SAC & FOX
GAMING
COMMISSION

1324 US HWY 75
POWHATTAN, KS 66527
(785) 467-8070
(785) 467-8075 FX

December 23, 2013

Mark Dodd,
420 SE 6th Street, Suite 3000
Topeka, Ks 66607

Dear Mr. Dodd:

Enclosed are the final changes from August. If you should have any questions Please let me know.

Thank you,

Sincerely,

John P. Grauer, Chairman
Sac and Fox Gaming Commission
1324 US Highway 75
Powhattan, Kansas 66527-9624

TECHNICAL STANDARDS FOR OPERATION, CONSTRUCTION AND TESTING OF CLASS III ELECTRONIC GAMING DEVICES (EGDS)

PURPOSE

The purpose of these Technical Standards is to provide clear standards for testing by an independent lab and also to provide clear standards that the Sac & Fox Tribal Gaming Commission (the "Tribal Gaming Commission") can use for the establishment of internal control standards for Class III EGDs. These Technical Standards shall control the construction, testing and operation of Class III EDGs in gaming facilities regulated by the Tribal Gaming Commission. For the avoidance of doubt, these Technical Standards do not control the construction, testing and operation of Class II EGDs. These Technical Standards shall be considered additional tribal gaming regulations within the meaning of Section 7 of the Compact. These Technical Standards shall remain in effect until the Tribal Gaming Commission proposes changes according to the procedures set forth in Section 7 of the Compact.

A. DEFINITIONS

1. **Approved** – a process of acceptance of any component of the system that would have an effect on the integrity of any game and/or the system.
2. **Cash Out** – the process by which a patron elects to and does receive coin, Tokens, Tickets or a combination thereof in payment for Gaming Credits remaining on an Electronic Gaming Device (EGD) and the simultaneous reduction of Gaming Credits shown on the EGD to zero.
3. **Communication Connection** – means a physical hardware connection and does not include wireless or infrared communication equipment.
4. **Computerized Ticket Validation System** – a hardware and software system physically located within the gaming facility that maintains a Ticket database for component of the Computerized Ticket Validation System shall function as indicated by the communication protocol implemented.

5. **Coupon** – a paper message purporting to entitle the holder to cash, something of value or game credits. The paper message may be from any source and may be printed by a ticket printer.

6. **Program Storage Media** – the device in which the game program resides as defined in Attachment A and whose operation is described in Attachment A.

7. **Distributor** – means a person or business entity who obtains an electronic gaming device from a manufacturer and who intends to furnish it to the Tribe.

8. **Electronic Gaming Device (EGD)** – means gaming equipment which is electric, electronic or mechanical, or a combination thereof, which plays a game which involves an element of prize, chance and consideration, and which is linked to a central computer for purposes of security, monitoring, and auditing. The EGD shall function as indicated by the communication protocol that is implemented.

9. **Game Credit** -means the smallest unit of value that may be used to play a game on an EGD or that may be cashed out in US coin, ticket, or approved tokens.

10. **Kiosk** – means a self-service device located on the gaming floor that provides a means for payment of a ticket that has been validated and redeemed by the computer ticket validation system or provides a means for printing a ticket

11. **Manufacturer** – means a person or business entity who manufactures, produces, or assembles an EGD or a TITO system or any component thereof, and who intends to furnish it to a distributor or the Tribe

12. **Redemption** – means the process by which a ticket is presented by a patron for payment at a casino cage, or inserted into a kiosk or bill validator of an EGD, recognized by the computer ticket validation system as valid and the patron is paid in US currency and coin or by check the amount printed on the ticket, or, in the case of acceptance of the ticket in an EGD, game credits plus any residual in an amount equivalent to the amount printed on the ticket. The redemption process must be completed entirely prior to the award of a merchandise prize.

13. **Residual** – means the value in dollars and cents remaining after an EGD registers the maximum game credits possible following insertion and redemption of a ticket, token(s) or US currency and/or coin.
14. **Residual Ticket** – a ticket printed in an amount remaining following the insertion and redemption of a ticket or the insertion and acceptance of US currency and/or coin or approved token into an EGD.

15. **Ticket** – an approved paper token printed by a ticket printer, in an EGD with a game and containing that printer or a kiosk containing that printer, immediately following the insertion of US currency and/or coin, approved token or valid ticket into the EGD in the case of a residual or following the patron activation of the cash out selection on the EGD. A ticket shall record the value of game credits at cashout or residual in dollars and cents in numerical form, the time of day it was printed, the date of printing showing the month, day and year, a gaming device number identifying the EGD or kiosk in which the ticket is printed, a unique validation number or barcode capable of being read by a ticket reader, and an identifier unique to the gaming facility such as a logo or name. Tickets will expire a maximum of 45 days from the date and time of issue and tickets shall so state the

length of time until expiration or the expiration time and date.

16. **Ticket Reader –** an optical device in an EGD or kiosk or at the cage capable of reading tickets and sending information to the computerized ticket validation system. Bill validators may incorporate this technology.

17. **Ticket Printer –** a device in an EGD or kiosk that is capable of printing an approved ticket based on instructions received from the EGD or kiosk which has received data from the computerized ticket validation system.

18. **Ticket In/Ticket Out(TITO) –** a process by which an EGD has the ability to accept or dispense tickets as a means for payment of game credits or residuals and communicates with a computerized ticket validation system.

19. **Token –** means an object of a design and substance approved in writing by the Tribal Gaming Commission. The object shall represent a value shown on the object and be capable of being inserted into an EGD which causes the appropriate number of game credits to register.

20. **Valid** – means a ticket that has not been previously redeemed, has not expired, has not been voided and is not in an unredeemable state as determined by the computerized ticket validation system.

21. **Validation** -The process that is used to verify the validity of a ticket that is presented for game credits or payment. When presented for game credits or payment, the ticket information is compared to the data stored on the computerized ticket validation system, based on the unique identifying number, for validation prior to registration of game credits or payment.

B. HARDWARE REQUIREMENTS FOR ELECTRONIC GAMING DEVICES

1. **Physical Hazard –** Electronic and mechanical parts and design principles of the electronic game of chance must not subject a player to physical hazards.

2. **Surge Protector –** A surge protector must be installed on the line that feeds power to the EGD or the main electrical control panel box that supplies electrical current to an EGD.

3. **Power Interrupt Device -** A battery backup or an equivalent shall be installed on the EGD for the electronic meters and must be capable of maintaining the accuracy of all information required by this Compact for 90 days after power is discontinued from the machine. The backup device shall be kept within the locked

microprocessor compartment.

4. **On/Off Switch –** An on/off switch that controls the electric current used in the operation of an electronic game of chance and any associated equipment must be located in a place which is readily accessible within the interior of the machine.

5. **Static Discharge –** The operation of each EGD must not be adversely affected by a static discharge or other electromagnetic interference.

6. **Approved Coin and Bill Acceptors –** At least one electronic coin and/or bill acceptor (bill validator) must be installed in or on each EGD. The bill acceptors shall accept denominations determined by the Tribe, and may also accept tickets and must reject coupons. Prior to operation, all models of coin and bill acceptors installed must have been tested and approved in writing by a gaming test laboratory as provided in Section H.

C. TICKET IN/TICKET OUT(TITO)

1. A TITO system shall consist of a computerized ticket validation system located in the gaming facility and ticket readers and ticket printers, each of which has a bi-directional communication connection to the computerized ticket validation system. An EGD must be equipped with a ticket reader and ticket printer to be part of a ticket in/ticket out system. The TITO system shall:

   a. Not be permitted to instruct the ticket printer to print a ticket under circumstances which would require the completion of IRS form W2G.

   b. Be capable of determining that a ticket is valid prior to acceptance and registering the appropriate game credits on an EGD or issuing cash or tokens.

   c. Reject and return tickets that are not valid without registering game credits on an EGD or dispensing cash or tokens.

   d. Generate a unique validation number, or authorize a unique validation number generated by an EGD, for each ticket issued.

   e. Accept only tickets printed within the gaming facility by ticket printers and reject and return immediately any ticket inserted that is not affirmatively validated or any other coupon inserted without registering game credits on an EGD or dispensing cash or tokens.

   f. On redemption of a valid ticket, the computerized ticket validation system must immediately mark the ticket's unique validation number as redeemed.

g. Not print a ticket without first issuing a unique validation number or issuing authorization for a generated validation number.

h. Print a ticket in the amount of the residual prior to permitting first play after a ticket, token(s) or cash is inserted in an EGD but after or contemporaneously with the registration of the maximum number of game credits possible, or print a ticket in the amount of the residual as a result of a patron's selection of cash out.

i. Maintain a communication connection with the central monitoring computer system such that tracking and auditing is done in the same manner as when a patron plays an EGD using cash.

j. Have all of the information required to be associated with a ticket recorded and stored by the computer ticket validation system.

k. Locate ticket readers and ticket printers in a locked area of the EGD or kiosk separated from the logic area and the drop box.

l. Provide that ticket printers have software mechanisms to interpret and act upon the following conditions:

   i. Out of paper or paper low

   ii. Printer jam/ failure

m. Allow payment of tickets only at the cage or kiosks.

2. The TITO system shall ensure that the information being communicated is accurate using industry appropriate security and verification methods.

3. If validation is not possible through the computerized ticket validation system, human intervention using the issuing EGDs ticket history to validate the ticket is required.

4. The TITO system shall maintain a history log of the last 35 tickets printed on each EGD.

5. The computerized ticket validation system can be a separate computer from or a part of the Central Monitoring Computer System.

6. Kiosks may or may not be used with TITO. Kiosks shall have local light or sound alarms that indicate malfunctioning ticket readers/bill validators or bill or coin

dispensers and/or loss of communication with the computerized ticket validation system. A trouble alert signal must also be sent to Surveillance in the event of malfunctions or security events. The redemption function of the kiosk shall be disabled during any time communication is lost between the kiosk and the computerized ticket validation system.

7. Prior to redemption, the EGD shall reject and return tickets inserted during any time in which the EGD is not communicating with the computerized ticket validation system.

D. CENTRAL MONITORING COMPUTER SYSTEM.

1. EGDs and kiosks shall be monitored by an on-line electronic game management/reporting system (Central Monitoring Computer System) which has been approved by the independent gaming test laboratory. Each EGD and kiosk must be linked by a communication connection to a central computer system (Central Monitoring Computer System) with information contained therein accessible to the Tribal Gaming Commission personnel and the State Gaming Agency personnel for information and control programs related to security, monitoring and auditing. The central monitoring computer system shall function as indicated by the communication protocol that is implemented. The central computer system (Central Monitoring Computer System) shall compile and record, among other things, the following information in a form accessible for reports in aggregate as well as for each individual EGD:

    a. Total Drop - Amount deposited in the coin drop area and bill acceptor stack area as well as the amounts of tickets accepted, if applicable;

    b. amounts won

    c. amounts wagered

    d. Value of the game credits hand paid in dollars and cents by the attendant

    e. Value of tickets printed including those for residuals

    f. Value of machine fills from the cage

    g. Amount of net revenue to the machine

    h. The online system (Central Monitoring Computer System) shall accurately indicate the time of day and the date of all security events and other accounting messages/events

i. Machine serial number as affixed by the manufacturer

j. Terminal number as designated by the gaming operation

k. The program name and version, which may be input manually

l. Number of times the coin/cash/ticket compartments have been opened, including the date and time

m. Number of times the cabinet has been opened, including date and time.

n. EGDs utilizing coin drop hoppers must detect and the central monitoring computer system must record:

i. Hopper empty or low

ii. Hopper jam

iii. Hopper runaway/malfunction

E. CABINET SECURITY FOR EGDS AND KIOSKS

1. **Surveillance Notification** The surveillance department shall be notified prior to opening the cash or ticket compartments of EGDs or redemption kiosks.

2. **Locks** The cabinet or interior area of the EGD or redemption kiosk shall be locked and not readily accessible.

3. **Repairs and Service** An authorized agent or employee of the Tribe may open the gaming cabinet to effect repairs and service.

4. **Secure Electronic Components**

a. Logic Boards and program storage media and other logic control components, which directly affect the outcome of the game, shall be located in a separate compartment within the EGD and that compartment shall be locked and sealed with serialized security tape and with a different key or combination than that used for the main cabinet door and cash compartment. The Tribal Gaming Commission shall control this key. The compartment may only be opened in the presence of a Tribal Gaming Commissioner or Inspector.

b. After software verification and upon installation of program storage media in the appropriate component in an EGD, a Tribal Gaming Commissioner or Inspector shall affix or cause to be affixed to said appropriate component of each EGD a strip of security tape, capable of evidencing the removal of the program storage media if the program storage media is removed from the original location in the EGD. The security tape shall be secured and available only to the Tribal Gaming Commissioners and Inspectors. The Tribal Gaming Commission shall maintain accurate and complete records of the identification number of each program storage media installed in each EGD.

c. Serialized security tape shall be identifiable to the Tribal Gaming Commission and available only to Tribal Gaming Commissioners or Inspectors.

5. **Machine Records** The Tribal Gaming Commission shall maintain an accurate and complete record of each EGD including the identification number of the EGD and the identification number of each piece of program storage media when installed to the logic board witnessed by Tribal Gaming Commissioners or Inspectors.

6. **MEAL Cards** For all entries into the EGDs and redemption kiosks as set forth in paragraphs 3, 4,and 7, a written record must be made on a machine entry authorization log (MEAL) card indicating the time, date and purpose for entering said machine and identifying the person entering the machine using a legible approved signature.

7. **Secure Cash Compartment** The coins and currency compartment as well as the compartment in which tickets are collected shall be locked separately from the main cabinet area, and secured with a different key or combination than that used for the main cabinet door, except that a separate cash compartment shall not be required for coins or tokens necessary to pay prizes in a machine which pays prizes through a drop hopper as permitted in this section. Keys to gain access to drop the acceptor compartment must be different from those to gain access to the contents of the acceptor compartment. Coin drop, bill acceptor and ticket compartment keys must be kept in a secure location. Except as provided in this section, the compartment in which the inserted coins, tokens, bills, and tickets are deposited shall be locked at all times. The Tribal Gaming Commissioner or Inspector must be present coin drop, bill acceptor, and ticket compartments in the gaming cabinet are opened for the purpose of collecting the accumulated cash and tickets.

8. **Configuration Setting** It shall not be possible to change a configuration setting that causes an obstruction to the electronic accounting meters without a RAM clear. Clearing non-volatile memory shall only be able to be undertaken by

accessing the locked logic area. Any change to the denomination must be done by a secure means, which includes access to the locked logic area. A Tribal Gaming Commissioner or Inspector shall monitor denomination changes.

9. **Machine Identification** A non-removable plate shall be affixed to each EGD and redemption kiosk. This plate shall have at a minimum inscribed upon it the machine's serial number, model number, and the name of the manufacturer. All EGDs and redemption kiosks shall also have a label with a location/asset number prominently displayed unique to the gaming location. The Tribal Gaming Commission may require affixing other certificate plates, tags or decals.

F. NETWORK

1. **Operation as Part of a Network** the hardware requirements of the Technical Standards shall not be construed to prevent the operation of the EGD as part of a network with an aggregate prize or prizes, provided:

    a. An EGD capable of bi-directional communication with internal or external associated equipment must utilize communication protocol which insures that erroneous data or signals will not adversely affect the operation of the game. The operation of the local network must be approved by the independent gaming test laboratory, and

    b. Where the network links the Tribe's EGDs to tribal games of chance on other Indian reservations within the State of Kansas or outside the State of Kansas, each Tribe participating in the network shall have in force a Class III gaming compact in the state in which participating EGDs are located authorizing such gaming as part of a network. All gaming activities shall occur on authorized gaming floors at said reservations.

G. SOFTWARE REQUIREMENTS FOR ELECTRONIC GAMING DEVICES

1. **Randomness Testing** Each EGD must have a microprocessor based random number generator that will determine the occurrence of the specific card, symbol, number, or stop position to be displayed. A selection process will be considered random if it meets all the following requirements:

    a. **Chi-square Analysis** Each card, symbol, number or stop position which is wholly or partially determinative of the outcome of the game satisfies the 99 percent confidence limit using the standard chi-square analysis.

b. **Runs Test.** Each card, symbol, number or stop position does not as a significant statistic produce predictable patterns of game elements or occurrences. Each card, symbol, number or stop position will be considered random if it meets the 99 percent confidence level with regard to the "runs test" or any generally accepted pattern testing statistic.

c. **Correlation Analysis** each card, symbol, number or stop position is independently chosen without regard to any other card, symbol, number or stop position, drawn within that game play. Each card, symbol, number or stop position is considered random if it meets the 99 percent confidence level using standard correlation analysis.

d. **Serial Correlation Analysis** each card, symbol, number or stop position is independently chosen without reference to the same card, symbol, number or stop position, in the previous game. Each card, symbol, number or stop position is considered random if it meets the 99 percent confidence level using standard serial correlation analysis.

e. **Live Game Correlation** EGDs that are representative of live gambling games must fairly and accurately depict the play of the live game.

2. **Software Requirements for Percentage Payout**. Each EGD must meet the following minimum theoretical percentage payout during the expected lifetime of the game:

a. EGDs shall pay out a minimum of 80 percent of the amount wagered. The theoretical payout percentage will be determined using standard methods of probability theory.

b. **Merchandise Prizes** The cash value of a ticket redeemed to claim a merchandise prize shall be included in computing the minimum theoretical percentage payout and in computing theoretical and actual hold percentage. No merchandise prize may be awarded without first offering the patron, the cash value of the ticket redeemed, or the value of the jackpot in cash and receiving a written declination of the offer or**, in the alternative**, using plain signage to inform patrons whether cash is available in lieu of a merchandise prize and, if so, the amount of cash available in lieu of a merchandise prize at the option of the patron.

c. Each EGD must have a probability of obtaining the maximum payout, of the highest advertised award, which is greater than 1 in 50,000,000 for each play.

d. EGDs and kiosks must not be operated in any mode which would violate

any provisions of these Technical Standards.

3. **Software Requirements for continuation after game malfunction**. Each game must be capable of continuing the current game with all current game features after a game malfunction is cleared. This provision does not apply if the game is rendered totally inoperable; however, the current game credits wagered and all player remaining game credits active prior to the malfunction must be returned to the player.

4. **Metering** an EGD must have electronic meters. The EGD accounting meters shall be at least eight digits in length. If the meter is being used in dollars and cents, at least eight digits must be used for the dollar amount. The meter must roll over to zero upon the next occurrence, any time the meter is eight digits or higher and after 99,999,999 has been reached or any other value that is logical. The EGD control program must provide the means for on-demand display of the electronic meters via a key switch on the exterior of the machine
The required electronic meters are as follows:

   a. Amounts Wagered The total wagered expressed in US dollars and cents.

   b. Amounts Won – total won expressed in US dollars and cents.

   c. Total Dropped the total of all coins and tokens diverted to the drop plus all bills and tickets inserted into and accepted by the bill validator.

   d. Jackpot Meter - The total amount paid out by an attendant from redeemed awards, cash or cash value of merchandise from a single event.

   e. Canceled Credit Meter -- Cumulative amounts paid by an attendant following the removal of registered game credits on an EGD exclusive of amounts required to be recorded by the Jackpot Meter in these standards.

   f. Bills In (total monetary value of all bills accepted)

   g. Items In (total value of all items accepted to include currency, coin, tokens, tickets)

   h. Individual Bill Meters (total number of each bill accepted per denomination)

   i. The number of games played.

   j. The number of times the front cabinet door was opened.

   k. The number of times the drop door was opened, including the mechanism

which holds the currency and/or tickets within the machine.

5. **No Automatic Clearing of Accounting Meters** No game may have a mechanism by which an error will cause the electronic accounting meters to automatically clear. All meter readings must be recorded and dated in the presence of a Tribal Gaming Commissioner or Inspector both before and after the electronic accounting meter is cleared.

6. **Display of Information** The required game display information shall be kept under glass, another transparent substance or generated video medium and at no time may stickers or other removable devices be placed in any manner anywhere on the machine's face.

7. **Rules Display**. Each EGD shall have the following information displayed on the video screen and/or permanently affixed on the game itself in a location conspicuous to the player:

    a. The rules of the game prior to each game being played;

    b. The maximum and minimum wagers, amount of game credits which may be won for each winning hand or combination of numbers or symbols and;

    c. The game credits the player has accumulated for additional play or redemption.

8. **Last Play Recall** – Last play information shall provide all information required to fully reconstruct the last five plays and shall reflect bonus rounds. Each EGD shall record the denominations of the last five bills accepted.

9. **Software Verification**. The device shall have the ability to allow for an independent integrity check of the device's software from an outside source. This must be accomplished by being authenticated by a third-party device, which may be embedded within the game software (see NOTE) or having an interface port for a third-party device to authenticate the media. This integrity check will provide a means for field testing the software to identify and validate the program. The test laboratory, prior to device approval, shall approve the integrity check method. NOTE: If the authentication program is contained within the game software, the manufacturer must receive written approval from the test laboratory prior to submission.

H. TESTING OF ELECTRONIC GAMING DEVICES

1. **Testing and Approval of Electronic Gaming Devices** No EGDs or kiosks shall be

purchased, leased or otherwise acquired by the gaming operation unless:
a. The EGD or kiosk, or a prototype thereof, has been tested, approved, or certified by a gaming test laboratory as meeting the requirements and standards as set forth herein and of the Compact. For purposes of these standards and the Compact, a gaming test laboratory is a laboratory agreed to and designated in writing by the Tribe and State Gaming Agency as competent and qualified to conduct scientific tests and evaluations of EGDs and related equipment. A laboratory operated by or under contract with the states of New Jersey, South Dakota or Colorado constitutes a designated gaming test laboratory.

2. **Testing of EGDs**. If required by the gaming test laboratory, the Tribe shall require the manufacturer or distributor to transport not more than two working models of the EGDs or kiosks and related equipment to a location designated by the laboratory for testing, examination, and analysis. In addition, the manufacturer or distributor shall supply copies of EGD illustrations, schematics, block diagrams, circuit analyses, technical and operation manuals, program object and source codes, hexadecimal dumps (the compiled computer program represented in base-16 format), and any other information requested by the gaming laboratory. The gaming operation shall require the manufacturer or distributor to pay for any and all costs for the transportation, testing, examination, and analysis. The testing, examination, and analysis may include the entire dismantling of the EGD and related equipment and some tests may result in damage or destruction to one or more electronic components of the devices. If required by the laboratory, the gaming operation must require the manufacturer to provide specialized equipment or the services of an independent technical expert to assist the testing, examination and analysis.

3. **Report of Test Results** At the conclusion of each test, the laboratory shall provide to the Tribe and the State Gaming Agency, a report that contains findings, conclusions, and a determination that the EGD or kiosk and related equipment conforms or fails to conform to the hardware and software requirements of these standards and standards of the Compact. If modifications can be made which would bring the EGD or kiosk or related equipment into compliance, the report may contain recommendations for such modifications. A report from the laboratory stating that the machine is an eligible electronic gaming device under the terms of the Compact and that it meets the technical standards defined herein shall constitute authority for the machine to be shipped to the gaming operation's Class III gaming facility.

4. **Modifications of Approved Electronic Gaming Devices.** No modification to the assembly or operational functions of any EGD or kiosk or related equipment may be made after testing and installation unless a gaming test laboratory certifies to the Tribal Gaming Commission and the State Gaming Agency that the modified EGD conforms to the standards of the Compact and these standards. Any proposed

modifications shall be subject to the requirements of the paragraphs above, before the modification may be implemented.

I. CONFORMITY TO TECHNICAL STANDARDS

The Tribal Gaming Commission shall require the manufacturer or distributor to certify, in writing, that, upon installation, each EGD or kiosk:

a. Conforms precisely to the exact specifications of the EGD or kiosk or prototypes tested and approved by the gaming test laboratory.

b. Operates and plays in accordance with the technical standards set forth in these provisions.

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ATTACHMENT A

ATTACHMENT A

Program Storage Media

1. **Program Storage Device Requirements**

<u>**Requirements for Program Storage Devices**</u> All Program Storage Devices, including EPROMs, DVD, CD-ROM, Compact Flash and any other type of Program

Storage Devices shall:

a. Be clearly marked with sufficient information to identify the software and revision level of the information stored in the devices and shall only be accessible with access to the locked logic department.

b. Perform an integrity check (authentication) of the Critical Files or Program Code that operate the Player Terminal during:
   i. Any power-up; and
   ii. The first time the files or program code is loaded for use (even if only partially loaded).

NOTE: RAM and PSD space that is not critical to machine security (e.g., video or sound ROM) are not required to be validated, although GLI recommends a method be in place for the files to be tested for corruption. If any of the video or sound filed contain payout amounts or other information needed by the player, the files or program storage must have a secure method of verification, see also software verification.

c. The program residing in the Player Terminal shall be contained in a storage medium that cannot be altered through use of the circuitry or programming of the Player Terminal itself.
d. Is housed within a locked logic compartment; and
e. Meets the Software Verification requirements of Attachment "B"

Write Once (Non-Writeable) Program Storage: For Program Storage Devices that is written to once (i.e. EPROM, CD), the following rules shall be met:

a. CD-ROM specific based Program Storage shall:
   i. Not be a re-writeable disk; and
   ii. The "Session" shall be closed to prevent any further writing.

b. Non-EPROM specific (including CD-ROM) Program Storage shall meet the following rules;

   i. The Control Program shall authenticate all (Critical Files by employing a hashing algorithm which produces a "Message Digest" output of at least 128 bits at a minimum as certified by the test laboratory and agreed upon by the jurisdiction. The Message Digest(s) shall be stored on a memory device (ROM based or other medium) within the Player Terminal. Message Digests which reside on any other medium shall be encrypted, using a public/private key algorithm with a minimum of a 512-bit key. However, a 768-bit key is recommended, or an equivalent encryption algorithm with a similar security certified by the test laboratory and agreed upon by the jurisdiction.
   ii. The Player Terminal shall authenticate all Critical Files against the Stored

Message Digest(s), as required in (i) above. In the event of a failed authentication, after the condition with the appropriate tower light signal and record the details including the clear. The game shall display specific error information and shall not clear until the file authenticates properly, following the operation intervention or the medium is replaced or corrected, and the device's memory is cleared, the game restarted and, all files authenticate correctly.

NOTE: *the values in (i) and (ii) above, above will constantly be re-evaluated based on technology advancements and new security methods available.*

Writeable Program Storage. The program residing in the Player Terminal that is capable of being erased and reprogrammed without being removed from the Player Terminal, bill changer or other equipment related device shall meet the below requirements.

a. Re-programmable Program Storage shall only write to alterable storage media containing data files, and programs that are not critical to the basic operation of the game, such as marketing information. Notwithstanding the foregoing, such device may write to media containing critical data files, and programs provided the gaming equipment:

   i. logs all information that is added, deleted or modified be stored on the media,
   ii. verifies the validity of all data, files, and programs which reside on the media,
   iii. contains appropriate security to prevent unauthorized modifications; and
   iv. does not allow game play while the media containing the critical data, files, and programs are in a modifiable state.

NOTE*: If the program storage does not comply with any of the above requirements and is a Hard Disk, the media is permissible provided a write-protected drive is used. SCSI Devices are preferred as they provide a write protect jumper which can be sealed in place by the regulating body. Any other type of drive will have the write line cut and verified in the field and any other means of write protection will be examined on a case-by-case basis.*

2. **Critical RAM Requirements**

Comprehensive Memory Checks: Comprehensive checks of Critical Memory shall be made during each Player Terminal restart (e.g. power-up cycle). The Player Terminal Control Programs shall test for possible corruption of Critical Memory. Test methodology shall detect 99.99 percent of all possible failures.

Unrecoverable Critical Memory: An uncorrectable corruption of RAM shall result in a

RAM error. The RAM should not be cleared automatically, but shall require a full RAM clear (RAM Reset) performed by an authorized person.

Function of RAM Reset: Following the initiation of a RAM reset procedure (utilizing a certified RAM clear method), each bit in RAM must be set to the default state. For games that allow for partial RAM clears, the methodology in doing so must be accurate and the game must validate the un-cleared portions of RAM.

ATTACHMENT B

Software Verification

Software Verification: The device shall have the ability to allow for an independent integrity check of the device's software from an outside source. This must be accomplished by being authenticated by a third-party device which may be embedded within the game software or having an interface port for third party devices to authenticate the media. This integrity check will provide a means for field-testing the software to identify and validate the program. The test laboratory, prior to device approval, shall approve the integrity check method.

NOTE: If the authentication program is contained within the game software, the manufacturer must receive written approval from the test laboratory prior to submission.

NOTE: See GLI Standards for definitions of terms found in Attachments A and B.

Approval and Signature Sheet

The preceding Technical Standards for Electronic Gaming Devices (EGDs) and all Attachments are approved as indicated below.

Date: 1-7-13

Mark Dodd, Executive Director
Kansas State Gaming Agency

Date: 1-7-13

John Paul Grauer, Chairperson
Sac & Fox Tribal Gaming Commission