



STANDARD SERIES

GLI-19:

Interactive Gaming Systems

Version: 2.0

Release Date: February 15, 2013



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ABOUT THIS STANDARD

This Standard has been produced by **Gaming Laboratories International, LLC** for the purpose of providing independent certifications to suppliers under this Standard and complies with the requirements set forth herein.

A supplier should submit equipment with a request that it be certified in accordance with this Standard. Upon certification, Gaming Laboratories International, LLC will provide a certificate of compliance evidencing the certification to this Standard.

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Table of Contents

CHAPTER 1.....	7
1.0 STANDARD OVERVIEW.....	7
1.1 Introduction.....	7
1.2 Acknowledgment of Other Standards Reviewed.....	8
1.3 Purpose of Technical Standards	8
1.4 Interpretation of this Document	9
1.5 Other Documents That May Apply.....	10
CHAPTER 2.....	11
2.0 GAMING PLATFORM REQUIREMENTS	11
2.1 Introduction.....	11
2.2 Player Account Registration	11
2.3 Player Account Controls.....	13
2.4 Control Program.....	21
2.5 Client Software.....	22
2.6 Gaming Disable/Enable	24
2.7 Incomplete Games.....	25
2.8 Shutdown and Recovery	27
2.9 Malfunction.....	27
2.10 Geolocation.....	28
2.11 Advertising	28
2.12 Player Loyalty Programs	28
2.13 Reporting.....	29
CHAPTER 3.....	35
3.0 GAME REQUIREMENTS.....	35
3.1 Introduction.....	35
3.2 Player Interface	35
3.3 General Game Requirements	36
3.4 Game/Bonus Features.....	43
3.5 Peer to Peer Requirements.....	45
3.6 Game Recall.....	48
CHAPTER 4.....	49
4.0 RANDOM NUMBER GENERATOR (RNG) REQUIREMENTS	49
4.1 Introduction.....	49
4.2 Scaling	50
4.3 Hardware-Based RNG	51
4.4 Software-Based RNG	51
CHAPTER 5.....	53
5.0 INFORMATION SECURITY SYSTEM (ISS) REQUIREMENTS	53
5.1 General Statement.....	53
5.2 Information Security Policy	53
5.3 Administrative Controls	54
5.4 Technical Controls.....	58
5.5 Physical and Environmental Controls	64
CHAPTER 6.....	65
6.0 PROGRESSIVE JACKPOT REQUIREMENTS	65

6.1	<i>Introduction</i>	65
6.2	<i>Progressive Jackpot Design and Operation</i>	65
Appendix A		71
A.0	<i>EVENT WAGERING</i>	71
A.1	<i>Introduction</i>	71
A.2	<i>Wagering Requirements</i>	71
A.3	<i>Results</i>	74
A.4	<i>Winnings</i>	76
A.5	<i>Fixed Odds Wagers</i>	77
A.6	<i>Pari-Mutuel Wagers</i>	79
A.7	<i>External Wagering Systems</i>	80
A.8	<i>Wager History and Logs</i>	82
Appendix B		85
B.0	<i>LIVE DEALER/PROXY PLAYER REQUIREMENTS</i>	85
B.1	<i>Introduction</i>	85
B.2	<i>General Requirements</i>	85
B.3	<i>Betting by Internet Interface</i>	87
B.4	<i>Betting By Proxy Player</i>	88
B.5	<i>Automated Recognition Devices</i>	90
B.6	<i>Simulcast Control Server</i>	90
B.7	<i>Operational Requirements</i>	91
B.8	<i>Live Dealer Studio Requirements</i>	92
Glossary		97

CHAPTER 1

1.0 STANDARD OVERVIEW

1.1 Introduction

1.1.1. General Statement. Gaming Laboratories International, LLC (GLI) has been testing gaming devices since 1989. Over the years, we have developed numerous standards for jurisdictions all over the world. In recent years, many jurisdictions have opted to ask for standards tests without creating their own standards documents. In addition, with technology changing almost monthly, new technology is not being incorporated quickly enough into existing standards due to the long process of administrative rulemaking. This document, *GLI Standard 19*, will set forth the technical Standards for Interactive Gaming Systems used in an Internet environment.

1.1.2 Document History. We have listed below, and give credit to, agencies whose documents we reviewed prior to writing this Standard. It is the policy of **Gaming Laboratories International, LLC** to update this document as often as possible to reflect changes in technology, testing methods, or cheating methods. This document will be distributed without charge to all those who request it. It may be obtained by downloading it from our website at www.gaminglabs.com or by writing to us at:

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1.2 Acknowledgment of Other Standards Reviewed

1.2.1 General Statement. These Standards have been developed by reviewing and using portions of the documents from the organizations listed below. We acknowledge the regulators who have assembled these documents and thank them:

- a) The Alderney Gambling Control Commission;
- b) The Gibraltar Gambling Commission;
- c) The Lottery and Gaming Authority, Malta;
- d) The Antigua & Barbuda Financial Services Regulatory Commission;
- e) The British Columbia Gaming Policy and Enforcement Branch;
- f) The Italy Autonomous Administration of State Monopolies;
- g) The Tasmanian Department of Treasury and Finance, Revenue and Gaming Division;
- h) The United Kingdom Gambling Commission;
- i) Nevada Gaming Commission and State Gaming Control Board
- j) Loto-Quebec Standards for Internet Gaming Systems
- k) The Danish Gambling Authority
- l) The National Gambling Commission of Spain

1.3 Purpose of Technical Standards

1.3.1 General Statement. The Purpose of this Technical Standard is as follows:

- a) To eliminate subjective criteria in analyzing and certifying Interactive Gaming System (IGS) operation.
- b) To only test those criteria which impact the credibility and integrity of Interactive Gaming Systems from both the revenue collection and player's point of view.
- c) To create a standard which will ensure that games made available via the Internet are fair, secure, and able to be audited and operated correctly.
- d) To distinguish between local public policy and laboratory criteria. At **Gaming**

Laboratories International, LLC we believe that it is up to each local jurisdiction to set its own public policy with respect to gaming.

- e) To recognize that the evaluation of internal control systems (such as Anti-Money Laundering, Financial and Business processes) employed by the operators of the Interactive Gaming System should not be incorporated into this standard but left to the regulatory body of each local jurisdiction to assess as part of the licensing process.
- f) To recognize that non-gaming testing (such as Electrical Testing) should not be incorporated into this standard but left to appropriate test laboratories which specialize in that type of testing. Except where specifically identified in the standard, testing is not directed at health or safety matters. These matters are the responsibility of the manufacturer, purchaser, and operator of the equipment.
- g) To construct a standard which can be easily changed or modified to allow for new technology.
- h) To construct a standard which does not specify any particular method or technology for any element or component of an Interactive Gaming System. The intent is to allow a wide range of methods to be used to conform to the standards, while at the same time encouraging new methods to be developed.

1.4 Interpretation of this Document

1.4.1 No Limitation of Technology. One should be cautioned that this document should not be read in such a way that limits the use of future technology. The document should not be interpreted that if the technology is not mentioned, then it is not allowed. Quite to the contrary, as new technology is developed, we will review this standard, make changes and incorporate new minimum standards for the new technology.

1.4.2 Software Suppliers and Operators. The components of an Interactive Gaming System, although they may be constructed in a modular fashion, are designed to work seamlessly together. In addition, Interactive Gaming System components may be developed to have configurable features, the final configuration of which will depend on the options chosen by the

end operator. From a testing perspective, it may not be possible to test all of the configurable features of an Interactive Gaming System component submitted by a software supplier in the absence of the final configuration chosen by the operator.

- a) Because of the integrated nature of an Interactive Gaming Systems there are a number of requirements in this document which may apply to both operators and suppliers (whether it is Game Suppliers, Platform Suppliers, Remote Game Server (RGS) Suppliers, etc). In these cases, where testing is requested for a “white-label” version of the component, a specific configuration will be tested and reported.
- b) This document is not intended to be arbitrary in defining which parties are responsible for meeting the requirements of this document. It is left to the stakeholders of each system to determine how best to meet the requirements laid out in this document.

1.5 Other Documents That May Apply

1.5.1 General Statement. This standard covers the actual requirements for single-player and multi-player games being played through the use of various devices such as personal computers and mobile devices via the Internet. Currently there are no other documents, which may apply.

CHAPTER 2

2.0 GAMING PLATFORM REQUIREMENTS

2.1 Introduction

2.1.1 General Statement. If the Interactive Gaming System is comprised of multiple computer systems at various sites, the Interactive Gaming System as a whole and all communication between its components must conform to these requirements.

2.2 Player Account Registration

2.2.1 General Statement. The Interactive Gaming System must employ a mechanism to collect (either online or via a manual procedure approved by the regulatory body) player information prior to the registration of a player account. The system must not allow a player to deposit more than a monetary limit, as specified in the terms and conditions or withdraw any funds until registration information is verified. The player must be fully registered and their player account must be activated prior to permitting game play using deposited funds.

2.2.2 Age and Identity Verification. A full identity check must be undertaken each time an individual attempts to register

- a) Only players of the legal gambling age for the jurisdiction may be registered. The Interactive Gaming System must deny registration to any person that enters a birth date that indicates they are under-aged.
- b) Player Identification must verify the legal name, physical address, age and nationality of the individual at a minimum.
- c) Details of player verification must be kept on-line in a secure manner.
- d) Third parties may be used to verify the age and/or identity of players as allowed by the

regulatory body.

- e) The Interactive Gaming System must be capable of maintaining information about any player’s activity, such that if a player is ever found to be underage, the regulatory body has all of the necessary information to take whatever action they deem appropriate. The licensee should immediately suspend any account providing gambling services to minors and follow the documented public policy in place when an underage individual is identified.

2.2.3 Privacy. During the registration process, the player must agree to the applicable privacy policy. The privacy policy should state the minimum information that is required to be collected, the purpose for information collection, and the conditions under which information may be disclosed:

- a) Any information obtained in respect to player registration or account establishment must not breach the privacy policy;
- b) Any information about the current state of player accounts must be kept confidential, except where the release of that information is required by law;
- c) All player information must be securely erased (i.e. not just deleted) from hard disks, magnetic tapes, solid state memory and other devices before the device is decommissioned. If erasure is not possible, the storage device must be destroyed; and
- d) A privacy policy must be posted on the Gaming Platform and readily accessible to the player through the communication channel used to access the Gaming Platform.

2.2.4 Cookies. All cookies used shall contain no malicious code. Where cookies are used, the player must be informed of the usage during the registration. When cookies are required for game play, game play cannot occur if the Player Device does not accept them.

2.2.5 Terms and Conditions. During the registration process, the player must agree to the applicable terms and conditions of service.

- a) The terms and conditions must specify what will happen to bets placed but remaining undecided in incomplete games.
- b) The terms and conditions of game play must clearly define the rules by which any unrecoverable malfunctions of gaming hardware / software are addressed including if this process results in the voiding of any pays or plays.
- c) The terms and conditions must advise the player to keep their password and login ID secure; Requirements regarding forced password changes, password strength and other related items shall also be specified.
- d) The terms and conditions must state that no underage individual is permitted to participate in remote gambling activities.
- e) The terms and conditions must state that only players legally permitted by their respective jurisdiction can participate in gambling activities.
- f) The terms and conditions must describe the method to which players will be notified of updates. Where applicable, updated terms and conditions must be specifically acknowledged by the player.

2.2.6 Establishment of Player Account. Once age and identity verification are successfully complete, the player is not on any exclusion lists, and the player has acknowledged all of the necessary privacy policies and terms and conditions, the player account registration is complete and the player account can become active.

- a) Each active player account must have a unique identifier to enable identification of the appropriate player and account details.
- b) A player must only be permitted to have one active account at a time unless specifically authorized by the regulatory body.

2.3 Player Account Controls

2.3.1 Player Session. A player session consists of all activities and communications performed by an authorized player and the Interactive Gaming System between the time the authorized

player logs into the Interactive Gaming System to the time the authorized player logs out or is logged out of the Interactive Gaming System. Game play which requires monetary payment can only occur during a player session. Where a system provides access to multiple games from a games lobby, players may play more than one game during a player session.

2.3.2 Player Session Start. A player session is started when a player logs in to the Interactive Gaming System.

- a) A player must be provided with (or have created) an electronic identifier such as a digital certificate or an account description and a password to start a session.
- b) The Interactive Gaming System must allow players to change their passwords, and should remind them on a regular basis.
- c) Where a player has forgotten their password/PIN, the Gaming Platform must provide a secure process for the re-authentication of the player and the retrieval and/or resetting of the password/PIN. Any and all processes for dealing with lost player user IDs or passwords must be clearly described to the player and sufficiently secure.
- d) When a player logs in to the Interactive Gaming System, the last time they logged in must be displayed.
- e) Each player session must have a unique identifier assigned by the Interactive Gaming System which distinguishes the current session from previous or future sessions.

2.3.3 Self-Imposed Player Session Inactivity. During a Peer to Peer game, the software must allow for a user to set an “Away from computer” status which could be utilized if the player needs to step away for a moment. This functionality must be fully described in the help screens or applicable terms and conditions.

- a) The “Away from computer” status must disallow all play, and also cause the player’s turn to be automatically skipped during any round of play which takes place while this status is active.
- b) If a player sets an “Away” status during the middle of a round of play, they will automatically forfeit their play for that round (e.g. for a round of poker, the software shall

automatically fold the player’s hand during the next round of betting) assuming that additional wagers or player decisions are needed to complete the game.

- c) If a player performs any game sensitive action within the game window while in an “Away” state (i.e. selecting an amount to bet, etc...), the state shall be removed and the player will be enrolled into the next round of play. Non-game sensitive actions, such as accessing the help menu from the game window do not require this status to be removed.
- d) If no action has been taken by the player within the time period specified in the help screens and/or the terms and conditions, they shall be automatically placed into the “Away from computer” state.
- e) If a player has been in “Away” status for over 30 minutes or a period of time specified by the regulatory body, the player must be automatically removed from the table they are currently enrolled in.

2.3.4 Automatically Detected Player Session Inactivity. Interactive Gaming Systems must employ a mechanism that detects session-inactivity and terminate a player session when applicable.

- a) If the Gaming Platform fails to receive a response from the Player Device within 30 minutes or a period of time determined by the regulatory body, it must implement a user inactivity timeout and terminate the session.
- b) If a session is terminated due to a user inactivity timeout, the Player Device must display to the player the server session termination (i.e.: the user inactivity timeout) upon the player's next attempted action on the Gaming Platform.
- c) No further game play is permitted until the Gaming Platform and the Player Device establish a new session.

2.3.5 Player Session End. A player session finishes when:

- a) The player notifies the Gaming Platform that the session is finished (e.g. "logs out").
- b) A session inactivity timeout is reached.
- c) The Gaming Platform terminates the session.

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- i) Where the Gaming Platform terminates a session, a record must be written to an audit file that includes the termination reason; and
 - ii) The Gaming Platform must attempt to send a session finished message to the Player Device each time a session is terminated by the Gaming Platform.

2.3.6 Responsible Gaming. A responsible gaming page must be readily accessible from any screen where game play may occur. The responsible gaming page must contain at a minimum:

- a) Information about potential risks associated with gambling, and where to get help for a gambling problem;
- b) A list of the responsible gaming measures that can be invoked by the player, such as player session time limits and bet limits, and an option to enable the player to invoke those measures;
- c) Mechanisms in place which detect unauthorised use of their account, such as observing the Last Log in Time Display, the IP address of the last log in and reviewing credit card statements against known deposits;
- d) A link to the terms and conditions that player agreed to be bound to by entering and playing on the site;
- e) A link to the applicable privacy policy; and
- f) A link to the home website of the regulatory body.

All links to problem gambling services provided by third parties are to be regularly tested by the operator. No game play may occur where the links used to supply information on player protection or responsible gambling are not displayed or are not operational. Where the link is no longer available or not available for a significant period of time, the operator must provide an alternative support service.

2.3.7 Self-Imposed Limits. Players must be provided with an easy and obvious mechanism to impose self-limitations for gaming parameters including, but not limited to, deposits, wagers, losses, and player session durations, as required by the regulatory body. The self-limitation mechanism must provide the following functionality:

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- a) Upon receiving any self-limitation order, the Interactive Gaming System must ensure that all specified limits are correctly implemented immediately or at the point in time (i.e. next login, next day, etc.) that was clearly indicated to the player.
 - b) The self limitations set by a player must not override any system imposed limitations or contradict information within the game rules.
 - c) Once established by a player and implemented by the Interactive Gaming System, it must only be possible to reduce the severity of self-limitations upon 24 hours notice.
 - d) Self-limitations must not be compromised by internal status events, such as self-exclusion orders and self-exclusion revocations.

2.3.8 System Imposed Limits. The Interactive Gaming System must be capable of applying player limits as required by the regulatory body. Players must be notified in advance of any system-imposed limits and their effective dates. Once updated, system-imposed limits must be consistent with what is disclosed to the player.

- a) Upon receiving any system-limitation order, the Interactive Gaming System must ensure that all specified limits are correctly implemented immediately or at the point in time (i.e. next login, next day, etc.) that was clearly indicated to the player.
- b) In cases where system-imposed limitation values (e.g. deposit, wager, loss, player session duration) are greater than self-imposed player limit values, the self-imposed limitations must take priority.
- c) System imposed limitations must not be compromised by internal status events, such as self-exclusion orders and self-exclusion revocations.

2.3.9 Self-Imposed Exclusion. Players must be provided with an easy and obvious mechanism to self-exclude from game play, and this self-exclusion mechanism must provide the following functionality:

- a) The player must be provided with the option to self-exclude temporarily for a specified period of time as defined in the terms and conditions, or indefinitely.
- b) In the case of temporary self-exclusion, the Interactive Gaming System must ensure that:

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- 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, and
 - ii) During the temporary self-exclusion period, the player is not prevented from withdrawing any or all of their account balance through the account management console, provided that the Interactive Gaming System acknowledges that the funds have cleared.
- c) In the case of indefinite self-exclusion, the Interactive Gaming System 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 indefinite self-exclusion has been revoked;
 - ii) The player is paid in full for their account balance, provided that the Interactive Gaming System acknowledges that the funds have cleared;
 - iii) If wagers have been placed on pending real-life events the terms and conditions must clearly define what happens to the wagers if the self-imposed exclusion is to remain and the corresponding real-life event is completed, and the Interactive Gaming System must be capable of returning all bets to the players, or settling all bets, as appropriate; and
 - iv) It is recommended that players be provided with a mechanism to request cancellation of the self-exclusion order.

2.3.10 System-Imposed Exclusion. The Interactive Gaming System must provide a mechanism by which a player may be excluded from game play according to the terms and conditions agreed to by the player upon registration. This mechanism must:

- a) Provide a player notification containing exclusion status and general instructions for resolution;
- b) Ensure that 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) If wagers have been placed on pending real-life events the terms and conditions must clearly define what happens to the wagers if the exclusion is to remain and the

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- corresponding real-life event is completed, and the Interactive Gaming System must be capable of returning all bets to the players, or settling all bets, as appropriate; and
- d) During the exclusion period, the player must not be prevented from withdrawing any or all of their account balance, provided that the Interactive Gaming System acknowledges that the funds have cleared, and that the reason(s) for exclusion would not prohibit a withdraw.

2.3.11 Disputes. The Interactive Gaming System must provide an easy and obvious mechanism to advise the player of the right to make a complaint against the operator or another player (i.e. when collusion is suspected or when a player is disruptive or abusive), and to enable the player to notify the regulatory body of such a complaint.

- a) Contact information for complaints and dispute resolution should be readily accessible within the Player Interface.
- b) Players should be able to log complaints and disputes on a 24/7 basis.
- c) Records of all correspondence relating to a complaint and dispute shall be maintained online for an appropriate period of time as determined by the regulatory body.
- d) It is recommended that a privately documented process exist between the Interactive Gaming System operator and the regulatory body on the dispute reporting and resolution process.

2.3.12 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 the regulatory body and in the documented and published Terms & Conditions for the Interactive Gaming System.

- a) Interactive Gaming Systems must employ a mechanism to protect inactive interactive gaming accounts that contain funds from unauthorized changes or removal.
- b) It is recommended that a privately documented process be put in place to deal with unclaimed funds from inactive accounts.

2.3.13 Player Funds Maintenance. The following principles must apply to the maintenance of player funds:

- a) Player accounts on the Interactive Gaming System must be secured against invalid access or update other than by approved methods;
- b) All deposit, withdrawal, transfer or adjustment transactions are to be maintained in a Interactive Gaming System audit log;
- c) A deposit into a player’s account made via a credit card transaction or other methods which can produce a sufficient audit trail must not be available for betting until such time as the funds are received from the issuer or the issuer provides an authorization number indicating that the funds are authorized. The authorization number is to be maintained in an Interactive Gaming System audit log;
- d) Positive player identification, including any Personal Identification Number (PIN) entry or other approved secure methods, must be completed before the withdrawal of any monies held by the Interactive Gaming System can be made;
- e) Inactive accounts holding monies in the Interactive Gaming System must be protected against illicit access or removal;
- f) All transactions involving monies are to be treated as vital information to be recovered by the Interactive Gaming System in the event of a failure;
- g) Payments from an account are to be paid (including funds transfer) 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 or through another mechanism authorized by the regulatory body. The name and address are to be the name as held in player registration details;
- h) Account statements must be sent to the registered address (e-mail or mailing) of the player upon request for the time period specified. Statements must include sufficient information to allow the player to reconcile the statement against their own records; and
- i) Any adjustments to player accounts on the Interactive Gaming System must be subject to strict security control and audit trail.
- j) It shall not be possible to transfer credits which represent a monetary value between two user accounts.

2.3.14 Taxation. The Interactive Gaming System must support a mechanism that is capable of identifying all wins that are subject to taxation and providing the necessary information in accordance with each jurisdiction’s taxation requirements.

2.4 Control Program

2.4.1 Control Program Verification. Interactive Gaming Systems must be capable of verifying that all control program components contained on the Interactive Gaming System are authentic copies of approved components of the Interactive Gaming System automatically, upon installation and at least once every 24 hours, and on demand using a method approved by the regulatory body.

- a) The authentication mechanism must employ a hashing algorithm which produces a message digest of at least 128 bits.
- c) A system log or report must be retained and be accessible for a period of 90 days, which details the verification results for each control component authentication.
- d) The control program authentication must include all control program components which may affect game outcome or required system operations. Control program components include, but are not limited to, executables, libraries, game or system configurations, operating system files, components that control required system reporting, and database elements that affect game outcome or required system operations.
- e) If any control program component is determined to be invalid the Interactive Gaming System must prevent the execution of or deactivate the control program component, and must automatically stop any gaming related functions related to that control program component.
- f) Each control program component of the Interactive Gaming System must also have a method to be verified via an independent third-party verification procedure. The third-party verification process shall not include any process or security software within the Interactive Gaming System. The test laboratory, prior to system approval, shall approve the integrity check method.

2.4.2 Data Alteration. The Interactive Gaming System shall not permit the alteration of any accounting, reporting or significant event data without supervised access controls. In the event any data is changed, the following information shall be documented or logged:

- a) Data element altered;
- b) Data element value prior to alteration;
- c) Data element value after alteration;
- d) Time and date of alteration; and
- e) Personnel that performed alteration (user login).

2.4.3 System Clock. The Interactive Gaming System must maintain an internal clock that reflects the current date and time that shall be used to provide for the following:

- a) Time stamping of significant events;
- b) Reference clock for reporting;
- c) Time stamping of all sales and draw events; and
- d) A clearly visible clock should be available for use by the player at all times.

If multiple clocks are supported the system shall have a facility to synchronize clocks within all system components.

2.5 Client Software

2.5.1 General Statement. The Client Software is any software downloaded to or installed on a Player Device.

2.5.2 Client Requirements. The Client Software and Player Device must:

- a) Not contain the logic used to generate the result of any game;
- b) Not be capable of conducting gaming activity if disconnected from the Interactive

-
- Gaming System; and
- c) Not be used to store sensitive data or required Interactive Gaming System information.

2.5.3 Client-Server Interactions. The following requirements apply to Client Software and the client-server interactions during gaming:

- a) The Client Software must not automatically alter any client-specified firewall rules to open ports that are blocked by either a hardware or software firewall;
- b) The Client Software must not access any ports (either automatically or by prompting the user to manually access) which are not necessary for the communication between the client and the server;
- c) Players must not be able to use the Client Software to transfer data to one another, other than chat functions (e.g.: text, voice, video, etc...) and approved files (e.g.: user profile pictures, photos, etc...); and
- d) If the Client Software includes additional non-game related functionality, this additional functionality must not alter the game's integrity in any way.

2.5.4 Software Verification. Interactive Gaming Systems must employ a mechanism that ensures any critical components contained in any Client Software present on the Player Device and used in conjunction with an Interactive Gaming System is verified upon initiation of any player session using a method approved by the regulatory body. It is recommended that Client Software be verified at pre-defined time intervals, as agreed upon by the regulatory body, during an active player session. Client Software critical components may include, but are not limited to, game rules, pay table information, elements that control the communications with the Interactive Gaming System, or other components that are needed to ensure proper operation of the Client Software. The system shall have the ability to disable the Client Software upon any unsuccessful verification.

2.5.5 Compatibility Verification. During any installation or initialization and prior to establishing a player session, the Client Software used in conjunction with the Interactive Gaming System must detect any incompatibilities or resource limitations with the player system

that would prevent proper operation of the Client Software. If any incompatibilities or resource limitations are detected the Interactive Gaming System must:

- a) Notify the player of any incompatibility and/or resource limitation preventing operation (e.g. browser type, browser version, plug-in version, etc.); and
- b) Prevent gaming activity while any incompatibility and/or resource limitation exists.

2.5.6 Content. Client Software used in conjunction with the Interactive Gaming System must not contain any functionality deemed to be malicious in nature by the regulatory body. This includes, but is not limited to unauthorized file extraction/transfers, unauthorized player system modifications, and malware.

2.5.7 Communications. Communications between any Interactive Gaming System components, player systems and Client Software which takes place over public networks must be secure by a means approved by the regulatory body. Personally identifiable information, sensitive account data, wagers, results, financial information, and player session information must always be protected over any public network.

2.6 Gaming Disable/Enable

2.6.1 General Statement. The following requirements apply to the disabling and re-enabling of gambling on the Interactive Gaming System:

- a) The Interactive Gaming System must be able to disable or enable all gambling on command;
- b) The Interactive Gaming System must be able to disable or enable individual games on command;
- c) The Interactive Gaming System must be able to disable or enable individual player sessions on command; and
- d) When any gambling is disabled or enabled on the Interactive Gaming System an entry

must be made in an audit log that includes the reason for any disable or enable.

2.6.2 Current Game. When a game or gaming activity is disabled:

- a) The game is not to be accessible to a player once the player's game has fully concluded.
- b) The player should be permitted to conclude the game in play (i.e. bonus rounds, double up/gamble and other game features related to the initial game wager should be fully concluded).
- c) If wagers have been placed on pending real-life events:
 - i) The terms and conditions must clearly define what happens to the wagers if the gaming activity is to remain disabled and the corresponding real-life event is completed, and the Interactive Gaming System must be capable of returning all bets to the players, or settling all bets, as appropriate.
 - ii) The terms and conditions must clearly define what happens to the wagers if the gaming activity is to re-enable before the corresponding real-life event is completed, and the Interactive Gaming System must be capable of returning all bets to the players, or leaving all bets active, as appropriate.

2.7 Incomplete Games

2.7.1 Incomplete Games. A game is incomplete when the game outcome remains unresolved or the outcome cannot be properly seen by the player. Incomplete games may result from:

- a) Loss of communications between the Gaming Platform and the Player Device;
- b) A Gaming Platform restart;
- c) A Player Device restart or malfunction;
- d) Abnormal termination of the Client Software; or
- e) A game-disable command by the Gaming Platform during play.

2.7.2 Completion of Incomplete Games. The Interactive Gaming System may provide a mechanism for a player to complete an incomplete game. An incomplete game must be resolved before a player is permitted to participate in another instance of the same game.

- a) If the player has an incomplete game, the Interactive Gaming System is to present the incomplete game for completion upon reconnection or whenever a new player session is established.
 - i) Where no player input is required to complete the game, the game must display the final outcome as determined by the Interactive Gaming System and game rules, and the player`s account must be updated accordingly;
 - ii) For single-player, multi-stage games, where player input is required to complete the game, the game must return the player to the game state immediately prior to the interruption and allow the player to complete the game; and
Note: The addition of an optional bonus or feature, such as double-up or gamble would not make a game multi-stage.
 - iii) For multi-player games, the game must display the final outcome as determined according to the game rules and/or terms and conditions, and the player`s account must be updated accordingly.
- b) Wagers associated with an incomplete game that can be continued must be held by the Interactive Gaming System until the game completes. Player accounts must reflect any funds held in incomplete games.

2.7.3 Cancellation of Incomplete Games. Wagers associated with an incomplete game that can be continued, but remaining undecided for a time period to be specified by the regulatory body can be voided and the wagers forfeited or returned to the player provided that:

- a) The game rules and/or the terms and conditions must clearly define how wagers will be handled when they remain undecided beyond the specified time period and the Interactive Gaming System must be capable of returning or forfeiting the wagers, as appropriate.
- b) In the event that a game cannot be continued due to an Interactive Gaming System action, all wagers must be returned to the players of that game.

2.8 Shutdown and Recovery

2.8.1 General Statement. The Interactive Gaming System must have the following shutdown and recovery capabilities:

- a) The Gaming Platform must be able to perform a graceful shut down, and only allow automatic restart on power up after the following procedures have been performed as a minimum requirement:
 - i) Program resumption routine(s), including self tests, complete successfully;
 - ii) All critical control program components of the Gaming Platform have been authenticated using an approved method (ex. CRC, MD5, SHA-1, etc); and
 - iii) Communication with all components necessary for Gaming Platform operation have been established and similarly authenticated.
- b) The Interactive Gaming System must be able to identify and properly handle the situation where master resets have occurred on other remote gaming components which affect game outcome, win amount or reporting.
- c) The Interactive Gaming System must have the ability to restore the system from the last backup.
- d) The Interactive Gaming System must be able to recover all critical information from the time of the last backup to the point in time at which the Interactive Gaming System failure or reset occurred.

2.9 Malfunction

2.9.1 General Statement. The Gaming Platform must:

- a) Not be affected by the malfunction of Player Devices other than to institute the incomplete games procedures in accordance with these requirements; and
- b) Include a mechanism to void bets and pays in the event of a malfunction of the Gaming Platform itself if a full recovery is not possible.

2.10 Geolocation

2.10.1 General Statement. The Interactive Gaming System and/or the player system must be able to reasonably detect the physical location of an authorized player attempting to access the service from, and must not permit wagering capabilities while the player is in an area where this type of gaming is disallowed. Third parties may be used to verify the location of players as allowed by the regulatory body.

2.11 Advertising

2.11.1 General Statement. All advertising or marketing material within the Interactive Gaming System that is displayed or otherwise conveyed to the player must not:

- a) Consist of indecent or offensive graphics and/or audio as determined by the regulatory body;
- b) Obscure the game play area or obstruct a game in progress;
- c) Contain content that contradicts the game rules or terms and conditions of the site; and
- d) Specifically target players which have been excluded from play.

2.12 Player Loyalty Programs

2.12.1 General Statement. If player loyalty programs are supported by the Interactive Gaming System, the following principles must apply:

- a) Use of the player tracking data must not breach the privacy policy;
- b) Redemption of player loyalty points earned must be a secure transaction that automatically debits the points balance for the value of the prize redeemed;
- c) All player loyalty database transactions are to be recorded by the Interactive Gaming System; and

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- d) If the player loyalty program is provided by an external service provider the Interactive Gaming System must be capable of securely communicating with that service.

2.12.2 Disclosure of Player Loyalty Promotions and Bonuses. To avoid unnecessary disputes and confusion, the following disclosures must be made to the player for any player loyalty promotions and/or bonuses:

- a) The Interactive Gaming System must make readily-accessible to the player all terms and conditions governing each available promotional or bonus feature.
- b) The terms and conditions must be clear and unambiguous, especially where bonuses or promotions are limited to certain tables or non-tournament play, or when other specific conditions apply.
- c) All bonuses and promotions must adhere to current legislation and regulation.

2.13 Reporting

2.13.1 General Reporting Requirements. Documentation generated by the Interactive Gaming System shall be available on demand and for the interval defined for each required report. All required reports must be generated by the system, even if the period specified contains no data to be presented. The report generated shall indicate all required information and contain an indication of “No Activity” or similar message if no data appears for the period specified. Interactive Gaming Systems must provide a mechanism to export the data generated for any report to an acceptable format (i.e. PDF, CSV, etc.) as specified by the regulatory body for the purposes of data analysis and auditing/verification. The system must be capable of retaining the report data for a period of time as specified by the regulatory body. . The Interactive Gaming System Clock must be used for all time stamping.

2.13.2 Player Session Report. Interactive Gaming Systems must be able to provide a *Player Session Report* (or similarly named report) on demand. The report must contain the following information at a minimum:

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- a) Unique player session ID;
 - b) Unique player ID;
 - c) Session start time;
 - d) Session end time;
 - e) Relevant geolocation information, if available;
 - f) Amount wagered during session (Total and by transaction);
 - g) Amount won during session (Total and by transaction);
 - h) Promotional credits received during session (Total and by transaction);
 - i) Promotional credits wagered during session (Total and by transaction);
 - j) Funds deposited to the authorized player’s account during session (Total and by transaction);
 - k) Funds withdrawn from the authorized player’s account during session (Total and by transaction);
 - l) Reason for session termination;
 - m) Interactive gaming account balance at the start of the session;
 - n) Interactive gaming account balance at the end of the session; and
 - o) Funds remaining in incomplete games (Total and by transaction).

2.13.3 Gaming Performance Report. Interactive Gaming Systems must be able to provide an *Interactive Gaming Performance Report* (or similarly named report) on demand over the specified period of the report and at a minimum for the specific intervals of month to date (MTD), year to date (YTD), and life to date (LTD) for each individual game (e.g. payable). The report must contain the following information at a minimum:

- a) Interval selected;
- b) Unique game identifier;
- c) Total wagered;
- d) Total amount won;
- e) Total amount contributed to the progressive pool, if applicable;
- f) Total amount refunded; and
- g) Total funds remaining in incomplete games.

2.13.4 Gaming Revenue Report. Interactive Gaming Systems must be able to provide an *Interactive Gaming Revenue Report* (or similarly named report) on demand over the specified period of the report and at a minimum for the specific intervals of month to date (MTD), year to date (YTD), and life to date (LTD). The report must contain the following information at a minimum:

- a) Total amount of non-promotional deposits to site maintained player accounts;
- b) Total amount of non-promotional withdrawals from site maintained player accounts; and
- c) Total amount of all non-promotional funds currently held in site maintained player accounts.

2.13.5 Progressive Jackpot Configuration Report. Interactive Gaming Systems must be able to provide a *Progressive Jackpot Configuration Report* (or similarly named report) on demand for each progressive pool on the site during the specified time period of the report. The report must contain the following information at a minimum:

- a) Name of progressive pool;
- b) Date and time progressive pool placed into play;
- c) Contribution parameters (amount per day, percentage of pot, etc.) for all primary and secondary pools (includes any diverted amounts);
- d) Unique payable identifier of each participating game;
- e) Total amount of wagers eligible for the progressive jackpot(s);
- f) Total amount of progressive jackpots won;
- g) Total jackpot contributions won;
- h) Jackpot start-up or other seeds which are not funded from contribution;
- i) Current amount for each jackpot prize offered in this jackpot pool;
- j) Current value of Jackpot contributions diverted;
- k) Date and time of jackpot retired;
- l) Progressive jackpot limit value, if applicable; and
- m) Amount exceeding limit, if applicable.

2.13.6 Progressive Jackpot Won Report. Interactive Gaming Systems must be able to provide a *Progressive Jackpot Won Report* (or similarly named report) on demand for each progressive pool on the site during the specified time period of the report. The report must contain the following information at a minimum:

- a) Name of progressive pool;
- b) Unique payable identifier of the game;
- c) Unique player session ID;
- d) Unique player ID;
- e) Game cycle ID;
- f) Date and time of progressive jackpot award;
- g) Progressive jackpot level hit;
- h) Amount of progressive jackpot;
- i) User ID and name of employee processing the win if applicable; and
- j) User ID and name of supervisor confirming the win, if applicable;

2.13.7 Significant Event Report. Interactive Gaming Systems must be able to provide a *Significant Event Report* (or similarly named report). The report must contain the following information at a minimum:

- a) Failed system side login attempts;
- b) Significant periods of unavailability of the Interactive Gaming System or any critical component of the Interactive Gaming System (e.g., when a transaction cannot be performed);
- c) Large wins in excess of the value specified by the licensing jurisdiction;
- d) Large transfers of funds (single and aggregate over defined time period) in excess of the value specified by the licensing jurisdiction;
- e) System voids, overrides, and corrections;
- f) Mandatory deactivation of an authorized player;
- g) Any other activity requiring employee intervention and occurring outside of the normal scope of system operation; and

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- h) Other significant or unusual events.

2.13.8 Change Notification Report. Interactive Gaming Systems must be able to provide a *Change Notification Report* (or similarly named report) for all changes to system, game or event configurations or parameters. Licensees must provide a comparison report between the previous settings and the new settings relating to the game or event. The report must contain the following information at a minimum:

- a) Audit trail of information changed/modified by administrator accounts;
- b) Changes to date/time on master time server;
- c) Changes made to game parameters; and
- d) Identification of the employee that made changes to game parameters (e.g., game rules, payout schedules, rake percentage, etc.).

2.13.9 Exclusions Report. Interactive Gaming Systems must be able to provide a *Player Exclusions Report* (or similarly named report) for all players excluded from play and/or registration by themselves, the Licensee, or the regulatory body. The report must contain the following information at a minimum:

- a) Unique Player ID;
- b) Type of exclusion (Permanent, self-excluded, etc);
- c) Date exclusion commenced;
- d) Date exclusion ended, if applicable;
- e) Reason for exclusion; and
- f) Number of times player has been excluded (at the time of the report).

2.13.10 Account Balance Adjustment Report. Interactive Gaming Systems must be able to provide an *Interactive Gaming Account Balance Adjustment Report* (or similarly named report) on demand for each day's adjustments per authorized player ID. The report must contain the following information at a minimum:

- a) Authorized player’s name and account number;
- b) Date and time of account balance adjustment;
- c) Unique transaction number;
- d) User ID and name of employee handling the account balance adjustment transaction, if applicable;
- e) User ID and name of supervisor authorizing an adjustment to account balance;
- f) Amount of account balance adjustment;
- g) Account balance prior to adjustment;
- h) Account balance after adjustment;
- i) Type of account adjustment; and
- j) Reason/description of adjustment to account balance.

2.13.11 Promotional Account Summary Report. Interactive Gaming System must be able to provide a *Promotional Account Summary Report* (or similarly named report) on demand for any player loyalty promotions and/or bonuses that are redeemable for cash, monetary game play credits, or merchandise. The report must contain the following information at a minimum:

- a) Beginning balance for promotion type;
- b) Total amount of awards by promotion type;
- c) Total amount used by promotion type;
- d) Total amount expired by promotion type;
- e) Total adjustment amount by promotion type; and
- f) Ending balance by promotion type.

CHAPTER 3

3.0 GAME REQUIREMENTS

3.1 Introduction

3.1.1 General Statement. This section of the document shall set forth the technical requirements for the rules of play of the game and related Player Interfaces.

3.2 Player Interface

3.2.1 General Statement. The Player Interface is defined as the interface within the Client Software in which the player interacts often referred to as the “gaming window.” The Player Interface shall meet the following:

- a) Any resizing or overlay of the Player Interface must be mapped accurately to reflect the revised display and touch/click points.
- b) The functions of all touch/click points represented on the Player Interface must be clearly indicated within the area of the touch/click point and/or within the game rules. No touch/click points or keyboard inputs shall be hidden or undocumented anywhere on the Player Interface.

3.2.2 Game Cycle. A game cycle consists of all activities and communications over the duration of a game. Where multiple games are accessible from a games lobby, players may play more than one game cycle at a time in separate gaming window instances.

- a) Game cycle start:
 - i) After the player account balance has adequate funds;
 - ii) After the player has nominated the number of credits to bet on that game; and

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- iii) After the player presses a "play" button (or similar input).
 - b) The following game elements are all considered to be part of a single game cycle:
 - i) Games that trigger a free game feature and any subsequent free games;
 - ii) “Second screen” bonus feature(s);
 - iii) Games with player choice (e.g., Draw Poker or Blackjack);
 - iv) Games where the rules permit wagering of additional credits (e.g., Blackjack insurance or the second part of a two-part Keno game); and
 - v) Secondary game features (e.g., Double-up/Gamble).
 - c) A game cycle is considered complete when the final transfer to the player’s credit meter takes place or when all credits wagered are lost.

3.3 General Game Requirements

3.3.1 Game Information. The following requirements apply to the game information, artwork, paytables and help screens which include all written, graphical and auditory information provided to the player either directly from the game interface or from a page accessible to the player from the game interface via a hyperlink located in a conspicuous location.

- a) Game play and device usage instructions shall be stated unambiguously and shall not be misleading or unfair to the player.
- b) All statements and graphics within the game information, artwork, paytables and help screens shall be accurate and not misleading.
- c) All game rules and payable information must be available to the player directly on the Player Interface or accessible from the Player Interface via a hyperlink without the need for funds deposits or funds staked.
- d) All game rules and payable information must be sufficient to explain all of the applicable rules and how to participate in all stages of the game.
- e) Paytable information must include all possible winning outcomes, patterns, rankings and combinations and their corresponding payouts with a designated denomination/currency. All displayed pays must be theoretically possible.

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- f) There shall be sufficient information regarding any award payout adjustments such as fees, rakes, commissions, etc. taken by the house.
 - g) If the artwork contains game instructions specifying a maximum win then it shall be possible to win this amount from a single game (including features or other game options).
 - h) The artwork must contain the theoretical percentage return to player (%RTP) and it must be fully explained how this %RTP was determined (i.e. minimum, maximum, average, etc.) and thus how the patron may realize it (i.e. bet requirements,). For games of skill, the %RTP displayed must be theoretical and must be based on a strategy specifically advertised in the game rules or an optimal strategy that is derivable from the game rules. For games that offer bonus bets that require a base game bet, the minimum theoretical %RTP of the bonus bet must take into account that a base game bet must be placed.
 - i) If the artwork advertises the actual %RTP, the number of game plays associated with that calculation must be advertised along with the period with which the game plays took place.
 - j) If random/mystery prizes are offered, the maximum value obtainable from the random/mystery prize shall be indicated. If the value of the random/mystery prize depends on credits wagered or any other factors, this shall be stated.
 - k) Multiple Wins. The artwork should clearly state the rules for payments of prizes where multiple wins are possible.
 - 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, the artwork should display a message indicating wins on different pay lines are added, or the equivalent.
 - iii) Where the game supports scatters, the artwork should display a message indicating that scattered wins are added to pay line wins, or equivalent, if this is the rule of the game.
 - iv) The artwork should clearly communicate the treatment of coinciding scattered wins with respect to other possible scattered wins. For example, the artwork should state whether combinations of scattered symbols pay all possible prizes or only the highest prize.

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- v) The artwork should clearly communicate the treatment of coinciding game outcomes (i.e. straight flush can be a flush and a straight, three red 7's can be any three 7's).
 - l) Extra Lines. If it is possible to bet on multiple lines and it is not clearly obvious which reel positions are part of each of the possible lines, then the additional lines shall be clearly displayed on the artwork, and appropriately labeled. The additional lines shall either be shown on the displayed artwork or be available for display on a help screen or permanently displayed on all game-play screens in a location separate from the actual reels.
 - m) Multipliers. Where multiplier instructions are displayed on artwork, there shall be no confusion possible as to whether the multiplier applies.
 - n) Symbols/Objects. All Game Symbols/Objects are to be clearly displayed to the player and not be misleading in any way. Game symbols and objects should retain their shape throughout all artwork, except while animation is in progress.
 - o) Substitutes/Wilds. The artwork should clearly state which symbols/objects may act as a substitute or wild and in which winning combinations the substitute/wild may be applied.
 - p) Scatters. The artwork should clearly state which symbols/objects may act as a scatter and in which winning combinations the scatter may be applied.
 - q) Upcoming Wins. The game shall not advertise 'upcoming wins,' for example "three (3) times pay coming soon" unless the advertisement is accurate and mathematically demonstrable or if the player has directly advertised current progress to that win (i.e. they have 2 of 4 tokens collected).
 - r) Card Games. The requirements for games depicting cards being drawn from a deck are the following:
 - i) Any games which utilize multiple decks of cards, must clearly indicate the number of cards and card decks in play;
 - ii) Cards once removed from the deck shall not be returned to the deck except as provided by the rules of the game depicted; and
 - iii) The deck shall not be reshuffled except as provided by the rules of the game depicted.
 - s) Multi-Wager Games. The following requirements shall apply to multi-wager games:
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- i) Each individual wager to be played shall be clearly indicated so that the player is in no doubt as to which wagers have been made and the credits bet per wager.
 - ii) Each winning prize obtained shall be displayed to the player in a way that clearly associates the prize to the appropriate wager. Where there are wins associated with multiple wagers, each winning wager may be indicated in turn.
 - t) Game information, artwork, paytables and help screens should not be indecent or offensive in any way or form as determined by the regulatory body.

3.3.2 Information to Be Displayed. The following game information shall be visible or easily accessible to the player at all times during a player session:

- a) The name of the game being played;
- b) Restrictions on play or betting such as any play duration limits, maximum win values, etc;
- c) The player's current session balance;
- d) The current bet amount. This is only during the phase of a game where the player can add to or place additional bets for that phase;
- e) Current placement of all bets (i.e. Roulette numbers, Blackjack insurance, etc.);
- f) The denomination of the bet;
- g) The amount won for the last completed game (until the next game starts or betting options are modified);
- h) The player options selected (e.g., bet amount, lines played) for the last completed game (until the next game starts or a new selection is made);
- i) Initial player selection options are to be described (e.g. selection of a runner in a horse race should identify name, number and expected payout). Player selection options once the game has commenced should be clearly shown on the screen (cards held, hit, split, keno numbers etc.); and
- j) The winning amount for each separate wager and total winning amount are to be displayed on the screen.

3.3.3 **Forced Game Play.**

- a) The player must not be forced to play a game just by selecting that game.
- b) It must not be possible to start a new game in the same Player Interface instance before all relevant meters have been updated on the Interactive Gaming System and all other relevant connections and player session balance, or if applicable, player's total funds balance, has been updated.
- c) If an auto play mode is incorporated, it shall be possible to turn this mode off at any time during game play.

3.3.4 Game Fairness. A game shall not be designed to give the player a false expectation of better odds by misrepresenting any occurrence or event;

- a) 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) must fully address this behavior in the game help screens.
- b) The final outcome of each game must be displayed for a sufficient length of time that permits a player to verify the outcome of the game.

3.3.5 Return to Player. It is expected that regulatory bodies will establish policy regarding theoretical return percentage limits. In addition it is expected that requirements will be established which detail how those percentages must be calculated. An evaluation in accordance with those requirements and policies will be independently conducted by the testing laboratory.

3.3.6 Odds. It is expected that regulatory bodies will establish policy regarding award odds. An evaluation in accordance with those policies will be independently conducted by the testing laboratory.

3.3.7 Game Outcome. All critical functions including the generation of the result of any game (and the return to the player) must be generated by the Gaming Platform and be independent of the Player Device.

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- a) Game outcome must not be affected by the effective bandwidth, link utilization, bit error rate or other characteristic of the communications channel between the Gaming Platform and the Player Device.
 - b) Determination of events of chance that result in a monetary award must not be influenced, affected, or controlled by anything other than numerical values derived in an approved manner from the certified Random Number Generator (RNG) where applicable and in conjunction with the rules of the game;
 - c) Each possible permutation or combination of game elements that produces winning or losing game outcomes shall be available for random selection at the initiation of each play, unless otherwise denoted by the game.
 - 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 behavior by the game).
 - e) Where the game requires a sequence or mapping of symbols or outcomes to be set up in advance (e.g. the position of hidden objects within a maze), the symbols or outcomes should not be re-sequenced or remapped, except as provided for in the rules of the game.
 - f) After selection of the game outcome, the game shall not make a variable secondary decision, which affects the result shown to the player. For instance, the random number generator chooses an outcome that the game will be a loser. The game shall not substitute a particular type of loser to show to the player. This would eliminate the possibility of simulating a ‘Near Miss’ scenario where the odds of the top award symbol landing on the payline are limited but frequently appear above or below the payline.
 - g) Except as provided by the rules of the game, events of chance within games should be independent and not correlated with any other events within the game or events within previous games.
 - h) For game types (such as spinning reel games), unless otherwise disclosed to the player, the mathematical probability of a symbol appearing in a position for any game outcome shall be constant.

3.3.8 Simulation of Physical Devices. Where a game is represented or implied to include a simulation of a real-life physical device (e.g. the spinning of wheels, the rolling of dice, the

tossing of coins, the dealing of cards, etc.), the behavior of the simulation must follow the expected behavior of the real-life physical device unless otherwise denoted on the game rules. That is:

- a) For games that intend real-life physical simulation, the visual representation of the simulation must correspond to the features of the real-life physical device.
- b) 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. For example, the odds of getting any particular number in Roulette where there is a single zero (0) and a double zero (00) on the wheel, shall be 1 in 38; the odds of drawing a specific card or cards in Poker shall be the same as in the live game.
- c) 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.
- d) Where the game simulates real-life physical devices that have no memory of previous events, the behavior of the simulations must be independent of (i.e.: not correlated with) their previous behavior, so as to be non-adaptive and non-predictable in practice.

3.3.9 Games of Mental Skill

- a) The player return for an optimal strategy, based upon the information available to the player in the game rules, shall not be less than the %RTP calculated and displayed to the player.
- b) Any strategy advice or automatic holds shall be fair, not misleading, not represent a poor choice, and ensure the minimum %RTP is met when followed.
- c) The player shall be able to override the automatic hold or strategy.

3.3.10 Games of Physical Skill

- a) Game results can be determined by physical skill if allowed by the regulatory body.
- b) For games where the %RTP is dependent on a player's physical skill, the game information must clearly inform that player that there is physical skill based advantage and identify the applicable game feature.
- c) Information explaining the physical skill based functionality must be prominently displayed and include that there is a physical skill based advantage.

3.3.11 Games with Time Dependencies

- a) For games where the result is affected by the time to respond to a game event, the Gaming Platform must only offer the game after informing the player of any handicap associated with the communication channel. Games that are inherently unfair will not be approved.
- b) The rules must clearly describe the procedure in case of player disconnection from the network server during a game (e.g. internet connection outage, PC crash, etc.) of this nature.

3.4 Game/Bonus Features

3.4.1 Game/Bonus Features. This section refers to games where one or more features/bonus prizes may be paid to the player. Generally, bonus prizes are awarded as a result of some second (or subsequent) screen animation and unless otherwise advertised to the player, the bonus game should be part of the overall payable theoretical RTP. For games that support bonus features, the artwork should address the following topics:

- a) The game shall display clearly to the player which game rules apply to the current game state. These rules shall be made available to the player prior to the start of the bonus game versus during the bonus game.

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- b) The game shall clearly display to the player possible win amount ranges, multiplier ranges, etc. that can be obtained from bonus play.
 - c) For bonus features which do not occur randomly during a single game play, sufficient information shall be displayed to the player to indicate the current status towards triggering the next bonus feature.
 - d) If the game requires obtaining several events/symbols toward a feature, the number of events/symbols needed to trigger the bonus shall be indicated along with the number of events/symbols collected at any point.
 - e) If applicable, the game shall display rules for when further events/symbols needed to trigger the bonus are not accumulated during the feature sequence for events that normally would qualify to earn events/symbols needed to trigger the bonus (such as when a max token limit is reached).
 - 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) If the bonus sequence consists of more than one feature game, the number of games in the bonus sequence that are remaining shall be displayed.
 - h) The game shall not adjust the likelihood of a bonus occurring, based on the history of prizes obtained in previous games (i.e. games shall not adapt their theoretical return to player based on past payouts).
 - i) If a game's bonus is triggered after accruing a certain number of events/symbols or combination of events/symbols of a different kind over multiple games, the probability of obtaining like events/symbols shall not deteriorate as the game progresses (e.g., for identical events/symbols it is not permitted that the last few events/symbols needed are more difficult to obtain than the previous events/symbols of that kind).
 - j) If a game allows the player to hold one or more reels/cards/symbols for one or more respins/draws, held and non-held reels/cards/symbols must be clearly marked on the screen, and the method for changing holds clearly displayed to the player.
 - k) If a bonus feature is provided in which a player has to wager additional credits, the player shall be given a choice whether to enter the bonus feature or not. A player who elects not to enter the bonus feature shall be positioned at the conclusion of the base game which

led to the bonus feature. A player who elects to enter the bonus feature but has insufficient credit balance to continue may:

- i) Utilize temporary winnings from the base game or previous stages to complete the feature if allowed by the rules of the game;
- ii) Authorize more funds be transferred to their player account; and
- iii) Perform a combination of points i and ii above if allowed by the rules of the game.

3.4.2 GambleFeature. The following requirements apply to games which offer some form of gamble feature (these games may also use terms such as Double-Up, Triple-Up or Take-or-Risk.). The player must have a choice as to whether or not they want to participate. Unless otherwise advertised to the player, the gamble feature should have a theoretical RTP of 100% and should not affect the overall payable theoretical RTP. For such games the artwork must address the following:

- a) The prize limit (if applicable) and the maximum number of gambles available;
- b) When the gamble feature is discontinued automatically before reaching the maximum number of gambles available, the reason must be clearly stated;
- c) Any unusual game conditions during which the gamble feature is not available must be specified;
- d) If a gamble feature offers a choice of multipliers, it must be clear to the player what the range of choices and payouts is; and
- e) Once the player has selected a multiplier, it must be clearly stated on the screen which multiplier has been selected.

3.5 Peer to Peer Requirements

3.5.1 Peer to Peer (P2P). P2P game rooms are those environments which offer players the opportunity to gamble with and against each other. In these environments, the operator usually does not engage in the gambling event as a party (e.g. house banked gaming), but usually

provides the gambling service or environment for use by its players, and takes a rake, fee, or percentage for the service. Systems that offer P2P games shall do the following, unless otherwise specified, in addition to the above applicable game rules:

- a) Provide a mechanism to reasonably detect and prevent player collusion, artificial player software, unfair advantages, and ability to influence the outcome of a game or tournament;
- b) Provide warnings about how bots can affect play, so that players can make an informed decision whether to participate and provide steps to report suspected player-bot usage;
- c) Prevent authorized players from occupying more than one seat at any individual table;
- d) Provide authorized players with the option to join a table where all authorized players have been selected at random;
- e) Inform authorized players of the length of time each player has been seated at a particular table;
- f) Clearly indicate to all authorized players at the table whether any players are playing with house money (skills) or are proposition players; and
- g) Must not employ artificial player software to act as an authorized player, except in free play or training modes.

3.5.2 Computerized Players. The following requirements apply to use of computerized players in free play or training modes:

- a) The software may employ the use of Artificial Intelligence (AI) in order to facilitate game play for demo, free games, or training modes.
- b) The use of AI software must be clearly explained in the help menus.
- c) All computerized players must be clearly marked at the tables so that players are aware of which players are not human.

3.5.3 Contests/Tournaments. An organized event that permits a player to either purchase or be awarded the opportunity to engage in competitive play against other players may be permitted providing the following rules are met.

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- a) While enabled for tournament play, no game may accept real money from any source, nor pay out real money in anyway, but shall utilize tournament specific credits, points or chips which shall have no cash value.
 - b) Interactive gaming contest/tournament rules are available to a registered player on the website where the interactive gaming contest/tournament is being conducted. The rules must include at a minimum:
 - i) All conditions registered players must meet to qualify for entry into, and advancement through, the contest/tournament.
 - ii) Any conditions concerning late arrivals or complete tournament no-shows and how auto-blind posting and/or initial entry purchase is handled.
 - iii) Specific information pertaining to any single contest/tournament, including the amount of money placed in the prize pool.
 - iv) The distribution of funds based on specific outcomes.
 - v) The name of the organization (or persons) that conducted the contest/tournament on behalf of, or in conjunction with, the operator if applicable.
 - c) The results of each contest/tournament, shall be made available on the interactive gaming website for the participants to review. Subsequent to being posted on the website, the results of each contest/tournament are available upon request. The recording includes the following:
 - i) Name of the event;
 - ii) Date(s) of event;
 - iii) Total number of entries;
 - iv) Amount of entry fees;
 - v) Total prize pool; and
 - vi) Amount paid for each winning category.

Note: For free contests/tournaments (i.e., registered player does not pay an entry fee), the information required by the above must be recorded except for the number of entries, amount of entry fees and total prize pool.

3.6 Game Recall

3.6.1 Player Facing History. 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 entire previous game cycle, and must provide the following information (at a minimum):

- a) The date and time the game started and/or ended;
- b) The display associated with the final outcome of the game, either graphically or via a clear text message;
- c) Total player cash / credits at start and/or end of play;
- d) Total amount bet ;
- e) Total cash / credits won for the prize (including Progressive Jackpots);
- f) The results of any player choices involved in the game outcome;
- g) Results of any intermediate game phases, such as gambles or feature games; and
- h) Amount of any promotional awards received (if applicable).

3.6.2 Back-end History. For each individual game played, the following information, in addition to the above required elements within section 3.6.1, is to be recorded, maintained and easily demonstrable by the Interactive Gaming System:

- a) Unique player ID;
- b) Contributions to Progressive Jackpot pools (if applicable);
- c) Game status (in progress, complete, etc);
- d) The table number (if applicable) at which the game was played;
- e) The payable used; and
- f) Game identifier and version.

CHAPTER 4

4.0 *RANDOM NUMBER GENERATOR (RNG) REQUIREMENTS*

4.1 Introduction

4.1.1 General Statement. The random number generator must be cryptographically strong at the time of submission. Where more than one instance of a random number generator is used in an Interactive Gaming System, each instance must be separately evaluated and certified. Where each instance is identical, but involves a different implementation within game(s) / application(s), each implementation must also be separately evaluated and certified. Any outcomes from the random number generator used for game symbol selection / game outcome determination must be shown, via data analysis and a source code read, to:

- a) Be statistically independent;
- b) Be fairly distributed (within statistically expected bounds) over their range;
- c) Pass various recognized statistical tests; and
- d) Be cryptographically strong.

4.1.2 Applied Tests. The test laboratory may employ the use of various recognized tests to determine whether or not the random values produced by the random number generator pass the desired confidence level of 99%. These tests may include, but are not limited to:

- a) Chi-square test;
- b) Equi-distribution (frequency) test;
- c) Gap test;
- d) Overlaps test;
- e) Poker test;
- f) Coupon collector's test;

- g) Permutation test;
- h) Kolmogorov-Smirnov test;
- i) Adjacency criterion tests;
- j) Order statistic test;
- k) Runs tests (patterns of occurrences should not be recurrent);
- l) Interplay correlation test;
- m) Serial correlation test potency and degree of serial correlation (outcomes should be independent of the previous game);
- n) Tests on subsequences; and
- o) Poisson distribution.

NOTE: The independent test lab will choose the appropriate tests on a case by case basis depending on the RNG under review.

4.2 Scaling

4.2.1 General Statement. The scaling method shall not compromise the cryptographic strength of the random number generator. Additionally, the scaling method shall preserve the distribution of the scaled values. For example, if a 32-bit random number generator with a range of the set of integers in the closed interval $[0, 2^{32}-1]$ were to be scaled to the range of set the of integers in the closed interval $[1,6]$ so that the scaled values can be used to simulate the roll of a standard six-sided die, then each integer in the scaled range should theoretically appear with equal frequency. In the example given, if the theoretical frequency for each value is not equal, then the scaling method is considered to have a bias. Thus, a compliant scaling method shall have bias equal to zero.

4.3 Hardware-Based RNG

4.3.1 General Statement. Owing to their physical nature, the performance of hardware-based RNGs can deteriorate over time. The failure of a hardware-based RNG could have serious consequences for the game(s) / application(s), as games may become predictable or exhibit non-fair distribution. Accordingly, if a hardware-based RNG is used, there must be dynamic / active, real-time monitoring of the output with a sample size large enough to allow for reasonably high statistically powerful testing, such that game play is disabled when an output testing failure is detected.

4.4 Software-Based RNG

4.4.1 General Statement. The following requirements apply only to software-based RNGs.

4.4.2 Period. The period of the RNG, in conjunction with the methods of implementing the RNG outcomes, must be sufficiently large to ensure that all game independent outcome combinations / permutations are possible for the given game(s) / application(s).

4.4.3 Seeding/Re-Seeding. The methods of seeding / re-seeding must ensure that all seed values are determined in a manner that does not compromise the cryptographic security of the random number generator.

4.4.4 Background Cycling/Activity. In order to ensure that RNG outcomes cannot be predicted, adequate background cycling / activity must be implemented in between games. 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. The rate of background cycling / activity must be sufficiently random in and of itself to prevent prediction.

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CHAPTER 5

5.0 INFORMATION SECURITY SYSTEM (ISS) REQUIREMENTS

5.1 General Statement

5.1.1 General Statement. To ensure players are not exposed to unnecessary security risks by choosing to participate in interactive gaming. These security requirements will apply to the following critical components of the Interactive Gaming System:

- a) Interactive Gaming System components which record, store, process, share, transmit or retrieve sensitive player information, e.g. credit/debit card details, authentication information, player account balances;
- b) Interactive Gaming System components which generate, transmit, or process random numbers used to determine the outcome of games or virtual events;
- c) Interactive Gaming System components which store results or the current state of a player's wager;
- d) Points of entry to and exit from the above systems (other systems which are able to communicate directly with core critical systems); and
- e) Communication networks which transmit sensitive player information.

5.2 Information Security Policy

5.2.1 General Statement. An information security policy document shall be in effect to describe the operator's approach to managing information security and its implementation. The information security policy shall:

- a) Have a provision requiring review when changes occur to the Interactive Gaming System

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- or the operator's processes which alter the risk profile of the Interactive Gaming System;
- b) Be approved by management;
 - c) Be communicated to all employees and relevant external parties;
 - d) Undergo review at planned intervals; and
 - e) Delineate the responsibilities of the operator's staff and the staff of any third parties for the operation, service and maintenance of the Interactive Gaming System and/or its components.

5.3 Administrative Controls

5.3.1 Human Resource Security. The security roles and responsibilities of employees should be defined and documented in accordance with the information security policy.

- a) All employees of the organization shall receive appropriate security awareness training and regular updates in organizational policies and procedures as needed for their job function.
- b) An access control policy shall be established, documented, and reviewed based on business and security requirements for physical and logical access to the Interactive Gaming System and / or its components.
- c) Employees shall only be provided with access to the services or facilities that they have been specifically authorized to use.
- d) Management shall review users' access rights at regular intervals using a formal process.
- e) The access rights of all employees to the Interactive Gaming System and / or its components shall be removed upon termination of their employment, contract or agreement, or adjusted upon change.

5.3.2 Third Party Services. The security roles and responsibilities of third party service providers should be defined and documented in accordance with the information security policy.

- a) Agreements with third party service providers involving accessing, processing,

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- communicating or managing the Interactive Gaming System and / or its components, or adding products or services to the Interactive Gaming System and / or its components shall cover all relevant security requirements.
- b) The services, reports and records provided by the third party shall be monitored and reviewed by management at least once a year.
 - c) Changes to the provision of services, including maintaining and improving existing information security policies, procedures and controls, shall be managed, taking account of the criticality of business systems and processes involved and re-assessment of risks.
 - d) The access rights of third party service providers to the Interactive Gaming System and / or its components shall be removed upon termination of their contract or agreement, or adjusted upon change.

5.3.3 Asset Management. All assets housing, processing or communicating controlled information, including those comprising the operating environment of the Interactive Gaming System and/or its components, should be accounted for and have a nominated owner in accordance with the information security policy.

- a) An inventory shall be drawn up and maintained of all assets holding controlled items.
- b) Assets shall be classified in terms of their criticality, sensitivity, and value.
- c) Each asset shall have a designated “owner” responsible for ensuring that information and assets are appropriately classified, and defining and periodically reviewing access restrictions and classifications.
- d) A policy shall be included on the acceptable use of assets associated with the Interactive Gaming System and its operating environment.
- e) A procedure shall exist for removing assets from service and adding new assets.
- f) De-commissioned equipment shall have storage media removed and disposed of securely using documented procedures.
- g) Removable storage media should be disposed of securely when no longer required, using documented procedures.

5.3.4 Encryption Key Management. The management of encryption keys shall follow defined processes in accordance with the information security policy.

- a) There must be a documented process for obtaining or generating encryption keys.
- b) If encryption keys expire there must be a documented process for managing the expiry of encryption keys.
- c) There must be a documented process to revoke encryption keys.
- d) There must be a documented process for securely changing the current encryption keyset.
- e) There must be a documented process in place for the storage of any encryption keys.
- f) There must be a method to recover data encrypted with a revoked or expired encryption key for a defined period of time after the encryption key becomes invalid.

5.3.5 Software Development Life Cycle. The acquisition and development of new software shall follow defined processes in accordance with the information security policy.

- a) The production environment shall be logically and physically separated from the development and test environments.
- b) Development staff shall be precluded from having access to promote code changes into the production environment.
- c) There must be a documented method to verify that test software is not deployed to the production environment.
- d) To prevent leakage of personally identifiable information, there must be a documented method to ensure that raw production data is not used in testing.
- e) All documentation relating to software and application development should be available and retained for the duration of its lifecycle.

5.3.6 Change Control. The implementation of changes to the hardware and software of the Interactive Gaming System shall be managed by the use of formal change control procedures in accordance with the information security policy.

- a) Program change control procedures must be adequate to ensure that only properly

approved and tested versions of programs are implemented on the production Gaming Platform. Production change controls must include:

- i) An appropriate software version control or mechanism for all software components;
 - ii) Details of the reason for the change;
 - iii) Details of the person making the change;
 - iv) Complete backups of previous versions of software;
 - v) A policy addressing emergency change procedures;
 - vi) Procedures for testing and migration of changes;
 - vii) Segregation of duties between the developers, quality assurance team, the migration team and users; and
 - viii) Procedures to ensure that technical and user documentation is updated as a result of a change.
- b) All patches should be tested whenever possible on a Gaming Platform configured identically to the target Gaming Platform. Under circumstances where patch testing cannot be thoroughly conducted in time to meet the timelines for the severity level of the alert, then patch testing should be risk managed, either by isolating or removing the untested Gaming Platform from the network or applying the patch and testing after the fact.

5.3.7 Incident Management. A process for reporting information security incidents and the management response shall be documented in accordance with the information security policy.

- a) The incident management process must include a definition of what constitutes an information security incident.
- b) The incident management process must document how information security incidents are reported through appropriate management channels.
- c) The incident management process must address management responsibilities and procedures to ensure a rapid, effective and orderly response to information security incidents, including:
 - i) Procedures to handle different types of information security incident;

- ii) Procedures for the analysis and identification of the cause of the incident;
- iii) Communication with those affected by the incident;
- iv) Reporting of the incident to the appropriate authority;
- v) Forensic evidence collection; and
- vi) Controlled recovery from information security incidents.

5.3.8 Business Continuity and Disaster Recovery. A plan shall be in place to recover gaming operations in the event that the production gaming system is rendered inoperable.

- a) The disaster recovery plan must address the method of storing player account information and gaming data to minimize loss in the event the production gaming system is rendered inoperable. If asynchronous replication is used, the method for recovering data should be described or the potential loss of data should be documented.
- b) The disaster recovery plan must delineate the circumstances under which it will be invoked.
- c) The disaster recovery plan must address the establishment of a recovery site physically separated from the production site.
- d) The disaster recovery plan must contain recovery guides detailing the technical steps required to re-establish gaming functionality at the recovery site.
- e) The business continuity plan must address the processes required to resume administrative operations of gaming activities after the activation of the recovered platform for a range of scenarios appropriate for the operational context of the Interactive Gaming System.

5.4 Technical Controls

5.4.1 Self Monitoring

- a) The Interactive Gaming System must implement the self-monitoring of critical components (e.g. central hosts, network devices, firewalls, links to third parties, etc.).

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- b) A critical component which fails self-monitoring tests must be taken out of service immediately. The component must not be returned to service until there is reasonable evidence that the fault has been rectified.

5.4.2 Domain Name Service (DNS) Requirements

- a) The primary server used to resolve DNS queries used in association with the Interactive Gaming System must be physically located in a secure data center;
- b) Logical and physical access to the primary DNS server must be restricted to authorized personnel;
- c) There must be at least one secondary server that is able to resolve DNS queries. The secondary servers must be located at a separate premises to the primary server;
- d) Zone transfers between the primary server and the secondary servers must occur at least every 24 hours; and
- e) Zone transfers to arbitrary hosts should be disallowed.

5.4.3 Monitoring

- a) The clocks of all components of the Interactive Gaming System shall be synchronized with an agreed accurate time source to ensure consistent logging. Time skew shall be checked periodically.
- b) Audit logs recording user activities, exceptions, and information security events shall be produced and kept for an appropriate period to assist in future investigations and access control monitoring.
- c) System Administrator and System Operator activities shall be logged.
- d) Logging facilities and log information shall be protected against tampering and unauthorized access.
- e) Any modification, attempted modification, read access or other change or access to any Gaming Platform record, audit or log must be detectable by the Interactive Gaming System. It must be possible to see who has viewed or altered a log and when.
- f) Logs generated by monitoring activities shall be reviewed periodically using a

documented process. A record of each review must be maintained.

- g) Interactive Gaming System faults shall be logged, analyzed, and appropriate action taken.
- h) Network appliances with limited onboard storage shall disable all communication if the audit log becomes full or offload logs to a dedicated log server.

5.4.4 Cryptographic Controls. A policy on the use of cryptographic controls for protection of information should be developed and implemented.

- a) Any sensitive or personally identifiable information should be encrypted if it traverses a network with a lower level of trust.
- b) Data that is not required to be hidden but must be authenticated must use some form of message authentication technique.
- c) Authentication must use a security certificate from an approved organization.
- d) The grade of encryption used should be appropriate to the sensitivity of the data.
- e) The use of encryption algorithms must be reviewed periodically by qualified Management staff to verify that the current encryption algorithms are secure.
- f) Changes to encryption algorithms to correct weaknesses must be implemented as soon as practical. If no such changes are available, the algorithm must be replaced.
- g) Encryption keys must not be stored without being encrypted themselves through a different encryption method and/or by using a different encryption key.

5.4.5 Access Controls. The allocation of access privileges shall be restricted and controlled based on business requirements and the principle of least privilege.

- a) A formal user registration and de-registration procedure must be in place for granting and revoking access to all information systems and services.
- b) All users shall have a unique identifier (user ID) for their personal use only, and a suitable authentication technique shall be chosen to substantiate the claimed identity of a user.
- c) The use of generic accounts shall be limited, and where used the reasons for their use shall be formally documented.

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- d) Password provision must be controlled through a formal management process.
 - e) Passwords must meet business requirements for length, complexity and lifespan.
 - f) Access to Interactive Gaming System applications and operating systems shall be controlled by a secure log-on procedure.
 - g) Appropriate authentication methods, in addition to passwords, shall be used to control access by remote users.
 - h) Any physical access to areas housing Interactive Gaming System components, and any logical access to the Interactive Gaming System applications or operating system must be recorded.
 - i) The use of automated equipment identification to authenticate connections from specific locations and equipment shall be formally documented and must be included in the regular review of access rights by Management.
 - j) Restrictions on connection times shall be used to provide additional security for high-risk applications.
 - k) The use of utility programs that might be capable of overriding system and application controls shall be restricted and tightly controlled.
 - l) A formal policy shall be in place, and appropriate security measures shall be adopted to protect against the risks of using mobile computing and communication facilities.
 - m) Telecommuting shall not be permitted except under circumstances where the security of the endpoint can be guaranteed.

5.4.6 Network Security Management. Networks should be logically separated such that there should be no network traffic on a network link which cannot be serviced by hosts on that link.

- a) The failure of any single item should not result in a denial of service.
- b) An Intrusion Detection System / Intrusion Prevention System must be installed on the network which can:
 - i) Listen to both internal and external communications
 - ii) Detect or prevent Distributed Denial of Service (DDOS) attacks
 - iii) Detect or prevent shellcode from traversing the network
 - iv) Detect or prevent Address Resolution Protocol (ARP) spoofing

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- v) Detect other Man-in-the-Middle indicators and sever communications immediately if detected
 - c) Each server instance in cloud and virtualized environments should perform only one function. Alternative equivalently secure mechanisms will be considered as technology advances.
 - d) In virtualized environments, redundant server instances cannot run under the same hypervisor.
 - e) Stateless protocols (e.g. UDP) should not be used for sensitive data without stateful transport.
NOTE: Although HTTP is technically stateless, if it runs on TCP which is stateful, this is allowed.
 - f) All changes to network infrastructure (e.g. network device configuration) must be logged.
 - g) Virus scanners and/or detection programs should be installed on all pertinent information systems. These programs should be updated regularly to scan for new strains of viruses.
 - h) Network security should be tested by a qualified and experienced individual on a regular basis.
 - i) Testing should include testing of the external (public) interfaces and the internal network.
 - j) Testing of each security domain on the internal network should be undertaken separately.

5.4.7 **Firewalls.**

- a) A firewall should be located at the boundary of any two dissimilar security domains.
- b) All connections to Interactive Gaming System hosts in the secure data center must pass through at least one application-level firewall. This includes connections to and from any non- Interactive Gaming System hosts used by the operator.
- c) The firewall must be a separate hardware device with the following characteristics:
 - i) Only firewall-related applications may reside on the firewall; and
 - ii) Only a limited number of accounts may be present on the firewall (e.g. system administrators only).
- d) The firewall must reject all connections except those that have been specifically approved.

- e) The firewall must reject all connections from destinations which cannot reside on the network from which the message originated (e.g. RFC1918 addresses on the public side of an internet firewall.)
- f) The firewall must maintain an audit log of all changes to parameters which control the connections permitted through the firewall.
- g) The firewall must maintain an audit log of all successful and unsuccessful connection attempts. Logs should be kept for 90 days and a sample reviewed monthly for unexpected traffic.
- h) The firewall must disable all communication if the audit log becomes full.

5.4.8 Remote Access. Remote access is defined as any access from outside the system or system network including any access from other networks within the same establishment. Remote access shall only be allowed if authorized by the regulatory body and shall have the option to be disabled. Where allowed, remote access shall accept only the remote connections permissible by the firewall application and Interactive Gaming System settings. Remote access security will be reviewed on a case-by-case basis, in conjunction with the implementation of the current technology and approval from the local regulatory body. In addition, there shall be:

- a) No unauthorized remote user administration functionality (adding users, changing permissions, etc.);
- b) No unauthorized access to any database other than information retrieval using existing functions;
- c) No unauthorized access to the operating system; and
- d) The Interactive Gaming System must maintain an activity log which updates automatically depicting all remote access information.

5.4.9 Backup. Backup copies of information and software shall be taken and tested regularly in accordance with the backup policy.

5.5 Physical and Environmental Controls

5.5.1 Secure Areas. Gaming Platforms and the associated communications systems must be located in facilities which provide physical protection against damage from fire, flood, hurricane, earthquake and other forms of natural or man-made disaster.

- a) Security perimeters (barriers such as walls, card controlled entry gates or manned reception desks) must be used to protect areas which contain Interactive Gaming System components.
- b) Secure areas must be protected by appropriate entry controls to ensure that access is restricted to only authorized personnel.
- c) All access must be recorded in a secure log.
- d) Secure areas must include an intrusion detection system, and attempts at unauthorized access must be logged.

5.5.2 Gaming Equipment Security

- a) Interactive Gaming System servers shall be located in server rooms which restrict unauthorized access.
- b) Interactive Gaming System servers shall be housed in racks located within a secure area.

5.5.3 Supporting Utilities

- a) All Interactive Gaming System components shall be provided with adequate primary power.
- b) All Interactive Gaming System components shall have uninterruptible power supply (UPS) equipment to support operations in the event of a power failure.
- c) There shall be adequate cooling for the equipment housed in the server room.
- c) Power and telecommunications cabling carrying data or supporting information services shall be protected from interception or damage.
- d) There shall be adequate fire protection for the Interactive Gaming System components housed in the server room.

CHAPTER 6

6.0 PROGRESSIVE JACKPOT REQUIREMENTS

6.1 Introduction

6.1.1 General Statement. A Progressive Jackpot (the terms are used interchangeably) is an increasing prize based on a function of credits that are bet or won. This includes prizes that are awarded based on criteria other than obtaining winning outcomes in the game, such as ‘Mystery Jackpots.’ However, this does not include non-configurable, increasing prizes that result from bonus features, which are part of the game payable (Theoretical %RTP).

6.2 Progressive Jackpot Design and Operation

6.2.1 Progressive Jackpot Fairness. In order to have a progressive jackpot that is fair to players the following principles must apply:

- a) All players that play progressive jackpot games must be made aware of actions which would make them eligible to win the progressive jackpot.
- b) Where progressive jackpot contributions are part of the %RTP calculation, the contributions must not be assimilated into revenue. If a cap is established on any progressive jackpot all additional contributions once that cap is reached are to be credited to a diversion pool. The minimum return to player must be achieved regardless of the number of betting units calculated.
- c) The rules of the game must incorporate how the progressive jackpot is funded and determined.
- d) If a minimum bet amount exists in order for a player to win a progressive jackpot, then the base game (excluding the progressive jackpot) must meet the minimum player return.

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- e) The current progressive jackpot amount should be displayed on all Player Devices participating in the progressive jackpot. This display should be updated on all participating Player Devices at least every 30 seconds.
NOTE: It is accepted that, depending upon the medium, communication delays are variable and beyond the knowledge or control of the operator. Server-to-client delays will vary from player to player and from message to message.
 - f) The rules of the game must inform the players of the imperfections of the communications medium for the game, and how this affects them.
 - g) The rules of the game must inform the players of any maximum awards and/or time limits which may exist for each progressive jackpot.
 - h) For progressive jackpots offering multiple levels of awards, the player must always be paid the higher amount, if a particular combination is won that should trigger the higher paying award. This may occur when a winning combination may be evaluated as more than one of the available payable combinations (i.e., a Flush is a form of a Straight Flush and a Straight Flush is a form of a Royal Flush). Therefore, there may be situations where the progressive jackpot levels shall be swapped to ensure the player is being awarded the highest possible value based on all combinations the outcome may be defined as.
 - i) If multiple progressive jackpots occur at approximately the same time and there is no definitive way of knowing which jackpot occurred first, the regulatory body and/or operator shall adopt procedures for resolution. The rules of the game must include information which addresses the resolution of this possibility.

6.2.2 *Slave Progressive Jackpot Controllers.* Where a “Master Controller” employs “Slave Controllers” to control a Progressive Jackpot the following requirements apply:

- a) All Slave Controllers must be time synchronized with the Master Controller.
- b) The Master Controller must be time synchronized with the Interactive Gaming System.
- c) 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 is to be made in accordance with the rules of the game.

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- d) The minimum time window (Progressive Jackpot Reset Period) is not less than the longest time taken to:
 - i) Register that a progressive jackpot has been won,
 - ii) Announce the win on the displays of all participating Player Devices with an active session, and
 - iii) Reset the progressive jackpot meters.
 - e) If supporting a progressive jackpot that is determined by increments of individual player's wagers, the processing of receipt of increments from all Player Devices, whether attached to Master or Slave controllers, must be fair.

6.2.3 Progressive Jackpot Win Notification. The following requirements must be met when there is a jackpot win:

- a) A winning player must be notified of a progressive jackpot win by the end of the game in play;
- b) The notification of the progressive jackpot being won must be provided to all Player Devices participating in the progressive jackpot at the time of the jackpot win; and
- c) The progressive jackpot amount must be displayed on all Player Devices participating in the jackpot at the time of the progressive jackpot win.

6.2.4 Progressive Jackpot Parameter Changes. The following requirements apply to configuring progressive jackpots:

- a) Once a progressive jackpot has commenced, parameter changes must not take effect immediately - rather they should be saved to apply after the current progressive jackpot is won. These are 'pending' parameters.
- b) A mystery progressive jackpot which uses a hidden progressive jackpot amount to determine the progressive jackpot win must not change the hidden progressive jackpot amount when the parameters are changed if the progressive jackpot is active (i.e. had any progressive jackpot contributions added to it).

- c) The Interactive Gaming System must provide a means of displaying current and pending progressive jackpot parameters.
- d) The Interactive Gaming System must record the values of all progressive jackpot meters, as well as all of the “Current” and “Pending” progressive jackpot parameters.

6.2.5 Partial Progressive Jackpot Redirection. Diversion Pool schemes, where a portion of the progressive jackpot contributions are redirected to another pool so that when the progressive jackpot is won, the diversion pool is added to the seed of the next progressive jackpot, are acceptable.

6.2.6 Progressive Jackpot Shutdown. In instances where a progressive jackpot should be shut down (e.g. malfunction, loss of connectivity, unexpected termination), the following requirements shall apply:

- a) Clear indication must be given to players that the progressive jackpot is not operating (e.g. by displaying “Jackpot Closed” on Player Devices).
- b) It must not be possible for the progressive jackpot to be won while in the shutdown state.
- c) If the progressive jackpot operates in conjunction with another game (e.g. base game) and the player return requirement is only met when progressive jackpot contributions are included the other game may only be offered when the progressive jackpot is available.
- d) Activation of the progressive jackpot from the shutdown state must return the progressive jackpot with the identical parameters including progressive jackpot value, and hidden win amount for mystery progressive jackpot, as before the shutdown.

6.2.7 Progressive/Jackpot Recovery. To enable recovery of the current value of the progressive jackpot amount(s) in the case of an Interactive Gaming System or progressive jackpot controller failure, either:

- a) The current value of the progressive jackpot amount must be stored in at least two physically separate devices, or

- b) The current value of the progressive jackpot amount must be able to be accurately calculated from other available metering information, which is not stored in the same Interactive Gaming System as the progressive/jackpot amount.

In either case, all eligible progressive jackpot winners must be paid as soon as the value is recovered.

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Appendix A

A.0 *EVENT WAGERING*

A.1 Introduction

A.1.1 General Statement. The following requirements apply only to wagering on sports, contests, and matches where the player places wagers on events or markets which are to occur in the future and whose outcomes are determined by occurrences independent of the system. The requirements in this section are general in nature and do not refer to specific types of sports, contests, matches, or wagers. The intent is to cover sports, contests, matches, and wager types currently known and permitted by law and to provide the framework for future types. All applicable requirements from all sections within GLI-19 apply in addition to the below requirements.

A.2 Wagering Requirements

A.2.1 Wagering Information. The following sections describe the information which must be made available to the player regarding the events / markets (and associated wager types) available on the Interactive Gaming System, and the methods for placing a wager on the Interactive Gaming System:

- a) A list, or equivalent representation, of all available wager types must be made available to the player.
- b) The player must be able to view descriptions of those wager types prior to placing a wager (e.g.: via a hotlink to a help / rules screen).
- c) The description of each wager type must include all available betting options for that wager type.

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- d) A list, or equivalent representation, of all active events / markets must be made available to the player.

A.2.2 Placing Wagers.

- a) No wager amount may be greater than the current balance of the player's account.
- b) The method of placing a wager is to be straightforward, with all selections (including their order, if relevant) being clearly obvious to a typical player.
- c) When the wager involves combining events / markets (e.g.: Doubles / Trebles bets), such groupings must be clearly obvious to the player, given the combination of information on the betting page and help / rules screen.
- d) There must be a clear notification that the wager has been accepted by the system and details of the actual wager accepted must be provided to the player once the wager is accepted (e.g. displayed as a betting ticket with wager details, in combination with generic wager information presented in the help / rules screen)
- e) If the wager attempt is rejected (in full or in part) by the Gaming Platform, the player is to be informed of the reason(s) for the rejection.
- f) The player's account balance is to be debited by the amount of the wager when notification of acceptance of the wager by the system is received.
- g) Wager confirmation should include the amount of the wager actually accepted by the Interactive Gaming System.

A.2.3 Bulk Placement of Wagers. This section refers to wagers that may be placed in bulk (e.g. via FTP to the central system).

- a) Notification of acceptance or rejection of a wager may be via a log file which the player can read later.
- b) If the stream of wagers is interrupted for any reason, there must be a means available to the player to determine where in the stream that the interruption occurred.
- c) The account balance is to be debited by the amount of the wager when notification of acceptance for each wager by the system is received.

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- d) No wager in the stream may be greater than the current (remaining) balance of the account. If such a bet is attempted, the entire stream is to be halted.

A.2.4 Cancellations.

- a) The ability to attempt to cancel any of the active wagers is to be provided.
- b) The method of performing the cancellation is to be straightforward.
- c) Cancellation via the search mechanism is to be provided.
- d) Successful cancels are to immediately update the Player's account balance by the amount of the wager that is canceled.
- e) Cancellation is not to be permitted once the first part of the result of the event is known.
- f) The player must be able to access any other rules relative to prohibition of cancellations e.g. after a fixed time period

A.2.5 Event/Market Close.

- a) The system must implement an automatic close of event or market wagering when the scheduled time for the event or market is reached. Note that this does not preclude the implementation of in-running betting.
- b) There may be a manual override to the automatic close time.
- c) Players in a player session must be able to view when an event or market is closed (upon the player's next interaction with the website, which causes the on-screen information to be refreshed).
- d) It shall not be possible to place wagers on the event or market once it has closed. This requirement does not preclude the implementation of in-running betting.
- e) A cancellation grace period may be offered to allow players to cancel wagers incorrectly placed. However, it must be short in duration and must end before the result of the event is known or can be deduced.
- f) It is possible to re-open an event or market when the circumstances permit. Players must be able to view when an event or market re-opens (upon the player's next interaction with the website, which causes the on-screen information to be refreshed).

A.2.6 In-Running Betting. The help rules screen and / or terms & conditions for the website must contain an explanation to the player that system delays are implemented to mitigate the impact of players who have more up-to-date information or faster Internet connections.

A.3 Results

A.3.1 Posting Results

- a) The Interactive Gaming System must inform the player of how reliable official results for the sports / contests / matches are obtained and published.
- b) The Interactive Gaming System must clearly inform the player of the means by which a winning wager will be determined.
- c) The rules available to the player must clearly state what is to occur when there is potential for multiple events / markets to share the same winning outcome (e.g.: a dead heat).
- d) The rules available to the player must describe the situation of winning results being entered for sport / contest / match outcomes that were not offered for wagering.
- e) The rules available to the player must clearly state what is to occur when only a portion of a sport / contest / match is withdrawn, covering subjects such as:
 - i) Circumstances when all wagers on that portion of the sport / contest / match are lost when withdrawn,
 - ii) Circumstances when all wagers on that portion of the sport / contest / match are refunded when withdrawn, and
 - iii) Handling of the withdrawn portion of the sport / contest / match for wagers involving multiple events / markets (e.g.: parlays).
- f) If a sport / contest / market is abandoned for any reason, all wagers involving solely events / markets associated with that sport / contest / market are to be refunded in full.
- g) Wager types that involve multiple events / markets (e.g.: parlays) are to be treated as if every selection for that leg of the abandoned event / market is a winning wager (in order to allow the parlay wager to remain active) but with a 1.00 payout (i.e.: no profit to the

player), which in turn causes the potential payout for the overall parlay wager to be adjusted accordingly.

A.3.2 Entering Results

- a) Results cannot be entered for an event / market unless the event / market is closed. This does not preclude the settling of events / markets within any given sport / contest / match before that sport / contest / match is concluded.
- b) Results entry must include the entry of all information which may affect the outcome of all wager types offered for that event / market, whether any such wagers were actually placed or not.
- c) Results may be altered but not after they are confirmed, except in the case of resettlement.

A.3.3 Displaying Results

- a) It is accepted that the system will unavoidably be subject to a certain degree of results confirmation and synchronization delay for updates to the information as displayed on the player's screen, and it is possible that information may only be updated at the player's next interaction with the website, which causes the on-screen information to be refreshed.
- b) Players in a player session must be able to view the results when an event / market is closed.
- c) The player must be able to view the results of any decided event / market, once they have been confirmed.
- d) Players must be able to view any change of results.
- e) Where individual wager amounts are gathered into pools, the player must be able to view the dividends of all decided wagers, once they have been confirmed.

A.4 Winnings

A.4.1 Payment of Winnings. Winning wagers are to be directly credited to the player's account when the results of the event / market are entered, confirmed and settled. If the player is not in an active player session when the results are entered and confirmed, it is acceptable to transfer the winnings the next time the account is accessed e.g. next player session or account withdrawal request.

A.4.2 Rounding. Where the calculation of payouts may involve rounding, information on how the system handles these circumstances must be provided to the player through the help / rules screen, which must clearly specify what is to occur:

- a) Rounding to what level (e.g.: 5 cents) must be discussed;
- b) Rounding up, down (truncation), true rounding, must be discussed; and
- c) Metering of rounding amounts must be discussed.

A.4.3 Withdrawn Selections. The rules available to the player must clearly state what is to occur when only a portion of a sport / contest / match is withdrawn, covering subjects such as:

- a) Circumstances when all wagers on that portion of the sport / contest / match are lost when withdrawn;
- b) Circumstances when all wagers on that portion of the sport / contest / match are refunded when withdrawn;
- c) Handling of the withdrawn portion of the sport / contest / match for wagers involving multiple events / markets (e.g.: parlays); and
- d) Handling of reinstated selections - especially if "Field" selections are offered.

A.4.4 Abandoned Events.

- a) If a sport / contest / market is abandoned for any reason, all wagers involving solely events / markets associated with that sport / contest / market are to be refunded in full.
- b) Wager types that involve multiple events / markets (e.g.: parlays) are to be treated as if every selection for that leg of the abandoned event / market is a winning wager (in order to allow the parlay wager to remain active).

A.5 Fixed Odds Wagers

A.5.1 General Statement. This section refers to specific requirements for bet types where the payout is to be fixed at the time the wager is placed. Players must be able to access all current odds / payouts for all available events / markets at all times. In addition to the general requirements the following requirements apply:

A.5.2 Wagers

- a) If the wager could have involved more than one prize table, the system must store and the confirmation must indicate which prize table to which it applies.
- b) If the wager involves bet types where the prize table may change dynamically, the system must store and the confirmation must indicate the prize table payout(s) (e.g. odds) that will apply to this wager should it be a winner.

A.5.3 Limitation of Liability. The rules available to the player must clearly state circumstances where potential liability may be reduced for future events / markets by any means such as:

- a) Prorating – abatement of large winners in an event / market when the overall payout liability is large;
- b) Liability limits – wagers are automatically rejected if the liability for an event / market would exceed a predefined limit; and

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- c) Partial wager acceptance / wager rejection – any circumstances where a wager is partially or completely rejected. This is commonly followed by a change of the odds / payouts.

A.5.4 Prize Payout Modification

- a) The rules made available to the player must clearly state circumstances when it is permitted to dynamically modify the odds / payouts on an event / market.
- b) Players must be able to view when odds / payouts are changed.
- c) Subsequent access to odds / payouts, e.g.: via a hotlink, must show the current values.
- d) It is accepted that the system will unavoidably be subject to a certain degree of synchronization delay for updates to this information as displayed on the player’s screen, and information may only be updated at the player’s next interaction with the website, which causes the on-screen information to be refreshed. In order to ensure player fairness, the system must identify situations where the player has placed a wager for which the associated odds / payouts have actually changed (but not yet refreshed on the player’s screen), and notify the player accordingly and ask for confirmation of the wager given the new odds / payouts.

A.5.5 Adjustments to Fixed Prize Payouts. The rules made available to the player must clearly state circumstances when the odds / payouts are to be adjusted, such as:

- a) Multiple winning outcomes (e.g. dead heats);
- b) Withdrawn selections for which wagers are refunded;
- c) Abandoned legs of parlays; and
- d) Prorating.

A.6 Pari-Mutuel Wagers

A.6.1 General Statement. This section refers to specific requirements for bet types where individual wagers are gathered into pools. When the results of the event each pool is divided up by the total bet of winning selections to form a unit payout amount for that bet type.

A.6.2. Commission. The level of commission for each bet type must be fully displayed in the artwork.

A.6.3 Dividends. The rules for dividend calculation must be approved by the Jurisdiction. Issues to be resolved are:

- a) Dividend formula.
- b) Handling of withdrawn selections.
- c) Handling of multiple winners of a bet type through dead heats, abandoned events etc.
- d) Handling of postponed events.
- e) Handling of circumstances where there are no winners of a pool is to be approved by the Jurisdiction. Subjects that may need to be covered are:
 - i) Countback levels
 - ii) Progressive Jackpots
 - iii) Pool refunds (with or without commission subtracted)
- f) The treatment of minimum prize payouts, calculation of other dividends and possible pool subsidies.
- g) The treatment of Field wagers where changes of the state of selections' withdrawn status can occur e.g. selection reinstatement.

A.6.4 Wagers

- a) The player must be able to view reasonably up-to-date prospective odds / payouts information for simple wagering pools.

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- b) The player must be able to view reasonably up-to-date values of total investments for all wagering pools.
 - c) It is accepted that the system will unavoidably be subject to a certain degree of synchronization delay for updates to this information as displayed on the player’s screen, and information may only be updated at the player’s next interaction with the website, which causes the on-screen information to be refreshed. In order to ensure player fairness, the system must identify situations where the player has placed a wager for which the associated odds / payouts have actually changed (but not yet refreshed on the player’s screen), and notify the player accordingly and ask for confirmation of the wager given the new odds / payouts, and
 - d) For complex wagering pools, it is accepted that there may be reasonable limitations to the real-time accuracy of the pool estimates displayed to the player.
 - e) The player must be able to view the results of all decided events including those which have not been confirmed.
 - f) The player must be able to view the dividends of all decided bet types including those which have not been confirmed.
 - g) The player must be able to view withdrawn selections for all events.

A.7 External Wagering Systems

A.7.1 General Statement. This section refers to requirements for event types where wagers placed through the Interactive Gaming System are forwarded to an external wagering system which controls the wagering, processes results and determines winning wagers. An example might be the Interactive Gaming System interfacing to a totalisator system.

A.7.2 Communications. Communications with an external wagering system must meet the requirements of Section 5.4, Technical Controls.

- a) The intending operator must justify the security associated with all communications by means of a formal risk analysis.

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- b) All communication shall be recorded in a log as per the requirements of the transaction logs.

A.7.3 Information

- a) If the external wagering system provides pari-mutuel wagering facilities for the Interactive Gaming System, it must periodically pass the current dividends estimates for active pools to the Interactive Gaming System .Cautionary notes must accompany such estimates.
- b) If the external wagering system provides progressive jackpot facilities for the Interactive Gaming System, it must periodically pass the current progressive jackpot amounts to the Interactive Gaming System. Cautionary notes must accompany such projections (especially if cancellations are permitted).
- c) If the external wagering system provides fixed price wagering facilities for the Interactive Gaming System where the odds/prize table can be dynamically changed, it must pass the current odds to the Interactive Gaming System whenever any odds are changed.
- d) The external wagering system must pass change of event status information to the Interactive Gaming System whenever any change occurs including:
 - i) Withdrawn/reinstated selections;
 - ii) Altered event starting time;
 - iii) Event closed/open;
 - iv) Results entered/ modified;
 - v) Results confirmed; and
 - vi) Event abandoned.

A.7.4 Wagers

- a) Wagers placed on the Interactive Gaming System must receive clear acknowledgment of acceptance, partial acceptance (and details) or rejection by the external wagering system.
- b) If the cost of the wager is determined by the external system, there must be a positive confirmation sequence in place to enable the player to accept the bet cost and the

Interactive Gaming System to determine that there are enough funds in the player's account to meet the wager cost. This activity shall be performed by the Interactive Gaming System prior to making an offer to an external wagering system.

- c) The account balance shall be debited an amount equaling the offer (and cost) to the external wagering system. The funds shall remain as a pending transaction with details of the offer to the external wagering system logged (in accordance with transaction logging requirements). On receipt of acknowledgment (which shall be logged) from the external wagering system the appropriate adjustments shall be made to the "pending" account and the player account (if a refund is required due to partial acceptance or rejection of offer).
- d) Cancellation requests from the Interactive Gaming System must receive clear acknowledgment of acceptance or rejection by the external wagering system.
- e) The account balance is not to be credited by the Interactive Gaming System until final confirmation is received from the external wagering system including the amount of the cancel.

A.7.5 Results. When results are entered and confirmed on the external wagering system, each winning wager placed from the Interactive Gaming System must be transferred to the Interactive Gaming System with the amount of the win. Player's accounts are to be updated with the winning amounts.

A.7.6 Restart and Recovery. The process of all wagering activities between the two systems is not to be adversely affected by restart/recovery of either system (e.g. wagering transactions are not to be lost or duplicated because of recovery of one system or the other).

A.8 Wager History and Logs

A.8.1 Wager History. For games that involve wagering on a future event, such as with sports wagering or a periodic lottery drawing, a 'Wager History' must instead be provided. The history

must clearly indicate that it is a history of the previous wager(s), and must provide the following information (at a minimum):

- a) The date and time the wager was placed;
- b) The description of the final outcome of the game upon which the wager was made, either graphically or via a clear text message;
- c) Total player cash / credits upon placing the wager;
- d) Total player cash / credits upon settlement of the wager;
- e) Amount wagered including any multipliers;
- f) Total cash / credits won for the wager (including Progressive Jackpots);
- g) Any player choices involved in the wager; and
- h) Results of any intermediate wager phases.

A.8.2 Logs. All event wagering transactions of significance must be logged on the Interactive Gaming System. The decision as to what consists of transactions of significance will be made on a case by case basis and, as a minimum, shall include:

- a) All communications including offers to place, amend or cancel a wager made by the player and before the offer is accepted;
- b) Wagering acceptance (sells), rejections (including reason) and cancels;
- c) Wins added to player accounts;
- d) Change of odds / payouts, commissions, percentages, or other payout selections (not including dynamic odds / payouts setting); and
- e) Change of event / market status:
 - i) Start / stop wagering;
 - ii) Results entry / modifications / confirmation;
 - iii) Withdrawal / reinstatement of wager types within the event / market;
 - iv) Abandoned events / markets; and
 - v) Alteration / override or start times.

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Appendix B

B.0 LIVE DEALER/PROXY PLAYER REQUIREMENTS

B.1 Introduction

B.1.1 General Statement. The following requirements apply where betting takes place through an internet interface and/or a human proxy on behalf of one or more actual players residing in a separate location from the gaming environment. The entire process is viewed by all remote players through real-time remote audio and video feed. All applicable requirements from all sections within GLI-19 apply in addition to the below requirements.

B.2 General Requirements

B.2.1 Definition. Live Dealer games utilizing internet interfaces or proxy players are limited to table games conducted by a real dealer using real gaming equipment with video and audio sent to all remote players and instructions received from each player using streaming, narrowcast, broadcast or other technology.

NOTE: *Unless otherwise noted references to “player” will mean the remote player. The present (proximate) player will be denoted as the “proxy player”.*

B.2.2 Information to be Displayed. Information shall be provided to the remote player in real time and shall include all game play information that would normally be available from the online table game equivalent. Such information shall include:

- a) Date and time;
- b) Table number and location;
- c) Table minimum and maximum wagers;
- d) Number of decks used, if applicable;

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- e) Amount wagered;
 - f) Game outcome;
 - g) Vigorish amount, if applicable;
 - h) Payout odds, where applicable; and
 - i) Amount won or lost.

B.2.3 Incomplete Games. In the event that a remote player cannot or does not complete an action required of them to allow a game to continue within the allotted time:

- a) The system or proxy must complete the game on behalf of the player.
- b) The game must be completed using an optimum strategy for that particular game.
- c) The player must not rejoin the particular instance of a game where the system or proxy has begun to complete the game on behalf of that player.
- d) Any winnings arising from the game must be credited to the player's account.
- e) Any losses arising from the game are retained in accordance with the rules of the game.
- f) The results of the game must be available to the player and must indicate which decisions were made by the system or proxy on behalf of the player.
- g) Other players in the game instance must be able to complete their own games (unless they cannot or do not take their turn).

B.2.4 Win Notification. 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.2.5 Player Application Requirements. Player applications shall have sufficient resources to meet the minimum system requirements as set forth by the live dealer system and as advertised to the remote player.

B.3 Betting by Internet Interface

B.3.1 General Statement. The following requirements apply only to Live Dealer games via an internet interface or to games that effectively constitute an internet interface or gateway to an existing traditional / land-based game already operating in a live environment.

B.3.2 Game Fairness. The following information shall be readily available through the internet interface or gateway throughout a player session where applicable:

- a) Sufficient information to identify the specific game selected.
- b) Game play and payout rules which shall not rely on sound to convey their meaning.
- c) All charges imposed on the player such as fees, and vigorish.
- d) Rules which describe procedures in place to deal with game interruptions caused by the discontinuity of data flow, video and voice from the network server during a game (e.g. internet connection outage or wagering terminal malfunction).
- e) Players must be informed in any betting opportunity relying on ‘live’ monitoring of an event (e.g. betting in play) that ‘live’ transmissions may be subject to delay or interruption. Where a delay is apparent or created by the system, the scale of the delay should be disclosed to the player.
- f) The rules, artwork and functionality 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 where applicable.
- g) All players playing the game (or placing a wager, in the case of wagering on a future event) 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.

NOTE: *Nothing herein shall preclude the possibility of implementing promotions on the Internet interface / gateway or the traditional / land-based method alone.*

B.4 Betting By Proxy Player

B.4.1 General Statement. The proxy shall ensure that players' cards can remain private. This can be achieved by the proper placement of "hole-camera" or "pocket-camera" video equipment. Chips and winning wagers are to be maintained by the proxy player until such time as the remote player determines to terminate the player session.

B.4.2 Proxy Agents. Jurisdictions may prefer to license "proxy agents" who themselves guarantee any credit used to purchase betting chips used in proxy betting.

B.4.3 Junket Operators. Another mechanism would be the utilization of licensed "junket" operators who organize remote group gaming events and purchase in advance the wagering chips for use in proxy betting. *Junket operators may not provide proxy players, relying rather on Agency or Studio proxy players.* For Junkets either the Agency or the Studio shall provide a mechanism for the accounting for proxy player chips.

B.4.4 Studio Provided Proxy Players. Studio provided proxy players shall be licensed by the regulatory body and bonded by the studio. *Studio should provide a mechanism where the player can select a proxy player.* For studio provided proxy players the studio shall provide a mechanism for the accounting of proxy player chips

B.4.5 Agency Provided Proxy Players. *Agencies may provide proxy players.* Agency provided proxy players shall be licensed by the regulatory body and bonded by the Agency. For Agency provided players the agency or the studio shall provide a mechanism for the accounting of proxy player chips.

B.4.6 Proxy Player Chips. Chips used will be distinctly different than those used for conventional betting. These chips shall have no value unless used in a proxy betting environment.

- a) The proxy shall declare the value of chips beginning from when the proxy bettor first establishes connection with the player and at any other time as requested by the player including prior to connection termination by the player.
- b) The chips used must be unique for each denomination they are representing and the denomination must be clearly visible on any chip.
- c) If chips are used, chips of all possible denominations must be shown (as per the game denomination) so that unavailability of chips of smaller denominations will not force players to bet more.

B.4.7 Placing Wagers. The content of the player’s wager should be communicated back and acknowledged by the remote player before the wager is confirmed. There must be a clear notification that the wager has been accepted by the dealer. If the wager attempt is rejected (in full or in part) by the dealer, the player is to be informed of the reason(s) for the rejection.

B.4.8 Proxy Player Winnings. Winning wagers are to be maintained by the proxy player until such time as the remote player determines to terminate the player session.

B.4.9 End of Player Session Disposition of Chips.

- a) For studio provided proxy players the studio shall provide a mechanism for the accounting of the remaining proxy player chips.
- b) For agency provided players the agency or the studio shall provide a mechanism for the accounting of the remaining proxy player chips.
- c) For junkets either the agency or the studio shall provide a mechanism for the accounting for the remaining proxy player chips.

B.5 Automated Recognition Devices

B.5.1 General Statement. Game symbols applied in live dealer games may be automatically registered by automated recognition devices. Game symbols applied in live dealer games shall be reported to the gambling system. Game rules for live dealer games shall be programmed into the gambling system. Any equipment that is used to scan or otherwise detect cards must be tested for reliability and all consumables that will be subjected to this hardware must be checked against it for defects prior to processing, in order to prevent play being disrupted. Logs of all tests must be maintained.

B.5.2 Manual Override. Automated recognition devices used recognition and registration must be equipped with a manual operation mode that allows corrections of an erroneous result (where the detection equipment misreads a card, the position of the ball, etc). The participant must be informed that the manual mode is active. Each time that the manual operation mode is activated, tracking should be enabled to allow for further review.

B.6 Simulcast Control Server

B.6.1 General Information. Games for remote players shall utilize a simulcast control server for the purpose of recording all wagering activity and game results. The simulcast control server shall:

- a) Provide the remote player with real time visual access to the live game being played;
- b) Prevent anyone from accessing the wagering outcome prior to finalizing a wager;
- c) Record dealer verified game results before posting; and
- d) Be equipped with a mechanism to void game results if necessary.

B.6.2 Information Recording. Game logs must be maintained and game events collated into statistics which can be analyzed for trends relating to game performance, staff and/or locations in the gaming area. The live dealer studio may use their own surveillance camera and split live fee

to video transmission server, or there may be a separate network of video involved. A continuous recording must be made of all the games played so that:

- a) The date and time of each game can be determined to an accuracy of one second relative to the clock used by the system.
- b) The sequence of games relative to each other can be determined.
- c) Each bet, win, loss, player decision and dealer action can be determined.
- d) All game events are clearly identifiable and distinguishable.
- e) The sequence of events within each game instance can be determined.
- f) All cards and game results must be clearly visible, together with a separate icon depicting a matching outcome on the player's screen.
- g) The recording shall be sufficient to prove whether the game rules are being complied with and identify discrepancies.
- h) The recording can be reviewed by the operator in the event of a dispute between a dealer and a player.
- i) The recording can be reviewed by the Regulator Body in the event that the player is not satisfied with the review by the operator.
- j) The recording must be kept for at least 48 hours or as required by the Regulator Body.

B.7 Operational Requirements

B.7.1 Equivalency of Signal

- a) Each player shall have equivalent quality video/audio feed from the live dealer system. Procedures should be in place to measure and verify this equivalence whenever communications are initiated, including reconnection due to signal interruptions or re-initiation when the signal was severed.
- b) Player Devices shall have sufficient resources to meet the minimum system requirements as set forth by the live dealer system.

- c) .A minimum signal connection requirement for the player’s application connection must be established, enforced and disclosed to the player.

B.7.2 Reporting. Internal statistical results reviews must be regularly conducted to monitor game performance and payout percentages, and to detect irregularities and variances. Policies and procedures for conducting results reviews, and investigation procedures to be undertaken in the event that material variances are identified, must be documented. Procedures for the completion of gaming operations reports should be implemented. Gaming operations reports should include:

- a) Procedure violation report;
- b) Incident report; and
- c) Pit boss report.

B.8 Live Dealer Studio Requirements

B.8.1 Live Dealer Studio Environment. Live dealer games must meet all of the applicable game requirements delineated elsewhere in this standard. To maintain the integrity of the game outcome determination process, live dealing providers are subject to an additional verification audit of the live dealer studio. The following requirements apply to live dealer studios:

- a) The physical security policy and procedures should be reviewed periodically to ensure that risks are identified, mitigated and underwritten by contingency plans.
- b) Security perimeters (barriers such as walls, card controlled entry gates or manned reception desks) shall be used to protect the live dealing premises and operations.
- c) Physical protection against damage from fire, flood, earthquake, typhoon, and other natural or man-made disaster shall be designed and applied.
- d) Secure areas shall be protected by appropriate entry controls to ensure that only authorised personnel are allowed access.

- e) Access points such as delivery and loading areas and other points where unauthorised persons may enter the premises shall be controlled and, if possible, isolated from operations areas to avoid unauthorised access.
- f) The actual gaming area must be defined and have appropriate physical security controls.
- g) Gaming servers and communications equipment shall be sited or protected to reduce the risks from environmental threats and hazards, and opportunities for unauthorised access.
- h) Gaming servers and communications equipment shall be protected from power failures and other disruptions caused by failures in supporting utilities.
- i) Computer and communications equipment shall be correctly maintained to ensure its continued availability and integrity.
- j) All items of equipment containing storage media shall be checked to ensure that any sensitive data and licensed software has been removed prior to disposal.
- k) Policies and procedures must be in place to enable a suitable response to any computer or communications security issue.

B.8.2 Fixed Gaming Equipment.

- a) Gaming equipment used in the live dealer gaming operations must meet minimum standards as determined by the regulatory body.
- b) Gaming equipment should be installed according to a defined plan and records maintained of all installed equipment.
- c) Gaming equipment should be inspected and cleaned at regular intervals to ensure that it is free from defects or mechanisms that could interfere with fair play.
- d) Obsolescent gaming equipment should be destroyed in a manner which ensures that the device, and any data stored in the device, cannot be used.

B.8.3 Consumable Gaming Equipment.

- a) Consumables used in the live dealer gaming operations should meet minimum standards as determined by the regulatory body.

- b) Procedures must be implemented for tracking the inventory of consumables from receipt, through storage, installation, use, retirement, and destruction. All consumables must have an associated audit trail which shows which staff had access to the consumables at any given time for any given operation.
- c) Periodic random inspections should be performed on the consumables in use, from disbursement to retirement.
- d) Used consumables must be destroyed in a manner which prevents their accidental re-use in games and which puts them permanently beyond use.

B.8.4 Staffing.

- a) Procedures should be in place to perform background checks on newly recruited staff.
- b) Staff must undergo adequate training in the gaming procedures they will be using.
- c) Staff must be trained in, and regularly reminded of, any physical behaviour which is prohibited or mandated.
- d) Policies and procedures concerning rotas and shift patterns and allocation must be documented.
- e) The retention of documentation must be robust, allowing staff records to be audited and investigations to be performed where staff members are either involved directly or where their presence in a particular place and/or time, is crucial to understanding a chain of events.
- f) Procedures for the termination of staff shall be documented.
- g) A supervisory member of staff should always be present when gaming is taking place.
- h) Staffing logs must be maintained for each table.

B.8.5 Gaming Operations.

- a) Separate procedures must exist for each game and new games must have their procedures in place before being offered to players.

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- b) Clear procedures regarding anomalous events which may occur during live dealing operations must be documented and understood by staff. Documented procedures should cover, at a minimum:
 - i) Incorrect card detection by automated equipment;
 - ii) Dropped cards;
 - iii) Misdeals;
 - iv) Re-spins;
 - v) Aborted games; and
 - vi) Table closure.
 - c) Consistent card shuffling procedures must be in place and the shuffling of cards must be logged. Card shuffling procedures should include a verification of the card count.
 - d) Any equipment that is used to scan or otherwise detect cards must be tested for reliability and all consumables that will be subjected to this hardware must be checked against it for defects prior to processing, in order to prevent play being disrupted. Logs of all tests must be maintained.
 - e) Policies and procedures must be in place to identify and replace automated scanning equipment which shows an unacceptable level of errors.
 - f) Procedures should be in place to describe the operations of the pit station.
 - g) Procedures must be in place to demonstrate that one person would not be able to undertake all duties concerning card management and that there is segregation of responsibilities prior to play, during play and after play.
 - h) Game logs must be maintained and game events collated into statistics which can be analysed for trends relating to game performance, staff and/or locations in the gaming area.
 - i) Procedures should be in place to deal with any video, voice, or data stream disruptions during a game.
 - j) Procedures should be in place regarding additional surveillance systems used to supplement pit boss observations.
 - k) Where players are able to chat to dealers, a defined procedure must exist for the use of chat features.
 - l) Procedures should be in place to deal with player disconnection during a game.

- m) Procedures should be in place to ensure that CCTV footage is captured in such a way that precludes interference or deletion.
- n) Gaming operations reports must be maintained.
- o) The game reports and records procedures should be reviewed periodically to ensure that risks are identified, mitigated and underwritten by contingency plans.
- p) Equipment and procedures should have a level of randomness consistent with that seen in live casinos to ensure their fairness and integrity.
- q) Card shoes and similar devices must be tamper-proof once they have been loaded to preclude interference prior to play.

Glossary

Artwork - Artwork is any graphical and auditory information that is sent to the Player Device for presentation to the player.

Background Cycling / Background Activity - A process or set of processes which make requests for values from the random number generator for no other purpose than to discard those values. The discarded values are not used by the application for any purpose. 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 the current values and the algorithm were known.

Client Software – The software installed on a Player Device that facilitates communication between the Player Interface to the Gaming Platform. Examples of Client Software include proprietary download software packages, html, flash, etc.

Contributions - The financial method by which progressive jackpot pools are funded.

Critical Component - Any sub-system whose failure or compromise can lead to loss of player entitlements, government revenue or unauthorized access to data used for generating reports for the jurisdiction.

Digital Certificate - A set of data which can be used to verify the identity of an entity by reference to a trusted third party (the Certification Authority). Digital certificates are often used to authenticate messages for non-repudiation purposes. One of the attributes of a digital certificate is that it cannot be modified without compromising its internal consistency. X.509 certificates are an example of a digital certificate.

Domain Name System - The globally distributed Internet database which (amongst other things) maps machine names to IP numbers and vice-versa.

Effective bandwidth - The amount of data that actually can be transferred across a network per unit of time. The effective bandwidth through the Internet is usually considerably lower than the bandwidth of any of the constituent links.

Gaming Platform - The Interactive Gaming System hardware and software which drives the features common to all games offered, and which forms the primary interface to the gaming system for both the

player and the operator. The Gaming Platform 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 Gaming Platform. The Gaming Platform provides the operator 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.

Hotlink - A word or graphic on a web page which, if clicked, causes a different information page to be displayed.

Increment Rate - The portion of the progressive jackpot contributions that are incrementing the progressive jackpot (as compared to funding the startup value).

Interactive Gaming System (IGS) - The hardware, software, firmware, communications technology and other equipment which allows a player to remotely bet or wager through the Internet or a similarly distributed networking environment, and the corresponding equipment related to game outcome determination, the display of the game and game outcomes, and other similar information necessary to facilitate play of the game. The term does not include computer equipment or communications technology used by a player to access the Interactive Gaming System.

Link utilization - The percentage time that a communications link is engaged in transmitting data.

Mapping - The process by which a scaled number is given a symbol or value that is usable and applicable to the current game (e.g.: the scaled number 51 might be mapped to an ACE OF SPADES).

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.

Percentage Return to Player (%RTP) - 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.

Period - The minimum number of values required such that there exists a sequence of values that will forever repeat. For example, if a random number generator were to produce the following sequence of values ad infinitum, {1,3,1,3,1,3, ...}, the period of that sequence of values would be considered to be two since every time a 1 is produced it is succeeded by a 3 which is succeeded by a 1 which is succeeded by a 3, etc.

Player Device - The device that converts communications from the Gaming Platform into a human interpretable form, and converts human decisions into communication format understood by the Gaming Platform. Examples of Player Devices include personal computers, mobile phones, tablets, etc.

Player System – The Player Device, Client Software and all other items that make up the entire piece that communicates to the Gaming Platform. This includes personal computer cache, cookies, etc.

Pool - An accumulated reservoir of jackpot monitory contributions.

Progressive Jackpot - An increasing prize based on a function of all credits that are bet or won. This includes prizes that are awarded based on criteria other than obtaining winning outcomes in the game, such as ‘Mystery Jackpots.’ However, this does not include non-configurable, increasing prizes that result from bonus features, which are part of the game payable (Theoretical %RTP).

Proposition Player - A player that has been hired to participate in a game and wagers personal funds.

Protocol - Used to refer to the hardware interface, line discipline and message formats of the communications.

Random Number Generator (RNG) - A random number generator is defined to be one or a combination of the following processes that produces a random sequence of values (or symbols that can be mapped to values): software-based hardware-based, or mechanical-based. A cryptographically strong random number generator is a random number generator such that for a given n-bit sequence, the (n+1)st bit cannot be predicted (statistically) with a success probability of greater than 0.5. Additionally, should a cryptographically strong random number generator’s state be compromised, in part or in whole, the bit-stream produced up until the compromise should not be reproducible.

Range - The set of values that can be produced by the random number generator. For example, a 32-bit random number generator, can have a range of 2^{32} comprised of the integers in the closed interval of $[0, 2^{32}-1]$. This range may be mapped to a different range via a scaling algorithm or scaling method.

Remote Game Server (RGS) – Interactive Gaming System hardware and software separate from that which comprises the Gaming Platform, which may drive the features common to game offerings, game configurations, random number generators, reporting, etc. The authorized player initially communicates directly with the Gaming Platform which can be integrated with one or more Remote Gaming Servers.

Scaling - Raw output from an RNG will normally have a range far in excess of that required for its intended use (e.g.: 32-bit RNG’s 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 smaller than that required for its intended use (e.g.: $0 < \text{raw output} < 1$). In these cases, scaling is required to expand the RAW output into larger usable numbers.

Seed - The seed of a random number generator is understood to be a set of values required to initialize the random number generator. A seed is typically required for software-based random number generators.

Sensitive data - Data which, if obtained by a third party, may be used to affect game outcome/s or player/s accounts.

Shill - A player that has been hired to participate in a game and wagers funds on behalf of the house.

Startup value - The initial jackpot value (does not include values from overflow meters).

Timestamp - A record of the current value of the Gaming Platform date and time which is added to a message at the time the message is created.

Version Control - The method by which an evolving approved Gaming Platform is verified to be operating in an approved state.