

Alcohol and Gaming Commission
of Ontario

**Electronic Gaming
Equipment Minimum
Technical Standards**

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Introduction

The Registrar of Alcohol and Gaming is appointed under the *Alcohol and Gaming Regulation and Public Protection Act, 1996* and has powers and duties under the *Gaming Control Act, 1992* and its regulations. The Registrar has the power and duty to approve gaming equipment and gaming management systems pursuant to Section 21 of Ontario Regulation 385/99. The Registrar has specified the following technical standards as the minimum standards to be used in assessing gaming equipment and gaming management systems for approval. The Registrar has delegated to the Deputy Registrar the authority to make decisions on the approval of gaming equipment and gaming management systems.

The Regulation allows the Registrar to approve, without testing, the equipment or the system, as the case may be, if it has been approved in another jurisdiction where gaming is legal. However, these standards may be in excess of or differ from those used in other jurisdictions. These differences in our standards may necessitate additional review for approval in Ontario.

The intent of this document is to update minimum technical standards on electronic gaming equipment with regards to the technical integrity, safety and security of the equipment or the system, including its accounting capability, per Ontario Regulation 385/99, Sections 15(a) and 21(4)(a). These minimum technical standards will become effective on March 1, 2008.

Modifications to the Technical Standards Document

From time to time it may be necessary to make modifications to this document in order to address the following:

- a) Changes in technology;
- b) Changes, deletions or additions to meet the Objectives described earlier;
- c) Introduction of new equipment where no standards have been set;
- d) Rephrasing of a particular standard(s) to provide clarification.

Treatment of Previously Approved Gaming Equipment

Operators of gaming premises are to provide a plan by May 30, 2008, for approval by the Registrar, on how and when the installed equipment will be brought into compliance with these standards.

Operational Requirements

These standards do not deal with implementation requirements at the gaming premises such as: site security, redundancy of gaming systems, etc. These requirements will be dealt with through the internal control procedures for each gaming establishment.

Assumptions

It is assumed that standard industry practices will be applied (standard software development practices, design and development including handling of abnormal operations, etc.). Therefore, they are not included in these standards.

Gaming Equipment Minimum Technical Standards

1 Alterable Storage Media

- 1.1.1 The gaming equipment must verify all critical software including, but not limited to, executables, data, and operating system files, which may affect the game outcome or operation of gaming equipment, which reside on the alterable storage media. This verification must employ a one way hashing algorithm producing a message digest output of 128 bits at minimum or an equivalent methodology as accepted by the Registrar.
- 1.1.2 The message digest(s) for all files as defined in 1.1.1 must be stored on a non-alterable memory device secured in the gaming equipment, or the message digest must be encrypted using at minimum, an asymmetrical encryption algorithm with a 512 bit key, or another methodology as accepted by the Registrar to ensure data authenticity. A mechanism must exist for extracting the information on program verification on demand via communication ports approved by Registrar.
- 1.1.3 The gaming equipment must authenticate all files defined in 1.1.1 against the stored digest(s) using a program which is stored on a separate non-alterable media of which the AGCO can verify the contents and seal. This authentication must be executed when the files are loaded from the media or executed for all files at game initialization.
- 1.1.4 The gaming equipment must be capable of displaying the message digest of any and all files on demand through the audit mode.
- 1.1.5 In the event of a failed authentication, the gaming equipment must immediately enter a tilt condition. This tilt must require operator intervention to display specific tilt information and must not clear until the authentication passes properly following the operator intervention. If technically possible, the gaming equipment must also send an exception message to the Slot Monitoring System for this authentication failure (this requirement will become effective on April 1, 2008) and must record the details including time and date of the tilt in a log.
- 1.1.6 The gaming equipment must not write to any media that contains game critical software, files, or executables, unless the methodology used to write to any such media has been explicitly approved by the Registrar.
- 1.1.7 Any events to be written to alterable storage media must be disclosed in full to the Registrar at the time of submission. This disclosure must include, but is not limited to, type of data being written, location on the media to which write events are allowed, and reason for all write events.
- 1.1.8 Gaming equipment must not write to media containing critical data, files, and programs, unless the gaming equipment:
 - a) Maintains a record, known as an authorization list or digital signature, of all information that is added, deleted, and modified on the media; and
 - b) Verifies the validity of all data, files, and programs which reside on the media against the authorization list or digital signature by means of an algorithm or other method which satisfies the requirements of 1.1.2 above.

- 1.1.9 Hard disk drives must only be writeable by means of restricted technical procedures approved by the Registrar.
- 1.1.10 Any unused portion of the media that is accessible by any means must be set to a defined state, either hexadecimal FF or 00.

2 Award Pay Tables

- 2.1.1 All payable awards and rules of play must be available at the gaming equipment, prior to the player committing to a bet.
- 2.1.2 The pay glass or video display must clearly indicate whether awards are designated in denominational units, currency, or some other unit.
- 2.1.3 Any change in award value, which may occur in the course of play must be available at the gaming equipment.
- 2.1.4 Each combination award shown on the paytable must be attainable.
- 2.1.5 Gaming equipment must not advertise 'upcoming wins,' e.g., "three times pays coming soon", unless they are guaranteed to occur in the same game play.
- 2.1.6 Gaming equipment must clearly indicate all information necessary to track the progress of bonus features (e.g. bonus features that play a limited number of rounds must include the number of rounds remaining during each game that the feature is present).
- 2.1.7 Any games which change the conditions of play during game play (e.g. number of decks in card games, reels in a slot game) must alert the player of the change.
- 2.1.8 The following statement must be clearly visible to the player on each machine:
"The game display does not indicate how close you were to winning, and cannot necessarily be used to determine your chances of winning or losing if you continue to play."
- 2.1.9 The following statement must be clearly visible to the player on each machine that provides a "stop reels" feature:
"A player cannot influence the result of a game by stopping the reel spins."

3 Bill Validator

3.1 Wagering Instruments

- 3.1.1 Only Canadian bills of \$5, \$10, \$20, \$50 and \$100 denominations available for general circulation may be accepted after proper validation by the bill validator.
- 3.1.2 The bill validator may accept other types of wagering instruments approved by the Registrar for such use, e.g. tickets/credit vouchers. All requirements described in this section also apply to these wagering instruments when processed through the bill validator.
- 3.1.3 Denominations accepted by the bill validator, and the orientation for insertion of the bill must be clearly shown at the appropriate place on the gaming equipment if the bill is only accepted in a specific orientation.
- 3.1.4 The bill validator must provide the flexibility to select and/or deselect bill denominations and/or other types of wagering instruments (e.g. vouchers) approved by the Registrar. Optionally, the game may also provide this capability.
- 3.1.5 The accepted bill must be an exact multiple of the lowest game denomination where the game does not have capability to immediately return all of the residual value to the patron, e.g. a \$50 bill must be rejected in a \$20 denomination game unless the game can successfully issue a \$10 change voucher, or issue change by other means approved by the Registrar, to the patron.
- 3.1.6 The bill validator must authenticate the bills at the optimum security level to reject any counterfeit bills.

3.2 Interaction with the Game

- 3.2.1 The game must not issue credits until:
 - a) the bill has been stacked in the cash box after proper validation,
 - b) the bill validator has sent the “irrevocably stacked” message to the game,
 - c) the game software has performed a validity check of all actions communicated to the game software by the bill validator to ensure proper logical actions have taken place, e.g. bill stacked message was preceded by all other messages.
- 3.2.2 The bill validator must communicate with the gaming equipment using a bidirectional protocol.
- 3.2.3 Credits must be displayed by the game in less than 20 seconds after the acceptance and stacking of each bill/voucher.
- 3.2.4 Any voucher must be rejected when it cannot be verified against the appropriate validation system for any reason.
- 3.2.5 The bill must be rejected, if proper credits cannot be given by the game.

3.3 Tilt Conditions

3.3.1 The gaming equipment must be disabled and normal play must not occur until the following error conditions have been cleared:

- a) Detectable cheating attempts;
- b) Bill jam;
- c) Cashbox access door opened;
- d) Illogical sequence of events sent by the bill validator that are detectable by the gaming equipment, e.g. bill stacked message issued prior to other messages such as bill denomination;
- e) Bill Validator firmware CRC failure;
- f) Stolen bill where bill was read and stacked without issuance of credits.

3.3.2 The bill validator must be automatically disabled and not be re-enabled until the following conditions have been cleared:

- a) Cashbox Removed;
- b) Cashbox Full;
- c) Hardware/Software Error;
- d) Validator Communication Error;
- e) Host gaming equipment is in tilt, disabled, slot tournament or administrative mode;

3.3.3 The bill validator must be automatically disabled and not be re-enabled while the game has started active play and has not displayed the final result of the current wager to the patron except as necessary when the player has the choice to make additional wagers.

3.4 Software Integrity

3.4.1 The bill validator must perform a self-test at each power up. In the event of a self-test failure, the bill validator shall automatically disable itself until the error state has been cleared.

3.4.2 Host games using bill validators with alterable storage media must display the signature of the bill validator code on demand.

3.4.3 During the programming operation on bill validators with alterable storage media, each byte programmed must be verified by a comparison program controlled by the programming device.

3.4.4 The bill validator software must be capable of authentication by the AGCO to ensure the contents match the approved version.

3.4.5 The authentication of bill validator software can be performed either by external tools, such as an EPROM verifier, or internally by the host game, in which case the methodology implemented must have the probability of error detection equal to or better than that with 16 bit CRC signature verification.

3.5 Hardware Integrity

3.5.1 The bill validator must satisfy Hardware Integrity Standards 4.4 and 4.5.

4 Cabinet

4.1 General Cabinet Construction

- 4.1.1 The cabinet must be of rigid construction and must resist forced illegal entry, tampering and wilful damage using human force such as kicking, blows and bending, or using small tools such as a screwdriver.
- 4.1.2 The cabinet design must be such that access to the inside of the cabinet is possible only by the use of a key.
- 4.1.3 There must not be any gaps or openings into the game cabinet other than those intended for the operations of the game.
- 4.1.4 All ventilation holes must not compromise the integrity and security of the game.
- 4.1.5 All doors must resist forced illegal entry into the gaming equipment and must retain evidence of any such forced entry.
- 4.1.6 All doors must be secured with a lock and an electronic security switch.
- 4.1.7 The main access door, cash box access door and the cash box each must be capable of having a separate lock and key that may only be opened by the authorized personnel.
- 4.1.8 The game logic and any other circuitry affecting game outcome, security and integrity including, but not limited to, game programs, RNG, RAM, ROM, Boot storage media and communication interfaces, must be secured in a separately locked metal cabinet inside the main gaming equipment cabinet and be impervious to outside influences.
- 4.1.9 The gaming equipment must be capable of reporting the removal of the main logic board or access to the main logic board compartment with the equipment powered on/off. This may be accomplished through the use of the Slot Monitoring System.
- 4.1.10 The bill validator assembly must not allow access to the cash box from the gaming equipment cabinet when the cash box access door is closed or when other types of locking mechanisms such as locking bars are activated.
- 4.1.11 The cash box must be housed in a separate locked compartment inside the gaming equipment. Access to this compartment is to be through two layers of locked doors (the relevant outer door plus one internal locked door) before the cash box can be removed.
- 4.1.12 All gaming equipment must have a non-removable ID plate on the outside of the cabinet containing the following information:
 - a) Manufacturer's name;
 - b) Model number;
 - c) Date of manufacture;
 - d) Unique serial number;
 - e) Safety certification approval monogram.

4.2 Accessory Cabinets

- 4.2.1 All cabinets, wall mounts, or shelves used to support the gaming equipment must be of a rigid construction that does not compromise security or permit unauthorized access into the gaming equipment or the drop box.
- 4.2.2 The cabinets must be equipped with security features that allow access to the internal components to authorized personnel only.
- 4.2.3 Access to the coin drop box, when part of the gaming equipment, must have security features to limit access to only authorized personnel.

4.3 Tower Light

- 4.3.1 All gaming equipment cabinets must be equipped with a tower light that satisfies Section 26 of this document.

4.4 Electromagnetic Immunity

- 4.4.1 All gaming equipment cabinets, including top boxes, associated equipment and embedded devices:
 - a) must be immune to electro-static discharge (ESD). The gaming equipment must recover and complete any interrupted play without loss or corruption of any stored or displayed information;
 - b) must exhibit total ESD immunity (no disruptions in game performance) at:
 - i) air discharge of $\pm 15\text{kV}$ and
 - ii) contact mode with $\pm 8\text{kV}$;
 - c) may exhibit temporary ESD disruption at:
 - i) air discharge of $\pm 27\text{kV}$ and
 - ii) contact mode with $\pm 10\text{kV}$; and
 - d) must be immune to electrical fast transients (EFT). Specifically, the cabinets and devices must exhibit total EFT immunity for a discharge of 4.4kV burst pulses repeatedly into the power line between the hot and neutral at any phase.
- 4.4.2 The cabinets, all cabinet additions and embedded devices must be immune to information loss and corruption from rapid repeated switching ON and OFF of the AC power supply.
- 4.4.3 The cabinets, all cabinet additions and embedded devices must be immune to influences from magnetic forces and commercial radio frequencies.

4.5 Liquids

- 4.5.1 The cabinet and embedded devices must be designed so that any liquid spilled or poured, intentionally or otherwise, will not affect the integrity or outcome of the game. Furthermore, the main logic board and the communication interfaces must be protected to avoid any damage that may be caused by the spilled liquid.

4.6 Top Boxes

4.6.1 All top boxes, bonus tops, or marquee must:

- a) be of rigid construction,
- b) not allow illegal entry or tampering,
- c) not obstruct the view of the tower lights,
- d) have all doors equipped with a lock and electronic switch, and
- e) tilt and report when they malfunction or when a door is open.

5 Cashless Wagering System

5.1 General Requirements

- 5.1.1 All cashless wagering systems must only allow tickets/vouchers, coupons or electronic promotion as direct wagering instruments.
- 5.1.2 All cashless wagering systems must employ an error detection and correction scheme approved by the Registrar to ensure the data is transmitted and received accurately.
- 5.1.3 All cashless wagering systems must employ some form of data encryption for all data that is transmitted to or from gaming equipment. This standard does not apply to data that is transmitted between gaming equipment and a gaming device interface component that resides inside the gaming equipment, or for data that is transmitted on physically secure communication lines.
- 5.1.4 All cashless wagering systems must be equipped to read and store the specific values indicated on the electronic digital storage meters in the gaming device, as applicable to the system. The following gaming equipment meter information must be stored in units equal to the denomination of the gaming equipment or in dollars and cents:
- Voucher in;
 - Voucher out (for the metering of gaming equipment wagering ticket/vouchers and payout ticket/vouchers);
 - Cashable electronic promotion in;
 - Cashable electronic promotion out;
 - Non-cashable electronic promotion in;
 - Non-cashable electronic promotion out;
 - Coupon promotion in; and
 - Coupon promotion out.

Note: System meters shall be referred to with the above terms and shall accumulate applicable system generated information as well as information stored on gaming device meter as required by the Gaming Equipment Standards (Meters, Section 18).

- 5.1.5 All cashless wagering systems must have a mechanism in place to record all required meters, as specified above in Section 5.1.4 of this document, at the time a drop box (coin or currency) is removed or on demand.
- 5.1.6 All cashless wagering systems must maintain an internal clock that accurately reflects the current time and date (in hours, minutes and seconds) that shall be used for the following:
- Time stamping of significant events;
 - Reference clock for reporting; and
 - Time stamping of configuration changes.

If multiple clocks are used, then a means must be provided that will update all clocks in devices attached to the system, including the gaming equipment, at least once in each 24-hour period.

- 5.1.7 All cashless wagering systems must include the following information on all gaming equipment wagering vouchers and coupons:
- a) Gaming premises name;
 - b) Gaming device number or printer station number, as applicable;
 - c) Date and time of issuance;
 - d) Alpha and numeric dollar amount;
 - e) Sequence number;
 - f) Validation number;
 - g) Second printing of validation number on the leading edge of the ticket/voucher;
 - h) Unique identifier (e.g. bar code);
 - i) Transaction type or other acceptable method of differentiating ticket types;
 - j) Expiration period or date when voucher/ticket will not be cashable in gaming equipment, if applicable;
 - k) Instructions for how to redeem expired tickets, as applicable.
- 5.1.8 In the event communications between the system and the gaming equipment is lost, only one ticket/voucher may be printed provided a proper validation number is available.
- 5.1.9 All cashless wagering systems' interface components must have a mechanism whereby an error will not cause the loss of stored accounting meter information.
- 5.1.10 All cashless wagering systems' interface components must allow for the configuration of a unique identification number to be used in conjunction with the gaming equipment file in the on-line slot system. This identification number will be used by the on-line slot system to track all mandatory information of the associated gaming equipment
- 5.1.11 All cashless wagering systems must assign to each patron initiated transaction a unique identifier of at least eight digits that includes an identifier of the gaming equipment.
- 5.1.12 All cashless wagering systems must provide for an on-line, real-time validation of tickets/vouchers.
- 5.1.13 All cashless wagering systems must be incapable of authorizing payment on a ticket/voucher that is rejected, has been previously paid or voided. The system must display the status of the ticket/voucher.
- 5.1.14 All cashless wagering systems must be capable of displaying the ticket history.
- 5.1.15 All cashless wagering systems must prevent the removal or erasure of events and transactions from any communication device until that information has been successfully transferred and acknowledged by the communication device next in succession.
- 5.1.16 All cashless wagering systems must prevent unauthorized changes to cashless wagering system programs and databases.

5.2 Report Requirements for Cashless Systems

5.2.1 All cashless wagering systems must be designed to generate reports on a day, month, year-to-date, and on demand basis for at least the previous two year period on a cumulative basis.

5.2.2 At minimum, all reports generated must include the following:

- 1) For each report:
 - a) Report title;
 - b) Version number of the current software;
 - c) Date and time of the activity;
 - d) Date and time the report was generated.
- 2) Ticket/voucher issuance by date and identification of gaming device where issued;
- 3) Ticket/voucher redemption by date, time, and means of redemption (such as gaming device, cashier station, kiosk, etc.);
- 4) Ticket/voucher liabilities by date and time issued and by sequence number;
- 5) Ticket/voucher expired by date and time issued, sequence number, and identification of gaming device where it was issued;
- 6) Ticket/voucher voided by date and time issued, sequence number, and identification of gaming device where it was issued;
- 7) Ticket/voucher counted in the count room, by gaming device;
- 8) Gaming device meter cashable electronic promotion in vs. system cashable electronic promotion in;
- 9) Gaming device meter cashable electronic promotion out vs. system cashable electronic promotion out;
- 10) Gaming device meter non-cashable electronic promotion in vs. system non-cashable electronic promotion in;
- 11) Gaming device meter non-cashable electronic promotion out vs. system non-cashable electronic promotion out;
- 12) Gaming device meter ticket/voucher in vs. system ticket/voucher in form accepted;
- 13) Gaming device ticket/voucher out vs. system ticket/voucher out form issued;
- 14) System ticket/voucher in vs. ticket/voucher counted in the count room, by gaming device;
- 15) All cashiering activities including log on, redemptions, adjustments to wagering accounts deposits/withdrawals, and log off, by cashier;
- 16) All exceptions to include:
 - a) Date and time of exception;
 - b) Gaming device number or user identification number and terminal location where the exception occurred; and
 - c) A description of the exception or a unique code that identifies the exception.

5.3 Report Requirements for Cashless Systems integrated with SMS

5.3.1 If the cashless wagering system is integrated with an on-line slot monitoring system, then the system must be able to generate the following additional reports:

- 1) Gaming equipment performance reports:

- a) By Machine:
 - i) Denomination or an indication that the machine is a multi-denomination machine;
 - ii) Gaming equipment's unique identification number;
 - iii) Game type;
 - iv) Coin in;
 - v) Coin out;
 - vi) Number of games played;
 - vii) Metered or actual drop;
 - viii) Actual Jackpot payout receipt issued;
 - ix) Actual fill slips issued;
 - x) Win;
 - xi) Theoretical hold percentage;
 - xii) Actual hold percentage;
 - xiii) Percentage variance between theoretical hold vs. actual hold; and
 - xiv) Projected dollar variance.
- b) By Denomination Type and In Total:
 - i) Weighted average theoretical hold (the sum of the theoretical hold percentages of all machines within a denomination weighted by coin in contribution for each denomination);
 - ii) Combined actual payout percentage (all wins divided by all coin in);
 - iii) Percentage variance (i.e., theoretical hold vs. actual hold); and
 - iv) Projected dollar variance (i.e. coin in times the percentage variance).

2) Exception Reports:

A complete exception report including the following at minimum, must be generated in the event where any data or parameters are altered:

- a) Date and time of the alteration;
- b) Name and unique identification number of the gaming device/system the alternations were performed to;
- c) Identification of user (name, id) that performed alteration;
- d) Data or parameter(s) altered;
- e) Data or parameter(s) value before alteration; and
- f) Data or parameter(s) value after alteration.

3) Accounting Reports:

The on-line slot monitoring system must be capable of generating additional accounting reports that are capable of displaying the following information:

- a) Meter drop vs. actual drop for each drop type by machine and in total;
- b) Meter attendant paid jackpots, cancelled credits, progressive payouts and external bonus payout in total versus actual attendant paid jackpots, cancelled credits, progressive payouts and external bonus payouts in total;
- c) Meter fills vs. actual fills;
- d) Meter gaming equipment paid and attendant paid external bonus payouts vs. external bonusing system gaming equipment paid and attendant paid external bonus payouts;
- e) Meter voucher out vs. system payout receipt issued;

- f) System payout receipt redeemed by cashier station indicating the shift;
 - g) Details of system payout receipts issued, including:
 - i) The date/time issued as per the synchronized on-line clock;
 - ii) Amount;
 - iii) Sequence number;
 - iv) The unique identification number of the gaming device;
 - v) Game name; and
 - vi) Receipt liabilities.
 - h) Machine paid and attendant paid external bonus payout; and
 - i) By machine, all required meter amounts read and recorded by the on-line slot system.
- 4) Additional Reports:

The on-line slot monitoring system must be capable of generating the following standard and other ad-hoc reports for the AGCO:

- a) Accounting reports to reconcile coins, tickets, and other monetary items;
- b) Significant Events/Error Conditions report;
- c) Gaming equipment that paid jackpots greater than a specific amount within specific time frame or date range;
- d) All events for a specific device or group of gaming equipment devices;
- e) Metering information for a specific device or group of gaming equipment devices;
- f) All events for a specific employee card within a date range for a specific device or all gaming devices;
- g) All events for a specific player card within date range for a specific device or all gaming devices;
- h) Games above or below a certain payback percentage/ hold percentage (above 99% or below 85%);
- i) Number of games on-line currently on the gaming floor;
- j) Progressive amounts based on coin in (Actual vs. Sign Amount);
- k) Variance greater than one percent for all meters (Coin in, Coin out, drop, games played, etc.).

5.4 Security and Integrity

5.4.1 The system shall limit access to only authorized personnel, for various functions, based on segregation of duties and restrict access to authorized users for any viewing, modifying or deleting of critical files and directories:

- a) System administration including setup of user access privileges;
- b) Audit role;
- c) Setting up of system configurations;
- d) Cashier role; and
- e) Logging of all gaming devices.

5.4.2 The system must provide at minimum, the capability for user passwords to:

- a) Require to be changed at specific intervals as designated, or earlier;
- b) Be of a minimum of six alpha-numeric characters;
- c) Be locked out after certain number of unsuccessful attempts; and

- d) Be stored in the database in an unreadable format (encrypted).
- 5.4.3 The system must keep a log of all user activity and any attempts to process unauthorized transactions must be recorded.
- 5.4.4 The system must maintain an audit log of all pertinent data such as changes to user IDs, passwords, system configuration, etc.
- 5.4.5 A feature to notify the appropriate department(s) must exist for all security violations.
- 5.4.6 The system must restrict access to sensitive database files/tables to prevent alteration of voucher information and employ appropriate techniques to detect alterations of data without the use of approved system functions.
- 5.4.7 Remote access to a system must only be capable of being initiated through a procedure approved by the Registrar. This procedure must limit access to authorized users only.

5.5 Authentication of Software

- 5.5.1 The Cashless Wagering System supplier must provide the Registrar with an acceptable method of externally authenticating the contents of the program media to ensure the contents match the approved version.

6 Coin Validator

6.1 General Information

- 6.1.1 All gaming equipment using coins for wagering must have an electronic coin validator to accept valid coins, and reject others to the coin tray.
- 6.1.2 The coin validator must accept or reject coins based on various parameters, including the coin's size, alloy composition, mass and composite makeup.
- 6.1.3 Each valid inserted coin must be acknowledged by the game program by either incrementing the credit meter and issuing and displaying the credits to the player or incrementing the bet meter and applying the coin towards the next play of the game, up to the maximum wager for a single play. Any coins not credited by the gaming equipment must be returned to the player.
- 6.1.4 The coin validator must be capable of accepting and accurately crediting rapidly inserted (fast-fed) valid coins.
- 6.1.5 The coin validator must reject all coins inserted under any one or more of the following conditions:
 - a) When the game is in play, except as necessary when the player has the choice to make additional wagers;
 - b) During a tilt condition, i.e. the host gaming equipment is non-operational;
 - c) When the gaming equipment is disabled such as power off, slot tournament mode or out of service;
 - d) When the game is in attendant pay mode;
 - e) When the coin acceptance limit is reached; and
 - f) During a cashout process, voucher printing, or coin dispensing.

Any coins accepted under the conditions 6.1.5 a) through f) above must be credited to the gaming equipment credit meter, applied toward the next play of the game, or returned to the player.

- 6.1.6 Coin validators used to accept \$5 or higher denominations must have additional security features to ensure acceptance of valid coins only, e.g. use of pattern, security marks, etc.
- 6.1.7 Any coin jam or attempts at tampering must be reported to the game so that the game can enter a tilt. The game must be disabled until the problem has been rectified.
- 6.1.8 The coin validator must prevent the issuing of credits from the use of cheating methods or other security problems, including:
 - a) Fraudulent issuing of credits by inserting a foreign object into the coin in chute or by the use of any other device such as radio transmitter, etc.,
 - b) Stringing,
 - c) Slugging,
 - d) Spooning, and
 - e) Shaved coins that cannot be counted by the hopper during cash-out.

In such cases, the gaming equipment must be disabled and normal play must not occur until an attendant has cleared the above conditions.

- 6.1.9 The coin validator mechanism must be designed to minimize the possibility of altering any of its components for fraudulent use, e.g. coin validation system, diversion of coin from its normal destination, etc.
- 6.1.10 The “sample” coin used by the coin comparator for validation of inserted coins must be secured against tampering. If the sample coin is changed or tampered with, the game must be disabled until an attendant has cleared the error.
- 6.1.11 Any methods for adjusting coin validation sensitivity must be secure, or have the ability to be secured. When the sensitivity adjustment is set to minimum, it must be able to reject slugs.

6.2 Programmable Coin Validator

- 6.2.1 There must be a mechanism to verify the coin validator software installed in the gaming equipment to ensure it is the approved version.
- 6.2.2 It must not be possible to program the acceptance of any specific coin without special programming equipment.
- 6.2.3 Any programming device must be approved by the Registrar to ensure that it can be used to program the acceptance of approved coins and rejection of others. The programming device must have adequate security to ensure that only authorized personnel can program the coin validator.
- 6.2.4 It is preferred that the gaming equipment perform a validity check to ensure the coin validator software has not changed upon game initialization.

7 Communication with Associated Equipment

- 7.1.1 The gaming equipment hardware and the associated equipment must not transmit any data or signals that would adversely affect the operation or change the outcome of the game.
- 7.1.2 The host gaming equipment must continuously monitor and control all communication ports that are used to transmit or receive any data or signal to or from the associated equipment.
- 7.1.3 Any communication port must have a clearly defined game related function.
- 7.1.4 Any communication between gaming equipment software and associated equipment must implement a communication protocol which is able to detect and reject any erroneous data transfer.
- 7.1.5 The data communicated to the gaming equipment must be validated for proper logic and/or sequence, before the gaming equipment determines its action, e.g. a bill stacked message cannot be the first message for bill acceptance and crediting.
- 7.1.6 Any associated equipment that communicates with the host equipment must only pass the data or signals necessary for the operation of the game, such as acceptance of a specific bill denomination or valid coin in.
- 7.1.7 Any loss of communication with associated equipment that impacts game operation must be reported and logged automatically by the gaming equipment.
- 7.1.8 During the loss of communication with external associated equipment, any critical information related to revenue, integrity, and security of the equipment must be preserved and transmitted as soon as the communication resumes.
- 7.1.9 All associated equipment must have a mechanism whereby an error will not cause the loss of stored accounting information.
- 7.1.10 Any internal associated equipment must immediately disable itself upon loss of communication with the gaming equipment.
- 7.1.11 All internal associated equipment capable of executing a software authentication/validation process and communicating the result must have a means to do so when initiated by the gaming equipment. Gaming equipment must initiate such authentication/validation processes upon game reset as a minimum.
- 7.1.12 Any communication hardware including lines such as harnesses and controllers must be secured against outside tampering.

8 Credit Play

- 8.1.1 Cashable credits may be accumulated from wins, bill validators and coin validators. The total of all cashable credits accumulated from coins and currency must not exceed \$3,000.
- 8.1.2 It is preferred that maximum credits accumulated from insertion of bills or coins have a separate settable limit from the other cashable credits.
- 8.1.3 The gaming equipment must incorporate a credit meter, which will display the player's current credits in dollars and cents unless the player chooses to display the current credits in credit amounts, where possible in current platforms. The credit meter must default to display credits in dollars and cents for each new player. All future (effective July 1, 2008) operating systems/game programs must satisfy this requirement.
- 8.1.4 The credit meter must be incremented by the proper value of credits after acceptance of a valid bill, coin or other wagering instrument approved by the Registrar, or by the value of credits won. The value of credits wagered on the game or the value of credits redeemed by the player must be subtracted from the player's credit meter.
- 8.1.5 The credit meter must be displayed to the player, at minimum, at the beginning and end of game play, during idle mode and any time the player is given an option to make a wager.

9 Credit Wagering/Redemption

9.1 Credit Wagering

9.1.1 Wagering credits available for play must be wagered in the following order:

- a) Non-cashable credits;
- b) Promotional cashable credits; and
- c) All other credits.

9.1.2 Wagering instruments that are less than the gaming equipment's smallest denomination, or not evenly divisible by any of the gaming equipment's denominations may be accepted by the gaming equipment provided:

- a) The gaming equipment has meters that record in units of cents; and
- b) The gaming equipment is capable of printing a change voucher.

9.2 Credit Redemption

9.2.1 The cash-out button or its equivalent must be operational at any time when credits are displayed on the gaming equipment except:

- a) during game play,
- b) when the gaming equipment is in test or administrative mode,
- c) when the gaming equipment is in an error (tilt) condition that does not allow the collection of credits,
- d) when the gaming equipment is in "out of service" mode,
- e) when the game is in jackpot (hand pay) mode,
- f) when the gaming equipment credit meter or win meter is incrementing, unless the entire amount is added to the meters when the cash-out button is pressed,
- g) during processing of bill, voucher, or
- h) when the gaming equipment is displaying a help screen.

9.2.2 If a player attempts to redeem available credits and the total value of these credits is less than the attendant pay limit, then the gaming equipment must dispense the appropriate number of coins from the hopper, printer or by other means approved by the Registrar.

9.2.3 Whenever the amount won by a player exceeds the maximum payout amount (printer or hopper, as applicable), or the amount matches or exceeds the attendant pay limit during cash out, the gaming equipment must automatically lockup the game and enter into a hand-pay mode and must not exit from this mode until the game has been reset by the use of a reset key or other methods approved by the Registrar.

10 Door Security Switches

- 10.1.1 Each door of gaming equipment and its associated auxiliary cabinets must be equipped with one or more switches for security purposes. Security switches must be wired directly to the Slot Monitoring System and to the gaming equipment. Security switches must be capable of detecting the following conditions:
- a) Main Door open/close;
 - b) Belly Door open/close;
 - c) Stacker Door open/close;
 - d) Stacker removed/returned;
 - e) Logic Door open/close; and, if applicable
 - f) Topbox Door open/close.
- 10.1.2 Switches must be wired in a way that all door alarms can be reported under any game operational conditions.
- 10.1.3 Disconnecting the wiring from a switch or a malfunction of the switch (e.g. magnet or optical signal broken/missing, etc.) must result in a “door open” condition.
- 10.1.4 During a game blackout condition, any change in status of the switches must be immediately reported to the Slot Monitoring System.

11 Error Conditions

Gaming equipment must be capable of immediately detecting and displaying the conditions listed in this section.

- 11.1.1 All of these error conditions must be immediately recorded in a game error log, and communicated to the Slot Monitoring System connected to the gaming equipment if technically possible.
- 11.1.2 The gaming equipment may automatically clear the following conditions upon completion of a new play sequence:
 - a) Power reset; and
 - b) Door opened and just closed.
- 11.1.3 The gaming equipment and all peripherals must be disabled under the following conditions, and may only be enabled after the condition has been resolved:
 - a) RAM error (RAM defective or corrupted) ;
 - b) Program error (defective software storage media, CRC failure, etc.);
 - c) Removal of control program storage media;
 - d) Empty hopper/hopper timeout, if there is no alternate means for the gaming equipment to make the payment;
 - e) Hopper runaway or extra coins paid out;
 - f) Any coin-out error or hopper failed to make payment;
 - g) Any coin-in accepted in error;
 - h) Any coin-in accepted while the acceptor should be in a disabled state;
 - i) Reverse coin-in;
 - j) Coin jam;
 - k) Bill validator jam;
 - l) Printer mechanism paper jam;
 - m) Printer cassette out of paper, if there is no alternate means for the gaming equipment to make the payment;
 - n) Inappropriate bill/voucher in that is not returned to the player;
 - o) Low RAM battery; and
 - p) Any reel spin error including a mis-index condition for mechanical reels. This is a position error of the final positioning of the reel of over one-half of the width of the smallest symbol excluding blanks on the reel strip, or reel jam. The specific reel number is to be identified in the error indicator.
- 11.1.4 The gaming equipment must, at minimum, immediately inform the patron if there is a loss of communication with the progressive system. This message must be visible to the patron at all times and may only be removed after the condition has been resolved.
- 11.1.5 A description of error codes and their meanings must be available at the gaming equipment.
- 11.1.6 The gaming equipment must retain all critical data and information while in tilt mode.

12 Field Verification of Critical Software

The requirements outlined in this section pertain to the authentication of critical software by the AGCO before the game is made available for patron play.

- 12.1.1 Critical software will not be approved unless it can be authenticated in the field to ensure that the contents match exactly with the approved version.
- 12.1.2 The gaming supplier must provide authentication equipment to the AGCO for use in the field. The Registrar will determine the equipment's suitability for authentication purposes.
- 12.1.3 The authentication equipment provided by the supplier must meet the following criteria:
 - a) The authentication tool and all associated information must be resistant to outside tampering;
 - b) The authentication must be performed on a bit-by-bit level;
 - c) The entire software storage media must be verified;
 - d) It must employ a one-way hashing algorithm producing a message digest output of 128 bits at minimum or an equivalent methodology as accepted by the Registrar;
 - e) It must have a fast authentication process, capable of authentication at a speed acceptable to the Registrar; and
 - f) It must be capable of displaying the results of the authentication including, but not limited to, pass/fail or the calculated signature(s).
- 12.1.4 Suppliers must strive to minimize the number of authentication tools/devices used to authenticate across their platforms.
- 12.1.5 Any externally initiated authentication performed by the game must be secure so that it cannot be compromised.

13 Game Options

13.1.1 The gaming equipment must have the capability to set and display specific game options through the use of restricted technical procedures, e.g. require the use of a separate configuration program, as applicable. The following options are considered to be restricted:

- a) Jurisdiction;
- b) Denominations (hopper, coin acceptor, multi denom games, etc.);
- c) Game configuration (percentage, lines, etc.);
- d) Validation type;
- e) Serial Number;
- f) Maximum Bet Limit (regular game and multi denom game); and
- g) Progressive (type, levels, address).

13.1.2 The gaming equipment must have the capability to set and display the following additional game options, as applicable:

- a) Communication protocol(s) (e.g. SAS, G2S);
- b) Out-of-Service Mode;
- c) Attract Mode on/off;
- d) Credit Limit;
- e) Hopper Limit;
- f) Jackpot Limits;
- g) Acceptor Limits (bill and voucher);
- h) Bill Rejection Limit;
- i) Split Pay (type, amounts, etc.);
- j) Tower Light Configuration;
- k) Date and Time Clock;
- l) Sound;
- m) Coin Acceptor enable/disable;
- n) Bill Validator enable/disable;
- o) Printer enable/disable;
- p) Voucher Redemption enable/disable;
- q) Gaming Site information (name, address, etc.);
- r) Machine Cashout Limit (ultimate limit);
- s) Machine Identifier (polling address, terminal asset number, etc);
and
- t) Cashless enable/disable.

13.1.3 Once set, the game options in 13.1.2 must only be available while the game is in idle mode and while there are no credits on the machine, except for 13.1.2 c), j), k), l), q) and s).

14 Game Program

14.1 Media

- 14.1.1 The program media used to store executable programs that control game functions such as the operating system, game outcome, payout, security or accounting functions must not be alterable through any use of circuitry or programming of the device itself, unless the methodology used to alter any such media has been expressly approved by the Registrar.
- 14.1.2 Gaming equipment must test the integrity of critical software during power up and game reset functions for possible corruption. The test methodology must detect at least 99.99 percent of all possible failures and must reside and be loaded from non alterable memory. The use of algorithms such as Cyclic Redundancy Check (CRC), MD5 or better is encouraged. Detection of any error during this memory test must cause a tilt, and the gaming equipment must not be playable.
- 14.1.3 Gaming equipment control programs must check for any corruption of random access memory locations used for crucial gaming equipment functions including, but not limited to, information pertaining to the play and final outcome of the most recent game, the nine games prior to the most recent game, random number generator outcome, credits available for play, and any error states. These memory areas must be checked for corruption following game initiation but prior to display of the game outcome to the player. Detection of any corruption that cannot be corrected shall be deemed to be a game malfunction and must result in a tilt condition.
- 14.1.4 Program media must only contain the actual game program and data necessary for operation of the game. There must be no additional program or data records/files on the media.
- 14.1.5 The unused portion of ROM memory that is accessible by any means, for any program, must be set to a defined state, either hex FF or 00.
- 14.1.6 All gaming equipment that has programs in alterable storage media must:
- a) Fulfil the Alterable Storage Media standards, Section 1;
 - b) Employ a mechanism approved by the Registrar which tests unused or unallocated areas of any alterable media for unintended programs or data and tests the structure of the storage media for integrity. The mechanism must prevent further play of the gaming device if unexpected data or structural inconsistencies are found;
 - c) Provide a mechanism for keeping a record, in a form approved by the Registrar, anytime a control program component is added, removed, or altered on any alterable media. The record must contain a minimum of the last 10 modifications to the media and each record must contain the date and time of the action, identification of the component affected, the reason for the modification and any pertinent validation information;

- d) Provide, as a minimum, a two-stage mechanism for validating all program components on demand via a communication port and protocol approved by the Registrar. The first stage of this mechanism must verify all control components. The second stage must be capable of completely authenticating all program components, including graphics and data components in a maximum of 20 minutes. The mechanism for extracting the authentication information must be stored on a non-alterable storage medium that must be capable of being authenticated by a method approved by the Registrar.
- 14.1.7 Any gaming equipment executing control programs from electrically erasable or volatile memory must employ a mechanism approved by the Registrar that ensures the integrity of all control program components residing therein, including fixed data and graphic information and ensures that they are authentic copies of the approved components. Additionally, control program components, excluding graphics and sound components, must be fully verified at the time of loading into the electrically erasable or volatile memory, periodically during game operation and at minimum, following any game resets and power up. The mechanism must prevent further play of the gaming equipment if an invalid component is detected.

14.2 Program

- 14.2.1 The game program must check for any corruption of critical game data in non-volatile RAM locations, including at least the last ten games, current random number generator outcome, credits available for play, and any error conditions. This memory check must be performed following game initiation but prior to display of game outcome to the player.
- 14.2.2 Detection of any corruption of critical game data is considered to be either a:
- a) Recoverable Memory Corruption if at least one copy of critical memory is established to be good; or
 - b) Unrecoverable Memory Corruption.
- 14.2.3 If the game program detects a recoverable memory corruption, the game program may recover critical memory information in order to continue game play, if the game program:
- a) Re-creates all logical copies of the critical memory using a good logical critical memory as a source; and
 - b) Verifies that the re-creation of the critical memory was successful to identify a permanent physical memory failure.
- If a permanent physical memory failure is identified, the device must enter an unrecoverable memory corruption sequence.
- 14.2.4 An unrecoverable memory corruption must result in a RAM error that requires a full RAM clear. The gaming equipment must provide the capability for the contents of the RAM to be read through restricted technical procedures.
- 14.2.5 The gaming equipment must be capable of continuing the current game with all the current play features and information after a malfunction is cleared, where technically possible.

- 14.2.6 The game program must validate the entire contents of all program storage devices in the executable address space of a critical processor at least every time the CPU is reset. Parity and checksum methods are not acceptable.
- 14.2.7 The gaming equipment must retain all required meters in Section 18.2.1 in a way that preserves the data after power fluctuations and power failures including prolonged power off periods up to 60 days.
- 14.2.8 The gaming equipment must communicate with the Slot Monitoring System used to collect accounting information and monitor the security of the device.
- 14.2.9 After a RAM clear, the game must not initialize at a top award or extended game trigger on any selectable payline.

14.3 Game Play

- 14.3.1 The gaming equipment must only initiate game play:
 - a) While in idle mode and with all doors closed;
 - b) After credits have been registered;
 - c) After the player has selected the number of credits to be bet on that game; and
 - d) After the player initiates game play by pressing a play button, or similar.
- 14.3.2 There must be no hidden or undocumented buttons/touch points (if applicable) that affect game play anywhere on the screen, except as provided for by the game rules.
- 14.3.3 The gaming equipment must return to the player any coins or tokens accepted by it after the equipment has accepted the set maximum number of coins or tokens, or when the equipment is in a state which normally rejects additional coins.
- 14.3.4 The gaming equipment must use a random selection process per Random Number Generator standards, Section 23 in order to produce game outcomes.
- 14.3.5 The gaming equipment must not automatically alter paytables or any function of the equipment based on internal computation of the hold percentage or the playing history.
- 14.3.6 The gaming equipment must accurately display the game outcome as determined by the random number generator.
- 14.3.7 Virtual reel strips must be used when symbols are displayed, with symbol sequences followed as closely as technically possible, during video animation of reel spins. A symbol's appearance must remain the same during video animation of reel spins.
- 14.3.8 The following information must be clearly displayed on the gaming equipment:
 - a) Whenever the player redeems credits, the number of credits paid (until the next game starts, or until betting options are modified);
 - b) The amount won during the last game played for each individual bet (until the next game starts or betting options are modified);
 - c) The player options selected (e.g., bet amount, lines played) for the last complete game (until the next game starts or betting options are modified);
 - d) Each individual bet option (e.g. line to be played) so that the player is in no doubt as to which bet options are being played; and

- e) The winning combinations, e.g. payline(s) (on a video game this may be accomplished by drawing a line over the symbols on the paylines(s) and/or the flashing of winning symbols and line selection box. Where there are wins on multiple lines, each winning payline may be indicated in turn).
- 14.3.9 If the game contains a 'bonus feature', including a game-within-a-game, the following rules must be met:
- a) The game must clearly instruct the player how to proceed through the current game state;
 - b) The game must display to the player sufficient information to indicate the current status towards the triggering of the next bonus game, except for those bonus games that occur randomly;
 - c) The game must not adjust the likelihood (odds) of a bonus occurring, based on the history of previous games;
 - d) The game must make it clear to the player that they are in this mode to avoid the possibility of the player walking away from the machine not knowing the game is in a bonus mode.
- 14.3.10 The gaming equipment must return the credits wagered to the player in case of a draw, unless otherwise stated within the game rules.
- 14.3.11 The gaming equipment must have the following features concerning physical reels:
- a) The gaming equipment must monitor the position of reels to detect reel malfunctions;
 - b) The software must interpret sensor outputs to determine when a reel does not stop in the position selected by the gaming equipment, and cause an error or a tilt condition;
 - c) Each reel must re-spin automatically to the last valid play-mode result after the main door is closed, if the reel position has changed after the last play;
 - d) Each reel must spin at least one revolution per game; and
 - e) The gaming equipment must not provide a "nudge" feature.
- 14.3.12 If the outcome of a game cannot be influenced by the use of skill, the game must not offer an option to the player which appears to require skill, unless the game provides a disclaimer that states that player interaction has no impact on game outcome.

14.4 Near Miss

- 14.4.1 After the selection of game outcome, the gaming equipment must not make a variable secondary decision which affects the result shown to the player. For instance, the RNG chooses an outcome that the game will lose. The game must not substitute a particular type of loss to show to the player.

14.5 Card Games

14.5.1 Games depicting cards being drawn from a deck must satisfy the following requirements:

- a) Card selection must be from a deck of cards that correctly reflects the status of previously drawn cards;
- b) Cards removed from the deck must not be returned to the pack except as provided by the rules of the game depicted;
- c) The deck must not be reshuffled except as provided by the rules of the game depicted; and
- d) As cards are removed from the deck they must be immediately used as directed by the rules of the game (i.e. are not to be discarded due to adaptive behaviour by the gaming machine).

14.6 Ball Drawing Games

14.6.1 Games depicting balls being drawn from a barrel (e.g. Keno) must satisfy the following requirements:

- a) At the start of each play only balls applicable to the game are to be depicted;
- b) Balls removed from the barrel must not be returned to the barrel except as provided by the rules of the game depicted;
- c) The barrel must not be re-mixed except as provided by the rules of the game depicted; and
- d) As balls are drawn from the barrel they must be immediately used as directed by the rules of the game (i.e. are not to be discarded due to adaptive behaviour by the gaming machine).

14.7 Other Games

14.7.1 Game behaviour for other games such as horse/car/animal racing, golf/football, virtual reality, etc. will be assessed on a case by case basis based on their representation, and any associated rules, of the corresponding live games.

14.8 Subliminal Messages

14.8.1 Gaming Equipment Suppliers must certify that their gaming equipment contains no intentionally programmed subliminal messages.

15 Hopper

- 15.1.1 The hopper must be designed to dispense specific coins to the coin tray based on the physical properties of coins, such as size and mass.
- 15.1.2 The hopper must be located in a secure, locked area of the gaming equipment.
- 15.1.3 Access to the hopper bowl, mechanism or coins must not be possible from the outside of the gaming equipment.
- 15.1.4 The hopper must not provide an abnormal payout, (e.g. when it is exposed to higher levels of electrostatic discharge, or if power is lost at any time during a payout).
- 15.1.5 It is recommended that the hopper be equipped with additional “integrity checking” capability to cause a tilt condition if tampering and/or improper functioning of the hopper is suspected.
- 15.1.6 The game must detect and report the following tilt conditions as a minimum and normal play may not resume until the problem has been rectified:
 - a) Hopper jam;
 - b) Extra coins paid out or hopper runaway;
 - c) Hopper empty;
 - d) Hopper timed-out; and
 - e) Failed attempt to communicate with hopper during hopper payout.
- 15.1.7 The hopper must accurately communicate to the gaming equipment all coins dispensed. The gaming equipment must increment the appropriate accounting meters to reflect the numbers of coins (including any shaved coins) paid by the hopper.
- 15.1.8 The hopper must be capable of detecting and reporting a “hopper full” condition. The gaming equipment must divert coins to the drop when this condition is met.
- 15.1.9 The hopper must be resistant to manipulation by the insertion of a light source or any foreign object.

16 Kiosk

16.1 General Construction

- 16.1.1 Kiosks must take appropriate action (e.g. recover, reject voucher, display error messages, etc.) for all transactions in case of communication or power loss.
- 16.1.2 A kiosk must resist forced illegal entry and must retain evidence of any entry until properly cleared or until a new transaction is initiated. A kiosk must have a protective cover over the circuit boards that contain programs and circuitry used in the system communication and control of the kiosk, including any electrically alterable program storage media.
- 16.1.3 The cover and all secure areas of the kiosk must have controlled access via separate locking mechanisms with electronic security switches and be designed to permit installation of a security locking mechanism by the end user of the kiosk.

16.2 Program

- 16.2.1 A kiosk must have settable limits for consecutive cash transactions and maximum redemption limit.
- 16.2.2 The kiosk supplier must provide the AGCO with an acceptable method of externally authenticating the contents of the program media to ensure the contents match the approved version. This authentication must be of a similar level as that in Section 12.
- 16.2.3 A mechanism must exist to prevent any unauthorized changes to the database information.
- 16.2.4 Each kiosk must restrict login access to authorized personnel only.
- 16.2.5 Kiosks must include a means to protect against transaction failure and data loss due to communications loss. The kiosk must update all critical information upon reconnection and must not alter the state of any transactions in the system until the completion of the transaction by the kiosk.
- 16.2.6 All kiosks must detect and display the following conditions:
 - a) Power reset;
 - b) Door open;
 - c) Door just closed;
 - d) Voucher Printer Paper Low; and
 - e) System communication loss. Non-system transactions may continue while system communication is down.

These conditions may be automatically cleared by the kiosk when the condition no longer exists and upon completion of a new transaction.

16.2.7 All kiosks must detect and display the following error conditions that prohibit new transactions and may only be cleared by an attendant:

- a) Failed to make payment;
- b) Insufficient funds;
- c) Bill validator failure; and
- d) Printer failure.

16.3 Communication with Slot Monitoring System

16.3.1 Each connected kiosk must be uniquely identified by the system. This includes kiosks that are connected to the system through a gateway or kiosk server.

16.3.2 Each kiosk must employ a secure communication method between the redemption kiosk and the system.

16.3.3 Each kiosk must be capable of synchronizing its real time clock to that of the Slot Monitoring System or Cashless Wagering System, or accurately report the time of transaction to the Slot Monitoring System or Cashless Wagering System.

16.4 Reports

16.4.1 All kiosks must be equipped with electronic digital storage meters of at least ten digits that can be displayed upon demand and that accumulate the following information in dollars and cents when applicable:

- a) Physical Coin In: The kiosk must have a meter specifically labelled "Physical Coin In" that accumulates the value of all coins accepted by the kiosk;
- b) Physical Coin Out: The kiosk must have a meter specifically labelled "Physical Coin Out" that accumulates the value of all coins paid by the kiosk;
- c) Voucher In: The kiosk must have a meter specifically labelled "Voucher In" that accumulates the total value of all gaming equipment wagering vouchers accepted by the kiosk;
- d) Voucher Out: The kiosk must have a meter specifically labelled "Voucher Out" that accumulates the total value of all gaming equipment wagering vouchers issued by the kiosk;
- e) Bill In: The kiosk must have a meter specifically labelled "Bill In" that accumulates the total value of currency accepted. Additionally, the gaming equipment must have a specific meter for each denomination of currency accepted that records the number of bills accepted by the kiosk; and
- f) Bill Out: The kiosk must have a meter specifically labelled "Bill Out" that accumulates the total value of currency dispensed. Additionally, the gaming equipment must have a specific meter for each denomination of currency dispensed that records the number of bills dispensed by the kiosk.

16.4.2 All kiosks must have the capacity to display a complete transaction history for the last thirty-five transactions at minimum prior to the most recent transaction for each of the following transaction types.

- a) Voucher Redemption;
- b) Jackpot Redemption;
- c) Bill Breaking; and
- d) Wagering Account Transactions.

The history must include disposition of transaction, date and time of transaction, and the amount of transaction.

16.4.3 Kiosk or kiosk-associated equipment must be capable of producing the following reports upon demand:

- a) Voucher Transaction Report: Report must include the disposition (paid, partial pay, unpaid, etc.) of vouchers accepted by the kiosk, the validation number, the date and time of redemption, and the amount. This information must be available by reconciliation period (i.e. by day, shift or drop cycle); and
- b) Reconciliation Report: Report must include the cash balance of the kiosk, the voucher balance in total by dollar amount and by voucher count of the kiosk, and the reconciliation period date and time.

17 Last Game Recall

- 17.1.1 All gaming equipment must have the capability to display a complete play history for the most recent game played and nine games prior to the most recent game. Retention and display of prior games is also preferred. The display must indicate the following information conditions in a clear and understandable manner, and in the same sequence as the original game play:
- a) Game outcome (or a representative equivalent);
 - b) Intermediate play steps (such as a hold, auto hold and draw sequence or a double-down sequence);
 - c) Information necessary to determine the credits available at the start and end of game;
 - d) Bets placed per line and the number of lines bet;
 - e) Credits or coins won;
 - f) Credits cashed out; and
 - g) Any progressive awarded.
- 17.1.2 The last game recall shall include all bonus, secondary and game-within-a-game activity. Gaming equipment offering games with a variable number of intermediate play steps per game may satisfy this requirement by providing the capability to display the last 50 play steps.
- 17.1.3 The last game recall must be available in the game idle mode, including when the gaming machine is tilted, except during critical error conditions (e.g. game freeze).
- 17.1.4 The gaming equipment must clearly indicate when it is in game recall mode.
- 17.1.5 All gaming equipment must have the capability to display a complete transaction history for the most recent transaction with a cashless wagering system, and the previous thirty-four transactions prior to the most recent transaction, that incremented any of the in-meters and out-meters identified in Section 18.2 i), j) r) and s). Retention of meter history for prior transactions is recommended.

18 Meters

18.1 General Considerations

- 18.1.1 Meters must provide sufficient information to calculate gaming equipment payback and track wagering instruments (such as bills, tokens, vouchers) in and out of gaming equipment.
- 18.1.2 Gaming equipment that uses a bill validator must retain in its memory and display, at minimum, the denominations of the last ten bills inserted.
- 18.1.3 Gaming equipment that uses a ticket printer must retain in its memory and display, at minimum, the information from Section 5.1.7 b) to f) of the last thirty-five tickets to resolve player disputes.

18.2 Accounting Meters

- 18.2.1 All gaming equipment must be equipped with electronic digital storage meters of at least 10 digits capable of displaying the information listed in this section on demand. These meters, listed below, must accumulate the following information in units equal to the denomination of the equipment or in dollars and cents. Equipment configured for multi-denomination play must display the required information in dollars and cents.
 - a) Coin In: Accumulates the total value of all wagers, whether the wagered amount results from the insertion of coins, tokens, currency, tickets, vouchers, deduction from a credit meter or any other means. This meter must:
 - i) not include subsequent wagers of intermediate winnings accumulated during game play sequence such as those acquired from “double up” games,
 - ii) for multi-game multi-denomination/multi-game gaming equipment, provide the information necessary, on a per payable basis, to calculate a weighted average theoretical payback percentage, and
 - iii) for gaming equipment which contains paytables with a difference in theoretical payback percentage which exceeds 4 percent between wager categories, maintain and display coin in meters and the associated theoretical payback percentage for each wager category with a different theoretical payback percentage, and calculate a weighted average theoretical payback percentage for the paytables.

Wager categories with payback percentages differences of less than 0.1% may be grouped together and reported as one wager category.
 - b) Coin Out: Accumulates the total value of all amounts directly paid by the gaming equipment as a result of winning wagers, whether the payout is made from the hopper, to a credit meter or by any other means. This meter will not record amounts awarded as the result of an external bonusing system or a progressive payout, or for bills inserted and cashed out without any wager being placed/played;
 - c) Coin Drop: Accumulates the total value of coins or tokens diverted to the drop, and the credit value of all bills and tickets inserted into the bill acceptor for play (NOTE: it is acceptable to have separate ‘drop’ meters for coins, bills and tickets);

- d) Attendant Paid Jackpots: Accumulates the total value of credits paid by an attendant resulting from a single winning alignment or combination, the amount of which is not capable of being paid by the gaming equipment itself. This does not include progressive amounts or amounts awarded as a result of an external bonusing system;
- e) Attendant Paid Cancelled Credits: Accumulates the total value paid by an attendant resulting from a player initiated cash-out that exceeds the physical or configured capability of the gaming equipment to make the proper payout amount;
- f) Physical Coin In: Accumulates the total value of coins or tokens inserted into the gaming equipment;
- g) Physical Coin Out: Accumulates the value of all coins or tokens physically paid by the gaming equipment;
- h) Bill In: Accumulates the total value of currency accepted. Additionally, the gaming equipment must have a specific meter for each denomination of currency accepted that records the number of bills accepted of each denomination;
- i) Voucher In: Accumulates the total value of all gaming equipment wagering vouchers accepted by the gaming equipment;
- j) Voucher Out: Accumulates the total value of all gaming equipment wagering vouchers and payout receipts issued by the gaming equipment;
- k) Reserved;
- l) Reserved;
- m) Reserved;
- n) Non-Cashable Electronic Promotion In: Accumulates the total value of non-cashable credits electronically transferred to the machine from a promotional account by means of an external connection between the machine and a cashless wagering system;
- o) Cashable Electronic Promotion In: Accumulates the total value of cashable credits electronically transferred to the machine from a promotional account by means of an external connection between the machine and a cashless wagering system,
- p) Non-Cashable Electronic Promotion Out: Accumulates the total value of non-cashable credits electronically transferred from the machine to a promotional account by means of an external connection between the machine and a cashless wagering system,
- q) Cashable Electronic Promotion Out: Accumulates the total value of cashable credits electronically transferred from the machine to a promotional account by means of an external connection between the machine and a cashless wagering system,
- r) Coupon Promotion In: Accumulates the total value of all gaming equipment coupons accepted by the gaming equipment;
- s) Coupon Promotion Out: Accumulates the total value of all gaming equipment coupons issued by the gaming equipment;
- t) Machine Paid External Bonus Payout: Accumulates the total value of additional amounts awarded as a result of an external bonusing system and paid by the gaming equipment;
- u) Attendant Paid External Bonus Payout: Accumulates the total value of amounts awarded as a result of an external bonusing system paid by an attendant;

- v) Attendant Paid Progressive Payout: Accumulates the total value of credits paid by an attendant as a result of progressive awards that are not capable of being paid by the gaming equipment itself;
 - w) Machine Paid Progressive Payout: Accumulates the total value of credits paid as a result of progressive awards paid directly by the gaming equipment. This meter does not include awards paid as a result of an external bonusing system;
 - x) Machine Paid Mystery Jackpot Payout, for games with mystery jackpots that do not use associated equipment that records this meter;
 - y) Attendant Paid Mystery Jackpot Payout, for games with mystery jackpots that do not use associated equipment that records this meter;
 - z) Progressive occurrence meter: Accumulates the number of times each progressive meter is awarded by the gaming equipment; and
 - aa) Such other meters as may be required by the AGCO in the future.
- 18.2.2 Each game-within-a-game, other than a game with a theoretical payout percentage equal to 100 percent, shall have sufficient independent meters for reconciling the game.
- 18.2.3 All gaming equipment must be equipped with a mechanism, equipment or method which retains the value of all the required meters listed above in the event of power loss to the equipment.
- 18.2.4 For gaming equipment that are unable to display the specific meter labels required, gaming equipment may use a legend to indicate what information a specific meter accumulates.
- 18.2.5 For gaming equipment that does not use the associated functionality in the field, the Registrar may waive Section 18.2.1 i) through z).
- 18.2.6 Gaming equipment must have electronically stored meters of at least 8 digits that record and display on demand the number of games played:
- a) Since last power reset;
 - b) Since most recent door close; and
 - c) Since game initialization (RAM clear).
- 18.2.7 Unless a tilt condition or other malfunction exists, gaming equipment must have meters continuously displaying the following information to the player in units equal to the denomination of the equipment, in dollars and cents or in other units approved by the Registrar, as they pertain to the current play or monetary transaction:
- a) The coins or credits wagered;
 - b) The coins or credits won, if applicable;
 - c) The coins paid by the hopper for a credit cash-out or a direct pay from a winning outcome; and
 - d) The credits available for wagering, if applicable.
- 18.2.8 No accounting imbalance may exist due to rounding.

19 Mystery Jackpots

- 19.1.1 Mystery jackpot games that have a progressive jackpot must fulfill the requirements consistent with the requirements for regular progressive games, except for 22.2.1.
- 19.1.2 The mystery jackpot must be triggered randomly.
- 19.1.3 The machine that receives the mystery jackpot must be playable with credit on the game, or in play, to be awarded the jackpot.
- 19.1.4 Mystery jackpots with multiple award levels are permitted:
 - a) Provided that all jackpots can be randomly achieved by any of the linked machines that are in play; and
 - b) By any eligible linked machine, wherein a specific (e.g., card) qualification is needed to provide eligibility.
- 19.1.5 Conditions for triggering the mystery jackpot must be displayed to the patron.

19.2 Mystery Jackpot Equipment

- 19.2.1 All mystery jackpot controllers must be capable of being housed in a secured cabinet to preclude any unauthorized alterations to the progressive amounts.
- 19.2.2 Secure physical lines must be used for communication between mystery jackpot equipment.
- 19.2.3 The installation and operation of controllers must not adversely affect regular game operation.
- 19.2.4 The mystery jackpot odds must only be capable of being changed by using restricted technical procedures to make software or hardware changes.
- 19.2.5 When a mystery jackpot is hit, the winning gaming equipment must award and display the jackpot amount. The gaming equipment must lockup if an attendant pay is required. All other gaming equipment must continue the mystery jackpot game.
- 19.2.6 The mystery jackpot must be cleared by an attendant key or other approved restricted technical procedure upon jackpot verification for attendant paid amounts.
- 19.2.7 Mystery jackpot controller programs must employ self-authentication and data integrity checks equivalent to 16-bit CRC method or better. If the integrity checks detect program or data failure, the controller must clearly display an error code and the mystery controller must be disabled.
- 19.2.8 There must be a mechanism to authenticate all software components of mystery jackpot controllers on demand by a method approved by the Registrar.

19.3 Mystery Jackpot Communications

- 19.3.1 Mystery jackpot systems must include a means to protect against data loss due to power or communication loss. The system must update all critical information upon reconnection.

19.3.2 The communication between gaming equipment and mystery jackpot controllers must employ a secure, real-time, two-way communication protocol. Mystery jackpot communications may only be used for mystery jackpot functions and to complement game approved functions, such as those listed below:

- a) Exchange mystery jackpot data, such as mystery jackpot amounts and wagers;
- b) Transmit events, such as a mystery jackpot hit;
- c) Communicate the operational status, such as non-operational gaming equipment, or mystery jackpot controller error;
- d) Communicate security messages, such as gaming equipment door opened;
- e) Communicate other meaningful data such as game performance, gaming machine diagnostic information, and other similar data as approved by the Registrar.

19.3.3 Whenever mystery jackpot gaming equipment loses communication with the mystery jackpot controller, the equipment must either:

- a) Immediately inform the patron of the situation with a message that is visible to the patron at all times and is only removed after the condition has been resolved, or
- b) Disable itself from further play, allow player to cash out current credits or lock-up in handpay, and disable coin and bill acceptors.

(This requirement will become effective on April 1, 2008).

19.4 Mystery Jackpot Meters

19.4.1 Meters must be available to reconcile, by machine, the values and number of mystery jackpots awarded and the amount wagered in the mystery jackpot game, either through the gaming equipment or the mystery jackpot controller.

19.4.2 Mystery jackpot controllers/system must have the following soft meters at minimum:

- a) Current mystery jackpot awards;
- b) The mystery jackpot increment rates;
- c) Base/reset mystery jackpot amounts; and
- d) Maximum mystery jackpot awards.

19.4.3 Mystery jackpot controllers must have a record of at least the last jackpot hit for each jackpot level.

19.4.4 Multi-level and secondary mystery jackpot awards are considered to be independent and separate events, and, as such must fulfill the requirements consistent with these standards.

19.4.5 For the purpose of auditing and tracking of progressive games, a feature must exist in the mystery jackpot controller/system to download or view mystery jackpot information including, but not limited to: mystery jackpot settings (minimum and maximum award, mystery jackpot increment rates), configuration (progressive games IDs), accounting data and jackpot history.

20 Paytables

20.1 Payback Percentage

- 20.1.1 The minimum theoretical payout percentage of a game must be met without including awards with odds greater than 1 million: 1.
- 20.1.2 The gaming equipment must have a minimum theoretical payout percentage of eighty five (85.000) percent for each wager available on the game.
- 20.1.3 The theoretical payout percentage of skill and/or strategy card games (e.g. poker) and non-card games that disclose the optimal strategy will be calculated using optimal strategy. The minimum theoretical payout percentage must be eighty eight (88.000) percent for all such games.
- 20.1.4 The theoretical payout percentage of skill and/or strategy non-card games that provide information to the patron that is sufficient to derive the optimal strategy will be calculated using blind strategy (random choice). The minimum theoretical payout percentage must be eighty five (85.000) percent for all such games.
- 20.1.5 Games with elements of skill and/or strategy that do not disclose the optimal strategy or provide other information to the patron that is sufficient to derive the optimal strategy are not permitted.
- 20.1.6 The minimum percentage requirement must be met when playing any bet configuration. This requirement extends to games such as Keno, whereby the continuous playing of a certain spot combination may result in a theoretical payout percentage lower than the minimum required percentage.
- 20.1.7 A higher wager must not pay less than a lower wager payout percentage for the same payable and wager category (i.e., number of lines bet or bet per line).
- 20.1.8 The theoretical payout percentage of a free play spin must be equal to or greater than the theoretical payout percentage of the primary game.
- 20.1.9 Once a patron has achieved the highest award offered on a play by a strategy/skill feature, the gaming equipment must not permit the patron to risk the award by making an additional strategy or skill choice.
- 20.1.10 For multi-denomination games, the payout for any denomination must be the same or higher than all lower denominations for the identical game, unless the player is informed of using a different payout/paytable. This requirement may be satisfied through the selection of paytables as a restricted game option.
- 20.1.11 The following must not be included in the calculation of minimum payout:
 - a) Any cash or non-cash prize that is not part of the game;
 - b) Any merchandise award;
 - c) Any progressive amount above the normal amount paid by the game for that winning combination;
 - d) Any limited time payout;
 - e) Any game-within-a-game award;
 - f) Tournament game play;
 - g) Any externally controlled mystery or bonus awards.

- 20.1.12 The addition of an attendant paid bonus, prizes, a progressive jackpot, or a change in rate of progression of an existing progressive jackpot is not considered to be a change in theoretical payout percentage of the gaming equipment.
- 20.1.13 The theoretical payout percentages of enabled games in gaming equipment must not be capable of being changed without making software or hardware changes in the gaming equipment, using restricted technical procedures.

20.2 Volatility

- 20.2.1 The intent of the following standards is to avoid potentially large deviations of a game's actual payback from its theoretical payback, and to achieve the minimum required payback within the game's expected lifetime.
- 20.2.2 In the following calculations, the contribution of shared prizes (e.g. wide area progressive jackpots) is excluded, due to the large number of machines that share these prizes. These games will be considered on a case-by-case basis with the same intent in mind.
- 20.2.3 The volatility index calculated for 10,000 single line handle pulls must not exceed 100%.
- 20.2.4 The volatility index (VI), the game theoretical payback (GTP) and the minimum required payback (MRP) from Sections 20.1.2, 20.1.3, 20.1.4 (85.000% or 88.000%, including all awards) must satisfy the following relationship:

$$VI \leq (GTP - MRP) \times 31.623$$

For example: Using the expected average volatility index of 18.500%, this formula works out to state the following:

$$18.500\% \leq (GTP - 85.000\%) \times 31.623$$
$$85.585\% \leq GTP$$

20.3 Award Odds

- 20.3.1 The top award must not have odds exceeding 17 million: 1. All other awards and accumulated awards displayed on the gaming equipment must not have odds exceeding 34 million : 1.
- 20.3.2 Any single shared Wide Area Progressive award may have odds of up to 50 million: 1. These games will be evaluated on a case-by-case basis taking into consideration the prize amount, the intended use, number of games, etc.
- 20.3.3 The odds of all base game reel combinations must be the same for all wagers on any one paytable.

20.4 Reel Strips

20.4.1 Games with reels must meet the following requirements for each of the game's reels:

- a) For single-line games, jackpot symbols may not appear in their entirety more than 12 times, on average, adjacent to the payline, for every time they appear on the payline;
- b) For multi-line games, jackpot symbols must not appear in their entirety more than 12 times, on average, not on any payline, for every time they appear on any payline; and
- c) All symbols, including blanks, must each occupy a space with a minimum length of $(L/N)*0.4$ and maximum length of $(L/N)*1.6$, where L is the length of the physical reel strip and N is the number of physical stops on the reel strip. Each symbol must not overlap the space of any other adjacent symbol, including blanks.

20.4.2 All blank and non-blank symbols must be centred in their respective space allocation.

20.4.3 If virtual reels that map to physical reels are used, each of the reel stops of the virtual reel strip shall be mapped to a physical symbol and shall have the same probability of occurring (i.e. if the virtual reel consists of N positions, the probability of occurrence of each position must be $1/N$). There cannot be any physical symbol with a virtual reel weight of zero; all physical reel symbols must have a non-zero probability to occur.

20.5 Extended Play

20.5.1 All gaming equipment, offering a bonus game or extended feature that requires player interaction, is prohibited from automatically making selections or initiating games or features unless it clearly explains the auto-initiation or selection mechanism and meets one of the following requirements:

- a) The patron is presented with a choice and specifically acknowledges their intent to have the gaming equipment auto-initiate the bonus or extended play feature by means of a button press or other physical/gaming equipment interaction;
- b) The bonus or extended feature provides only one choice to the patron i.e., press button to spin wheel. In this case, the equipment may auto initiate the bonus or extended feature after a time out period of at least two minutes.

20.5.2 Unless expressly approved by the Registrar, after finding that a particular type of proposed scripting would not be deceptive, scripting shall not be permitted in any game. Jackpot, extended play or bonus scripting may be permitted if:

- a) It does not occur in the primary game;
- b) It does not include any outcome for which no prize is awarded; and
- c) It does not display any unachievable result.

20.6 Double-Up

- 20.6.1 The gaming equipment may optionally provide a double-up feature. When a double-up feature is provided, the player must be given a choice of whether to enter the double up game. Initial entry to a double-up game must be conditional on an immediately preceding occurrence of a winning event in the primary game. A progressive prize must not allow entry into a double up game.
- 20.6.2 The patron must be asked clearly, in a manner acceptable to the Registrar, if they wish to take a chance to win a bigger prize with the possibility of losing their current award.
- 20.6.3 The double-up game must have a 100% theoretical payout percentage to the player.
- 20.6.4 If, by winning a double up game, it would be possible for a player to exceed the top prize of the game or the attendant pay limit of the gaming machine, they must not be permitted to enter the double up game.

21 Printer

21.1 Interaction with the game

- 21.1.1 Printers must only print a voucher upon communication initiated by the gaming equipment.
- 21.1.2 The gaming equipment must only update the relevant meters and transaction logs upon successful printing of the voucher. As a minimum, the leading edge validation number must be printed on the voucher for the voucher to be considered valid.
- 21.1.3 The gaming equipment or printer must make an audible alarm when the voucher is ready for collection and must not allow the printing of another voucher until the previous voucher has been collected.
- 21.1.4 The printer must be automatically disabled as a cashout device under any of the following conditions:
 - a) Host gaming equipment is in game play mode;
 - b) Host gaming equipment is in slot tournament or administrative mode;
 - c) Empty paper tray.

21.2 Tilts

- 21.2.1 The gaming equipment must enter an error condition and disable itself under any of the following conditions until an attendant clears the error condition:
 - a) Printer tray open;
 - b) Printer mechanism paper jam;
 - c) Printer Hardware/Software Error;
 - d) Printer Communication Error;
 - e) Voucher presentation error, e.g. incomplete printing. Game play may continue if an alternative method is available to complete the transaction or the condition does not prohibit the transaction from being completed; and
 - f) Printer disconnected which may be detected only when the software tries to print.
- 21.2.2 If the printer is equipped with a low paper tray sensor, a printer option to enable/disable the low paper sensor is preferred.

21.3 Printing Integrity

- 21.3.1 At minimum, the following information must be printed or displayed on the voucher:
 - a) The name of the Gaming Site issuing the voucher;
 - b) Gaming equipment or printer station identifier, as applicable;
 - c) Date and time of issuance;
 - d) Payment amounts in both alphabetic and numeric characters;
 - e) Sequence number;
 - f) Unique validation number;
 - g) Second printing of validation number on the leading edge of the voucher;
 - h) A magnetic strip or bar code consisting of at least the validation number;
 - i) Transaction type or other acceptable method of differentiating between voucher/coupon types;
 - j) Expiration date or period when the voucher will expire, if applicable; and

- k) At least one anti-counterfeiting measure (may be imbedded in paper stock).
- 21.3.2 The printer must not print duplicate vouchers.
- 21.3.3 Printers must be located in a locked area of the gaming equipment, but not in the logic area or the drop box.
- 21.3.4 The printer must satisfy Standards 4.4 and 4.5.

22 Progressives

22.1 Progressive Jackpots

- 22.1.1 Progressive gaming equipment that contributes to a common progressive award must:
- a) Have the same expected value (the product of amount wagered and jackpot probability) of progressive jackpot awards to play a single progressive game;
 - b) Increment the progressive meter at the same percentage of wager for each progressive game played; and
 - c) All use the same initial/reset progressive amount for a given progressive level, which must be equal to or greater than the corresponding award from the gaming equipment payable.
- 22.1.2 No progressive jackpot award may have odds exceeding 17 million: 1 for progressive games linked in a single gaming establishment.
- 22.1.3 No WAP progressive jackpot awards may have odds exceeding 50 million:1 for progressive games linked among multiple gaming establishments. The initial/reset amount for such awards that have odds exceeding 17 million:1 must be at least \$100,000.

22.2 Progressive Equipment

- 22.2.1 Progressive meters must be available from all associated progressive gaming equipment for participating patrons to view at all times.
- 22.2.2 Progressive meters must be capable of displaying the maximum progressive amount rounded to two decimal digits in real time.
- 22.2.3 The progressive jackpot amount may be updated on the progressive meters in either scrolling, snap rollup mode or other method provided it is not confusing or misleading to the player.
- 22.2.4 All progressive controllers must be capable of being housed in a secured cabinet to preclude any unauthorized alterations to the progressive amounts.
- 22.2.5 The method by which system jackpot parameter values (e.g. reset amount, increment rate, etc.) are modified or entered must be secure.
- 22.2.6 The progressive jackpot odds must only be capable of being changed by using restricted technical procedures to make software or hardware changes.
- 22.2.7 Secure physical lines must be used for communication between progressive equipment.
- 22.2.8 The installation of controllers and the progressive operation must not adversely affect regular game operation.
- 22.2.9 When a progressive jackpot is hit, the winning gaming equipment must award the jackpot amount and the imbedded progressive meter must immediately display the jackpot amount. The gaming equipment must lockup if an attendant pay is required. All other gaming equipment must display the reset progressive amount and continue the progressive game.

- 22.2.10 An attendant key and key switch on the gaming equipment, or other restricted technical procedure, must be used to clear the progressive jackpot on the gaming equipment upon jackpot verification for attendant paid amounts.
- 22.2.11 Progressive controller programs must employ self-authentication and data integrity checks equivalent to 16-bit CRC method or better. If the integrity checks detect program or data failure, the progressive meters and controller must clearly display an error code in place of the progressive award, the progressive controller must be disabled and all gaming equipment connected to the controller must be disabled. For multi-game machines, non-progressive games may continue to be played provided the patron is informed that the progressive is no longer available.
- 22.2.12 There must be a mechanism to authenticate all software components of progressive controllers on demand by a method approved by the Registrar.

22.3 Progressive Communications

- 22.3.1 Progressive systems must include a means to protect against data loss due to power or communication loss. The system must update all critical information upon reconnection.
- 22.3.2 The communication between gaming equipment and progressive controllers must employ a secure, real-time, two-way communication protocol.
- 22.3.3 Progressive communications may only be used for progressive functions and to complement game approved functions, including:
- a) Exchange of progressive data, such as progressive amounts and progressive wagers;
 - b) Transmission of events, such as a progressive jackpot hit;
 - c) Communication of the operational status, such as non-operational gaming equipment, or progressive controller error;
 - d) Communication of security messages, such as gaming equipment door opened;
 - e) Other meaningful data such as gaming machine diagnostic information and other similar data as approved by the Registrar.
- 22.3.4 Any new or modified gaming equipment which is used with a progressive controller or any other associated equipment that is intended to signal a jackpot hit of any level must provide a complex signal consisting of at least eight logical transitions involving time and magnitude. The gaming equipment may optionally provide an additional jackpot signal intended for use with older progressive equipment.
- 22.3.5 Whenever progressive gaming equipment loses communication with the progressive controller, the equipment must immediately disable itself from further play, allow player to cash out current credits or lock-up in handpay, and disable coin and bill acceptors. On multi-game machines, only games participating in the progressive must be disabled.
- (This requirement will become effective on April 1, 2008).

- 22.3.6 When a controller error occurs, an appropriate error message must be displayed that is visible to the players.
- 22.3.7 Progressive gaming equipment must have the following progressive soft meters:
- a) The amount wagered in the progressive game (individual contribution to the common progressive award); and
 - b) Number of times a progressive jackpot is hit (progressive occurrence meter).
- 22.3.8 Progressive controllers must have the following soft meters at minimum:
- a) Current progressive award;
 - b) The rate of progressive increments;
 - c) Base/reset progressive amount;
 - d) Maximum progressive award.
- 22.3.9 Progressive controllers must have a record of at least the last progressive jackpot hit for each progressive level.
- 22.3.10 Multi-level and secondary progressive jackpot awards are considered to be independent and separate events, and, as such must fulfill the requirements set out in these standards.
- 22.3.11 Game outcomes or events that trigger the progressive jackpot must be clearly displayed.
- 22.3.12 If, under some circumstances, the same winning combination can be associated to multiple progressive levels; such combinations must trigger the highest progressive amount.
- 22.3.13 For the purpose of auditing and tracking of progressive games, a feature must exist to download or view progressive information including: progressive game settings (minimum and maximum award, progressive increment), configuration (progressive games IDs), accounting data and jackpot history.

23 Random Number Generator (RNG)

- 23.1.1 Random numbers must be:
- statistically independent,
 - uniformly distributed over their range,
 - able to pass various recognized statistical tests, and
 - unpredictable.
- 23.1.2 The RNG must be capable of generating all possible game outcomes (winning and losing combinations) in each play
- 23.1.3 Each possible permutation or combination of game elements which produce winning or losing game outcomes must be available for random selection at the initiation of each play.
- 23.1.4 The probability of achieving any specific game outcome must be constant.
- 23.1.5 The probabilities of game outcomes in live games must be preserved (the same) in electronic games (e.g. card games).
- 23.1.6 The RNG output and its corresponding game outcome must not exhibit detectable patterns of game elements or correlation with any previous game play.
- 23.1.7 The RNG output and its corresponding game outcome must not be dependant upon the amount wagered, style or method of play.
- 23.1.8 The range of random numbers must be scaled (projected) to match the range used in the particular game, and as such, the scaled random numbers must also meet the requirements from 23.1.1. Specifically, the scaled random numbers must produce statistics that lie within the 95% confidence interval for various game specific, empirical statistical tests based on the Chi-Squared and/or Kolmogorov-Smirnov evaluation methods. The applicable tests are chosen in a way to match the grouping of random numbers to form game outcomes.
- 23.1.9 The game outcomes must pass “goodness of fit” test based on Chi-Squared evaluation with 95% confidence.
- 23.1.10 The gaming equipment must not make any secondary decision to change the RNG numbers or their associated outcomes.
- 23.1.11 Software RNGs must cycle continuously at the rate of at least 30 random numbers per second.
- 23.1.12 The method of seeding must ensure that the same sequence is not repeated in more than one device at the same time.
- 23.1.13 The RNG and/or gaming equipment must implement a mechanism to prevent the determination of seeds.
- 23.1.14 The RNG seed must be re-initialized, if corrupted.
- 23.1.15 Current (non-projected) random numbers, corresponding to the current game outcome, must be stored in non-volatile memory.

23.1.16 Physical RNGs used in electronic games must not wear to the extent that degrades the properties of randomness over the lifetime of gaming equipment.

23.1.17 The RNG and random selection process must be impervious during the game play to influences from outside the equipment including, but not limited to, electro-magnetic interference, associated gaming equipment, players and operators.

24 Safety

- 24.1.1 The gaming equipment, including all associated equipment, must comply with the standards established by the Canadian Standards Association (“CSA”) and the Ontario Electrical Safety Code (Rule 2-022).
- 24.1.2 The gaming equipment must have a safety mark from an organization accredited by the Standards Council of Canada for such safety certification.
- 24.1.3 The supplier must provide written confirmation that the gaming equipment and all associated equipment meet the appropriate safety standards for operation in Ontario.

25 Test Modes

- 25.1.1 The gaming equipment must provide the following test modes:
- a) Audit mode - used for the purposes of verifying the last game including any status indicators, meters, etc.;
 - b) Game option mode - for the test setting and verification of game options.
- 25.1.2 The gaming equipment must have the following minimum test conditions, if applicable:
- a) Game and associated device software/firmware identification;
 - b) Hopper test;
 - c) Printer test;
 - d) Reel symbol & position test for mechanical reel spinning games;
 - e) LED display test;
 - f) Paytable test for mechanical reel spinning games;
 - g) Button panel test;
 - h) Video test;
 - i) Touch screen test;
 - j) Bill validator test;
 - k) Coin validator test;
 - l) Tower/Candle light test;
 - m) Input/Output tests (ie. doors, switches);
- 25.1.3 All of the test modes described in Section 25.1.1 must be provided under the following conditions:
- a) Gaming equipment is in idle mode;
 - b) Main door open status;
 - c) Attendant key or a restricted technical procedure is followed by authorized personnel to gain access to the available functions.
- 25.1.4 While the game is in test mode, the gaming equipment must clearly indicate that it is in a test mode and not in normal play
- 25.1.5 The gaming equipment must maintain all current states of the game, including any credits and reel positions, while in test mode and must restore these states upon completion of the test.
- 25.1.6 The gaming equipment must not increment any electronically stored digital meters during test mode.
- 25.1.7 Any credits obtained during test mode must be automatically cancelled when the game is returned to normal play mode.
- 25.1.8 The gaming equipment must return to in the original state it was in when the test mode was entered, after the main door is closed,
- 25.1.9 The test mode must not allow any changes to the operation of the game that will compromise security or integrity of the gaming equipment.

26 Tower Light

26.1 General Considerations

- 26.1.1 Gaming equipment must be equipped with a tower light located on top of the gaming equipment cabinet, or in the case of bar top games, there must be at least one tower light that is shared among all games on the bar.
- 26.1.2 The tower light must consist of two separate lights, one on top of the other, that function in accordance with the requirements specified in this section. Any additional lights may be approved by the Registrar provided they do not alter the purpose, operation and/or cause confusion regarding the function of the other two lights.
- 26.1.3 The tower light must not be obstructed from view.

26.2 Tower Light Colours

- 26.2.1 The upper light must always be white. The bottom light must identify the denomination of the respective gaming equipment. The colours of the bottom tower light for each denomination are as follows:

Gaming Equipment Denomination	Bottom Tower Light Cover Colour
\$0.01	Brown
\$0.02	White
\$0.03	White
\$0.05	Pink
\$0.10	Light Green
\$0.25	Yellow
\$0.50	Orange
\$1.00	Blue
\$2.00	Grey
\$5.00	Red
\$10.00	Teal
\$20.00	Green
\$100.00 and greater	Purple
Multi-denomination	Default denomination colour, or maximum denomination colour if no default available.

26.3 Tower Light Signals

26.3.1 At any one time, each of the two tower lights may be in one of the five states as follows:

- a) "Off" means the light is off;
- b) "On" means the light is on continually;
- c) "Slow Flash" means the light is flashing regularly at a 500 millisecond interval;
- d) "Medium Flash" means the light is flashing regularly at a 250 millisecond interval;
- e) "Fast Flash" means the light is flashing regularly at a 125 millisecond interval.

26.3.2 For the purposes of this section, there are three separate methods by which gaming equipment may be placed in an unplayable state:

- a) "Administrative mode" means an authorized person has placed the gaming equipment in an unplayable state in order to access the setup or recall functions of gaming equipment;
- b) "Disabled mode" means that an authorized person has placed the gaming equipment in an unplayable state for any reason other than those described in administrative mode; and
- c) "Tilt mode" means the gaming equipment placed itself in an unplayable state due to some type of malfunction or an exception condition whereby the gaming equipment cannot return to a playable state without intervention by an authorized person.

26.3.3 Each of the following combinations of light states must be displayed by the gaming equipment's tower light to indicate the appropriate gaming equipment operational status that is described below until the status is changed:

White (top) Light	Coloured (bottom) Light	Gaming Equipment Operational Status
Off	Off	Idle and the gaming equipment door(s) is closed
Off	Medium Flash	Idle and the gaming equipment door(s) is opened
Off	Fast Flash	Idle and the gaming equipment drop door is open
On	Off	Change or another service request by patron and the gaming equipment door is closed
On	On	Gaming equipment is in disabled mode
On	Medium Flash	The gaming equipment door is open and a) a patron is requesting change or another service; or b) the gaming equipment is in disabled mode
On	Fast Flash	The gaming equipment is in disabled mode or a patron is requesting change or another service, and its drop door is open
Slow Flash	Off	The gaming equipment is in tilt mode and its door(s) is closed
Slow Flash	Slow Flash	The gaming equipment is displaying a hand-paid jackpot combination and a) its door is closed; or

White (top) Light	Coloured (bottom) Light	Gaming Equipment Operational Status
		b) it has gone into tilt mode while its door is closed
Slow Flash	Medium Flash	1. The gaming equipment is displaying a hand-paid jackpot combination and a) its door is open; or b) it has gone into tilt mode while its door is open 2. The gaming equipment is in tilt mode and its door(s) is opened
Slow Flash	Fast Flash	The gaming equipment is displaying a hand-paid jackpot combination and a) its drop door is open; or b) it has gone into tilt mode while its drop door is open
Fast Flash	Off	The gaming equipment is in administrative mode and its door(s) is closed
Fast Flash	Medium Flash	The gaming equipment is in administrative mode and its door(s) is open
Fast Flash	Fast Flash	The gaming equipment is in administrative mode and its drop compartment door is open

26.3.4 The drop door and gaming equipment door open operational status conditions must have higher priority when more than one condition triggers the display of tower light.

26.3.5 Any other combination(s) of tower light states that are not indicated above must be submitted to the Registrar for approval before their use.

26.3.6 The operation of the tower light bulbs and, when provided, the configuration of the candle mode must be verified via the administrative mode or another method approved by the Registrar.

26.3.7 There must be no method of disabling the tower light via the administration mode.

27 Wide Area Progressives (WAP)

In addition to the Progressive Standards in Section 22, WAP systems must meet the following requirements:

27.1 WAP systems, hardware components and configuration

- 27.1.1 The main WAP system and associated database must be installed at a central monitoring site in the Province of Ontario. The central site must meet the Registrar's security requirements and procedures, including surveillance and authorized access. This system must have adequate backup systems to minimize loss of data. Only one central site may be live at any time. If two central sites are configured, the same configuration must be maintained at both central sites, and only one site may have its network interface active at a time. Database replication must be done at both central sites at all times, or there must be a method to ensure that data has been replicated before the backup site is available.
- 27.1.2 Any WAP progressive or communication controllers must be installed in a secure location at each gaming premises. Only one (primary) progressive control server can be active at any time.
- 27.1.3 The central system must use an Uninterrupted Power Supply (UPS).

27.2 WAP Systems, Specific Progressive Game Requirements

- 27.2.1 In case of a jackpot event, there must be a clear audible and visual indication, or another method to draw attention, at the central site providing the following information:
 - a) Date and time of jackpot;
 - b) Jackpot amount;
 - c) Jackpot ID (if applicable);
 - d) Gaming premises' ID where the jackpot is hit;
 - e) Winning gaming equipment ID.
- 27.2.2 In case of a jackpot event, the progressive meter(s) must reset automatically to the reset jackpot amount.
- 27.2.3 The WAP system must be capable of monitoring the linked progressive gaming equipment in real-time for security events, accounting information and operational status. This includes the number of active and inactive games.
- 27.2.4 There must be no information loss or any degradation to the operation of system at any time.
- 27.2.5 The data collected from gaming equipment monitoring and system settings must be saved electronically at the central site. Data must not be overwritten or altered, but may be archived. Any archived data must be available for generating reports. Access to database must be secured and controlled to prevent unintentional or unauthorized changes to data.
- 27.2.6 Current gaming equipment security events and changes in operational status of the on-line WAP system must be displayed, and preferably printed, immediately to the operator at the central site and preferably at the applicable gaming premises.

27.3 WAP Reports – General Requirements

- 27.3.1 Reports must provide sufficient information to support the intended purpose. Reports of gaming equipment security, accounting and operational status must be available to operators through a user friendly menu. On-demand reports must be available.
- 27.3.2 Reports must be available for display and for printing.
- 27.3.3 Reports must include summary totals for each gaming premises and a grand total for all gaming premises, as applicable.
- 27.3.4 Reports must include:
- a) Gaming premises name/ID, where appropriate;
 - b) Date and time of the report; and
 - c) Name of the report.
- 27.3.5 Security reports must provide the following minimum information for all or selected gaming equipment within a specified date & time range:
- a) Gaming equipment doors open/closed;
 - b) Gaming equipment ID; and
 - c) Date and time for each event.

27.4 Required WAP Reports

The following reports and specified data for each are required.

- 27.4.1 Accounting reports must contain the following minimum information:
- a) Jackpot reset amount;
 - b) Maximum jackpot amount, if applicable;
 - c) Game denomination;
 - d) Progressive increment;
 - e) Credits wagered;
 - f) The amount of all jackpots.
- 27.4.2 Operational status reports must contain the following minimum information:
- a) On-line gaming equipment;
 - b) Off-line gaming equipment;
 - c) Gaming equipment errors; and
 - d) Progressive controller errors.
- 27.4.3 The Contribution-To-Meter Report details the amount contributed to a specific jackpot by a gaming premises, indicating the contribution from each gaming equipment device. This report must contain the following minimum information:
- a) Gaming premises name;
 - b) Link ID;
 - c) Jackpot ID;
 - d) Jackpot start date;
 - e) Jackpot award date;
 - f) Total bet;
 - g) Reset amount;
 - h) Jackpot amount (current progressive amount);

- i) Gaming premises bet;
- j) Gaming premises contribution;
- k) Denomination;
- l) Cabinet and gaming equipment ID;
- m) Gaming equipment bet amount; and
- n) Gaming equipment jackpot contribution.

27.4.4 The Event and Error Log must contain the following minimum information:

- a) From date / to date (period);
- b) Event ID;
- c) Error ID (exception code);
- d) Log ID;
- e) Gaming premises ID;
- f) Link ID;
- g) Jackpot ID;
- h) Gaming equipment ID;
- i) Gaming equipment controller ID;
- j) Date and time for each event and error; and
- k) Event and error source and description.

27.4.5 The Audit Log Report lists changes to system link parameters or jackpot data values. This report must contain the following minimum information:

- a) Current system parameters: base amount, maximum amount and increment for all progressive levels;
- b) The user ID of the person who made the change;
- c) The data and time of change;
- d) The value of altered parameters before and after the change.

27.5 WAP Communication and Security

27.5.1 The system must have security to restrict access to only authorized personnel, for the following functions at minimum, based on segregation of duties:

- a) System administration including setup of user access privileges;
- b) Central system operation;
- c) Audit;
- d) Report generation;
- e) Setting up of system configurations; and
- f) Logging of all gaming devices.

The system must restrict access to only authorized users for any viewing, modifying or deleting of critical files and directories.

27.5.2 The system must provide at minimum, the capability for user passwords to:

- a) require to be changed at specific intervals as designated, or earlier,
- b) be of a minimum of six alpha-numeric characters,
- c) be locked out after certain number of unsuccessful attempts,
- d) be stored in the database in a format that is unreadable to any individual (encrypted).

- 27.5.3 Dedicated and secure communication lines must be used for communication between central site and gaming premises. Physical, secured communication lines must be used for communication from controllers at each gaming premises to all gaming equipment controllers. All such in-house communication lines must be designed and installed in a way to shield out any communication interference and to prevent any communication delays and jams that can adversely affect WAP operation.
- 27.5.4 When the method of communication is a shared line, appropriate encryption and security must be in place to avoid corruption or compromise of data.
- 27.5.5 All communication ports not used by the WAP system must be disabled, or must not allow any changes to the operation of the progressive system.
- 27.5.6 There must be a mechanism to allow only assigned computers (servers) to communicate within the WAP network, e.g. through the use of an access list.
- 27.5.7 All communication protocols implemented at all levels of WAP communications must be approved by the Registrar. All communication must be encrypted, or be transmitted on physically secure communication lines. All server computers, routers and other WAP components exposed to external communications must use firewall protection.
- 27.5.8 Computer access to WAP database server and controllers may only be possible through dedicated ports, using a method that includes user IDs, passwords and authorization/security levels and similar security measures.
- 27.5.9 Authorized remote access to the system must only be initiated through a procedure approved by the Registrar that limits such access.
- 27.5.10 In the case of communication loss between the gaming equipment and the gaming premises WAP controller, the associated gaming equipment must be disabled automatically as specified in Section 22, Progressives. In addition, the WAP central site must display an alarm message and record the off-line gaming equipment to a log.
- 27.5.11 In the case of communication loss between the gaming premises WAP controller and the central site WAP system, there must be a clear indication or alarm at the central site of the specific gaming premises which went off-line to draw attention to the central site operator. All gaming equipment at the off-line gaming premises may stay in play; however, the WAP controller at the off-line gaming premises must preserve all of its progressive information during this time, and update the central WAP upon communication recovery. Specifically, the progressive award must be reconciled for contributions from off-line and on-line gaming premises. If a progressive jackpot is hit while one of gaming premises is off-line, the WAP system must have the capability to reset the progressive meter by the central site.
- 27.5.12 Any adjustments to the jackpot meters must be performed through a procedure approved by the Registrar. At minimum, the system must have additional security features to perform this function and maintain a log of all changes.

27.5.13 In the case that the central site is unavailable and the progressive jackpot cannot be processed at the local gaming premises, the WAP gaming equipment at the specific gaming premises must be disabled and the appropriate message displayed to patrons on progressive signs.

28 Wireless Communication

28.1.1 Wireless communication must be approved by the Registrar before it can be used at any gaming premises to send information regarding gaming transactions that include, but are not limited to:

- a) Accounting;
- b) Revenue;
- c) Security;
- d) Player points;
- e) Progressive jackpot information;
- f) Bonuses to be awarded by the game;
- g) Awarding of credits; and
- h) Redemption of wagering instruments.

28.1.2 Information transmitted by wireless communication and used for the purposes described above must be protected by encryption or by other means to prevent it from being:

- a) Intercepted by unauthorized personnel;
- b) Interpreted by unauthorized personnel; or
- c) Modified by unauthorized personnel.

28.1.3 Wireless communication must be immune to signal jamming.

29 Submission Requirements

29.1.1 All submissions for approval of gaming equipment must be accompanied with all necessary AGCO submission forms.

30 Requirements for Game Source Code Review

30.1.1 The AGCO requires that an independent¹ review of all submitted source code be conducted for all new platforms/operating systems² developed by the supplier (e.g. new platform). The results of this independent review must be submitted to the AGCO with the new platform/operating system submission. The review must include the following topics, as a minimum:

- a) RNG algorithm: the RNG must produce random numbers that satisfy AGCO's RNG standards.
- b) Updating of meters and displays associated with credits and cash/ticket transactions: Meters and displays must be processed in their intended manner, without consideration of unrelated previous events, or inputs; no illegitimate credits are added/subtracted at any time; all legitimate credits are added/subtracted, displays reflect accurate values. The meters must be updated from the proper transaction, e.g. bill/ticket insertion, win, etc.
- c) Updating of NVRAM for RNG routines and critical meters: NVRAM must be updated only by legitimate processes at appropriate times.
- d) Detection and recovery of corrupted memory: Memory must be verified by appropriate means (CRC, etc), at minimum, following game resets, power up, and loading into the electrically erasable or volatile memory to ensure corruption of memory is detected. Functions which handle data recovery of critical memory must perform as intended.
- e) Implementation of communication protocols: All communication protocols must be implemented according to their design specification.
- f) Redundant code and/or implementation of cheat code: There must not be any code that can affect the proper operation of the software (e.g. cheating, easter egg, etc.).
- g) Flow of code from calling the RNG during base/bonus game events to the determination of the game outcome: the RNG result must be the only result used to determine the game outcome. No other routines may exist that modify the outcome, or that bypass the RNG outcome in exchange for something else.
- h) All other procedures that use the RNG: All calls to the RNG must be determined and accounted for, e.g. shuffling, pick with/without substitution, pick from bonus table. Each call must use the RNG output appropriately, without modification, so that the scaled output has its expected probability.
- i) Mapping of game outcome to payable data: the RNG result must be mapped properly to payable arrays that are populated with payable data. If denomination changes affect paytables, the appropriate data must be mapped. The game code must only access legitimate payable data.
- j) Evaluation of game outcome to determine pay: Once the game outcome is determined by the RNG, it must be accurately evaluated against the payable and the correct prize must be awarded to the patron.

¹ a gaming laboratory with demonstrated experience in source code review of gaming equipment operating systems/platforms that is acceptable to the Registrar.

² software that controls the functions listed in this section.

- k) Display of game outcome to the patron: The display of the game outcome to the patron must not be modified from that chosen by the RNG. This includes all base game and bonus game outcomes.
 - l) Logic of bonus games, mystery feature, progressive jackpots: Logic used in determination of game outcome must be consistent with the game presentation (reel spins, card draws, bonus games, progressive jackpot, mystery feature).
 - m) Verification procedures of all critical software: Self-authentication by game must be performed according to AGCO Game Program Standards 14.1.2 and 14.1.6.
- 30.1.2 Modifications to game programs/operating systems that impact on one or more of the preceding topics in 30.1.1 may require that a source code review be performed on the modifications, depending on the complexity and number of changes. These will be assessed on a case-by-case basis.
- 30.1.3 The Registrar may require additional reviews of source code, as deemed necessary depending on the complexity of changes made, the timing of the last review, etc.

Glossary

Accumulated Award: A payout that is calculated by adding multiple awards that result from a single wager.

Alterable Storage Media Device: Any electronic storage media whose contents can be modified through the use of gaming equipment circuitry or programming. This does not include RAM or media that has its write functionality disabled.

Associated equipment: Any internal or external equipment that is not part of the gaming equipment itself and is required for its complete operation, e.g. progressive controllers, bill validators, Slot Monitoring System interface, etc.

Award: A payout associated with a unique combination of symbols or a game event as a result of wagering and game play that is displayed on the gaming machine. If one or more symbols can be substituted by a wild symbol, resulting in a winning combination with the same pay as that using the original symbols, then both combinations are considered to be the same award.

Bill Validator/Acceptor: An electronic device that accepts or rejects inserted bills or tickets/vouchers after validation.

Blackout: The state when the gaming equipment has its power removed.

Blind Strategy: A choice from among more than one option presented to a patron by a game which is selected randomly from the available options.

Bonus Play: A play that is triggered by achieving a specific milestone that always results in a prize.

Cashless Wagering System: The collective hardware, software and other equipment used to facilitate wagering without chips, tokens, or other legal tender of Canada.

Coin: Monetary coin or token accepted by the gaming equipment from the patron for the intent to place wagers, or received as a payout from the gaming equipment.

Coin Validator: A coin acceptor or coin comparator used by the gaming equipment that accepts or rejects inserted coin(s) after validation.

Coin Acceptor: An electronic device programmed to accept specific coins and reject others. It may have the additional capability of rejecting specific coins.

Coin Comparator: An electronic device used to validate the inserted coin based on comparison with the sample coin in the coin comparator.

Coupon: A printed wagering instrument that has a fixed dollar wagering value that can only be used to acquire non-cashable credits.

Critical Memory: Memory locations storing information to ensure the integrity of games and allow auditing and recovery of games, including, but not limited to, accounting meters, current credits, event logs, game history, ticket history, game status, game configuration and random numbers.

Critical Software: Any software that comprises the operating system; or is used to control game functions, game outcome, payout, security or accounting functions.

Disabled: Any condition when the game is unplayable.

Extended play: A play or series of plays awarded by the primary game upon obtaining a specific combination or symbol without making any additional wagers.

Extended play award: A payout that is awarded as a result of an extended play.

Game: A betting scheme with the outcome based on pure chance or mixed chance and skills.

Game cycle: The number of possible random number combinations used for game outcomes.

Game program: Executable computer code used to control the operation of electronic gaming equipment.

Game within a Game: A play or series of plays within the primary game which requires a separate wager and which has a separate theoretical payout percentage from the primary game.

Gaming premises: A place which is kept for the purpose of playing games of chance.

Gaming equipment: Equipment, including a slot machine, that:

- a) could influence the outcome of a game of chance that is held in a casino, charity casino or slot machine facility or that is a prescribed lottery scheme; or
- b) is integral to the conduct, management or operation of a game of chance described in clause (a)

Gaming Equipment Door: Any of, but not limited to, the following:

- a) Main game door;
- b) Belly door;
- c) Drop door;
- d) Cash box compartment door;
- e) Bill cassette / cash box Removal or insertion;
- f) Top box (if equipped);
- g) Auxiliary cabinet door;
- h) Auxiliary Fill door (in base);

- i) Drop door (in base);
- j) Any door that provides access to external gaming equipment.

Idle: The condition when the game is ready to be played.

Kiosk: A device that is connected to a Slot Monitoring System and/or a ticket in/ticket out system that is capable of accepting wagering instruments and providing cash redemption or automated jackpot redemption functionality, or other gaming related functions.

Mystery jackpot: An award that is not associated to any specific game outcome, and is awarded randomly.

Optimal strategy: The choice from among more than one option presented to a patron by a game which, if selected by the patron, offers the greatest theoretical rate of return to the patron.

Physical Skill Based Gaming: Any game or gaming related activity where an individual's physical coordination, agility, or nimbleness, or lack thereof, impacts game outcome or the amount of an award.

Play: All gaming events that may be initiated by the making of a specific wager. A play includes the making of a wager, the activation of the gaming equipment game by the patron and an indication to the patron of the outcome of the wager including, if an award is won, the payment of the award.

Primary game: Base game that is initiated upon placing a wager.

Progressive game: A game that contributes a portion of wagers to a jackpot award.

Promotional Account: an electronic ledger used in a cashless wagering system to record transactions involving a patron or patrons that are not otherwise recorded in a wagering account.

Randomness or Chance: Observed unpredictability and absence of a pattern in a set of events that have definite probabilities of occurrence.

Random number generator: Hardware and/or software used to generate numbers which exhibit randomness.

Scripting: a programmed sequence of events included in a slot machine game that is used to disclose a randomly pre-selected variable outcome to a patron in a particular manner but does not otherwise affect the outcome

Secondary game: A game initiated by the primary game where an additional wager is required for a chance to obtain additional prizes.

Skill feature: A play on gaming equipment that requires a patron to make a choice as to how to proceed in the game, where the player's selection of the available choices affect the theoretical payout percentage of the play.

SMS: The Slot Monitoring System used at the gaming premises.

Strategy feature: A play on gaming equipment that requires a patron to make a choice whether to accept a variable outcome or risk it for another variable outcome.

Switch: An optical, magnetic or electro-mechanical device used to detect the opening and closing of doors or other security conditions.

Ticket: A printed wagering instrument that has a fixed dollar wagering value that can only be used to acquire an equivalent value of cashable credits or cash.

Tilt: A programmed error state for gaming equipment.

Theoretical payout percentage: The expected total value of the awards paid by a game divided by the total wager made over an infinite number of games played.

Top award: The highest displayed award.

Volatility Index: The half-width of the 95% confidence interval of a game's actual payout percentage for 10,000 single line handle pulls. The confidence interval is centred on the game theoretical payout percentage. The confidence interval for any number of games played determines the range of statistically expected actual payback percentages. Highly volatile game payback may result in a large deviation of the actual game payback from the theoretical payback, either above or below the theoretical value.

This index is calculated using the following formula:

$$VI = 0.0196 \times \sqrt{\sum_i [(prize_i)^2 \times prob_i] - GTP^2}$$

Voucher: Same as ticket.

Wager: The total value of coins, currency, coupons, tokens or other approved credits that are required to activate a particular play.

Wagering Instrument: Monetary coins, tokens, bills, ticket/vouchers or coupons accepted by gaming equipment with intent to place wagers by the patron or receive as a payout from the gaming equipment.

Wide Area Progressive (WAP) game: A game with a progressive jackpot that is shared among multiple gaming premises.