only of game outcomes that are commonplace throughout the course of standard game play, it must come complete with 'Emulation Capability' for testing purposes.

#### **2.2.5 Random Number Generator (RNG) Submission Requirements**

'RNG' refers to IGS software and / or hardware that determines random outcomes for use by all of the games hosted / offered on the base website.

The following sections outline the submission requirements for an RNG.

##### **2.2.5.1 Source Code**

The following requirements apply to all RNG source code submitted to the ATF:

- a) All RNG source code shall be reviewed by the ATF in a secure, controlled and supervised manner that is agreeable to BCLC, the ATF and the software vendor;
- b) All submitted RNG source code shall contain the following information (at a minimum):
  - i) File / module / function name(s);
  - ii) Brief description of file / module / function purpose(s); and
  - iii) Edit History, including who modified it, when and why.
- c) All submitted RNG source code shall be commented in an informative and useful manner; and
- d) All submitted RNG source code shall be correct, complete and able to be compiled.

##### **2.2.5.2 Documentation**

The following documentation must be submitted for the RNG:

- a) A list of all games connected to the RNG (including the associated mathematical Degrees of Freedom (DOFs) for each game);
- b) For hardware-based RNGs:
  - i) Type of hardware device used;
  - ii) Technical specifications for hardware device;
  - iii) Methods of connecting hardware device to IGS software; and
  - iv) Details of all RNG / game implementation, including methods of scaling and mapping.

- c) For software-based RNGs:
  - i) Type of mathematical algorithm used;
  - ii) Full details, in technical terms, of random number generation process and mathematical algorithm theory;
  - iii) Details of the mathematical algorithm's period;
  - iv) Details of the mathematical algorithm's range;
  - v) Details of the methods for seeding (and re-seeding);
  - vi) Details of the methods for background cycling / activity, and
  - vii) Details of all RNG / game implementation, including methods of scaling and mapping.

### 2.2.6 ISS Submission Requirements

'ISS' refers to the Administrative Controls, Technical Controls and Physical & Environment Controls necessary for the secure, safe and auditable operation of the IGS by BCLC (to be audited by the ATF in a manner and location suitable to BCLC and the ATF).

System overview diagrams and schematics that describe the basic architecture and topology of the IGS, and how that computer network is interconnected, must be submitted for the ISS. This documentation should include (but not necessarily be limited to) details of each of the following – where applicable:

Firewalls and Intrusion Detection Systems (IDS);

- a) Servers and Operating Systems (OS);
- b) Hubs, Switches and Routers;
- c) Relevant Internet Protocol (IP) Addresses;
- d) Gateway and Access Points;
- e) Application Entry Points and Web Forms (for application security);
- f) Local Area Network (LAN) and Virtual Local Area Network (VLAN); and
- g) All Documented Security Policies and Procedures.

## 2.3 Submissions of Modifications (Partial Submissions) to a Previously Certified Item

### 2.3.1 General Statement

At the sole discretion of GPEB, update submissions (i.e.: revisions to existing hardware, software or control systems that are currently under review, certified or have been reviewed and not certified), may require review and re-testing to verify compliance with the applicable requirements set forth in this TSD, as per **Section 1.1.1 General Statements I**. Where deemed necessary by GPEB, the following information shall be required to process the update submission in addition to the requirements set forth in **Section 2.2.2 Submission Letter**.

### 2.3.2 Base Website Re-Submission Requirements

A base website re-submission must include a detailed description of the software change(s) and module(s) affected, from a functional perspective and a source code perspective, as well as the updated source code package for the IGS.

Where applicable, updated base website functional specification documents (as per **Section 2.2.3.2**) must also be submitted.

### 2.3.3 Game Re-Submission Requirements

A game re-submission must include a detailed description of the software change(s) and module(s) affected, from both a functional perspective and a source code perspective, as well as the updated source code package for the IGS.

Where applicable, updated game design documents (as per **Section 2.2.4.2**) must also be submitted.

### **2.3.4 RNG Re-Submission Requirements**

An RNG re-submission must include a detailed description of the software change(s) and module(s) affected, from a functional perspective and a source code perspective, as well as the updated source code package for the IGS.

Where applicable, updated RNG design and implementation documents (as per **Section 2.2.5.2**) must also be submitted.

### **2.3.5 ISS Re-Submission Requirements**

An ISS re-submission must include a detailed description of the system change(s) and component(s) affected, as well as the reason(s) for the changes implemented by BCLC.

Where applicable, updated ISS design and configuration documents (as per **Section 2.2.6**) must also be submitted.

## **2.4 Joint Venture Submissions**

### **2.4.1 General Statement**

For the purposes of this TSD, an IGS is considered a joint venture when two or more entities are involved in the manufacturing of one system (note: this is different from the legal definition of the term 'joint venture'). Due to the increasing amount of joint venture submissions (more than one entity involved in a product submission) and to alleviate any confusion to those entities, the following procedures must be followed for such submissions (pending approval by GPEB).

- a) One entity will prepare and submit the entire submission, even if they are using components from other entities, and must identify all components. This will be the primary contact for the submission.
- b) The entity submitting an approval request must do so on their letterhead. BCLC and / or the ATF will delegate an internal file number in this entity's name and may bill this entity for all costs incurred throughout the evaluation and approval process.
- c) The primary contact will be called when questions arise. However, BCLC will work with all entities involved, completing the review.
- d) Those individual entities who submit services that have a direct impact on the integrity of the game must be registered as gaming service providers under Part 8 of the Gaming Control Act of British Columbia.
- e) Upon completion, it is the primary contact company that will receive the approval letter, provided the submission meets the requirements set out in this TSD as well as those requirements set out in any other applicable TSD. The primary contact company may then release copies of the approval letter to the associated entities.

## 3 Administrative Requirements

### 3.1 Player Registration and Account Requirements

#### 3.1.1 Agreement

- a) Part of the player's registration process must be an agreement to the terms and conditions of game play.
- b) The player can only advance to "cash" play if they take an action to acknowledge the agreement.

#### 3.1.2 Verification

- a) Players must hold a valid account before commencement of gaming.
- b) The IGS must reasonably identify the location, age and identity of a player before allowing them to bet.
- c) The IGS must have the reasonable capability to deny access to under-aged persons.
- d) The IGS must have the reasonable capability to deny access to persons residing outside of the Province of British Columbia.
- e) Player access to an IGS must involve at least a user ID and password.
- f) Initial passwords are set by the player; however, any subsequent password resets must be issued in a secure manner.

#### 3.1.3 Challenge Questions

- a) Players must be asked to nominate a number of challenge questions (and answers) at the time of registration.
- b) The challenge questions must be used by the IGS (or by the help-desk staff) in the event the password or PIN is forgotten (i.e.: to identify the person requesting to access the account or change the password).
- c) Challenge questions may be randomly chosen.

#### 3.1.4 Under Aged Persons

- a) No bets shall be accepted from a player unless that person has been registered as a player who is 19 years of age or older.
- b) The IGS must be capable of generating a detailed report of any player's activity (as per Section 4.3.2), such that if a player is ever found to be underage, BCLC has all of the necessary information to take whatever action is deemed appropriate by BCLC.
- c) Although BCLC must have in place a documented policy and / or procedure for players that are found to be underage, GPEB approval is not required for this policy and / or procedure.

#### 3.1.5 Controls over Accepting Bets

- a) The IGS must not permit a person to participate as a player in an authorised game unless the person is registered as a player.
- b) The IGS must not accept a wager from a player in an authorised game unless a player's account has been established in the name of the player, and there are adequate funds in the account to cover the amount of the wager.

#### 3.1.6 Player Accounts

- a) A player must only be permitted to have one active account at a time.
- b) A new player account will be created by depositing funds in a manner acceptable to BCLC and documented in the Player Agreement.
- c) A new account for a person must not be created if the reason for the deactivation of a previous account indicates that the person must not be permitted to establish another account.
- d) Inactive accounts holding moneys in the IGS must be protected against forms of illicit access or removal. This includes internal access by BCLC staff, and external access by 'hackers' or other unauthorized parties.

- e) Withdrawals from a player's account cannot be paid back to a credit card except where a credit card transaction error requires correction, in which case, a void or refund credit card transaction process for the same value as the original transaction can be used.
- f) Withdrawals from a player's account on the IGS must be paid directly to an account with a financial institution in the name of the player, or made payable to the player and forwarded to the player's address. The name and address must be the same as held in the player registration details.
- g) Any funds left in a player's account that is to be de-activated are to be remitted in the name of the owner of the account.

### **3.1.7 Security**

- a) Player accounts on the IGS must be secured against unauthorised access or update other than by approved methods. This includes internal access by BCLC staff, and external access by 'hackers' or other unauthorized parties.

### **3.1.8 User Inactivity Timeout**

- a) Unless the IGS is capable of 'polling' to confirm user connections, it must implement a 30-minute user inactivity timeout.
- b) If a session is terminated due to a user inactivity timeout, the end player device must notify the player of session termination. No further game play is permitted until the IGS and the end player device establish a new session.

### **3.1.9 Player Activity Statement**

- a) On request by the player, a transaction report must display winnings, losses and duration of play for each day of the period requested, and totals of these details.
- b) Statements must include sufficient information to allow the player to reconcile the statement against their own records to the session level.

### **3.1.10 Player Funds Maintenance**

- a) All deposit, withdrawal, transfer or adjustment transactions must be maintained in a system audit log.
- b) A deposit into a player account made using a credit card transaction must not be available for betting until such time as the funds are received from the card issuer or the card issuer issues an authorisation number to BCLC indicating that the funds are available and the transaction is approved. The authorisation number must be maintained in a system audit log.
- c) A player must be able to withdraw funds up to the current balance of their account at any time.
- d) The IGS must not permit the withdrawal of funds in excess of the player's balance.

### **3.1.11 Player Game Session**

- a) The IGS must give the player an electronic identifier such as a digital certificate or an account description and a password to establish a session.
- b) A session finishes if:
  - i) The player notifies the IGS that the session is finished (i.e.: logs out),
  - ii) A player-inactivity timeout is reached, or
  - iii) BCLC terminates the session.

### **3.1.12 Unclaimed Funds from Inactive Accounts**

- a) A documented process must be put in place to deal with unclaimed funds from inactive accounts. An account is considered to be inactive if the player has not logged into the account for a time period to be specified by BCLC in the documented and published Terms & Conditions for the IGS.

## **3.2 Anti-Money Laundering Requirements**

### **3.2.1 General Statement**

In support of the principles of the Financial Transactions Reports Analysis Centre of Canada (FINTRAC), BCLC must ensure that the IGS software is designed to satisfy the following objectives:

- a) The IGS must be capable of closing player accounts.
- b) The IGS must be capable of imposing deposit limits on players.
- c) The IGS must be capable of logging and reporting player account activity, including:
  - i) Opening and closing in short time frames, and
  - ii) Deposits and withdraws without associated game play.
- d) In order to allow BCLC to return cheques and EFTs to players and mark those payments with “Account Closure” or “Over-contribution”, as the case may be, the IGS must be capable of identifying cheques and Electronic Fund Transfers (EFTs) separately from wins.
- e) The IGS must be designed such that player accounts are not permitted to exceed a total balance of \$9,999.99.

## **3.3 Privacy Requirements**

### **3.3.1 General Statement**

The IGS must have a privacy policy posted on the web site and readily accessible to the player.

### **3.3.2 Use of Data**

- a) Any information about the current state of player accounts must be kept confidential by BCLC, except where the release of that information is required by law.
- b) If the IGS processes any part of the registration online, the IGS must ensure that access to the information is restricted to the person supplying the information and to authorized BCLC staff. This includes internal access with BCLC access control lists, and external access with communications security and username & password.
- c) GPEB and BCLC acknowledge that they are both subject to the provisions of the FOIPPA and that in carrying out their respective obligations under this TSD, they will at all times comply with the FOIPPA.

### **3.3.3 Consent**

- a) In order to complete the registration process, the player must offer consent to the privacy policy by taking an action, such as checking a box in the privacy policy, or selecting an acceptance button.
- b) The default of consent shall always be NOT to accept.
- c) Where data is to be used for purposes not directly related to the offering of a gaming product (including, but not necessarily limited to, the use of such data for inclusion in a mailing list), additional specific consent must be granted by the player.
- d) The withholding of this additional specific consent by a person must not in itself be a ground for BCLC refusing to conduct business with the person.

### **3.3.4 Cookies**

- a) Where cookies are used by the IGS, the player must be informed of the usage.

## 3.4 Content, Advertising and Marketing

### 3.4.1 General Statement

- a) All information within the IGS that is displayed or otherwise conveyed to the player must comply with the Province of BC's "Advertising and Marketing Standards for the B.C. Gambling Industry", and must therefore not be in any manner obscene. For the purposes of this TSD, any depiction a dominant characteristic of which is the undue exploitation of sex, or of sex, and any one or more of the following subjects, namely, crime, horror, cruelty and violence, shall be deemed to be obscene.
- b) It should be noted that the Province of BC's Advertising and Marketing Standards for the B.C. Gambling Industry contains non-technical requirements, which in some cases are subjective in nature. Accordingly, it is not possible for an ATF to verify the IGS as complying with these standards. However, any obvious breaches must be reported by the ATF as part of their standard testing process.

## 3.5 Player Protection Requirements

### 3.5.1 General Information

- a) The IGS website must comply with the Province of British Columbia's Advertising and Marketing Standards for the BC Gambling Industry and Responsible Gambling Standards for the BC Gambling Industry. These standards address issues such as responsible messaging, the odds of winning and protection of minors.
- b) The base website entry window must provide the player with a link to a player protection / responsible gaming page.
- c) The player protection / responsible gaming page must contain at a minimum:
  - i) The Province's responsible gambling message, "*Know your limit, play within it*";
  - ii) A link to the British Columbia Partnership for Responsible Gambling website;
  - iii) Information about potential risks associated with gambling, and where to get help for a gambling problem;
  - iv) Meaningful and accurate information about games, rules of play and general odds of winning (detailed information on the odds of winning on specific games may be available on a website);
  - v) Information about self-exclusion programs;
  - vi) A link to the terms and conditions the player agreed to be bound to under the "Player Agreement" and by entering and playing on the site;
  - vii) A link to the BCLC privacy policy;
  - viii) A link to the GPEB home website; and
  - ix) All information in (iii) and (v) should be available in languages that primarily reflect the customer base. Reasonable efforts will be made to make information in (iv) available in languages that reflect the customer base.
- d) All account related windows on the site (particularly the deposit window) must provide a readily accessible link to the player protection / responsible gaming page.
- e) The player protection / responsible gaming page must be readily accessible from any screen available where game play may occur.

### 3.5.2 Last Log in Time Display

- a) When a player logs in to the IGS, the last time they logged in must be displayed.

### 3.5.3 Security Information

- a) The rules of play must advise the player to keep their password and login ID secure.
- b) The rules of play must advise the player to be aware of what mechanisms exist to detect if there is unauthorised use of their account, such as observing the Last Log in Time Display, and reviewing credit card statements against known deposits.

### 3.5.4 Session Duration Reminders

- a) Upon initial account registration, the player must be required to choose a timeframe for session duration reminders. It is acceptable for this choice to include a default option for the player to select.
- b) The available options for timeframes for session duration reminders must include one hour, three hours, and at least one value in between.
- c) During a session, after the user-configured timeframe has elapsed, a message must appear on the screen clearly advising the player how long they have been playing. The message must either i) be displayed immediately upon completion of the current game in progress, or ii) be displayed immediately upon the player's next interaction with the game or website.
- d) Once the message has been displayed, the player must be required to take special action to continue gambling, such as checking a box, or selecting an acceptance button.
- e) Thereafter, where the player chooses to continue gambling, upon each subsequent cycle of the user-configured timeframe, steps c) and d) above must be repeated. Each associated message must advise the player the total amount of time that they have been playing.

### 3.5.5 Self-Exclusion

- a) Players must be provided with an easy and obvious mechanism to self-exclude from game play.
- b) At a minimum, this self-exclusion mechanism must be accessible from the player protection / responsible gaming page.
- c) The player must be provided with the option to self-exclude for a specified period of time as defined in the Player Agreement. The IGS must ensure that:
  - i) Immediately upon receiving the self-exclusion order, no new bets or deposits are accepted from that player, until such time as the temporary self-exclusion has expired;
  - ii) During the self-exclusion period, the player is not prevented from withdrawing any or all of their account balance, provided that the system acknowledges that the funds have cleared; and
  - iii) Players are provided with a mechanism to revoke the self-exclusion order, using a special process to be identified by BCLC.
- d) Note the following requirements from **Section 3.1.6 Player Accounts** of this document: ***“A player must only be permitted to have one active account at a time”*** and ***“A new account for a person must not be created if the reason for the deactivation of a previous account indicates that the person must not be permitted to establish another account”*** Accordingly, in the case of a self-exclusion, a player must not be permitted to establish another account.

### 3.5.6 Involuntary Exclusion

- a) The IGS must provide a mechanism by which BCLC staff can exclude a player from the IGS under the terms of the Player Agreement.
- b) Immediately upon activating the exclusion, no new bets or deposits are to be accepted from that player, until such time as the exclusion has been revoked.
- c) During the exclusion period, the player must not be prevented from withdrawing any or all of their account balance, provided that the system acknowledges that the funds have cleared, and that the reason(s) for exclusion would not prohibit a withdraw.

### 3.5.7 Self-Limitation

- a) The IGS must provide players with an easy and obvious mechanism to self-limit their game play.
- b) At a minimum, this self-limitation mechanism must be accessible from the player protection / responsible gaming page.

- c) Immediately upon receiving any self-limitation order, the IGS must ensure that all specified limits are correctly implemented in the system.
- d) It is acceptable that self-limitations take effect the next time that the player logs in to the IGS; however, the player must be clearly informed that this is the case upon setting the limit.
- e) Once established by a player, it must only be possible to reduce the severity of self-limitations upon seven days notice.
- f) Self-limitations must not be compromised by external time events, such as leap-years and daylight savings adjustments.
- g) Self-limitations must not be compromised by internal status events, such as self-exclusion orders and self-exclusion revocations.

### **3.5.8 Imposed Limitations**

- a) The IGS must have a mechanism in place that permits BCLC to set limits on player accounts.
- b) Players must be notified in advance of any BCLC-imposed limits.

### **3.5.9 Transaction Logging**

- a) Adequate on-site transaction logging of player accounts must occur in order to ensure that dispute resolution is transparent (for detailed requirements, please refer to **Section 4.3 Data Logging Requirements** of this document).
- b) Adequate backups of player account transactions must occur in order to ensure all player account balances can be recovered in the event of a disaster rendering the IGS inoperable (for detailed requirements, please refer to **Section 4.3 Data Logging Requirements** of this document).

### **3.5.10 Malfunction**

- a) Any unrecoverable malfunction of gaming hardware / software must result in the voiding of affected game bets and pays, and the return of affected bets.
- b) The terms and conditions of game play must clearly define the rules by which these unrecoverable malfunctions of gaming hardware / software are addressed.

## 4 Software Requirements

### 4.1 RNG Requirements

#### 4.1.1 General Statement

- a) With respect to the application of the RNG requirements listed in this document, it is accepted that predictability is not relevant to certain applications, such as bingo card generation. GPEB, in conjunction with the appointed ATF, must determine whether predictability is relevant to the application being tested, and apply these requirements accordingly.
- b) Any RNG outcomes used for game symbol selection / game outcome determination must be proven to:
  - i) Be statistically independent,
  - ii) Be fairly distributed (within statistically expected bounds) over their range,
  - iii) Pass various recognized statistical tests, and
  - iv) Be non-predictable, even from an attacker who has knowledge of the algorithm, the algorithm's implementation within the game(s) / application(s) to which it is connected, and the initial value used to seed the algorithm in the first instance.
- c) Game symbol selection / game outcome determination must not be influenced, affected or controlled by anything other than numerical values derived from the RNG in conjunction with the rules of the game. Note: this does not prohibit metamorphic games or Progressive Jackpots determined by means other than individual game outcomes from being considered on a case-by-case basis.
- d) As game symbols are selected / game outcomes are determined, they must be immediately used as directed by the rules of the game (i.e.: they are not to be discarded due to adaptive behaviour by the game).
- e) Where the rules of the game require a sequence of game symbols / game outcomes to be set up in advance, these entities must not be re-sequenced except as provided by the rules of the game.

#### 4.1.2 Scaling

- a) The methods of scaling (i.e.: converting raw RNG outcomes of a greater range into scaled RNG outcomes of a lesser range) must be linear, and must not introduce any bias, pattern or predictability.
- b) The scaled RNG outcomes must be proven to pass various recognized statistical tests.

#### 4.1.3 Mapping

- a) The methods of mapping (i.e.: converting scaled RNG outcomes into actual game symbols / game outcomes) must also be linear. Note: it is accepted that certain game implementations require exemption from this requirement, such as instances where mapping is purposefully used to create the necessary probabilities for various game outcomes, as provided by the rules of the game.
- b) The mapped RNG outcomes must be proven to pass various recognized statistical tests.

#### 4.1.4 Choice of RNG

The RNG can either be software-based, hardware-based, or a combination of both, at the discretion of BCLC. However, the final implementation must comply with the requirements of this document.

#### 4.1.5 Hardware-Based RNGs

Owing to their physical nature, hardware-based RNGs can potentially 'break down' over time. Accordingly, failure of a hardware-based RNG could have serious consequences for the IGS, as games may become predictable or exhibit non-fair distribution. If a hardware-based RNG is used, some form of dynamic / active, real-time monitoring of the output is required, such that game play is disabled in the event that a failure is detected.

#### 4.1.6 Software-Based RNGs

The following requirements apply only to software-based RNGs.

##### 4.1.6.1 Period

- a) The period of the RNG, in conjunction with the methods of implementing the RNG outcomes, must be sufficiently large to ensure that all game outcome combinations are possible for the given games / applications.

##### 4.1.6.2 Range

- a) The range of raw values produced by the RNG must be sufficiently large to provide adequate precision and flexibility when scaling and mapping.

##### 4.1.6.3 Seeding / Re-Seeding

- a) The methods of seeding / re-seeding implemented in the RNG must ensure that all seed values are determined securely, and that the resultant sequence of game outcomes is not predictable.
- b) Unless proven to have no adverse effect on the randomness of the RNG outcomes, seeding and reseeding must be kept to an absolute minimum.
- c) If for any reason the background cycling / activity of the RNG is interrupted, the next seed value for the RNG must be a function of the value produced by the RNG immediately prior to the interruption.

##### 4.1.6.4 Background Cycling / Activity

- a) In order to ensure that RNG outcomes cannot be predicted, adequate background cycling / activity must be implemented in between games.
- b) Wherever a game outcome is made up of multiple mapped RNG values, background cycling / activity must be implemented during the game (i.e.: in between the selection of each mapped RNG value) in order to ensure that the game outcome is not comprised of sequential mapped RNG outcomes.
- c) The rate of background cycling / activity must be sufficiently random in and of itself to prevent prediction.

## 4.2 Game Requirements

### 4.2.1 Game Fairness

- a) Games must not be designed to give the player a false expectation of better odds by falsely representing any occurrence or event.
- b) Near-miss games that are specifically designed to give the player the perception that they almost won the top prize (i.e.: with a frequency greater than that which would naturally occur given the game rules), in order to induce the player to continue gambling, are not permitted.
- c) Games that are designed to give the player the perception that they have control over the game due to player skill, when they actually do not (i.e.: the game outcome is fully random), are not permitted. Note: It is permitted for a game to be designed to give the player the perception that they have control over the game due to player luck, when they actually do not, are permitted, provided that the player has been informed in the game rules that their choices cannot actually influence the outcome of the game.
- d) Each game must have associated rules and instructions of play.
- e) The rules of the game, instructions of play, and general odds of winning must be available online to the player.
- f) The rules of the game must not be unfair or misleading.
- g) Game rules must not be changed during a session unless effective notification is given to player.
- h) Game rules must not be changed between a player making a bet and the decision and payment of winnings for the bet.

- i) Games must operate and interact with the player strictly in accordance with the published rules.

#### **4.2.2 Game Play Duration**

The minimum duration for a single game is to be 3 seconds.

#### **4.2.3 No Adaptive Behaviour by Games**

- a) A player who plays a game that is represented as being based on a random event must have an equally likely chance of obtaining any possible combination every time a game is played (except for that which is provided in the game rules). That is, it is unacceptable for the %RTP to be manipulated by the system or manual intervention to maintain a constant %RTP.

#### **4.2.4 No Forced Game Play**

- a) The player must not be forced to play a game just by selecting that game.
- b) The IGS must detect and reject repeated “play” messages that arise from impatient players pressing “play” more than once while awaiting a response from the IGS.

#### **4.2.5 Game Play Requirements**

- a) The following information must be displayed on the game screen, or readily accessible via a hotlink:
  - i) Game name,
  - ii) Instructions (and restrictions) on game play, including a payable for all prizes and special features,
  - iii) Current account balance displayed in currency (as opposed to credits), and
  - iv) Unit and total bet.
- b) The following principles must be followed where games are provided in different language versions:
  - i) Each language version of the same game must provide the same %RTPs,
  - ii) Each language version must be consistent with the instructions (and restrictions) for that version,
  - iii) All game information must be provided in the language specified for that version, and
  - iv) The game instructions (and restrictions) must carry the same meaning across all language versions so that no one version is advantaged or disadvantaged.

#### **4.2.6 Game Design**

- a) All critical functions, including the generation of the outcome of any game (and resultant %RTP), must be generated by the IGS, independently of the end player device.
- b) Game outcome determination must not be affected by the effective bandwidth, link utilisation, bit error rate or other characteristic of the communications channel between the IGS and the end player device.
- c) Multiple variations (i.e.: %RTP) of one game are not acceptable, except where those alternate variations have been approved by GPEB.
- d) The %RTP for each game must be specified by BCLC in the game documentation.
- e) Where a progressive prize is offered, the calculated %RTP must include such factors as the base game %RTP, progressive start-up value, progressive increment rate, etc...
- f) %RTP for a game must be demonstrable, as well as theoretical, and must be of a similar %RTP to those games typically found in traditional / land-based gambling venues / sites. Where a game does not have a traditional / land-based equivalent, GPEB reserves the right to withhold game approval if, in its judgment, and having regard to all circumstances, the %RTP is not considered to be fair and reasonable).

- g) Where a game is represented or implied to include a simulation of a real-life physical device, the behaviour of the simulation must be identical to the expected behaviour of the real-life physical device. That is:
  - i) The visual representation of the simulation must correspond to the features of the real-life physical device,
  - ii) The probability of any event occurring in the simulation that affects the outcome of the game must be equivalent to the real-life physical device,
  - iii) Where the game simulates multiple real-life physical devices that would normally be expected to be independent of one another, each simulation must be independent of the other simulations, and
  - iv) Where the game simulates real-life physical devices that have no memory of previous events, the behaviour of the simulations must be independent of (i.e.: not correlated with) their previous behaviour, so as to be non-adaptive and non-predictable in practice.
- h) Games that are not completely independent of game play history (i.e.: metamorphic games) must:
  - i) Display clearly to the player which game rules apply to the current game state,
  - ii) Display to the player sufficient information to indicate the current status towards the triggering of the next metamorphosis of the game. If the game collects tokens, the number of tokens missing or the total number required to trigger the next metamorphosis must be indicated, along with the number of tokens collected at that point.
  - iii) Not adjust the likelihood of a metamorphosis occurring based on the history of prizes obtained in previous games. Games must not adapt their %RTP based on past payouts.
  - iv) Not be designed in such a manner to be misleading to the player.

#### **4.2.7 Game Play**

- a) Game play that requires monetary payment (i.e.: play-for-real) can only occur during a game session (i.e.: after the player has logged in, and before the player has logged out).
- b) Where hotlinks are used to supply information as required by this TSD, game play must not occur if the hotlinked information is not available. These hotlinks must be checked (either manually or automatically) at least daily.
  - i) Where a broken hotlink is uncovered, and the hotlink relates to game-specific information only, then the associated game(s) must be taken offline (either manually or automatically) if the hotlink is not repaired within one hour.
  - ii) Where a broken hotlink is uncovered, and the hotlink relates to the website as a whole, then all games must be taken offline (either manually or automatically) if the hotlink is not repaired within twelve hours.
- c) In the event that a game in current play cannot be continued due solely to an IGS action, all bets must be returned to the players of that game.
- d) If the IGS extends an invitation to play a particular game, it must accept all legitimate wagers (as defined by rules) for that game.
- e) The methodology employed by a player to select and play a particular game must be unambiguous.
- f) The IGS must clearly inform the players of all games available at that time.
- g) The player must at all times be made aware of which game has been selected for play or is being played.
- h) It must not be possible to start a new game before the current play is completed and all relevant meters have been updated on the IGS. Some exceptions may be granted in instances where, for example:
  - i) BCLC elects to conduct off-line, manual consideration of large payouts (i.e.: where a player chooses to continue gaming while a large payout is pending), or
  - ii) The game in question is based on a future event, such as with sports betting, or a periodic lottery drawing.

- i) A 'replay last game' facility must be provided, either as a re-enactment or by description. The replay must clearly indicate that it is a replay of the previous game, and must provide the following information (at a minimum):
  - i) The date and time the game was played,
  - ii) The display associated with the final outcome of the game, either graphically or via a clear text message,
  - iii) Total player cash / credits at start of play,
  - iv) Total player cash / credits at end of play,
  - v) Amount bet including any multipliers,
  - vi) Total cash / credits won for the prize resulting from the last play (including Progressive Jackpots),
  - vii) Any player choices involved in the game outcome, and
  - viii) Results of any intermediate game phases, such as gambles or feature games.

#### **4.2.8 Game Disable**

- a) The IGS must provide a mechanism for each game variation offered on the IGS to be disabled, individually, by BCLC.
- b) When a game variation is disabled, all players playing that game variation must be permitted to conclude their current game in play.
- c) Once a game variation is disabled, it must not be accessible to players after their current game has concluded.
- d) The IGS must provide full audit trails when disabling a game variation that is currently in play.
- e) The IGS must also provide a mechanism for all gaming offered on the IGS to be disabled, as a whole, by BCLC – with full consideration to the associated requirements listed above.
- f) The IGS must also provide a mechanism for each active game session on the IGS to be disabled, individually, by BCLC – with full consideration to the associated requirements listed above.

#### **4.2.9 Incomplete Games**

- a) The IGS must provide a mechanism for a player to complete an incomplete game before a player is permitted to participate in any other game. Incomplete games include:
  - i) Loss of communications between IGS and end player device,
  - ii) IGS restart,
  - iii) Game disabled by IGS,
  - iv) End player device restart, and
  - v) Abnormal termination of gambling application on end player device.
- b) Upon reconnection by the player, the IGS must present the player the incomplete game for completion.
- c) Bets associated with a partially complete game that can be continued must be held by the IGS until the game completes. Player accounts must reflect any funds held in incomplete games.
- d) Game rules must specify that bets placed but remaining undecided in incomplete games will become void, and will be handled as per Section 3.1.12 Unclaimed Funds from Inactive Accounts.

#### **4.2.10 Game Artwork (Information Displayed)**

This section refers to all forms of graphical and auditory information that is sent to the end player device for presentation to the player. The combination of all relevant information being presented to the player must comply with these requirements.

#### 4.2.10.1 Instructions and Information

- a) All information presented on the base website must comply with Section 3.4 of this TSD.
- b) All written information presented on the base website and games must be available in English, and must be both grammatically and syntactically sound (note: logos or copyright messages may be displayed). This does not preclude the display of the same information in other languages.
- c) All written information presented on the base website and games must be stated unambiguously and must not be misleading to the player.
- d) All written information presented on the base website and games must be truthful.
- e) All game help / rules information must be clearly visible, or the means of displaying such information must be readily available, at all times.
- f) All game help / rules information must be visible / available to the player without the need for money to be bet on the game.
- g) All game help / rules information must be easily interpretable, non-ambiguous, and sufficient to explain all game rules.
- h) There must be sufficient game help / rules information to allow a player to determine the correctness of prizes awarded.
- i) If random prizes are offered, the maximum value obtainable from the random prize must be indicated in the game help / rules information.
- j) If the value of the random prize depends on the amount of money wagered, this must also be stated in the game help / rules information.
- k) The name of the game being played must be clearly visible to the player on the game screen.
- l) For non-event based games, a paytable displayed in the game artwork must correspond to the paytable used in the mathematical treatise, and correspond to the paytable implemented in the actual game design.
- m) The functions of all buttons represented on the website and games must be clearly indicated, preferably on the button.

#### 4.2.10.2 Bet Display

- a) The bet denomination (and where applicable the tokenization) of the game must be clearly visible on the game screen, or be able to be easily deduced.
- b) If a game uses tokens or tokenization, the number of credits registered for each monetary unit for the current game must be displayed on the game screen.
- c) The artwork must either state the maximum bet, the number of credits that can be bet per selected line and the number of possible lines available, or it must be possible to deduce this information from the game help / rules.
- d) The minimum bet (if not easily deduced) must be readily available to the player, either directly on the game screen or in the game help / rules information.

#### 4.2.10.3 Result Display

- a) The display of the result of a game outcome must not be misleading or deceptive to the player. The game must not inappropriately indicate a near-miss, as per **Section 4.2.1, Paragraph b)**.
- b) The outcome of each game must be displayed for a reasonable length of time.
- c) The nature of all prizes must be clearly indicated. If some prizes are in cash, whilst others are in credits, this must be stated.
- d) If the artwork contains game instructions specifying a maximum win, then it must be possible to win this amount from a single game (including features or other game options). For example, if the artwork states that \$500.00 is the maximum prize for a game, it must be possible to win \$500.00 on that game.
- e) To the extent that is practicable for the range of games offered, only one method of displaying win amounts should be used on the website so as to avoid confusion.

#### 4.2.10.4 Game-Specific Requirements

- a) The appendices of this TSD detail any requirements that are specific for each type of game or game feature. It should be noted that a game or game feature need only comply with the requirements applicable to that particular type of game or game feature.

### 4.3 Data Logging Requirements

#### 4.3.1 General Requirements

- a) The IGS must be capable of retaining and backing up all recorded information, as discussed herein, as far back as five years from the current point in time. Accordingly, among other implications, the number of digits to be used in all fields must therefore be based on appropriately projected performance and business.
- b) All time stamping implemented throughout recorded information must make use of the 24-hour format, Greenwich Mean Time (GMT). All times displayed to players must be converted into Pacific Standard Time (PST).
- c) All date stamping implemented throughout recorded information must make use of a consistent format to be prescribed by BCLC.

#### 4.3.2 Player Account Information

- a) For each individual player account, the IGS must maintain and back up the following information; and be capable of reporting this information for a BCLC-configurable time span, upon request:
  - i) Player identity details (including player identity verification results),
  - ii) Account details and current balance,
  - iii) Changes to account details, such as change of address, change of credit card, or change of name,
  - iv) Any self-imposed player protection limitations,
  - v) Any self-imposed player protection exclusions,
  - vi) Details of any previous accounts, including reasons for deactivation,
  - vii) Deposit / withdraw history, and
  - viii) Game play history (i.e.: games played, amounts bet, amounts won, Progressive Jackpots won, etc...).
- b) For player accounts as a whole, the IGS must be capable of generating the following reports for a BCLC-configurable time span, upon request:
  - i) A list of all currently (or previously) active player accounts,
  - ii) A list of all currently (or previously) inactive player accounts (including reasons for deactivation),
  - iii) A list of all accounts for which the player has currently (or previously) imposed a player protection self-exclusion,
  - iv) A list of all accounts for which the player has currently (or previously) been excluded from the site by BCLC (i.e.: involuntary exclusion),
  - v) A list of all accounts for which the player's funds have currently (or previously) been inactive for a period of time exceeding 90 days, and
  - vi) A list of all accounts for which one or more of the player's deposits and / or withdraws have exceeded a BCLC-configurable limit (i.e.: large deposits / withdraws). The limit must be configurable for single transactions, as well as aggregate transactions over a user-defined time period.
  - vii) A list of all accounts for which one or more of the player's wins have exceeded a BCLC-configurable limit (i.e.: large wins). The limit must be configurable for single wins, as well as aggregate wins over a user-defined time period.

### 4.3.3 Gaming Session Information

- a) For each individual gaming session (i.e.: player login time to logout time), the IGS must maintain and back up the following information, and be capable of reporting this information upon request:
  - i) Unique player ID,
  - ii) Gaming session start and end time, and
  - iii) Game play information for session (i.e.: games played, amounts bet, amounts won, Progressive Jackpots won, etc...).
- b) For gaming sessions as a whole, the IGS must be capable of generating the following report upon request:
  - i) A list of all currently active gaming sessions.

### 4.3.4 Game Information

- a) For each individual game played, the IGS must maintain and back up the following information, and be capable of reporting this information upon request:
  - i) Unique player ID,
  - ii) Unique game identifier,
  - iii) Game start time, according to IGS,
  - iv) Player account balance at start of game,
  - v) Amount wagered,
  - vi) Contributions to Progressive Jackpot pools (if any),
  - vii) Current game status (i.e.: in progress / complete) (note: the IGS must maintain records of any game that fails to complete, and the reason why the game failed to complete),
  - viii) Game result / outcome,
  - ix) Progressive Jackpot wins (if any),
  - x) Game end time, according to IGS,
  - xi) Amount won, and
  - xii) Player account balance at end of game.
- b) The IGS must maintain and back up the following information, and be capable of reporting this information, for a BCLC-configurable period of time, upon request:
  - i) A list of all games hosted by the website, including approved game / payable versions.

### 4.3.5 Significant Events Information

- a) The IGS must maintain and back up the following information, and be capable of reporting this information for a BCLC-configurable time span, upon request:
  - i) Changes made by BCLC to game parameters,
  - ii) Changes made by BCLC to Progressive Jackpot parameters,
  - iii) New Progressive Jackpots created,
  - iv) Progressive Jackpot wins, and
  - v) Progressive Jackpot shutdowns.

## 4.4 Technical Requirements

### 4.4.1 Data Transmission and Data Storage

- a) Where player account information and / or game play data is either a) being passed over communication lines, or b) being stored somewhere in the IGS, such data must be protected (i.e.: encrypted) commensurate with the sensitivity of that data. Examples of sensitive data that require encryption are:
  - i) Player identity details (including player identity verification results),
  - ii) Credit and debit card details,
  - iii) PINs and passwords,
  - iv) Account details and balances,
  - v) Player protection limitations,
  - vi) Player protection exclusions,
  - vii) Money transfers to and from player accounts,
  - viii) Changes to account details, such as change of address, change of credit card, or change of name, and
  - ix) Game play (i.e.: games played, amounts bet, amounts won, Progressive Jackpots won, etc...).
- b) Any sensitive or confidential information maintained by the IGS must be stored in areas of the system that are secured from unauthorized access, both external and internal.

### 4.4.2 Shut Down and Recovery

- a) The IGS must be able to perform a graceful shutdown (i.e.: a shutdown where no data is lost, and all applications are able to close properly) in the event of a simple power failure, and not restart automatically on power up.
- b) In the event of a critical hardware / software failure, the IGS must be able to recover all critical information from the time of the last backup to the point in time at which the system failure occurred (no time limit is specified).
- c) BCLC must have disaster recovery capability sufficient to ensure player entitlements are protected and audit ability is facilitated up to the point of the disaster.
- d) The IGS must be able to recover from unexpected restarts of its central computers or any of its other components.
- e) The IGS hardware platform and Operating System (OS) must be proven to be reliable (for further details regarding this requirement, refer to **Section 4.5 ISS Requirements** below).

## 4.5 ISS Requirements

### 4.5.1 General Statement

- a) The Administrative Controls, Technical Controls and Physical & Environment Controls for the IGS must comply with industry-best practices, meaning that they must comply with the general intent of applicable and relevant ISS industry standards such as (listed in order by detail):
  - i) AS / NZS 4360:2004 Risk Management,
  - ii) Control Objectives for Information and Related Technology (COBIT),
  - iii) Open Source Security Testing Methodology Manual (OSSTMM), and
  - iv) International Standards Organization (ISO) 17799 Standard – Information Technology – Code of Practice for Information Security Management.

## Appendix A: Progressive Jackpot Game Requirements

- a) For the purposes of this TSD, a game is deemed to include a Progressive Jackpot component only where it incorporates a pari-mutuel pool that:
  - i) Acts as a supplement to the base game,
  - ii) Is funded, wholly or in part, by only a portion of the player's wager, as per a prescribed contribution rate, and
  - iii) Rolls over into the next game if it is not won in the current game.
- b) The following requirements apply only to games that implement some form of Progressive Jackpot.

### A.1 Progressive Jackpot Fairness

- a) All players that play games on the IGS that implement some form of Progressive Jackpot must be made aware of how they can be eligible to win the Progressive Jackpot.
- b) The rules of the game must include how the Progressive Jackpot is funded and determined.
- c) All players contributing to the Progressive Jackpot must be eligible to win the Progressive Jackpot whilst they are playing that game.
- d) In order to ensure player fairness, either i) the probability of winning the Progressive Jackpot must be linearly proportional to the player's contribution, or ii) the amount of the Progressive Jackpot paid out to the player must be linearly proportional to the player's contribution.
- e) Progressive Jackpot contributions must not be assimilated into revenue. For example, if a cap is established on any Progressive Jackpot, all additional contributions once that cap is reached must be credited to a Diversion Pool.

### A.2 Notification of the Progressive Jackpot Amount

- a) The current Progressive Jackpot amount must be displayed on all end player devices participating in the Progressive Jackpot.
- b) This display must be updated on all participating end player devices at least every 30 seconds. Note: It is accepted that Internet communication delays are variable and beyond the knowledge or control of BCLC, therefore server-to-client delays will vary from player to player and from message to message.
- c) Players must be notified in the terms and conditions of game play of the imperfections of Internet communications, and how this affects them with respect to the Progressive Jackpot.

### A.3 Progressive Jackpot Win Notification

- a) Players must be notified of the win (including the amount won) by the end of their current game in play.

### A.4 Progressive Jackpot Parameter Changes

- a) Once a Progressive Jackpot has commenced, parameter changes must not take effect immediately. These parameter changes must instead be saved to apply after the current Progressive Jackpot is won.

### A.5 Partial Progressive Jackpot Redirection

- a) Diversion Pool schemes, where a portion of the Progressive Jackpot contributions are redirected to another pool so that when the Progressive Jackpot is won, that pool is added to the restart level of the next Progressive Jackpot, require GPEB approval. The following requirements apply to such schemes:
- b) A Progressive Jackpot redirection scheme must not have a mathematical expectation of the diversion pool of infinity.
- c) Diversion pools must not be capped.

## **A.6 Multiple Progressive Jackpot Winners**

BCLC must address the possibility of a Progressive Jackpot being won (or appearing to be won) by one or more players at approximately the same time. The rules of the game must include resolution of this possibility.

## **A.7 Conversion of Progressive Jackpots**

A Progressive Jackpot pool to be converted or combined into another Progressive Jackpot pool requires GPEB approval.

## **A.8 Progressive Jackpot Financial Liability**

The rules of the game must provide for any planned or unplanned termination / discontinuation of a Progressive Jackpot. Of particular concern is how any outstanding pool amounts are dealt with in order to ensure player fairness.

## **A.9 Progressive Jackpot Shutdown**

- a) There are instances in this document where it is indicated that the Progressive Jackpot must be “shutdown”. A Progressive Jackpot shutdown requires the following action:
  - i) Clear indication must be given to players that the Progressive Jackpot is not operating by displaying a message such as “Jackpot Closed” on end player devices.
  - ii) It must not be possible for the Progressive Jackpot to be won while in the shutdown state.
  - iii) Activation of the Progressive Jackpot from the shutdown state must reinstate the Progressive Jackpot with the identical parameters (including Progressive Jackpot value, and hidden win amount for Mystery Progressive Jackpot) as before the shutdown.

## **A.10 Progressive Jackpot Meters**

- a) The IGS must store and maintain the following software meters at a minimum:
  - i) Total amount contributed / won (normally equal) for each previous Progressive Jackpot, including separate figures for any diverted amounts,
  - ii) Grand total amount contributed / won (normally equal) for all previous Progressive Jackpot combined, and
  - iii) Total amount contributed for current Progressive Jackpot, including separate figures for any diverted amounts.

## **A.11 Progressive Jackpot Recovery**

- a) In order to enable the recovery of the current value of the Progressive Jackpot amount in the case of an IGS failure, either:
  - i) The current value of the Progressive Jackpot amount must be stored in at least two physically separate devices, or
  - ii) The current value of the Progressive Jackpot amount must be able to be accurately calculated from other available metering information that is not stored in the same system as the Progressive Jackpot amount.

## A.12 Progressive Jackpot Controller

- a) The Progressive Jackpot controller is deemed to be part of the IGS, even if it is a physically separate controller.
- b) Where a “Master Controller” employs “Slave Controllers” to control a Progressive Jackpot, the following requirements apply:
  - i) All Slave Controllers must be time synchronised with the Master Controller.
  - ii) The Master Controller must be time synchronised with the IGS.
  - iii) Game result Progressive Jackpot win events must be time stamped and the Progressive Jackpot Controller must ensure that hits registered within a minimum time increment are considered as simultaneous wins. Prize payout for simultaneous wins must be made in accordance with Section A.6 Multiple Progressive Jackpot Winners of this document. The minimum time window (Progressive Jackpot Reset Period) is not less than the longest time taken to:
    1. Register that a Progressive Jackpot has been won,
    2. Announce the win on the displays of all participating end player devices, and
    3. Reset the Progressive Jackpot meters.

## **Appendix B: Internet Interface Game Requirements**

The following requirements apply only to games that effectively constitute an internet interface or gateway to an existing traditional / land-based game already operating in the live environment.

It should be noted that Internet Interface Games need not comply with any other requirements from the appendices of this TSD.

### **B.1 Game Fairness**

- a) The rules of the game, as made available to the player using the Internet interface / gateway, must include no less information than that which is made available to the player using the traditional / land-based method.
- b) The artwork and functionality of the game, as made available to the player using the Internet interface / gateway, must not result in any advantage or disadvantage as compared with the player using the traditional / land-based method.
- c) All players playing the game using the Internet interface / gateway must be no more or no less eligible to win the game than players using the traditional / land-based method.

### **B.2 Win Notification**

- a) Where the winning player is one using the Internet interface / gateway, they must be notified of the win directly through their player account, including the amount won, in due course after the completion of the game.

### **B.3 Multiple Winners**

- a) BCLC must address the possibility of the game being won (or appearing to be won) by one or more players simultaneously, including players using the Internet interface / gateway. Where necessary, the rules of the game, as made available to the player using the Internet interface / gateway, must include resolution of this possibility.

## Appendix C: Gamble Option Requirements

### C.1 Gamble Option

The following requirements apply only to games that implement some form of Gamble Option upon completion of the base game (e.g.: “double-up”, “triple-up”, etc...):

- a) The gamble prize limit (if applicable) for a particular game, and the maximum number of gambles available, must be clearly stated. Note that where wording indicating the maximum prize that can be won exists, then it must be possible to win this prize.
- b) When the gamble option is discontinued automatically before reaching the maximum number of gambles available, the reason must be clearly displayed.
- c) All references to gamble must use words such as “gamble” or “double up”, which cannot be misinterpreted to indicate some other feature.
- d) Any unusual game conditions during which the gamble option cannot be accessed must be specified.
- e) If a gamble option offers a choice of multipliers, it must be clear to the player what the range of choices / payouts is.
- f) Once the player has selected a multiplier, it must be clearly stated on the screen which multiplier was selected.

## Appendix D: Spinning Wheel / Reel Game Requirements

The following requirements apply only to simulations of Spinning Wheel / Reel games.

### D.1 Symbol-Prize Relationship

- a) The prizes for the winning patterns of each symbol must be placed in an area that visually belongs to the symbol. This could potentially be achieved with appropriate boxing or framing. The symbol or group of symbols must not invade the area that visually belongs to some other group of symbols as this could cause ambiguities as to which symbols are displayed on the paying line.

### D.2 Number of Symbols Required for a Prize

- a) The number of symbols required to appear in the reels display window, in order to trigger each prize, must be indicated. These numbers must line up with the prizes in order to avoid any ambiguity as to which prize corresponds to which number.

### D.3 Mixed or Grouped Symbols

- a) If prizes can be awarded for mixed or grouped symbols, the artwork must clearly specify the grouping of the symbols either by placing the symbols in an area that clearly belongs to the prize and labelled with the term “Mixed” (or equivalent), or by using a descriptive term that clearly defines the grouping. Care must be taken with such phrases as “Mixed Bars” or “Mixed Fruit” to ensure that there can be no misinterpretation.

### D.4 Tabulated Prizes for Multiple Credits Staked

- a) If the prizes for multiple credits staked are tabulated, then the number of credits bet required for each prize must be placed in a location that clearly indicates which prizes apply to which multipliers. Such numbers must have associated with them the word “credits” or equivalent (i.e.: “credits per line” or “total credits bet”). Common tabulations display the number of credits bet as column headings and the number of symbols required as row headings.
- b) If partial tabulation exists, the artwork must clearly indicate that the prize for one credit (or other appropriate bet) staked is multiplied by the number of credits bet (per line). Alternate game instructions must ensure that it is not possible to incorrectly assume that the tabulated prizes are further multiplied by credits bet.
- c) Where both multiplier instructions and tabulated prizes are displayed on artwork, there must be no confusion possible as to whether the multiplier applies to the tabulated prizes or not.

### D.5 Winning Line Pays (Paylines)

- a) In games that permit multiple credits to be wagered on selected lit lines, the artwork must either clearly state that the win(s) for each selected lit line will be multiplied by the number of credits wagered on that line, or show a tabulation of all possible wagers and their payouts.

### D.6 Scattered Pays

- a) The artwork must clearly indicate that scattered pays are multiplied by the total number of credits staked. This may be either via a message or a tabulation of all possible wagers and their payouts. If partial tabulation is used, the artwork must clearly indicate that the prize for one credit (or other appropriate bet) staked is multiplied by the total number of credits bet. Alternate game instructions must ensure that it is not possible to incorrectly assume that the tabulated prizes are further multiplied by credits bet.

## D.7 Scatters

- a) The scattered symbol must be clearly labelled with the word “scatter” at least once in the game instructions. Further occurrences of the scattered symbol in the game instructions do not require further labelling.

## D.8 Positioning, Size, Colour and Shape

- a) Game instructions that belong to only one symbol / prize, or a group of symbols / prizes, must be clearly associated with that symbol / prize or group of symbols / prizes. For example, this may be achieved with appropriate framing or boxing. Additional wording such as “these symbols” could also be used.
- b) Game instructions that refer to all symbols / prizes must read “ALL” or equivalent. If some symbols / prizes are excluded from these instructions, this should be clearly indicated with wording such as “EXCEPT” or equivalent.
- c) Game instructions must be printed in a colour that contrasts with the background colour in order to ensure that all instructions are clearly readable. For example, black print on dark purple background is not acceptable, as it can easily create confusion.
- d) Symbols that are not characters or numbers must have the same shape throughout all artwork, except while active / dynamic animation is in progress. Any symbol that changes shape or colour during an animation process must not appear in a way that might misrepresent another symbol in the pay table.
- e) If game instructions refer to a particular symbol, and the written name for the symbol may be mistaken for another symbol, or may imply other characteristics (e.g.: “Pair of Sunglasses” might imply two sunglass symbols), then the visual display of the instructions must clearly indicate to which symbol the instruction refers. For example, this may be via the display of the actual symbol, or a more clearly written description or both.

## D.9 Substitutes

- a) The artwork must clearly state which symbols may act as a substitute, in which winning patterns, for which symbols, and any conditions that may apply. For example, this may be permitted in the following manner:
  - i) An indication that the substitute(s) match “ALL” symbols.
  - ii) Provide a list of symbols that the substitute does match.
  - iii) Provide a list, using the term “EXCEPT”, which the substitute does not match.
  - iv) Provide a statement clearly describing groups of symbols that are substituted.
- b) Where a game’s rules provide for both coinciding wins being paid on a selected lit line, and the use of one or more substitute symbols, the following must apply to the artwork:
  - i) If the substitute symbols on their own are awarded a prize, and concurrently may substitute for some other symbol (e.g.: Sub Sub Sub Queen Queen pays both 3 Subs and 5 Queens), explanations of this rule must be explicitly included. It is not required to state the reverse case where the highest prize only is paid.
  - ii) If multiple patterns that use substitutes exist on the selected lit line (e.g.: Queen Queen Sub Jack Jack, for a game playing Left to Right and Right to Left), and the game only pays one of these combinations, explanations of this rule must be explicitly included. It is not required to state the reverse case where both prizes are paid.
  - iii) If substitution occurs for patterns where none of the substituted symbols are displayed (e.g.: Sub Sub Sub Sub Sub pays for 5 Kings and 5 Queens, etc...), explanation of this rule must be explicitly included. It is not required to state the reverse case where only one prize is paid.

- c) The artwork must contain all rules relative to Substitutes participating in scattered wins. The following must be addressed:
  - i) If applicable, the artwork must specifically state when the term “substitutes for all symbols” is used, but the Substitute does not participate in scattered wins (e.g.: “<sub> substitutes for all symbols except scattered <scatter symbol>”).
  - ii) The artwork must state payout rules for coinciding wins when there are multiple scattered win symbols and substitutes participate, including the situation where one or more scattered symbols may not appear.
- d) If there is a feature where a symbol may substitute in a winning pattern when the symbol is not on a pay line, this must be clearly specified on the artwork.
- e) The artwork must clearly state if the game provides for a change of substitutes (e.g.: during free games), and any special conditions that may apply.
- f) If the game provides for extra pays or multipliers apply when substitutes participate in winning patterns, a clear explanation must be provided.
- g) If the game provides for multipliers to apply when substitutes participate in winning patterns, the multiplication factor or a tabulation of all prizes with possible multipliers must be displayed.
- h) If extra pays or multipliers apply when substitutes participate in winning patterns, the handling of winning patterns where multiple substitutes participate must be clearly explained.

## D.10 Winning Patterns

- a) All winning patterns relevant to the particular point in time in a game must be clearly displayed or accessible on some form of artwork. All undefined patterns must be assumed to be non-winning.
- b) Complicated winning patterns must be clearly explained, preferably with pictorial representations.
- c) The winning pattern for scatters must be explicitly stated or displayed.
- d) If generic winning patterns (graphical representation of the order / position in which the winning symbols are to appear) are only represented graphically (without the aid of a written explanation), then they must be supplemented with numbers to indicate how many correct symbols each pattern corresponds to, except for unusual winning patterns (e.g.: X\_X\_x\_X\_X) where numbers must not be displayed and the pattern must be position in proximity to the prize.
- e) Winning patterns that are not “left to right” or “right to left” or “any” must be clearly explained, preferably with pictorial representations.
- f) The artwork must appropriately state that all wins occur on selected lines (and if applicable – except scatters) or equivalent.
- g) If it is possible to bet on multiple possible lines, and it is not clearly obvious which reel positions are part of each of the possible lines, then the additional lines must be clearly displayed on the artwork, and appropriately labelled. The additional lines must either be shown on static artwork or be available for display on a help or pay table screen, or permanently displayed on all game play screens in a location separate from the actual reels. This requirement applies to all standard five-reel games where lines greater than five must be schematised on the artwork and appropriately labelled.
- h) Upon a win, all pay lines must be clearly indicated. If it is possible to bet more than 5 lines, then upon a win the pay lines must be indicated in a manner such that all pay lines can be clearly identified by the player.

- i) The artwork must clearly state the rules for payments of prizes where multiple wins are possible. The following must be addressed:
  - i) A description of what patterns will be paid when a pay line may be interpreted to have more than one individual winning pattern.
  - ii) Where the game supports multiple pay lines, a message indicating wins on different pay lines are added or the equivalent is to be displayed.
  - iii) Where the game supports scatters, a message indicating that scattered wins are added to pay line wins or equivalent, must be displayed if this is the rule of the game.
  - iv) Treatment of coinciding scattered wins with respect to other possible scattered wins must be clearly stated. For example, the artwork must state whether combinations of scattered symbols pay all possible prizes or only the highest prize.
  - v) Where mixed symbol prizes are paid, the treatment of prizes that may be interpreted to be both mixed and straight winners is to be described.

## **D.11 Spinning Wheel / Reel Game Features**

It is not possible to define requirements for all conceivable types of spinning wheel / reel game features that may be developed over time. The following requirements apply to spinning wheel / reel game features that are commonly in use in traditional / land-based gaming, and may be expected to be used in e-gambling.

### **D.11.1 Feature Trigger Patterns**

- a) The trigger pattern(s) and all other conditions that should occur, in order to trigger the feature, must be unambiguously specified.
- b) The action of the game when feature trigger patterns occur during the feature (e.g.: free games) must be clearly stated on the artwork (e.g.: further triggers, bonus payout and / or no further trigger).

### **D.11.2 Tokens accumulation**

For games with rules that allow for the accumulation of tokens to qualify for a feature(s), or game metamorphosis, the artwork must clearly show:

- a) The definition of the event that leads to the accumulation of tokens.
- b) A description of how many tokens are accumulated with each occurrence of the event.
- c) A description of how many tokens are required to trigger the feature.
- d) An indication of how many tokens are currently accumulated.
- e) If sub-tokens accumulate to tokens, a description of the number of sub-tokens needed to accumulate a token, and the number of sub-tokens and tokens currently accumulated.
- f) If the accumulation of tokens may lead to free games, the number of possible lines and credits per line that are to be wagered during the free games.
- g) Game rules when further tokens are not accumulated during the feature sequence for events which normally would qualify to earn tokens.

### **D.11.3 Free games**

The artwork must explain all rules relative to free games. Areas relative to free games that must be addressed, in addition to the general requirements above, are:

- a) Additional payouts for non-winners during the free game sequences, if any, must be displayed on the artwork. A clear indication if this payout is to be multiplied by credits staked per line or total credits staked, must be given.
- b) Any multipliers for prizes, special prizes, substitutes and other special rules during free games, must be displayed on the artwork.
- c) A clear display of an accumulated win amount is required during each stage of the free games if the gaming machine does not directly add wins to the credit meter.
- d) If more than one free game is offered, the number of free games that has occurred or the number remaining (or the total number) must be displayed.
- e) Appropriate game instructions defining the number of possible lines and credits per line that are wagered during the free games.

#### **D.11.4 Re-Spins / Held Reels**

The following requirements apply to game artwork where one or more reels are automatically “held” for one or more “re-spins”. The rules for the criteria for the re-spin, and which reel positions are held, must be clear. Examples of areas that must be addressed are:

- a) Which reels are to be held (e.g.: first two reels).
- b) Whether held reels occur on winning or non-winning patterns.
- c) The specific line where the trigger combination should occur, if any (e.g.: “ON THE CENTRE LINE”), or scattered if that is the actual requirement of the game.
- d) If a partial number of reels (e.g.: 2, 3 or 4 reels) are held for some criteria, it must be clearly stated what happens when the criteria forms part of a larger pattern (e.g.: what happens when all 5 reels meet said requirement).
- e) If the trigger is a winning pattern, and the pattern does not pay during re-spins, this must be clearly stated on the artwork.
- f) The rules for extensions or termination of the re-spin sequences, including additional held reels (e.g.: when there are improvements to the original held combination(s)), must be clearly explained on the artwork.
- g) If more than one re-spin is offered, the number of re-spins that has occurred or the number remaining (or the total number) must be displayed.

#### **D.11.5 Bonus Prizes**

This section refers to games where one or more bonus prizes may be paid to the player during the feature sequence. Generally, bonus prizes are awarded as a result of some second (or subsequent) screen animation:

- a) Criteria for both the initial entry and entry to further bonus features must be clearly stated.
- b) All instructions and player choices for the bonus feature must be clearly stated.
- c) A display of total amounts won must be available at the end of each stage of the game, including on second screen animations. This must include display of bonus prizes won in multiple sequence bonus features.
- d) If bonus prizes are multiplied, the artwork must clearly state whether they are multiplied by credits staked per line or total, where appropriate.

#### **D.11.6 Metamorphic Sequences**

This section refers to metamorphic games where the player still “pays” for the sequence game(s):

- a) All instructions for the game, including the differences between the main game and the metamorphic game, must be stated (e.g.: <character> appearing anywhere in window pays the original prize which started the feature).
- b) An indication must be stated that the number of lines and / or number of credits wagered during the metamorphic sequence may not exceed the wager of the game (or games) that triggered the feature, if that is the rule of the feature.
- c) Any special prizes, substitutes, multipliers or similar rules during the metamorphic sequence must be clearly stated on the artwork.
- d) If the metamorphic sequence consists of more than one feature game, the number of games in the metamorphic sequence that has occurred or the number remaining (or the total number) must be displayed.

#### **D.11.7 Held Reel Games**

This section refers to spinning reel variations with Draw Poker characteristics, where the player may hold one or more reels for a second chance to improve the hand. The artwork must address the following:

- a) Held and non-held reels, including recommended reels, must be clearly marked on the screen at all times.
- b) The method for changing holds must be clearly displayed to the player.
- c) If the player is required to wager additional credits to participate in the hold reels phase of the game, this must be stated.
- d) Display that the player is able to hold or release reels.

#### **D.11.8 Miscellaneous symbols**

If a symbol that can form part of a winning combination is not on all reels, the artwork must clearly show which reels the symbol appears on.

## Appendix E: Keno / Bingo / Lottery Game Requirements

The following requirements apply only to simulations of Keno / Bingo / Lottery games, where balls are drawn from a simulated cage (or equivalent) and a player tries to pick in advance which of these balls will be selected:

- a) The player must be able to view or access a tabulated display of the paytable (or equivalent), which shows all possible winning payouts, while no game is in progress.
- b) Any special rules that are outside the standard game of Keno / Bingo / Lottery must be clearly explained.
- c) All of the player's selections (where applicable, the player's card) must be clearly identified directly on the game screen. Where the game uses multiple player cards, it is acceptable for the player's selections to be accessible by flipping or switching through the cards.
- d) If the player is permitted to discard the current card and instead select a new card before the commencement of the game, then the following requirements must be met:
  - i) This functionality must be clearly explained to the player in the game rules, and
  - ii) This functionality must be made readily available to the player before the commencement of the game.
- e) The artwork must clearly state how the player makes or changes selections. Areas to be addressed are how:
  - i) Individual numbers are picked,
  - ii) Individual numbers are cleared, and
  - iii) All selections are cleared.
- f) The balls drawn must be clearly identified on the screen.
- g) The game must highlight balls drawn which match the player's selections (i.e.: "Hits").
- h) Special hits, if any, must be clearly identified.
- i) The screen must provide clear indication of how many spots were selected and how many hits were achieved.
- j) Rules for purchase of additional features of the game, if any, must be explained.

## Appendix F: Roulette Game Requirements

The following requirements apply only to simulations of Roulette games:

- a) Each “Zero” used must be uniquely labelled (e.g.: “0” versus “00”).
- b) The simulated Roulette wheel must be in the identical format as a standard casino wheel (including colours of landing locations and position of numbers) with the exception of the position of “Zeroes”, if more than one exists, in which case the “Zeroes” may be placed arbitrarily.
- c) A paytable, or description of all available wagers and their payouts, must be accessible by the player while the game is not in play.
- d) The method of selecting individual wagers must be explained by the rules.
- e) The wager(s) already selected by the Player must be displayed on the screen.
- f) The simulated ball spin must result in a location that unambiguously determines the winning number.

## **Appendix G: Dice Game Requirements**

The following requirements apply only to simulations of Dice games:

- a) Each face must clearly show the number of spots.
- b) Simulated dice must be of the same layout as standard dice (e.g.: the 1 and 6, 2 and 5, and 3 and 4 respectively must be on opposite faces).
- c) It must be obvious which is the up face on each die, after the dice are thrown.
- d) The result of each die must be clearly visible or displayed.
- e) There must be a description of each wagering option available on the artwork. For example, the Craps wagers “Field” and “Hardway” must be clearly explained.
- f) All possible wagering options available and obtainable at any point in time must be displayed on the artwork.

## **Appendix H: Scratch Ticket Game Requirements**

The following requirements apply only to simulations of Scratch Ticket games:

- a) A precise definition of which player options are required to complete the game must be shown on the artwork.
- b) Details of how payouts are won, and their amounts, must be shown on the artwork.
- c) All rules for symbols that may substitute in winning patterns must be displayed on the artwork.

## **Appendix I: Racing Game Requirements**

The following requirements apply only to simulations of Racing games:

- a) All participants in the race must have characteristics that make it unique in appearance (e.g.: number, jockey colours, etc...).
- b) The result of the race must be clearly obvious and not open to misinterpretation.
- c) If prizes are to be paid for combinations involving runners other than just the first place finisher, the order of the place getters that can be involved with these prizes must be clearly shown on the screen (e.g.: Result 8-4-7).
- d) Each meaningful result position must be available for display in all last game replays.
- e) The rules for alternative wagering options (e.g.: Quinella), and the expected payouts, must be clearly explained on the artwork.

## Appendix J: General Card Game Requirements

The following requirements apply to any simulations of card games that involve the dealing of cards from a deck or deck(s):

- a) Card faces must clearly display the card value (e.g.: it must be obvious which is a Jack and which is a Queen).
- b) Card faces must clearly indicate the suit (e.g.: it must be obvious which is a Spade and which is a Club). Hearts and Diamonds must be red; Clubs and Spades must be black.
- c) Jokers must be distinguishable from all other cards.
- d) It must be clearly stated if more than one deck of cards is used in the game.
- e) The artwork must clearly state if the rules of the game do not shuffle the deck after every game. In this instance, the artwork must indicate when shuffles actually do occur.
- f) At a minimum, the player must be able to view a paytable that shows all winning hands and their payouts, while no game is in progress.

## Appendix K: Single-Player Poker Game Requirements

The following requirements apply only to simulations of Single-Player Poker games:

- a) The artwork must provide clear indication if Stud Poker rules apply. Common Draw Poker must be assumed, if nothing is stated.
- b) The artwork must provide a definition of winning combinations outside the scope of standard Poker (e.g.: Royal Flush with / without Wild Cards, Four of a Kind “Jacks or Better”, Four Deuces (when Deuces are wild), etc...).
- c) Wild card rules must be clearly explained (e.g.: Jokers Wild or Deuces Wild).
- d) Held and non-held cards, including recommended holds (if implemented), in Draw Poker or equivalent must be clearly marked on the screen, and the method for changing Holds clearly displayed to the player.
- e) Winning hands must be clearly labelled as to the win category (e.g.: “Full House”).
- f) All special rules outside the scope of common Poker must be clearly explained.
- g) When player options outside the scope of common Poker are available, they must be clearly explained on the artwork.

## Appendix L: Multi-Player Poker Game Requirements

The following requirements apply only to simulations of Multi-Player Poker games:

- a) The artwork must provide a clear indication of which Poker rules apply. Common Draw Poker must be assumed, if nothing is stated.
- b) The artwork must provide a definition of winning combinations outside the scope of standard Poker (e.g.: Royal Flush with / without Wild Cards, Four of a Kind “Jacks or Better”, Four Deuces (when Deuces are wild), etc...).
- c) Wild card rules must be clearly explained (e.g.: Jokers Wild or Deuces Wild).
- d) All special rules outside the scope of common Poker must be clearly explained.
- e) When player options outside the scope of common Poker are available, they must be clearly explained on the artwork.
- f) If some features are available only at certain tables, this must be made clear to the players.
- g) The amount of rake taken by BCLC, as well as any additional fees (e.g.: special entry fees), must be displayed on the game page or available through a hotlink.
- h) The artwork must clearly indicate any variation in the rake amount based on the table, limit amount, number of players, or pot amount.
- i) The tournament prize structure, if applicable, must be clearly explained to the players.
- j) The disconnection protection policy must be clearly indicated on the game page or available through a hotlink.
- k) Held and non-held cards, including recommended holds (if implemented), in Draw Poker or equivalent must be clearly marked on the screen, and the method for changing Holds clearly displayed to the player.
- l) The site must state that the use of automated end player devices or ancillary computer systems is not allowed. The site terms and conditions should state the consequences to players if these devices are detected.
- m) The artwork must clearly indicate the total amount the player has bet on the game currently being played. This amount must be updated every time the player places a wager.
- n) The artwork must clearly indicate the prize amount the players are playing for at all times during game play (i.e.: the players' stakes less BCLC's rake). This amount must be updated each time a wager is placed.
- o) Winning hands must be clearly labelled as to the win category (e.g.: “Full House”).
- p) Players shall not be permitted to play more than one hand in a game.
- q) Players shall not be permitted to wager on another player's hand.

## Appendix M: Blackjack Game Requirements

The following requirements apply only to simulations of Blackjack games:

- a) Insurance rules must be clearly explained if Insurance is available.
- b) Pair Split rules must be explained. Areas to be addressed include:
  - i) Split aces have only one card dealt to each ace, if this is the game rule.
  - ii) Further splits, if available.
  - iii) Double-down after splits, if available.
- c) Double-down rules must be clearly explained, including limitations of which totals may allow a double down to be selected.
- d) The current total of all hands, including the Dealer's total, must be displayed during and at the end of the game. The term "Bust" or the equivalent may be used to indicate a hand whose total has exceeded 21.
- e) Dealer play rules must be clearly explained, including special treatment of a soft 17 count, if any.
- f) Any limits on the number of cards that may be drawn by player and / or dealer must be explained, including winners declared (if any) when the limit is reached (e.g.: Five Under wins).
- g) Surrender Rules must be explained, if any exist.
- h) If the player loses on "Dealer Push", this must be clearly explained.
- i) Winning hands must be clearly labelled as to the win category (e.g.: "Blackjack", "Six Under", or "Push").
- j) If Pair Splits have occurred, the results for each hand must be shown (total points, resultant win or loss category, amount won, amount wagered).
- k) Special rules, if any, must be clearly explained.
- l) All player options that are available at any point in time must be shown on the artwork.

## Glossary of Terms

Term	Description
%RTP	Percentage Return to Player. The %RTP is the expected percentage of wagers that a specific game will return to the player in the long run. The %RTP can be calculated via either a theoretical or simulated approach. The method used for calculation depends on the game type.
AGCC	Alderney Gambling Control Commission. The regulatory body for online gambling within the jurisdiction of Alderney, British Channel Isles.
ATF	Accredited Testing Facility
Background Cycling / Activity	If the software-based RNG is cycling in the background, it means that there is a constant string of random numbers being generated by the RNG, even if they are not actually required by the game at that time. Without background cycling / activity, one could predict the result of the next iteration of the function used to produce the random numbers if they knew the current values and the algorithm.
Base Website	<p>'Base Website' refers to IGS elements that drive the features that are common to all of the games, and form the primary interface to the IGS for both the player and BCLC:</p> <ul style="list-style-type: none"> <li>The Base Website provides the player with the means to register an account, log in to / out of their account, modify their account information, deposit and withdraw funds to / from their account, request account activity statements / reports, and close their account. In addition, any web pages displayed to the player that relate to gaming offered on the IGS, but are not an actual game screen, are considered to be part of the Base Website, and</li> <li>The Base Website provides BCLC with the means to review player accounts, enable / disable games, generate various gaming / financial transaction and account reports, input game outcomes for sports betting events, enable / disable player accounts, and set any configurable parameters.</li> </ul>
BCLC	British Columbia Lottery Corporation
COBIT	Control Objectives for Information and Related Technology
Diversion Pool	A secondary progressive jackpot pool to which player contributions are diverted once the primary progressive jackpot has grown to a prescribed quantity of funds. Once the primary progressive jackpot has been won, the secondary progressive jackpot amount is used to seed the primary progressive jackpot in preparation for the next cycle.
DOF	Degree of Freedom. Equal to one less than the total number of possible outcomes. For example, with a 52-card deck, the DOFs are equal to 51.
EFT	Electronic Funds Transfer
EGD	Electronic Gaming Device
Emulation	All submitted games must exhibit 'Emulation Capability' for testing purposes. This means that all games must have a mode of operation that is alternate to the standard / live version of the game (i.e.: to be activated and operated in the test environment <u>only</u> ) whereby the game outcomes can be artificially introduced into the system by the user (i.e.: the tester), processed by the same game logic as the standard / live version of the game, and then displayed to the user for testing purposes.

Term	Description
FOIPPA	Freedom of Information and Protection of Privacy Act of BC
Game	'Game' refers to IGS software that is specific to each individual game that is hosted / offered on the base website. Each game is to be treated as a separate and distinct entity.
GPEB	Gaming Policy and Enforcement Branch
ID	Identification
IDS	Intrusion Detection System
IGS	Internet Gaming System
Inactive Account	An account is considered to be inactive if the player has not logged into the account for a time period to be specified by BCLC in the documented and published Terms & Conditions for the IGS.
IP	Internet Protocol
ISO	International Standards Organization
ISS	Information Systems Security. Refers to the Administrative Controls, Technical Controls and Physical & Environment Controls necessary for the secure, safe and auditable operation of the IGS by BCLC.
LAN	Local Area Network
Live Environment	Any BCLC website offering / hosting actual gambling games for live use by the general public (i.e.: through registered accounts, 'play for real') is considered to be operating in the live environment.
Mapping	Mapping is the process by which the scaled number is given a symbol or value that is usable and applicable to the current game. For example, the scaled number 51 might be mapped to an ACE OF SPADES.
MCS	Monitoring and Control Systems
Multi-Stage Game	A game having one or more intermediate steps that require player input in order to proceed. Poker and Blackjack are two examples of multi-stage games.
OS	Operating System
OSSTMM	Open Source Security Testing Methodology Manual
Paytable	A graphical and / or textual display that clearly communicates all potential win types within a game, including the associated win amount for each win type.
Period	Period is how long before the 'random' sequence repeats. Is the output from the RNG sufficient to provide all possible outcomes? In a 52-card deck, requiring an ordered straight flush on the first hand, and assuming that one draws all ten numbers (replacements included) at the beginning of the game, the required number of ORDERED outcomes so that each outcome may be achieved is ${}^{52}P_{10} = 5.74 \times 10^{16}$ . 20 balls drawn from a pot of 80 balls requires ${}^{80}C_{20} = 3.54 \times 10^{18}$ possible outcomes.
Progressive Jackpot	For the purpose of this TSD, a game is deemed to include a Progressive Jackpot component only where it incorporates a pari-mutuel pool that: <ul style="list-style-type: none"> <li>i. Acts as a supplement to the base game,</li> <li>ii. Is funded, wholly or in part, by only a portion of the player's wager, as per a prescribed contribution rate, and</li> <li>iii. Rolls over into the next game if it is not won in the current game.</li> </ul> <p>Therefore, traditional peer-to-peer poker games and traditional draw games with carryover jackpots (i.e. Lotto 6/49) are not deemed to include a progressive jackpot component.</p>
Progressive Jackpot Parameter Change	A change to any element of the progressive jackpot design, such as contribution rate, start-up / seed value, diversion pool, etc...

<b>Term</b>	<b>Description</b>
PST	Pacific Standard Time
Raw Values	The unscaled output of an RNG.
Range	Range is the actual size of the output from the RNG. A 32-bit RNG provides $2^{32}$ possible outcomes ( $4.29 \times 10^9$ ). If one considers a 64-bit output, one can achieve $1.8 \times 10^{19}$ different RNG outcomes.
Reseeding	Reseeding is when the RNG algorithm is restarted (given new initial seed values).
RNG	Random Number Generator. Refers to IGS hardware and / or software that determines random outcomes for use by all of the games hosted / offered on the base website.
Scaling	Raw output from an RNG will normally have a range far in excess of that required for its intended use. For example, 32-bit RNGs have over two billion possible outcomes, but (for example) we have only to determine which of 52 cards to draw. Scaling is required to divide the raw output into smaller, and usable numbers. These 'scaled' numbers can then be mapped to particular card numbers, record numbers, symbols, etc... Consequently, raw output from an RNG will sometimes have a range far <u>smaller</u> than that required for its intended use (for example, $0 < \text{raw output} < 1$ ). In these cases, scaling is required to <u>expand</u> the RAW output into larger usable numbers.
Seed	The common misconception is that a seed is the INITIAL VALUE of an RNG, and once started there is no use for a seed unless the RNG is restarted. The term 'seed' is frequently misused in the case of algorithmic RNGs. For these RNGs, the seed is the value used as the basis for the next iteration of the function that forms the RNG algorithm (i.e.: in most cases, the last value).
Seeding	Seeding is the method used to seed RNGs in the very first instance (i.e.: upon initialization).
TSD	Technical Standards Document
VLAN	Virtual Local Area Network