

TECHNICAL STANDARDS FOR GAMING DEVICES

AND ON-LINE SLOT SYSTEMS

1.010 Definitions. As used in these standards unless the context requires otherwise:

1. "Alterable media" means any form of storage device that allows the modification of the programs or data on the device during the normal operation of the gaming device. This does not include devices typically considered to be alterable but through either software or hardware means approved by the chairman, have been rendered un-alterable.

2. "Cashable credits" means the monetary units displayed on a credit meter that are redeemable for cash.

3. "Chairman" means the chairman of the state gaming control board or his designee.

4. "Complete voucher" means a voucher which contains, at a minimum, a complete validation number and is of a quality that can be redeemed through the use of an automated reader or scanner.

5. "Conventional ROM Device" is a device incapable of being altered while installed in a gaming device and may contain executable programs or data that are directly addressed by a processor.

6. "Credit meter" means a slot machine indicator that displays the number of denominational credits or monetary value available to a patron for wagering.

7. "Debit instrument" means a card, code or other device with which a person may initiate an electronic funds transfer or a wagering account transfer.

8. "Duplicate voucher" means any reprinted complete or incomplete voucher.

9. "Electronic funds transfer" means a transfer of funds from an independent financial institution to a gaming device through a cashless wagering system.

10. "Inappropriate coin-in" is a legal coin or token of the correct denomination which has been accepted by a gaming device after the device has already accepted its maximum number of coins or when the device is in a state which normally rejects additional coins.

11. "Incomplete voucher" means a voucher which contains, at a minimum, the voucher validation number printed across the printed leading edge and is manually redeemable, but is not of a quality that can be redeemed through the use of an automated reader or scanner.

12. "Leakage Current" is any electrical current which flows when a conductive path is provided between exposed portions of a gaming device and the environmental electrical ground when the gaming device is isolated from the normal AC power ground.

13. "Non-cashable credits" means the monetary units displayed on a credit meter that have no cash redemption value.

14. "On-line slot system" means, as used in these standards, an on-line slot metering system, a cashless wagering system, or both.

15. "Presentation error" is a condition where a complete or incomplete voucher has been printed, however, the voucher is not presented to the patron for removal.

16. "Print failure" is a condition following the failed attempt to print a complete or incomplete voucher.

17. "Promotional account" means 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.

18. "Random Access Memory" (RAM) is the electronic component used for computer workspace and storage of volatile information in a gaming device. The term does not include memory which is used exclusively for bit-mapped video displays.

19. "Random Number Generator" is a hardware, software, or combination hardware and software device for generating number values that exhibit characteristics of randomness.

20. "Read Only Memory" (ROM) is the electronic component used for storage of non-volatile information in a gaming device. The term includes Programmable ROM and Erasable Programmable ROM.

21. "Replacement voucher" means any voucher that is printed following a failed attempt to print a complete or incomplete voucher.

22. "Slot machine coupon" means a printed wagering instrument that has a fixed dollar wagering value that can only be used to acquire non-cashable credits.

23. "Slot machine payout receipt" means an instrument that is redeemable for cash and is either issued by a gaming device or as a result of a communication from a gaming device to associated equipment that cannot be accepted by gaming devices for wagering purposes.

24. "Slot machine wagering voucher" means 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.

25. **“System Supported Game” is a gaming device comprised of a collection of conventional gaming devices or client stations connected to a system for the purpose of downloading control programs and other software resources to the conventional gaming device or client station on an intermittent basis. The system portion as well as the client stations are installed in a single gaming establishment. The client stations connected to the system are capable of operating independently from the system once the downloading process has been completed. This configuration encompasses cases where the system may take control of peripheral devices or associated equipment typically considered part of a conventional gaming device such as a bill validator or a printer. In a System Supported Game, game outcome is determined by the conventional gaming devices or client stations connected to the system and not by the system itself.**

26. **“System Based Game” is a gaming device comprised of a server or system part and client stations that, together, form a single integrated device where the system portion of the game determines the outcomes of the individual games conducted on the client stations and the client stations cannot operate independently from the system. Both the system portion and the clients of the system based gaming device will reside in a single gaming establishment.**

27. “Tilt condition” is a programmed error state for a gaming device. A tilt condition has occurred when the device detects an internal error, malfunction, or attempted cheating, and it disallows further play until the error is resolved.

28. “Wagering account” means an electronic ledger for a cashless wagering system patron deposit account wherein only the following types of transactions are recorded:

- (a) Deposits and withdrawals of cash or cash equivalents at a designated area of accountability;
- (b) Deposits initiated with a debit instrument;
- (c) Wagering account transfers to and from gaming devices;
- (d) Wagering account adjustments; and
- (e) Other transactions approved by the chairman.

29. “Wagering account transfer” means a transfer of funds between a cashless wagering system wagering account and a gaming device.

30. “Wagering instrument” means, as used in these standards, a representative of value, other than a chip or token, that is issued by a licensee and approved by the board for use in a cashless wagering system and includes slot machine coupons and slot machine wagering vouchers.

Adopted 9/89. Amended; 11/20/97; 5/03; 1/1/05.)

STANDARD 1

INTEGRITY OF DEVICES

[1.010 Reserved.]

1.020 Electrical interference immunity.

1. A **conventional** gaming device or **client** must exhibit total immunity to human body electrostatic discharges on all player-exposed areas. For purposes of this standard, a human body discharge is considered to be an electrical potential of not greater than 20,000 volts DC discharged through a network with a series resistance of 150 to 1500 ohms shunted by a capacitance of 100 to 150 picofarads. The device must withstand this discharge repeated at one-second intervals. The power source for this human body equivalent is a high-impedance source such that, in effect, the energy available for a given discharge is limited to that contained in the shunt capacitor.

2. A gaming device may exhibit temporary disruption when subjected to electrostatic discharges of 20,000 to 27,000 volts DC through a network with a series resistance of 150 to 1500 ohms shunted by a capacitance of 100 to 150 picofarads, but must exhibit a capacity to recover and complete an interrupted play without loss or corruption of any stored or displayed information and without component failure.

3. Gaming device power supply filtering must be sufficient to prevent disruption of the device by repeated switching on and off of the AC power. The device must not exhibit disruption when a 1 microfarad capacitor, charged to plus or minus 680 volts DC is discharged between the hot and neutral AC supply lines, at any phase from zero to 360 degrees, with a repetition rate of 30 times per second.

4. The random number generator and random selection process must be impervious to influences from outside the device, including, but not limited to, electro-magnetic interference, electro-static interference, and radio frequency interference. A gaming device must use appropriate communication protocols to protect the random number generator and random selection process from influence by associated equipment which is conducting data communications with the gaming device.

(Adopted: 9/89.)

1.030 Coin acceptor and receiver.

1. Coin (or token) acceptors must be designed to accept designated coins or tokens and reject others. The coin receiver on a gaming device must be designed in a manner that minimizes the potential for use of cheating methods such as slugging, stringing or spooning.

2. Gaming devices which are configured to accept more than 20 coins or tokens for a single play must use a coin acceptor that accepts or rejects on the basis of metal composition of the coin or token unless the denomination of the coin or token is \$.05 or less.

3. A gaming device may not accept more than \$3,000 in coins or tokens before a wager must be made or play initiated.

(Adopted: 9/89. Amended: 11/20/97.)

1.035 Change vouchers or coupons.

1. A wagering instrument inserted into a gaming device that is less in amount than that gaming device's smallest denomination shall:

(a) Cause that gaming device to immediately reject the wagering instrument if that gaming device does not have an odd cents meter; or

(b) Allow for the additional accumulation of wagering credits if the gaming device has an odd cents meter.

2. A wagering instrument inserted into a gaming device that is greater in amount than that gaming device's smallest denomination and not evenly divisible by any of the gaming device's denominations shall:

(a) Cause that gaming device to immediately issue a change voucher or coupon if that gaming device does not have an odd cents meter and is equipped with a printer mechanism;

(b) Allow for the additional accumulation of wagering credits; or

(c) Cause that gaming device to immediately reject the wagering instrument if that gaming device is not equipped with a printer mechanism or if the printer mechanism is not functioning for any reason.

(Adopted: 5/03. Effective: 2/1/04.)

1.040 Hoppers. The hopper mechanism on gaming devices must be designed to detect jammed coins, extra coins paid out, hopper runaways, and hopper empty conditions. The device control program must monitor the hopper mechanism for these error conditions in all active game states that do not indicate error conditions.

(Adopted: 9/89.)

1.045 Printers. Printer mechanisms on gaming devices must be designed to detect low paper, paper out, and paper jam conditions. The device control program must monitor the printer mechanism for these error conditions in all active game states that do not indicate error conditions.

(Adopted: 5/03. Effective: 2/1/04.)

1.050 Physical security.

1. A conventional gaming device must resist forced illegal entry and must retain evidence of any entry until properly cleared or until a new play is initiated. A gaming device must have a protective cover over the circuit boards that contain programs and circuitry used in the random selection process and control of the gaming device, including any electrically alterable program storage media. The cover must be designed to permit installation of a security locking mechanism by the manufacturer or end user of the gaming device.

2. A system supported game must:

a) For the client portion of the system supported game, comply with Technical standard 1.050(1).

b) For the system portion of the system supported game, the server or system component must reside in a secure area where access is limited to authorized personnel. Logical access to the system supported game shall be logged on the server component and remotely on a logging device which resides outside the secure area and is not accessible to the individual accessing the secure area. Logged data

shall include: time and date of the access and the identification of the accessing individual(s). The resulting logs shall be retained for a minimum of 90 days.

3. A system based game must:

a) For the client portion of the system based game, comply with Technical Standard 1.050(1).

b) For the system portion of the system based game, the server or system component must reside in a secure area where access is limited to authorized personnel. Logical access to the system based game must be logged automatically on the system component of the game and on a computer or other logging device that resides outside the secure area and is not accessible to the individual(s) accessing the secure area. The logged data shall include the time, date, and the identity of the individual accessing the secure area. The resulting logs must be kept for a minimum of 90 days. Additionally, a dedicated video camera specifically installed to monitor access to the system based game must record all accesses to the secure area and the resulting video log must be retained for a period of at least 90 days.

(Adopted: 9/89. Amended: 11/20/97.)

1.060 Communication with associated equipment.

1. Any gaming device which is capable of bidirectional communication with internal or external associated equipment must utilize a communication protocol which insures that erroneous data or signals will not adversely affect the operation of the device.

2. **[After July 1, 1990, a]**Any new or modified gaming device submitted for approval 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 device may optionally provide an additional jackpot signal intended for use with older progressive equipment.

3. System supported and system based games may only communicate with equipment or programs external to the system supported or system based game through a secure interface. This interface will specifically not allow any external connection to directly access the internal components, software or data of the system supported or system based gaming device. The interface must:

(a) be based on a specific defined protocol or a specific set of defined commands and as a result of these commands, retrieve information for an external request or,

(b) place data in an area sufficiently segregated from the system supported or based game software that is available to external requests or associated equipment, or,

(c) be of a suitable design capable of supplying requested information while isolating the external request or equipment from the system supported or system based game internal components, software or data.

(Adopted: 9/89.)

1.062 Communication between Client or Conventional Gaming Device and Servers or System Portions of a Gaming Device.

1. Software transferred between server and client or conventional gaming device portions of a system based or system supported game must be conducted using a method that securely links the client or clients to the server such that the software may only be used by authorized clients. In general, if certificates, keys or seeds are used they must not be hard coded, and must change automatically, over time, as a function of the communication.

2. Information related to player input, game outcome, financial transactions, and game recall information must be encrypted by a means approved by the Chairman.

1.066 Remote access to gaming devices.

1. Remote access to a gaming device may only be conducted with the server or system portion of a system supported or system based game.

2. A system supported or system based game must be isolated from any remote access connection by at least two different firewalls. At least one of the firewalls must be a hardware implementation.

3. A system supported or system based game may only be accessed using a method that securely links the gaming device to the remote system requesting access. This secure link must uniquely identify the remote system requesting access as an entity authorized to conduct remote communications with the gaming device.

4. A system based or system supported game must provide a hardware or software mechanism that will sever the connection between the gaming device and the remote access terminal. This device must default to and must remain in the disconnected state unless specifically set to allow communications as a result of a command issued by the gaming device. Additionally, upon completion of the communications, the device must again sever the connection between the gaming device and the remote access terminal.

5. A system supported or system based game must log each remote access on the server or system part of the gaming device and on the secondary logging device. The log must include time and date of the access and a list of programs transferred or changed.

6. A system supported or system based game must not enable remote access unless the secondary logging device is operational and is communicating with the gaming device.

7. Software downloaded to a system based or system supported game must be initially stored in a separate area or partition of memory such that the software is sufficiently segregated from the system based or system supported gaming devices operating software as to be unable to affect the operation of the gaming device.

8. Software downloaded to a system supported or system based game must be completely authenticated prior to performing any operation on the software including, but not limited to, decrypting, extracting or uncompressing.

1.070 Error conditions.

1. Gaming devices must be capable of detecting and displaying the following conditions during idle states or on demand. These conditions may be automatically cleared by the gaming device upon completion of a new play sequence.

- (a) Power reset.
- (b) Door open.
- (c) Door just closed.
- (d) Inappropriate coin-in if the inappropriate coin(s) in are not returned to the player.

2. Gaming devices must be capable of detecting and displaying the following error conditions which may only be cleared by an attendant:

- (a) Hopper empty or timed-out (Hopper failed to make payment).
- (b) Uncorrectable RAM error (RAM defective or corrupted).
- (c) Program error (Defective program storage media).
- (d) Hopper runaway or extra coins paid out.
- (e) Reverse coin-in.

(f) Low RAM battery (a designated battery replacement schedule may be used in lieu of a low battery detection scheme).

- (g) **[Effective 2/1/04]** Printer mechanism paper jam.

(h) **[Effective 2/1/04]** Printer mechanism paper out, if the gaming device has no other means to make a payout.

3. Gaming devices must be capable of detecting and displaying the following error conditions which may either be cleared by an attendant or upon initiation of a new play sequence if the error condition is transparent to the player, or if the error condition is clear to the player and the player is informed that initiation of a new play will clear the error:

- (a) Coin-in error.
- (b) Coin-out error or hopper failed to make payment.
- (c) Reel spin error of any type including a mis-index condition for mechanical reels. The specific reel number is to be identified in the error indicator.
- (d) **[Effective 2/1/04]** Printer mechanism low paper.

4. A description of device error codes and their meanings must be affixed inside the gaming device.

(Adopted: 9/89. Amended: 5/03. Effective: 9/89 except (2)(g), (2)(h) and (3)(d) as noted.)

1.080 Control program requirements.

1. All gaming devices which have control programs residing in storage media that is not alterable through any use of the circuitry or programming of the gaming device itself must employ a mechanism approved by the chairman to verify executable program code and data which may

affect payouts or game outcome. The mechanism used must detect 99.99 percent of all possible media failures and must reside in and execute from storage media that is not alterable through any use of the circuitry or programming of the gaming device.

2. All gaming devices that have control programs residing in storage media that are alterable through any use of the circuitry or programming of the gaming device itself must:

(a) Employ a mechanism approved by the chairman which verifies that all control program components, including data and graphic information, are authentic copies of the approved components. The chairman may require tests to verify that components used by Nevada licensees are approved components. The verification mechanism must have an error rate of less than 1 in 10 to the 38th power and must prevent the execution of any control program component if any component is determined to be invalid. Any program component of the verification mechanism must reside in and execute from storage media that is not alterable through any use of the circuitry or programming of the gaming device.

(b) Employ a mechanism approved by the chairman which tests unused or unallocated areas of any alterable memory 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 chairman, anytime a control program component is added, removed, or altered. The 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 a mechanism for extracting the validation information for all control program components on demand via a communication port approved by the chairman. A separate mechanism must be provided that tests the integrity of the validation information delivered via the communication port.

3. Any gaming device executing control programs from electrically erasable or other volatile memory must employ a mechanism approved by the chairman which verifies on a continuous basis, that all control program components residing therein, including fixed data and graphic information 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 other volatile memory and upon any significant event, including but not limited to **[door closings,]** game resets, and power up. The mechanism must prevent further play of the gaming device if an invalid component is detected.

4. Unless otherwise approved by the chairman, any gaming device that allows the adding, removing, or alteration of any control program components through a data communication facility must employ a mechanism for:

(a) Preventing any change from taking place that would interrupt a game in progress or a game session.

(b) Storing program changes including changes in graphics and sound information in a non-volatile device that may be verified using such means as prescribed by the chairman.

Any device, technique or network which may be used to accomplish the adding, removing, or alteration of any control program components may, at the chairman's discretion, be considered a gaming device that must receive separate commission approval.

5. Gaming devices with control programs or other security programs residing in conventional Read Only Memory (ROM) devices such as EPROM's or fusible-link PROM's must have the unused portions of the memory device that contains the program set to zero. **[or some other value approved by the chairman.]**

6. Gaming device control programs must check for any corruption of random access memory locations used for crucial gaming device 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.

7. All gaming devices must have the capacity to display a complete play history for the most recent game played and nine games prior to the most recent game. Retention of play history for additional prior games is encouraged. The display must indicate the game outcome (or a representative equivalent), intermediate play steps (such as a hold and draw sequence or a double-down sequence), credits available, bets placed, credits or coins paid, and credits cashed out. Gaming devices 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. **[The chairman may waive this standard for a particular device or modification if the hardware platform on which the device is based was originally approved prior to the adoption of this standard as modified and the manufacturer can demonstrate to the chairman's**

satisfaction that the imposition of the full standard would hinder the design of the device or would otherwise pose a hardship due to capacity limitations in the approved platform.]

8. All gaming devices must have the capacity 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 set forth in Technical Standard 2.040(1)(i) through (s) and that incremented any of the out-meters set forth in Technical Standard 2.040(1)(i) through (s). Retention of transaction history for additional prior transactions is encouraged.

(Adopted: 9/89. Amended: 11/20/97; 5/03. Effective: 11/20/97.)

1.084 Control Program requirements for System Supported Games

1. Conventional gaming devices or clients that are considered part of a system supported gaming device containing control programs must comply with the requirements of Technical Standard 1.080.

2. Systems must be capable of verifying that all control programs contained on the server or system portion are authentic copies of approved components both automatically at least once every 24 hours and on demand. The method of validation must provide at least 128 bits of resolution or must be a bit-for-bit comparison and must prevent the execution of any control program component if the component is determined to be invalid. If an error(s) is detected, the system must provide a visual notification of the invalid program. Any program component of the verification mechanism must reside on and securely load from non-alterable media. A report shall be available which details the outcome of each automated execution of the validation mechanism and shall identify any invalid program components.

3. System supported games must provide for a secondary verification method based on a user input seed of at least 32 bits. The verification method will return a verification result of at least 32 bits corresponding to the control programs currently installed in the system or server portion of the device.

4. System supported games shall be configured such that the system administrator level access may not be achieved without the presence and participation of at least two individuals. This may include split passwords, dual keys or any other suitable method approved by the chairman.

5. System supported games must provide a log entry anytime an individual causes a software component to be added, removed or altered in the server or system portion of the device. Each log entry must contain the date and time of the action, identification of the component affected, the identification of the individual performing the modification, the reason for the modification and any pertinent validation information. This log must be maintained on the server or system portion of the device as well as on a computer or other logging device not accessible to the individual making the program modification that resides outside the secure area where the server or system component of the device resides. The record of the control program changes must be maintained for at least 90 days.

6. A log entry must be made on the conventional gaming device or client, on the server or system portion of the device and on a computer or other logging device residing outside of the secure area that houses the system supported game anytime a change is made to the software, to include control programs, data, graphics or sound information, in a connected conventional gaming device or client. Each log entry must contain the date and time of the action, identification of the component affected, the reason for the modification, any pertinent validation information. This information must be retained on the server or system portion of the game and on the secondary logging device for a minimum of 90 days. The conventional gaming device or client station must retain the listed information for at least 100 downloads,

7. Conventional gaming devices or clients that form a part of a system supported game must employ a mechanism that ensures that software downloaded to the

conventional gaming device or client from the server or system portion of the system supported game is authentic and is received completely and without modification.

8. The server or system portion of a system supported game must validate any software downloaded to a connected conventional gaming device or client. The validation information must support a resolution of at least 128 bits. The system supported game must support a command(s) that causes any conventional gaming device or client to validate any software downloaded from the server or system portion of the gaming device and must be able to disable the conventional gaming device or client if the validation response is incorrect. Additionally, if the validation response is not correct, a suitable tilt message must be displayed on the conventional gaming device or client station and a notification must be displayed on the server portion of the system supported game.

9. A system supported game must not alter any component of the system or server portion or the conventional gaming device or client portion of the device that would interrupt, or affect the function or operating parameters of a game in progress on any conventional gaming device or client station.

10. If a system supported game downloads software components to a conventional gaming device or client station, the downloaded software must be completely authenticated prior to performing any operation on the software including, but not limited to, decrypting, extracting or uncompressing. The downloaded software may not be applied or made available for play until such time as the conventional gaming device or client has met the conditions for changing the active software.

11. A system supported game must provide a secure interface port through which the software on the system portion of the game may be authenticated and validated.

12. A system supported game must have the capacity to display a complete game play history for the most recent game and at the least 9 games prior to the most recent for each conventional gaming device or client station. The display of the play history for each individual client station or conventional gaming device must be available at the particular client station or conventional gaming device. The display must indicate the game outcome, intermediate play steps (such as a hold/draw sequence or individual bonus game choices) credits available, bets placed, credits or coins paid, and credits cashed out. Gaming devices 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. The requirement to display game recall applies to all game programs currently installed on the conventional gaming device or client station.

1.086 Control Program Requirements for System Based Games

1. Conventional games or clients that are considered part of a system based game containing control programs must comply with the requirements of Technical Standard 1.080.

2. System based games must be capable of verifying that all control programs contained on the server or system portion are authentic copies of approved components of the gaming device both automatically, at least once every 24 hours, and on demand. The method of validation must provide at least 128 bits of resolution or must be a bit-for-bit comparison and must prevent the execution of any control program component if the component is determined to be invalid and provide a visual notification of the invalid program. Any program component of the verification mechanism must reside on and securely load from non-alterable storage media. A report shall be available which details the outcome of each automated execution of the validation mechanism and shall identify any program components determined to be invalid.

3. System based games must provide for a secondary verification method based on a user input seed of at least a 32 bits. The verification method will return a verification result of at least 32 bits corresponding to the control programs currently installed in the system or server portion of the device as well as the client or conventional portion of the gaming device.

4. System based games shall be configured such that system administrator level access may not be achieved without the presence and participation of at least two individuals. This may include split passwords, dual keys or any other suitable method approved by the chairman.

5. System based games must provide a log entry anytime an individual causes a software component to be added removed or altered in the server or system portion of the device. Each log entry must contain the date and time of the action, identification of the component affected, identification of the individual performing the modification, the reason for the modification and any pertinent validation information. This log must be maintained on the server or system portion of the device as well as on a computer or other logging device, not accessible to the individual making the program modification, that resides outside the secure area where the server or system component of the device resides. The record of the control program changes must be maintained for at least 90 days.

6. System based games must provide a log entry on the server or system portion of the device and on a computer or other logging device residing outside of the secure area that houses the server or system portion of the device anytime the server or system portion of the game causes a change in the software to include control programs, data, graphics or sound information in the connected conventional gaming device or client. The record must contain the date and time of the action, identification of the component affected, the reason for the modification, any pertinent validation information, and must be maintained for a minimum of 90 days.

7. Conventional gaming devices or clients that form a part of a system based game must employ a mechanism that ensures that any software downloaded to the conventional gaming device or client from the server or system portion of the system supported game is authentic, and is received completely and without modification.

8. The server or system portion of a system based game must validate any software downloaded to a connected conventional gaming device or client. The validation information must support a minimum resolution of at least 128 bits. The system based game must support a command(s) that causes any conventional gaming device or client to validate any software downloaded from the server or system portion of the gaming device and must be able to disable the conventional gaming device or client if the validation response is incorrect. Additionally, if the validation response is not correct a suitable tilt message must be displayed on the conventional gaming device or client station and a notification must be displayed on the server portion of the system based game.

9. System based games must have the capacity to display a complete play history for the most recent game played and at least 34 games prior to the most recent game for each client station connected to the system based game. The display must indicate the game outcome (or a representative equivalent), intermediate play steps (such as hold and draw sequence or a double-down sequence) credits available, bets placed, credits or coins paid, and credits cashed out. Gaming devices 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. The capability to initiate game recall must be available at the client for recall of information specifically associated with the particular client station initiating the game recall. The capacity to initiate game recall for any and all clients that make up the system based game must be available from the system or server portion of the system based gaming device. The requirement to display game recall applies to all game programs currently installed on the server portion of the system based game.

10. All system based games must have the capacity to display a complete transaction history for transactions with a cashless wagering system to include the most recent and the previous thirty-four transactions prior to the most recent transaction for each client station and the previous 99 transactions for the overall gaming device, that incremented any of the in-meters set forth in Technical Standard 2.040(1) (i) through (s) and that incremented any of the out-meters set forth in Technical Standard 2.040(1) (i) through (s). The capability to initiate transaction history must be available at the client or conventional gaming device for the transaction history specifically associated with the

particular client station initiating the history information request. The capacity to initiate a display of a transaction history for any and all clients or conventional gaming devices that make up the system based game must be available from the system or server portion of the system based game.

11. A system based game must not alter any component of the system or server portion or the conventional gaming device or client portion of the device that would interrupt, or affect the function or operating parameters of a game in progress at any conventional gaming device or client station.

12. If a system based game downloads software components to a conventional gaming device or client station, the downloaded software must be authenticated immediately upon receipt by the conventional gaming device or client station. The downloaded software may not be applied or made available for play until such time as the conventional gaming device or client has successfully authenticated the downloaded software, and has met the conditions for changing the active software.

13. A system based game must provide a secure interface port through which the software on the system and client portions of the game may be authenticated and validated.

1.090 Bonus or Extended Game Features. All gaming devices which offer a bonus game or extended feature which requires player selection or interaction are prohibited from automatically making selections or initiating games or features unless the gaming device meets the requirements of (1) or (2) and explains the mechanism for auto-initiation or selection on the device glass or video display.

1. The patron is presented with a choice and specifically acknowledges his intent to have the gaming device auto-initiate the bonus or extended play feature by means of a button press or other physical/machine interaction.

2. The bonus or extended feature provides only one choice to the patron i.e., press button to spin wheel. In this case, the device may auto initiate the bonus or extended feature after a time out period of at least 2 minutes.

(Adopted: 12/04. Effective: 1/1/05.)

1.100 Reel strips.

1. Given a physical reel strip of length L units containing N physical stops, each blank space must occupy a minimum of $(L/N)*0.4$ units. These blank symbols must be completely free of any portion of any adjacent symbol.

1.110 Safety.

1. A gaming device must not present a mechanical, electrical or fire hazard when used in its intended mode of operation.

2. The power supply used in a gaming device must be designed to minimize leakage current in the event of intentional or inadvertent disconnection of the AC power ground. Leakage currents of greater than 0.75 milliamperes may be considered hazardous. The power supply must be appropriately fused or protected by circuit breakers.

(Adopted: 9/89.)

1.120 System Based Game Configuration

1. A system based game, with more than 64 client stations, must be configured such that a failure of any single part or piece of equipment or a failure of the system based game's automated software validation will not result in a cessation of operation of the system based game.

2. A system based game, with more than 64 client stations, must be configured such that a failure of any single part or piece of equipment will not result in more than 50% of the associated client stations being disabled.

3. A system based game must be configured such that a failure of any single part or piece of equipment will not result in any stored information regarding game recall, cashless wagering transaction history, or game performance and accounting being lost or destroyed.

4. A client must be rendered unplayable if communications from the server or system portion of the gaming device is lost. However, in the case of clients that have lost communications with the server, the client must provide a means, such as a hand pay, for patrons to cash out credits indicated on the system based gaming device at the time the communications was lost.

1.130 Requirements for downloading software to a conventional gaming device or client station from a system supported game.

1. Prior to any software being added or removed from a conventional gaming device or client station comprising a part of a system supported game that would result in the loss of accounting meter information, a complete set of meter information to include all meters required by Technical Standard 2.040 must be successfully communicated to a slot accounting system.

2. Software may not be added onto or removed from a conventional gaming device or client station if an error or tilt condition exists on the conventional gaming device or client station.

1.135 Requirements for downloading software to a conventional gaming device or client station from a system based game.

1. Prior to any software being added or removed from a system based game that would result in the loss of accounting meter information, a complete set of meter information to include all the meters required by Technical Standard 2.040 for the all the client stations as well as the system must be successfully communicated to a slot accounting system.

2. Software may not be removed from a system based game if the particular software being removed is being served to a client station that is in an error or tilt condition.

1.140 Conditions for changing active software on a conventional gaming device or client station that is part of a system supported or system based game.

1. Active software consists of all the games currently available for immediate play by the patron on the conventional gaming device or client station. For this section immediate play means games that do not require additional software or a change in game configuration such as denomination, maximum wager, payback percentage etc. prior to the patron being able to initiate play.

2. The conventional gaming device or client station must be in the idle mode with no errors or tilts, no play and no credits on the machine for at least 4 minutes. After this time, the conventional gaming device or client station must be disabled and rendered unplayable for at least 4 minutes. During the time the machine is disabled a message must be displayed on a video screen or other appropriate display device notifying the patron that the game configuration has been changed.

3. If the change in the active software is the direct result of a player request, the delay requirements of section 2 of this technical standard may be ignored. However, the active software may not be changed if an error or tilt exists on the conventional gaming device or client station.

STANDARD 2

PROPER ACCOUNTING FOR GAMING DEVICES

2.010 Changes to payout percentage.

1. The theoretical payback percentage of a gaming device must not be capable of being changed without making a hardware or software change in the device **except as provided for in Technical Standard 1** . For purposes of this standard, the addition of an attendant-paid bonus, a

progressive jackpot, or a change in rate of progression of an existing progressive jackpot is not considered to be a change in the theoretical payback of the gaming device.

2. Notwithstanding subsection 1, draw poker type gaming devices may have switch selectable or menu selectable top award values so long as the selectable range does not alter the payback percentage of the device by more than 1 percent with typical field play.

3. **[Effective until 2/1/04.]** Gaming devices which are considered to be slot machines and which have a difference in theoretical payback percentage which exceeds 4 percent for a single-coin play versus maximum-bet play, must have electronically stored digital meters of at least 6 digits which record the number of plays made in each category of wager for which the theoretical payback percentage is different from the single-coin bet category.

(Adopted: 9/89.)

2.020 Accounting of inappropriate coin-ins. Inappropriate coins-in must be returned to the player by activation of the hopper or credited toward the next play of the gaming device. The gaming device control program must be capable of handling rapidly fed coins so that the occurrences of inappropriate coins-in are minimized.

(Adopted: 9/89.)

2.030 Payouts from the hopper.

1. All coins or tokens paid from the hopper mechanism must be properly accounted for by the gaming device, including those paid as extra coins during a hopper malfunction.

2. Hopper pay limits must be designed to permit compliance by gaming establishments with published IRS Regulations.

(Adopted: 9/89.)

2.040 Meters for conventional gaming devices, system supported and system based games.

1. All gaming devices 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 device or in dollars and cents. Devices configured for multi-denomination play must display the required information in dollars and cents.

(a) Coin In. The machine must have a meter specifically labeled "Coin In" that accumulates the total value of all wagers, whether the wagered amount results from the insertion of coins, tokens, currency, deduction from a credit meter or any other means. This meter shall:

(1) Not include subsequent wagers of intermediate winnings accumulated during game play sequence such as those acquired from "double up" games;

(2) For multi-game and multi-denomination/multi-game gaming devices, provide the information necessary, on a per payable basis, to calculate a weighted average theoretical payback percentage; and

(3) For gaming devices which are considered slot machines and which contain 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 that payable.

(b) Coin Out. The machine must have a meter specifically labeled "Coin Out" that accumulates the total value of all amounts directly paid by the machine 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;

(c) Coin Drop. The machine must have a meter specifically labeled "Coin Drop" that accumulates the total value of coins or tokens diverted to the drop;

(d) Attendant Paid Jackpots. The machine must have a meter specifically labeled "Attendant Paid Jackpots" that 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 machine itself. This does not include progressive amounts or amounts awarded as a result of an external bonusing system. This meter is only to include awards resulting from a specifically identified amount listed in the manufacturer's par sheet;

(e) Attendant Paid Cancelled Credits. The machine must have a meter specifically labeled "Attendant Paid Cancelled Credits" that accumulates the total value paid by an attendant resulting from a player initiated cash-out that exceeds the physical or configured capability of the machine to make the proper payout amount;

(f) Physical Coin In. The machine must have a meter specifically labeled "Physical Coin In" that accumulates the total value of coins or tokens inserted into the machine;

(g) Physical Coin Out. The machine must have a meter specifically labeled "Physical Coin Out" that accumulates the value of all coins or tokens physically paid by the machine;

(h) Bill In. The machine must have a meter specifically labeled "Bill In" that accumulates the total value of currency accepted. Additionally, the machine must have a specific meter for each denomination of currency accepted that records the number of bills accepted of each denomination;

(i) Voucher In. The machine must have a meter specifically labeled "Voucher In" that accumulates the total value of all slot machine wagering vouchers accepted by the machine;

(j) Voucher Out. The machine must have a meter specifically labeled "Voucher Out" that accumulates the total value of all slot machine wagering vouchers and payout receipts issued by the machine;

(k) Electronic Funds Transfer In (EFT In). The machine must have a meter specifically labeled "EFT In" that accumulates the total value of cashable credits electronically transferred from a financial institution to the machine through a cashless wagering system;

(l) Wagering Account Transfer In (WAT In). The machine must have a meter specifically labeled "WAT In" that accumulates the total value of cashable credits electronically transferred to the machine from a wagering account by means of an external connection between the machine and a cashless wagering system;

(m) Wagering Account Transfer Out (WAT Out). The machine must have a meter specifically labeled "WAT Out" that accumulates the total value of cashable credits electronically transferred from the machine to a wagering account by means of an external connection between the machine and a cashless wagering system;

(n) Non-Cashable Electronic Promotion In. The machine must have a meter specifically labeled "Non-Cashable Electronic Promotion In" that 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. The machine must have a meter specifically labeled "Cashable Electronic Promotion In" that 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. The machine must have a meter specifically labeled "Non-Cashable Electronic Promotion Out" that 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. The machine must have a meter specifically labeled "Cashable Electronic Promotion Out" that 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. The machine must have a meter specifically labeled "Coupon Promotion In" that accumulates the total value of all slot machine coupons accepted by the machine;

(s) Coupon Promotion Out. The machine must have a meter specifically labeled "Coupon Promotion Out" that accumulates the total value of all slot machine coupons issued by the machine;

(t) Machine Paid External Bonus Payout. The machine must have a meter specifically labeled "Machine Paid External Bonus Payout" that accumulates the total value of additional amounts awarded as a result of an external bonusing system and paid by the slot machine;

(u) Attendant Paid External Bonus Payout. The machine must have a meter specifically labeled "Attendant Paid External Bonus Payout" that accumulates the total value of amounts awarded as a result of an external bonusing system paid by an attendant;

(v) Attendant Paid Progressive Payout. The machine must have a meter specifically labeled "Attendant Paid Progressive Payout" that 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 machine itself;

(w) Machine Paid Progressive Payout. The machine must have a meter specifically labeled "Machine Paid Progressive Payout" that accumulates the total value of credits paid as a result of progressive awards paid directly by the machine. This meter does not include awards paid as a result of an external bonusing system; and

(x) Such other meters as may be required by the chairman.

2. Gaming devices that are unable to comply with the full requirements of Technical Standard 2.040(1) shall:

(a) For gaming devices that are unable to display the specific meter labels required, use a legend to indicate what information a specific meter accumulates.

(b) For gaming devices that are unable to incorporate meters (i) through (w) due to undue hardship on the gaming device manufacturer, not be required to incorporate such meters if this requirement is waived by the chairman.

3. All gaming devices must be equipped with a device, mechanism or method which retains the value of all the required meters in 2.040(1) in the event of power loss to the device.

4. Gaming devices must have electronically stored meters of at least 8 digits that record the number of games played:

- (a) Since power reset;
- (b) Since door close; and
- (c) Since game initialization (RAM clear).

The gaming device must provide the means for on-demand display of the stored information.

5. Unless a tilt condition or other malfunction exists, gaming devices must have meters in units equal to the denomination of the device, in dollars and cents or in other units approved by the chairman, continuously displaying to a player the following information as it pertains 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;
- (d) The credits available for wagering, if applicable.

6. Electronically stored meter information required by this section must be preserved for a minimum of 72 hours after a power loss to the gaming device.

(Adopted: 9/89. Amended: 11/20/97; 5/03.)

2.045 Meters for system based games

1. Client stations must be able to display meters complying with the requirements of Regulation 2.040 that correspond to the play associated with the particular client station available, on demand, at each client station.

2. System portions of system based games must store, must be able to display and must be able to send to a slot accounting system, meter information that complies with the requirements of Regulation 2.040 that are associated with the play of each individual client station as well as for the system based game in its entirety.

2.050 [Effective until 2/1/04.] Credit play requirements.

1. Collectible credits may be accumulated from wins or from approved currency acceptors. Collectible credits may be accumulated directly from coin or token acceptance if the gaming device uses a coin/token acceptor that accepts or rejects on the basis of the metallic composition of the coins being used. The aggregate total of collectible credits accumulated from currency must be less than \$3,000.

2. The maximum number of credits from currency that may be applied to any wager on a gaming device must be less than \$3,000, except that repeated double-down (double or nothing) bets are allowed up to the ultimate lock-up level of the device.

(Adopted: 9/89. Amended: 11/20/97.)

2.050 [Effective 2/1/04] Credit play requirements.

1. Cashable credits may be accumulated from wins, approved currency acceptors, electronic funds transfers, wagering account transfers, or any other transfers of cashable credits. Cashable credits may be accumulated directly from coin or token acceptance if the gaming device uses a coin/token acceptor that accepts or rejects on the basis of the metallic composition of the coins being used. The aggregate total of cashable credits accumulated from coin and currency must be less than or equal to \$3,000.

2. The maximum number of credits from currency that may be applied to any wager on a gaming device must be less than or equal to \$3,000, except that repeated double-down (double or nothing) bets are allowed up to the ultimate lock-up level of the device.

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

- (a) Non-cashable credits;
- (b) Cashable credits given away by a licensee; and
- (c) All other credits.

(Adopted: 9/89. Amended: 11/20/97; 5/03.)

2.060 Award cards. Award cards must be clearly identified and must be displayed at all times the device is available for play or be readily available for display on the device on demand by the player. Award cards must accurately state the award that will be paid through any combination of dispensed coin, credit awards, printed tickets, attendant pays, or electronic funds transfer when the player obtains a specific win. The award card must clearly indicate whether awards are

designated in denominational units, dollars and cents, or some other unit. All award cards present on a gaming device must reflect any change in award value which may occur in the course of play.

(Adopted: 9/89. Amended: 11/20/97.)

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