



# TRIBAL ALLIANCE

## Model Technical Standards For Skill-Based Games

Document No. TGRA 1 Model

Issued: May 10, 2018

### I. Definitions

A. *Dominant factor* means greater in absolute value than any other factor or the sum of the other factors (i.e., greater than 50 percent of the sum of all factors).

B. *EGM or electronic gaming machine* means an electronic machine which contains a microprocessor with a random number generator which allows a player to place wagers on games of pure chance. EGMs do not comprise an element of skill.

C. *Flight recorder* means a device or other technology that records various player physical actions and correlates them in time to other game inputs (e.g., touch screen activations, button presses) in order to more fully recall the outcome of game play.

D. *Game cycle* means the period of time commencing when a player initiates a game or series of games on a gaming device by committing a wager and ending at the time of a final game outcome for that game or series of games and coincident with the opportunity for the player to retrieve their credit balance.

E. *Gaming Commission* means the <Enter name of Tribal Gaming Regulatory Authority> Gaming Commission.

F. *Player attribute* means any specific and verifiable fact concerning a player or group of players which is based upon objective criteria relating to the player or group of players.

G. *Player interaction device* means a device or other technology that connects to a machine and that registers various types of player inputs allowing the player to interact with the machine including touch screens, button panels, joysticks, handheld controllers, camera systems, etc., which may be hard-wired or wireless, and which may support two-way communications with the gaming device. A traditional electromechanical button panel is excluded from this definition unless it is used to affect the play or outcome of a game.

H. *Skill* means the human attributes of a player such as knowledge, visual recognition, logic,

dexterity, memory, reaction, hand-to-eye coordination, strength, agility, athleticism, numerical and/or lexical ability, or any other ability or expertise of a natural person.

I. *Skill-based game* means a wagered game in which the skill of the player, rather than pure chance, is a factor in affecting the outcome of the game as decided over a period of continuous play; which contains one or more elements of skill in its design and that can be leveraged by a player to impact the percentage of theoretical return to player. Video Poker games are excluded from these standards.

J. *Skill-dominant game* means a game in which the skill of the player, rather than chance, is the dominant factor in affecting the outcome of the game as decided over a period of continuous play.

K. *Skill-enhanced or hybrid game* means a game in which, although chance is the dominant factor in the game, the skill of the player influences the outcome of the game as decided over a period of continuous play.

L. *Virtual opponent* means a computer-generated simulation of a player that participates in a game involving skill and effectively mimics the actions of a live player.

### II. Game Classification

The Gaming Commission is responsible for determining the classification of skill-based games

A. Class II games. The minimum technical standards for Class II skill-based games shall be those set forth in this MICS and in the standards defined in <Class II MICS>. In the event any standard in <Class II MICS> is inconsistent with a standard defined in this MICS, then <Class II MICS> shall apply.

B. Class III games. The minimum technical standards for Class III skill-based games shall be those set forth in this MICS and in the standards defined in <Class III MICS>. In the event any standard in <Class III MICS> is inconsistent with a standard defined in this MICS, then this MICS shall apply.



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### III. Display for skill-based games

The requirements defined in this section shall apply to skill-based games to ensure player fairness and clarity with respect to player notification. In addition, a skill-based game shall display in an accurate and non-misleading manner, if applicable:

- A. The rules of play;
- B. Total amount of credits the player has available to wager or cash out;
- C. Amount required to wager on the game or series of games in a game cycle;
- D. Amount to be paid on winning wagers;
- E. Any rake-off percentage or any fee charged to play the game or series of games in a game cycle;
- F. Total amount wagered by the player;
- G. Game outcome; and
- H. Such additional information sufficient for the player to reasonably understand the game outcome.

### IV. Disclosure for skill-based games

Any skill-based game shall prominently disclose that the outcome is affected by player skill.

### V. Rules of play for skill-based games

The rules of play for a skill-based game must describe or display information adequate for a reasonable person to understand the method of game play prior to the player committing a wager.

- A. The content of the rules of play necessary to comply as stated herein will be determined based on an evaluation of the following factors:
  1. The theme of the game;
  2. Knowledge of the game among the general public based on the history and prevalence of the game or readily identifiable variations of the game;
  3. The extent to which the format of the game may differ from that of a substantially comparable game known in contexts outside the casino gaming environment; and
  4. The physical attributes of the game, including whether the game is based on:

- a. Inherent skill based on physical dexterity, endurance and strategy, such as in an athletic activity;
- b. Skill based on expertise, education or experience, such as a word or trivia contest; and
- c. Dynamic skill based on variations in the difficulty or complexity of a skill activity that change in response to the player's decisions, acuity, agility, dexterity, game duration or an inherent game feature, such as a military combat game.

- B. The rules of play may be communicated to the player singularly or through a combination of:
  1. The rules or descriptions displayed by the gaming device;
  2. The paytable; or
  3. A game tutorial or demonstration displayed by the gaming device or at a prominently disclosed location within the gaming enterprise.

### VI. Player versus player (PVP) advantage feature

A skill-based game may contain a feature that allows a player or players to gain an advantage over other players, excepting that an advantage may not be gained by making an additional wager or purchase and provided that the gaming device:

- A. Clearly describes to all players that the feature is available and the advantage it offers;
- B. Discloses the method for obtaining the feature; and
- C. Provides players with sufficient information to make an informed decision, prior to game play, as to whether or not to compete against another player(s) who may possess such a feature.

### VII. Virtual opponent

A. Skill-based games may offer a player the opportunity to compete against a virtual opponent provided that the gaming device:

1. Clearly and prominently discloses when a virtual opponent is participating; and
2. Prevents the virtual opponent from utilizing privileged information of the live player upon which a decision is made, unless otherwise



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disclosed to the player.

B. Skill-based games may permit a player to choose to play against a live opponent, including pausing the game for a defined period of time until a live opponent is available, if such live opponent becomes available.

### **VIII. Outcome for skill-based games**

Except as otherwise disclosed to the player, once a skill-based game is initiated, no function of the gaming device related to game outcome shall be altered during play.

A. During a game cycle and pursuant to the game's design, the skill-based game may become progressively more challenging for the skilled player. Accordingly, if available paytables or rules of play are changed between games, notice of the change shall be prominently displayed to the player through the game artwork.

B. The player may not be penalized for being skilled. A game shall not become more challenging for a higher-skilled player solely to benefit a lower-skilled player.

C. If the skill-based game permits a player to make choices between games, the game's available paytables or rules of play may be changed provided such change is agreed to by the player.

### **IX. Player advice features**

A game containing a skill element may support a feature that offers advice, hints, or suggestions to a player.

A. The gaming device should support a secure option to disable player advice to accommodate jurisdictional regulatory authorities that prohibit this type of feature.

B. If a skill-based game supports player advice features, it shall conform to the following requirements;

1. The player advice feature shall clearly describe to the player that it is available and what options exist for selection;

2. The player advice feature should be permitted to be toggled ON or OFF at the player's

discretion;

3. Any player advice offered to the player for purchase is prohibited;

4. The player advice shall not be misleading or inaccurate, and must reflect the rules of play for the game;

5. The game design shall prevent access to any "information store" such that data related to the skill element is not readily available through software tampering (for example, a trivia game shall prevent access to an answers database);

6. The player advice feature shall allow the player the option of accepting the advice, and must not force the player to accept the assistance unless it reflects the only possible option for the player to pursue at the time; and

7. The availability and content of player advice shall remain consistent unless otherwise disclosed and must not adapt in a way that disadvantages the player based upon prior game play or game events.

### **X. Peripheral devices for skill-based games**

If unique peripherals (e.g., joysticks, game controllers, camera systems, sound systems, accelerometers, motion sensors, image sensors, etc.) are employed by the gaming device to support skill, then the game must provide adequate and clear instruction on their purpose, usage, and effect.

### **XI. Game recall for skill-based games**

Skill-based games shall maintain all information necessary to adequately reconstruct the last ten (10) game cycles, consistent with recall requirements stated herein. If any of the last ten game cycles includes bonus games, the game recall shall reflect at least the last 50 events of completed bonus games. If a bonus game consists of a number of events, each with separate outcomes, each of the events, up to 50, shall be displayed with its corresponding outcome.

A. Some combination of text, logs, video, graphics, screen captures, or other means shall be



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used to reconstruct the game outcome and/or player actions, provided that game history recall is sufficient to reconstruct game play.

1. When used with a game containing a physical skill element, a flight recorder or similar functionality may be useful for recording/documenting aspects of game history specific to a player's physicality, dexterity, motions, or gestures.

2. For any skill-based game that offers player advice, game recall shall reflect that information.

B. Last play information required. Game recall shall consist of graphical, textual, or video content, or some combination of these options, so long as the full and accurate reconstruction of game outcome is possible, excepting actions preceding the game outcome need not be reconstructed in a fully accurate manner. Game recall shall display the following information:

1. Date and time stamp;
2. Denomination played for the game, if a multi-denomination game type;
3. Display associated with the final outcome of the game, either graphically or via a clear text description;
4. Credit meter value at the start of play and/or at the end of play;
5. Any non-wager purchase that occurs during the recorded game;
6. Paytable identification, unless discernible from other screens or attendant menus;
7. Total amount wagered;
8. Total amount won;
9. Total amount available to be won, if disclosed to the players during the game;
10. Total amount collected after the end of a game, unless discernible from other screens or attendant menus;
11. Results of any player choices involved in the game outcome;
12. Results of any intermediate game phases, such as bonus games; and
13. If a progressive prize was won, an indication that the progressive was awarded.

### **XII. Interruption and resumption for skill-based games**

After a program interruption, a skill-based game shall recover to its pre-interruption state; except when a skill-based game involves multiple players or when resumption of the game is unreasonable, for any affected players, the game shall be voided and their wagers returned.

### **XIII. Default game display for skill-based games**

The default game display immediately following a non-volatile (NV) memory reset shall not display the highest advertised award. The default game display upon entering game play mode from a main menu or game chooser screen shall not display the highest advertised award. This applies to the base game only and not to any secondary bonus features.

### **XIV. Payout standards for skill-based games**

A. All skill-based games must determine game outcome solely by the application of the skill of the player or a combination of the skill of the player and chance.

B. Skill-based games that are connected to a common payoff schedule shall:

1. All be of the same denomination and have equivalent odds of winning the common payoff schedule/common award based as applicable on either or both of the combined influence of chance and skill; or

2. If of different denominations, by requiring the same wager to win the payoff schedule/award regardless of the device's denomination. For the purposes of this requirement, equivalent is defined as no more than a 1 percent tolerance on theoretical return to player.

C. The minimum theoretical return to player for a skill-based game shall be calculated based on the play of the least knowledgeable or least skilled player.

D. The maximum theoretical return to player for a skill-based game shall be calculated based on an



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optimal method of play that provides the greatest return to the player.

E. The predicted theoretical return to player for a skill-based game shall be determined by the results of testing, experimentation, calculations or other methods, based on the play of the average skilled player; which skill-based game must, on average, theoretically pay out a mathematically demonstrable percentage of all amounts wagered, which shall not be:

1. Less than 83 percent for any Class III game;
  2. Less than 75 percent for any Class II game;
- nor
3. Greater than 100 percent for any game;
  4. Sub-paragraphs 1 through 3 above do not apply to the minimum or maximum return to player, as applicable.

### **XV. Inter-casino and intra-casino linked skill-based games**

For an inter-casino and/or intra-casino linked system of skill-based games:

- A. The types of games that will be connected to such a system must be compatible;
- B. The communications technology used to connect participating gaming devices shall be adequate for the operating environment for such a system; and
- C. The progressive payoff schedules used for such systems shall be accurately described for players. Such schedules may broaden and encourage participation in games involving skill, by providing, without limitation, for partial prize awards, and prize awards for games with different themes or based on the use of player attributes.

### **XVI. Logging requirements for the use of player attributes**

- A. A system based game, system supported game, or gaming associated equipment that assigns or tracks the use of player attributes, or a stand-alone gaming device or client of a system supported gaming device that uses player attributes must log the following information each time a player attribute is assigned or used, as

applicable:

1. A transaction identification number unique to the assignment or, if applicable, the number assigned by a system component;
2. The transaction date and time;
3. If known, an identification number unique to the patron;
4. The category or name of the player attribute assigned;
5. If assigned, the basis for the assignment of the player attribute and any other information necessary to reconcile the assignment of a player attribute to a patron.

B. Logged information required when a player attribute is assigned must be retained for a minimum of 30 days, viewable on the system portion of the gaming device, and rendered unalterable.

C. Logged information for when a player attribute is used must be retained for at least the most recent ten player attributes used and must be displayable on the stand-alone gaming device or client of a system supported gaming device.

D. The basis for the assignment of a player attribute include, without limitation:

1. The level of skill of the player as identified or maintained by the gaming system or self-identified by the player;
2. The level of the skill of the player relative to the skill of other players participating in the same game;
3. The degree of skill required by the game; or
4. Any combination of the above, inclusive of other attributes.

### **XVII. Player interaction technology**

A. A gaming device that incorporates skill and makes use of player interaction technology must:

1. Monitor the player interaction technology for proper operation before the initiation of each game. The gaming device must enter into a tilt condition if improper operation is detected. Additionally, manufacturers shall monitor or enable gaming device to monitor available resource levels during operation to ensure



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continued proper game play;

2. Provide a mechanism to calibrate the technology;
3. Prevent unintended disturbances, such as physical, radio-frequency, or optical from impacting the proper operation of the game;
4. Upon initialization, automatically verify that minimum hardware requirements necessary to properly conduct the game are met. The gaming device must prevent initialization if the hardware is found to be insufficient; and
5. Ensure that variances in hardware, such as processing power, amount of memory, or data bandwidth available do not impact the proper operation of the game or provide an advantage or disadvantage to a player.

**B. Maintenance of Player Interaction Devices.** A gaming device that incorporates one or more player interaction devices that impact game outcome shall:

1. Monitor any smart player interaction device that supports two-way communications with the gaming device to determine if it is offline. Upon detection of an offline condition, the gaming device must tilt unless an alternative interface mechanism is available to the player; and
2. Support a manual test mode accessible to the operator to check the electrical continuity of the player interaction device and which allows the operator to assess the functional health of the device, as per its intended design.

**C. Communication between a gaming device and any wireless player interaction device, conducted using transmission technologies such as Near Field Communications, Bluetooth, Wi-Fi, optical, etc., shall:**

1. Utilize secure communication methods to prevent unauthorized access to sensitive data by unintended recipients;
2. Employ a method to detect data corruption. Upon detection of corruption, either correct the error, or terminate the communication while providing a suitable error message;
3. Employ a method to prevent unauthorized modification of sensitive data that impacts game

outcome or that represents secure player information; and

4. Only be possible with authorized wireless player interaction devices.

### **XVIII. Electronic accounting meters**

Skill-based games shall have electronic accounting meters that are equivalent to the electronic accounting meters required in the technical standards for EGMs that shall record and retain all applicable accounting transactions.

### **XIX. Waiver requests by manufacturers**

**A.** The Gaming Commission may approve and issue a waiver from a regulation defined herein for a skill-based game, as requested by the gaming enterprise, provided the Gaming Commission has determined that the waiver request is for good cause, is based on alternative or advanced technology, and such skill-based game will achieve a level of functionality sufficient to accomplish the purpose of the regulation requested to be waived.

**B.** A waiver request submitted by the gaming enterprise to the Gaming Commission shall include the following:

1. A detailed description of the regulation requested to be waived;
2. An explanation of how alternative or advanced technology of such skill-based game will achieve a level of functionality sufficient to accomplish the purpose of the regulation requested to be waived; and
3. A recommendation of a suitable alternative regulation that accomplishes the purpose of the regulation requested to be waived.

**C.** If a waiver is granted by the Gaming Commission, such a waiver shall be approved for a period of time determined by the Gaming Commission. In addition, the Gaming Commission may, in its discretion:

1. Grant an extension of time to the original waiver of a regulation provided the gaming enterprise requests the extension in writing at least fourteen (14) days prior to the expiration date of



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the waiver;

2. Grant a permanent waiver of a regulation provided the alternative or advanced technology of the skill-based game achieves a level of functionality sufficient to accomplish the purpose of the regulation waived.

D. Appeals will not be considered. The decision of the Gaming Commission is final.

E. Concurrence in a waiver by the Gaming Commission is discretionary and waivers will not be granted routinely. The gaming enterprise shall comply with regulations that are at least as stringent as those set forth in these standards until such time as the Gaming Commission approves a waiver.

F. If a waiver is granted by the Gaming Commission, the omission of the regulation being waived shall not cause the skill-based game to jeopardize the fairness, integrity, security or honesty of the gaming enterprise.

### **XX. Advanced Beta Testing for skill-based games**

A. In the interests of expediting the introduction of innovative, alternative and advanced aspects of skill-based games for use or play, a manufacturer may request its gaming device be considered for evaluation under Advanced Beta Testing.

1. For purposes of this section, the term “Advanced Beta Testing” means a process of evaluating a new innovation of a skill-based game utilizing a field testing period under conditions and limitations described herein.

2. The terms and conditions imposed under the Advanced Beta Testing will be set forth by the Gaming Commission, and shall include the requirement that the gaming enterprise notify patrons that the skill-based game is part of such a field test and is being exposed for play prior to finalization of the product in order to allow the evaluation of the gaming device at an earlier stage of the regulatory approval process.

3. The decision whether to permit a skill-based game to be evaluated utilizing Advanced Beta Testing is at the sole and absolute discretion of the

Gaming Commission.

4. When considering the request to evaluate a new innovation of a skill-based game utilizing Advanced Beta Testing, the Gaming Commission will consider factors including, without limitation, the ability of the gaming device to accurately determine, evaluate, and display the game outcome, and the ability of the gaming device to accurately process the acceptance and award of all payments.

5. In accordance with the Gaming Commission’s submission requirements for evaluating a new innovation of a skill-based game, the gaming enterprise shall submit and ensure the manufacturer submits, in a timely manner, all information specified in Appendix A below for the purpose of review and consideration by the Gaming Commission.

B. A manufacturer shall not modify a skill-based game without the prior written approval of the Gaming Commission while in Advanced Beta Testing.

C. The Gaming Commission may order termination of the test period, if it determines, in its sole and absolute discretion, that the manufacturer or gaming enterprise has not complied with the terms and conditions of the order allowing or requiring a test period or for any cause deemed reasonable.

### **XXI. Reference information**

Gaming Laboratories International (GLI) Gaming Devices Standard GLI-11, Section 4.18, 4.20.2, 4.20.3, 4.20.4, 4.20.5, 4.20.6, 4.20.9, 4.20.10, 4.20.11, 4.20.12; Nevada Gaming Regulations Standard 1, Section 1.200, 1.300; Nevada Gaming Regulations Standard 14, Section 14.010, 14.040; Technical Standards for Skill-based Games, TGRA 1 version 1.0, drafted July 28, 2017, Tribal Gaming Regulatory Authority Standards.

### **XXII. Appendix A**

#### **Advanced Beta Testing Submission Requirements for Evaluating a New Innovation of a Skill-based Game**



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A. For a manufacturer to have their gaming device considered under the Advanced Beta Testing (ABT) process, the following information must be submitted:

1. A letter addressed to the Gaming Commission requesting product consideration for participation in the ABT process. The letter must contain the justification for participation, including a detailed description of the innovative aspect of the gaming device.
2. A detailed overview of the game outcome determination process including, as applicable, the random number generation process; the mapping of random numbers to game elements; and the evaluation of the game elements to determine win or loss.
3. The test procedures and results used to determine the accuracy of the game outcome determination process.
4. The test procedures and results used to determine the accuracy of adding and removing credits to the gaming device including the deduction of credits for game play; the payment of winning wagers; the addition of credits via any mechanism available to the device; and the cashing-out of credits via any mechanism available to the device. Examples of available mechanisms include a currency acceptor; a currency dispenser; a voucher printer; and monetary transactions conducted with associated equipment.
5. A compliance report that documents in detail how the device either currently complies with or the intended method of compliance with each of the requirements of the Technical Standards for Gaming Devices.
6. A letter from a gaming enterprise stating their intention to host an ABT field trial of the gaming device and their commitment to abide by the terms and conditions the Gaming Commission may prescribe.
7. Any other information the manufacturer would like reviewed by the Gaming Commission, such as approval information from another jurisdiction, when requesting consideration to

participate in the ABT process.

B. ABT shall not replace the requirement for testing and certification of a skill-based game by an independent gaming test laboratory for Gaming Commission approval pursuant to the requirements of <Class III MICS>.

C. The gaming enterprise shall require that any skill-based game under ABT be configured as a stand-alone device and shall not be connected to the slot monitoring system or any other module of the casino management system, unless expressly approved in writing by the Gaming Commission.

D. Manufacturers are strongly encouraged to contact the Gaming Commission Regulatory Compliance Department prior to submitting a request for participation in the ABT process to review their gaming device.