



PENNSYLVANIA GAMING CONTROL BOARD (PGCB)
INDEPENDENT GAME TESTING SUMMARY REPORT

FOR

RED RAKE DIGITAL S.L.
SUPER 20 STARS
HTML5-DESKTOP

CONFIDENTIAL
CERTIFICATE NUMBER: E2410553RRGPENM_R01

Confidential: This report may not be reproduced, either in part or in full, without the prior written permission of eCOGRA.

IMPORTANT DISCLAIMER

This report is supplied on the basis that it is for the sole use of the parties listed and to whom it is addressed, and exclusively for the objectives set out herein.

No party, other than those specified, may rely on this report for any purpose whatsoever.

eCOGRA Limited ('eCOGRA') does not accept any liability or responsibility towards any third party to whom this report is shown or into whose hands it may fall.

This report should not be relied upon for any assurances in relation to third parties and/or activities which are not covered by the certifiable regulatory requirements or compliance standards of the jurisdiction, regulatory authority or compliance entity or system for whose purposes this report is stated to have been prepared. All such other parties and activities are outside the scope of this report and have therefore not been reviewed by eCOGRA.

The nature, timing and extent of testing conducted for the purpose of the certification is considered sufficient and appropriate based on the applicable certifiable regulations and professional judgement applied to the associated risk of non-compliance. The certification of compliance should not be construed to imply any warranty over the functionality, quality or performance of the subject of certification. eCOGRA reserves the right to withdraw this certificate if any non-compliances are subsequently detected by or reported to eCOGRA.

CONFIDENTIALITY NOTICE

This document is proprietary to eCOGRA and contains confidential information of commercial value to eCOGRA, the disclosure of which to third parties could adversely affect the business affairs of eCOGRA.

This information is supplied in confidence to you, on the strict condition that no part of it is disclosed to any third party, in particular to any person or organisation that may be in competition with eCOGRA without the prior written approval of eCOGRA.

TABLE OF CONTENTS

SECTION 1. GENERAL INFORMATION	4
SECTION 2. INTRODUCTION	6
SECTION 3. GAME DESCRIPTION.....	7
SECTION 4. PERCENTAGE RETURN TO PLAYER ('RTP')	8
SECTION 5. SOFTWARE DETAILS	11
SECTION 6. REVIEW FINDINGS	12
SCHEDULE 1. GAME TESTING.....	47
1. TESTS PERFORMED	47
2. TEST RESULTS.....	48
APPENDIX 1. FULL CALCULATIONS OF THE MAXIMUM ODDS FOR THE BASE GAME	49

SECTION 1. GENERAL INFORMATION

License Holder:	Red Rake Digital S.L. Avda. Cataluña, 9, entresuelo B Valencia 46020
Game Name:	Super 20 Stars
Game ID:	super20stars
Game Type:	Casino Slot game
Platform Type/s:	HTML5-Desktop
Platform Version:	1.0
Platform Supplier:	Red Rake Digital S.L. Avda. Cataluña, 9, entresuelo B Valencia 46020
Channels (Game Clients) Tested:	Desktop: Platform – Windows 10, Google Chrome Browser Version 118.0.5993.88 (Official Build) (64-bit) Mobile: Platform – iPad mini (5th generation) iOS (Official Build) (64-bit) Version 119.0.6045.109
Scope of Testing:	Relevant requirements of Pennsylvania’s “Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board”, as updated October 27, 2021, as follows: Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board, as updated October 27, 2021, limited to Chapter 810a. Interactive Gaming Testing and Controls (Sub-sections 810a.3. Minimum game standards, 810a.4. Minimum display standards, 810a.5. Random number generator standards, 810a.6. Software authentication, 810a.7. Changes to game, 810a.8. Game rules, 810a.9. Fairness, 810a.10. Prohibitions, 810a.11. Controls, 810a.12. Test accounts) and Chapter 461a. Slot Machine and Table Game Device Testing and Control (Sub-sections 461a.7. Slot machine minimum design standards, 461a.12. Progressive slot machines, 461a.13. Wide area progressive systems).
Certification Type:	Reissue of initial certification report with additional information
Test House:	eCOGRA Limited 2/F Berkeley Square House

Berkeley Square
London W1J 6 BD
United Kingdom

Test House Accreditation: A UKAS accredited testing laboratory No. 4656
ISO/IEC 17025:2017, issued by the United Kingdom Accreditation Service

Test Engineers: Ivy Mokoena; Boniswa Twala; Ridhwaan Shariff

Test Supervisor: Denise Ganesh

Request for Report: May 08, 2023

Certificate Date: September 02, 2024

Certificate Number: e2410553RRGPENM_R01

Result of Testing: Compliant (Refer to Test Results under Schedule 1)

I hereby certify that the above-mentioned game complies with the relevant requirements of Pennsylvania’s “Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board” as described in Section 6 of this report.



Bradley Khoury
Chief Technical Officer, eCOGRA

SECTION 2. INTRODUCTION

eCOGRA has been appointed by Red Rake Digital S.L. to evaluate and certify the following Casino Slot game for compliance with the relevant requirements of Pennsylvania’s “Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board”, and to highlight any exceptions identified during testing.

- Super 20 Stars (HTML5-Desktop; HTML5-Mobile)

This certification report highlights our key findings as a result of the evaluation conducted on HTML5-Desktop which is representative of the pre-production environment which is essentially the same as the live environment. The testing was conducted on the aforementioned platform established by Red Rake Digital S.L. during the period October 06, 2023 to July 18, 2024.

This game certificate supersedes the certification for the game previously conducted, as follows:

- Super 20 Stars (HTML5-Desktop) – Previous Certificate Number: e2410553RRGPENM

The updates made to the originally certified game encompassed the following changes:

- Crystal Feature was found to be non-compliant as its odds exceeded 1 : 50 000 000.
- The updates included changes to the math model which increases the chances of triggering this feature.
- The updates also include changes to the math model which makes the feature more likely to be more when the feature was is triggered.

Please note: A number of requirements within Section 6. Review Findings below that have been assessed as compliant at supplier level, may in fact be managed or controlled at operator level dependent on the custom solution that has been supplied to the operator. An indication of the custom solution provided to the operator should be available in documentation provided by the supplier to the operator. Careful consideration must be given to the solution provided to the operator and undue reliance should not be placed on the compliance assessment of certain requirements if compliance is not managed by the supplier. Additional certification testing may therefore be needed where the solution implemented by the operator differs to the solution that has undergone certification testing.

SECTION 3. GAME DESCRIPTION

Super 20 Stars

Game Description:

Super 20 Stars is a slot machine with 5 reels and 3 rows, which has 30 lines and a free spins feature.

Further details regarding the betting characteristics, features and detailed game rules can be found in the game instructions which can be provided upon request.

SECTION 4. PERCENTAGE RETURN TO PLAYER ('RTP')

Game Name	Bet Level	Theoretical RTP %	eCOGRA RTP % Recalculation	RTP% Displayed in Game Rules
Super 20 Stars	All Bet Levels	95.40% Without Increment Rate: N/A, no jackpot linked to game. With Lowest Configurable (or Hard-Coded) Increment Rate: N/A, no jackpot linked to game.	95.31% Without Increment Rate: N/A, no jackpot linked to game. With Lowest Configurable (or Hard-Coded) Increment Rate: N/A, no jackpot linked to game.	95.40% Without Increment Rate: N/A, no jackpot linked to game. With Lowest Configurable (or Hard-Coded) Increment Rate: N/A, no jackpot linked to game.

The Theoretical RTP percentage indicated in the table above is extracted from the game documentation as provided by Red Rake Digital S.L.. eCOGRA recalculated the RTP percentage by performing additional independent mathematical calculations on the output of simulation game data. The recalculated RTP is based on simulated data using the supplied theoretical mean and standard deviation, where a two-sided Z-test is used to determine the acceptability of any difference between the recalculated RTP and the theoretical RTP. Any difference between the recalculated RTP and the theoretical RTP has been assessed as acceptable as it is within an allowable tolerance with consideration to the game's volatility and the sample size used for certification testing.

PROGRESSIVE JACKPOTS:

Game Name	Progressive Levels	Reset Value	Increment Rate	Reset and Increment Values Hard Coded or Configurable
Super 20 Stars	N/A, no jackpot linked to game.	N/A, no jackpot linked to game.	N/A, no jackpot linked to game.	N/A, no jackpot linked to game.

PAYTABLES BLOCKED FROM PLAY:

eCOGRA verified that only paytables that have a theoretical payout percentage of 85% or more, calculated using the lowest possible wager that could be played, but less than 100%, calculated when using the highest eligible wager available, were included in the software submitted for approval.

The following sub-85% paytables are blocked from play and have been verified as not playable for the intended game offer in Pennsylvania:

Paytable Identification Number	Paytable Description	Paytable Minimum RTP %	Paytable Maximum RTP %	Paytable Electronically Precluded from Pennsylvania Game?
N/A	N/A	N/A	N/A	N/A

MAXIMUM ODDS CALCULATION AND DESCRIPTION OF THE MAXIMUM ODDS WINNING COMBINATION

The maximum odds in the game were calculated to be **1: 16 666 666.67** for the following winning combination:

Max Odds: Prize Description

- Super 20 Stars has a maximum odds of 1 in 16 666 666.67 spins.
- The feature is the Crystal Symbol Feature.
- When this feature triggers, a random row and column is selected. If the random grid position selected contains symbols D,E,F and G, then all occurrences of the selected symbol crystalizes.
- If a non- valid position is selected, another position is selected.
- After the selected symbols are crystalized, a multiplier between 4 and 50 is applied to the win resulting from the crystalized symbols.
- The maximum odds prizes is realized when symbol D Crystalizes and a x50 multiplier is awarded.

Max Odds: Calculation

- The calculation is based on a 5 sets of simulations each of size 20 million.

Symbol	Test 1	Test 2	Test 4	Test 4	Test 5
D	2	0	1	2	1
Sample Size	20000000	20000000	20000000	20000000	20000000
Probability based on simulation	0.0000001	0	0.00000005	0.0000001	0.00000005
Odds	10000000	0	20000000	10000000	20000000

- Taking the average across all simulations

$$\frac{\text{Max Prize Counts}}{\text{Total Base Simulations}} = \frac{6}{100000000} = 0.00000006$$

The Maximum Odds for achieving the Max Prize is therefore, 1 in 16 666 666.7 spins.

SECTION 5. SOFTWARE DETAILS

The scope of the game evaluation and certification applies solely to the critical game files, critical game file's server versions and associated hashes provided in the table below:

Super 20 Stars – Server-side Game Critical Files

File Name / Identifier	Server/Client Version	Binary SHA1 Sum	MD5 checksum
ourslots-framework-56.0.jar	56.0	67988d327892b3288c122729a64494b777c4f153	a1d4a36a581c9defa7c9f4b01427fe32
ourslots-framework-56.0-src	56.0	68aa57ca3653e8317a61d4777df2637e147cf051	9faf55d58bcd8407f18fe4c1b72c729b
ourslots-machines-56.0.jar	56.0	909b7323d96d07a51038cf8ee05cdfc56de6a796	4bb0c47fe8641d44206ff6e5a5ea6263
ourslots-machines-56.0-src	56.0	8f1704540380cbdbd68261ff3ddd08f02635574e	866a6081e751152c5fdd511d15754a07
ourvegas-framework-56.0.jar	56.0	df2dc1e46b67117a2cda2a648e7268ac0aa45e7e	879cdd5e1b7e72705ce41c04478c92cd
ourvegas-framework-56.0-src	56.0	8b78ee735646932ae131532fe499bc714f498ec0	4d78d8baaa76c48685ff873e4ede5be8

SECTION 6. REVIEW FINDINGS

The key findings of our evaluation of the game for compliance with the relevant sections of Pennsylvania’s “Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board” as updated October 27, 2021, are as follows:

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	All of the following requirements apply to the game information, artwork, paytables and help screens which include all written, graphical and auditory information provided to the player either directly from the game interface or from a page accessible to the player from the game interface through a hyperlink located in a conspicuous location.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(1) All statements and graphics within the gaming information, artwork, paytables and help screens must be accurate and not misleading.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(2) All game rules and payable information must be available to the player directly on the player interface or accessible from the player interface through a hyperlink without the need for funds to be deposited or funds to be staked.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(3) All game rules and payable information must be sufficient to explain all the applicable rules and how to participate in all stages of the game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(4) Paytable information must include all possible winning outcomes, patterns, rankings and combinations, and their corresponding payouts with a designated denomination or currency. All displayed payouts must be theoretically possible.	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(5) The rules of the game must inform the players of the imperfections of the communications medium for the game and how this affects them.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(6) There must be sufficient information regarding any award payout adjustments such as fees, rakes, commissions, and the like.	Not Applicable	The game does not have payout adjustments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(7) If the artwork contains game instructions specifying a maximum win then it must be possible to win this amount from a single game (including features or other game options).	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(8) For games that offer bonus bets that require a base game bet, the minimum percentage return to player of the bonus bet must take into account that a base game bet must be placed.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(9) If random/mystery prizes are offered, the maximum value obtainable from the random/mystery prize must be indicated. If the value of the random/mystery prize depends on credits wagered or any other factors, this must be stated.	Not Applicable	The game does not offer any mystery prizes.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(10) The artwork should clearly state the rules for payments of prizes when multiple wins are possible. (i) A description of what combinations will be paid when a pay line may be interpreted to have more than one individual winning combination (“only highest paid win per line”).	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(10) The artwork should clearly state the rules for payments of prizes when multiple wins are possible. (ii) When the game supports multiple pay lines, the artwork should display a message indicating wins on different pay lines are added or equivalent.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(10) The artwork should clearly state the rules for payments of prizes when multiple wins are possible. (iii) When the game supports scatters, artwork should display a message indicating that scattered wins are added to pay line wins, or equivalent, if this is the rule of the game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(10) The artwork should clearly state the rules for payments of prizes when multiple wins are possible. (iv) The artwork should clearly communicate the treatment of coinciding scattered wins with respect to other possible scattered wins. For example, the artwork should state whether combinations of scattered symbols pay all possible prizes or only the highest prize.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(10) The artwork should clearly state the rules for payments of prizes when multiple wins are possible. (v) The artwork should clearly communicate the treatment of coinciding game outcome (that is, straight flush can be a flush and a straight, three red 7s can be any three 7s).	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(11) If it is possible to bet on multiple lines and it is not clear which reel positions are part of each of the possible lines, then the additional lines must be clearly displayed on the artwork and appropriately labeled. The additional lines must either be shown on the displayed artwork, be available for display on a help screen or permanently displayed on all game-play screens in a location separate from the actual reels.	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(12) When multiplier instructions are displayed on artwork, there must be no question as to whether the multiplier applies.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(13) All game symbols and objects must be clearly displayed to the player and not be misleading in any way. Game symbols and objects must retain their shape throughout all artwork, except while animation is in progress.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(14) The artwork must clearly state which symbols and objects may act as a substitute or wild and in which winning combinations the substitute/wild may be applied.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(15) The artwork must clearly state which symbols and objects may act as scatter and in which winning combinations the scatter may be applied.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(16) The game may not advertise upcoming wins unless the advertisement is accurate and mathematically demonstrable.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(17) All of the following requirements apply to games depicting cards being drawn from a deck: (i) A game which utilizes multiple decks of cards must clearly indicate the number of cards and card decks in play.	Not Applicable	The game does not depict cards being drawn from a deck.
Chapter 810a. Interactive	§ 810a.3. Minimum game standards.	(17) All of the following requirements apply to games depicting cards being drawn from a deck:	Not Applicable	The game does not depict cards being drawn from a deck.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Gaming Testing and Controls		(ii) Once removed from the deck, cards may not be returned to the deck except as provided by the rules of the game depicted.		
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(17) All of the following requirements apply to games depicting cards being drawn from a deck: (iii) The deck may not be reshuffled except as provided by the rules of the game depicted.	Not Applicable	The game does not depict cards being drawn from a deck.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(18) All of the following requirements apply to multiwager games: (i) Each individual wager to be played must be clearly indicated to inform the player as to which wagers have been made and the credits bet per wager.	Not Applicable	The game is not a multiwager game.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.3. Minimum game standards.	(18) All of the following requirements apply to multiwager games: (ii) Each winning prize obtained must be displayed to the player in a way that clearly associates the prizes to the appropriate wager. When there are wins associated with multiple wagers, each winning wager must be indicated in turn.	Not Applicable	The game is not a multiwager game.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (1) The name of the game being played.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (2) Restrictions on play or betting such as any play duration limits, maximum win values, and the like.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (3) The player's current session balance.	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (4) The current bet amount. This is only during the phase of the game when the player can add to or place additional bets for that phase.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (5) Current placement of all bets.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (6) The denomination of the bet.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (7) The amount won for the last completed game (until the next game starts or betting options are modified).	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (8) The player options selected for the last completed game (until the next game starts or a new selection is made).	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session: (9) Initial player section options are to be described. Player selection options once the game has commenced should be clearly shown on the screen.	Compliant	
Chapter 810a. Interactive	§ 810a.4. Minimum display standards	All of the following game information must be visible or easily accessible to the player at all times during a player session:	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Gaming Testing and Controls		(10) The winning amount for each separate wager and total winning amount are to be displayed on the screen.		
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(a) The random number generator must be cryptographically strong at the time of submission for approval. When more than one instance of a random number generator is used in an interactive gaming system, each instance must be separately evaluated and certified. When each instance is identical but involves a different implementation within a game/application, each implementation shall also be separately evaluated and certified. Any outcomes from the random number generator used for game symbol selection/game outcome determination must be shown, by data analysis and a source code read, to: (1) Be statistically independent, unless the submission has been approved for a persistent-state outcome determination. (2) Be fairly distributed (within statistically expected bounds) over their range. (3) Pass various recognized statistical tests. (4) Be cryptographically strong.	Compliant	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(b) Random number generators must adhere to standards in § 461a.7 (relating to slot machine minimum design standards).	Compliant	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(c) The gaming laboratory may employ the use of various recognized tests to determine whether or not the random values produced by the random number generator pass the desired confidence level of 95%. These tests include the following: (1) Chi-square test. (2) Equi-distribution (frequency) test. (3) Gap test. (4) Overlaps test. (5) Poker test. (6) Coupon collectors test. (7) Permutation test. (8) Kolmogorov-Smirnov test. (9) Adjacency criterion tests. (10) Order statistic test. (11) Runs tests (patterns of occurrences should not be recurrent). (12) Interplay correlation test. (13) Serial correlation test potency and degree of serial correlation (outcomes should be independent of the previous game, unless the submission has been approved for a persistent-state outcome determination). (14) Tests on subsequences. (15) Poisson distribution.	Compliant	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(d) The scaling method may not compromise the cryptographic strength of the random number generator. The scaling method must preserve the distribution of the scaled values. For example, if a 32-bit random number generator with a range of the set of integers in the closed interval (0, 232-1) were to be scaled to the range of the set of integers in the closed interval (1,	Compliant	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		6) so that the scaled values can be used to simulate the roll of a standard six-sided die, then each integer in the scaled range should theoretically appear with equal frequency. In the example given, if the theoretical frequency for each value is not equal, then the scaling method is considered to have a bias. Thus, a compliant scaling method must have bias equal to zero.		eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(e) If the interactive gaming system utilizes hard-based random number generators, there must be dynamic/active, real-time monitoring of the output with a sample size large enough to allow for reasonably high statistically powerful testing so that game play is disabled when an output testing failure is detected.	Not Applicable	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(f) If the interactive gaming system utilizes a software-based random number generator, it must adhere to all of the following: (1) The period of the random number generator, in conjunction with the methods of implementing the random number generator outcomes, must be sufficiently large to ensure that all game independent outcome combinations/permutations are possible for the given game/application, unless the submission has been approved for a persistent-state outcome determination.	Compliant	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive	§ 810a.5. Random number	(f) If the interactive gaming system utilizes a software-based random number generator, it must adhere to all of the following:	Compliant	The RNG has been certified in a separate independent test lab

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Gaming Testing and Controls	generator standards.	(2) The methods of seeding/reseeding must ensure that all seed values are determined in a manner that does not compromise the cryptographic security of the random number generator.		report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.5. Random number generator standards.	(f) If the interactive gaming system utilizes a software-based random number generator, it must adhere to all of the following: (3) To ensure that random number generator outcomes cannot be predicted, adequate background cycling/activity must be implemented in between games. Whenever a game outcome is made up of multiple mapped random number generator values, background cycling/activity must be implemented during the game (that is, in between the selection of each mapped random number generator value) to ensure that the game outcome is not comprised of sequential mapped random number generator outcomes. The rate of background cycling/activity must be sufficiently random in and of itself to prevent prediction.	Compliant	The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E. eCOGRA has verified that that the game utilises the certified RNG during RNG calling procedures.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.6. Software authentication.	The acquisition and development of new software must follow defined processes in accordance with the information security policy.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.6. Software authentication.	(1) The production environment must be logically and physically separated from the development and test environments.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.6. Software authentication.	(2) Development staff shall be precluded from having access to promote code changes into the production environment. If, due to staffing limitations, this requirement cannot be met by the entity, the internal controls submitted to the Board shall describe what measures will be implemented to ensure the integrity of interactive games in the production environment.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.6. Software authentication.	(3) There must be a documented method to verify that test software is not deployed to the production environment.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.6. Software authentication.	(4) To prevent leakage of personal identifiable information, there must be a documented method to ensure that raw production data is not used in testing.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.6. Software authentication.	(5) All documentation relating to software and application development should be available and retained for the duration of its lifecycle.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.7. Changes to game.	A change or modification to an interactive game shall be handled in accordance with the Change Management guidelines issued and distributed to interactive gaming certificate holders, interactive gaming operators and interactive gaming manufacturers.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.8. Game rules	(a) Interactive gaming certificate holders and interactive gaming operators shall adopt and adhere to written, comprehensive house rules governing wagering transactions by and between authorized players that are available for review at all times by players through a conspicuously displayed link. House rules must include all of the following: (1) Clear and concise explanation of all fees.	Not applicable	Compliance with this requirement is not managed by the manufacturer. Refer to assessment of game integration at operator level.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.8. Game rules	(a) Interactive gaming certificate holders and interactive gaming operators shall adopt and adhere to written, comprehensive house rules governing wagering transactions by and between authorized players that are available for review at all times by players through a conspicuously displayed link. House rules must include all of the following: (2) The rules of play of a game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.8. Game rules	(a) Interactive gaming certificate holders and interactive gaming operators shall adopt and adhere to written, comprehensive house rules governing wagering transactions by and between authorized players that are available for review at all times by players through a conspicuously displayed link. House rules must include all of the following: (3) Any monetary wagering limits.	Not applicable	Compliance with this requirement is not managed by the manufacturer. Refer to assessment of game integration at operator level.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.8. Game rules	(a) Interactive gaming certificate holders and interactive gaming operators shall adopt and adhere to written, comprehensive house rules governing wagering transactions by and between authorized players that are available for review at all times by players through a conspicuously displayed link. House rules must include all of the following: (4) Any time limits pertaining to the play of a game.	Not applicable	Compliance with this requirement is not managed by the manufacturer. Refer to assessment of game integration at operator level.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (1) Game outcome may not be affected by the effective bandwidth, link utilization, bit error rate or other characteristic of the communications channel between the interactive gaming platform and the player device.	Compliant	
Chapter 810a. Interactive	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Gaming Testing and Controls		platform and be independent of the player device. All of the following also apply: (2) Determination of events of chance that result in a monetary award may not be influenced, affected or controlled by anything other than numerical values derived in an approved manner from the certified random number generator when applicable and in conjunction with the rules of the game.		
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (3) Each possible permutation or combination of game elements that produces winning or losing game outcomes must be available for random selection at the initiation of each play, unless otherwise denoted by the game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (4) As game symbols are selected or game outcomes are determined, they must be immediately used as directed by the rules of the game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (5) When the game requires a sequence or mapping of symbols or outcomes to be set up in advance, the symbols or outcomes should not be resequenced or remapped, except as provided for in the rules of the game.	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (6) After selection of the game outcome, the game may not make a variable secondary decision which affects the result shown to the player.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (7) Except as provided by the rules of the game, events of chance within games should be independent and not correlated with any other events within the game or events within the previous game, unless the submission has been approved for a persistent-state outcome determination.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(a) All critical functions including the generation of the result of any game (and the return to the player) must be generated by the interactive gaming platform and be independent of the player device. All of the following also apply: (8) For game types such as a spinning reel game, unless otherwise disclosed to the player, the mathematical probability of a symbol appearing in a position for any game outcome must be constant.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(b) A game may not be designed to give the player a false expectation of better odds by misrepresenting any occurrence or event. (1) Games that are designed to give the player the perception that they have control over the game due to player skill when they actually do not must fully address this behavior in the game help screens.	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.9. Fairness	(b) A game may not be designed to give the player a false expectation of better odds by misrepresenting any occurrence or event. (2) The final outcome of each game must be displayed for a sufficient length of time that permits a player to verify the outcome of the game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.10. Prohibitions	(a) Forced game play. (1) The player may not be forced to play a game just by selecting that game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.10. Prohibitions	(a) Forced game play. (2) It must not be possible to start a new game in the same player interface instance before all relevant meters have been updated on the interactive game system and all other relevant connections and player session balance or, if applicable, the player's total balance has been updated.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.10. Prohibitions	(a) Forced game play. (3) If an auto play mode is incorporated, it must be possible to turn this mode off at any time during game play.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.10. Prohibitions	(c) Incomplete games. A game is incomplete when the game outcome remains unresolved or the outcome cannot be properly seen by the player. (1) The interactive gaming certificate holder or interactive gaming operator may provide a mechanism for a player to complete an incomplete game. (2) Incomplete games shall be resolved before a player is permitted to participate in another instance of the same game.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.10. Prohibitions	(c) Incomplete games. A game is incomplete when the game outcome remains unresolved or the outcome cannot be properly seen by the player. (3) Wagers associated with an incomplete game must be voided within 30 days and the wagers can be forfeited or returned to the player provided that:	Not applicable	Compliance with this requirement is not managed by the manufacturer. Refer to

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		(i) The terms and conditions or the game rules, or both, must clearly define how wagers will be handled when they remain undecided beyond the specified time period and the interactive gaming system must be capable of returning or forfeiting the wagers, as appropriate. (ii) In the event that a game cannot be continued due to an interactive gaming system action, all wagers must be returned to the players of that game.		assessment of game integration at operator level.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.10. Prohibitions	(d) Auto play prohibited. Game play shall be initiated only after a registered player has affirmatively placed a wager and activated play. An auto play feature is not permitted in game software unless authorized by the Board, and if permitted shall not exceed 50 spins.	Compliant	
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.11. Controls	(a) A replay last game feature either as a re-enactment or by description must be available to players. The replay must clearly indicate that it is a replay of the entire previous game cycle, and must provide, at a minimum, all of the following information: (1) The date and time the game started or ended, or both. (2) The display associated with the final outcome of the game, either graphically or by a clear text message. (3) Total player cash/credits at start or end of play, or both. (4) Total amount bet. (5) Total cash/credits won for the prize (including progressive jackpots). (6) The results of any player choices involved in the game outcome. (7) Results of any intermediate game phases, such as gambles or feature games. (8) Amount of any promotional awards received, if applicable.	Compliant	
Chapter 810a. Interactive	§ 810a.11. Controls	(b) For each individual game played, all of the following information must be recorded, maintained and easily demonstrable by the interactive gaming	Not applicable	Refer to the manufacturer's platform certification report/s

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Gaming Testing and Controls		system: (1) Unique player ID. (2) Contributions to progressive jackpot pools, if applicable. (3) Game status (in progress, complete, and the like). (4) The table number, if applicable, at which the game was played. (5) The payable used. (6) Game identifier and version.		for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.11. Controls	(d) All of the following requirements apply to the disabling and re-enabling of gambling on the interactive gaming system: (1) The interactive gaming system must be able to disable or enable all gambling on command.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.11. Controls	(d) All of the following requirements apply to the disabling and re-enabling of gambling on the interactive gaming system: (2) When any gambling is disabled or enabled on the interactive gaming system an entry must be made in an audit log that includes the reason for any disable or enable.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.11. Controls	(e) When a game or gaming activity is disabled: (1) The game is not to be accessible to a player once the player's game has fully concluded. (2) The player should be permitted to conclude the game in play (that is, bonus rounds, double up/gamble and other game features related to the initial game wager should be fully concluded).	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.11. Controls	(f) When one or more feature/bonus prize may be paid to the player, the bonus game must be part of the overall payable theoretical return to player.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (1) The procedures for the issuance of funds used for testing, including the identification of who is authorized to issue the funds and the maximum amount of funds that may be issued.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (2) The procedures for assigning each test account for use by only one person.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (3) The maintenance of a record for all test accounts to include when they are active, to whom they are issued and the employer of the person to whom they are issued.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (4) The procedures for the auditing of testing activity by the interactive gaming certificate holder or interactive gaming operator to ensure the	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		accountability of funds used for testing and proper adjustments to gross interactive gaming revenue.		
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (4) The procedures for the auditing of testing activity by the interactive gaming certificate holder or interactive gaming operator to ensure the accountability of funds used for testing and proper adjustments to gross interactive gaming revenue.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (5) The ability to withdraw funds from a test account without the Board's prior approval must be disabled by the interactive gaming system.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: (5) The ability to withdraw funds from a test account without the Board's prior approval must be disabled by the interactive gaming system.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following:	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		6) For testing of peer-to-peer games: (i) A person may utilize multiple test accounts.		
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(a) Interactive gaming certificate holders and interactive gaming operators may establish test accounts to be used to test the various components and operation of an interactive gaming system in accordance with internal controls, which, at a minimum, address all of the following: 6) For testing of peer-to-peer games: (ii) Test account play shall be conducted without the participation of players.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 810a. Interactive Gaming Testing and Controls	§ 810a.12. Test accounts	(b) In addition to the required internal controls in subsection (a)(1)–(6), for any wagering on test accounts conducted outside the boundaries of this Commonwealth, the procedures for auditing of testing activity must include the method for ascertaining the location from which persons using test accounts access the interactive gaming system.	Not applicable	Refer to the manufacturer's platform certification report/s for the relevant assessment results against this requirement.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.7. Slot machine minimum design standards.	(a) A slot machine may not be set to pay out less than the theoretical payout percentage, which may not be less than 85%, calculated using the lowest possible wager that could be played for any single play, or equal or exceed 100%, calculated using the highest eligible wager available. The theoretical payout percentage for the total value of slot machine wagers will be calculated using the following: (1) The defined set of all symbols that will be displayed using spinning reels or video displays, or both. (2) The finite set of all possible combinations which shall be known as the cycle of the game. All possible combinations in a slot machine cycle shall be independent of each other and of all possible combinations from cycles in other slot machines. (3) The value of each winning combination that corresponds with the set from paragraph (2) which, whether by reason of skill or application of the	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		element of chance or both, may deliver or entitle the person or persons playing the slot machine to a jackpot. (4) A payout of merchandise or anything of value provided a cash equivalent award for the merchandise is offered. The value of the cash equivalent will contribute to the calculation of the theoretical payout percentage. (5) A payout in the form of an annuity will contribute to the calculation of the theoretical payout percentage by dividing the initial or reset amount of the jackpot payout by the number of years over which the jackpot will be paid. (6) The odds of any winning combination may not exceed 50 million to 1.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.7. Slot machine minimum design standards.	(b) The calculation of the theoretical payout percentage will not include: (1) The amount of any progressive jackpot in excess of the initial or reset amount. (2) A cash or noncash complimentary issued under § 465.8 (relating to complimentary services or items).	Not applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.7. Slot machine minimum design standards.	(c) A play offered by a slot machine may not have a theoretical payout percentage which is less than, when calculated to one hundredth of a percentage point, the theoretical payout percentage for any other play offered by that slot machine which is activated by a slot machine wager in a lesser amount than the slot machine wager required for that play. Notwithstanding the foregoing, the theoretical payout percentage of one or more particular plays may be less than the theoretical payout percentage of one or more plays which require a lesser wager provided that: (1) The aggregate total of the decreases in the theoretical payout percentage for plays offered by the slot machine is not more than 1/2 of 1%. (2) The theoretical payout percentage for every play offered by the slot machine is equal to or greater than the theoretical payout percentage for the	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		play that requires the lowest possible wager that will activate the slot machine.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.7. Slot machine minimum design standards.	(d) The selection from the set of all possible combinations of symbols shall be made applying a pseudo random number generator. At a minimum, a pseudo random number generator must adhere to the following criteria: (1) The random selection process must meet a 95% confidence interval. (2) A random number generator must pass a standard chi-squared test for goodness of fit. (3) Each possible slot machine combination which produces winning or losing slot machine outcomes must be available for random selection at the initiation of each play. (4) A slot machine payout percentage that may be affected by reason of skill must meet the theoretical payout requirements of this subpart when evaluated by the Board using a method of play that will provide the greatest return to the player. (5) Once a random selection process has occurred, the slot machine must: (i) Display an accurate representation of the randomly selected outcome. (ii) Not make a secondary decision which affects the result shown to the person playing the slot machine.	Compliant	
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.7. Slot machine minimum design standards.	(e) A slot machine is prohibited from automatically altering any function of the slot machine based on internal computation of the hold percentage.	Compliant	
Chapter 461a. Slot Machine and Table Game	§ 461a.7. Slot machine	(f) The available winning combinations and applicable rules of play for a slot machine shall be available at all times the slot machine is idle to the patron playing the slot machine. The award schedule of available winning	Compliant	

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Device Testing and Control	minimum design standards.	combinations may not include possible aggregate awards achievable from free plays. A slot machine that includes a strategy choice must provide mathematically sufficient information for a patron to use optimal skill. Information regarding a strategy choice need not be made available for any strategy decisions whenever the patron is not required, in addition to the initial wager, to make an additional wager and, when as a result of playing a strategy choice, the patron cannot lose any credits earned thus far during that game play.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(a) A progressive slot machine may stand alone or be linked with other progressive slot machines.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(b) Each slot machine that offers a progressive jackpot must have: (1) A progressive meter, visible from the front of the slot machine, which may increase in value based upon wagers, that advises the player of the amount which can be won if the player receives the combination on the slot machine that awards the progressive jackpot. (2) A slot machine paid progressive payout meter in accordance with § 461a.7(g) (relating to slot machine minimum design standards). (3) A slot attendant paid progressive payout meter in accordance with § 461a.7(g). (4) A cumulative progressive payout meter that continuously and automatically records the total value of progressive jackpots paid directly by the slot machine or by a slot attendant. (5) A key and key switch or other reset mechanism to reset the progressive meter or meters.	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		(6) A key locking the compartment housing the progressive meter or meters or other means by which to preclude any unauthorized alterations to the progressive meters. The key or alternative security method must be different than the key or reset mechanism in paragraph (5). (7) If the progressive controller is not secured in a slot machine, the progressive controller: (i) Must be maintained in a secure area approved by the Bureau of Gaming Laboratory Operations. (ii) Must be dual key controlled with one key controlled by the slot operations department and the other key controlled by a different designated department with no incompatible functions, as specified in the licensee's internal controls. (iii) May not be accessed until the Bureau of Gaming Laboratory Operations is electronically notified.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(c) In addition to the requirements in subsection (b), a slot machine that is connected to a common progressive meter for the purpose of offering the same progressive jackpot on two or more slot machines must: (1) Have the same probability of hitting the combination that will award the progressive jackpot as every other slot machine linked to the common progressive meter. (2) Require that the same amount in wager be invested to entitle the player to a chance at winning the progressive jackpot and that each increase in wager increment the progressive meter by the same rate of progression as every other slot machine linked to the common progressive meter.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game	§ 461a.12. Progressive slot machines.	(d) Notwithstanding the provisions of subsection (c), two or more linked slot machines offering the same progressive jackpot may be of different	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Device Testing and Control		denominations or have different wagers, or both, required to win the progressive jackpot, provided that: (1) The probability of winning the progressive jackpot is directly proportional to the wager required to win that jackpot. (2) Notice indicating the proportional probability of hitting the progressive jackpot on the linked progressive system is conspicuously displayed on each linked slot machine.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(e) A slot machine licensee seeking to utilize a linked slot machine shall submit for approval in accordance with § 461a.4 (relating to submission for testing and approval) the location and manner of installing any progressive meter display mechanism.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(f) A slot machine that offers a progressive jackpot may not be placed on the gaming floor until the slot machine licensee or, as applicable, the slot system operator, has submitted the following to the Bureau of Gaming Laboratory Operations for review and approval in accordance with § 461a.4: (1) The initial and reset amounts at which the progressive meter or meters will be set. (2) The proposed system for controlling the keys and applicable logical access controls to the slot machines. (3) The proposed rate of progression for each progressive jackpot. (4) The proposed limit for the progressive jackpot, if any. (5) The calculated probability of winning each progressive jackpot. The probability may not exceed 50 million to 1. Notwithstanding the foregoing, this paragraph does not apply to a jackpot with a probability that may exceed 50 million to 1 during the game cycle due solely to the intervening	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		occurrence of free play awards between the activation of a play and the award of the jackpot.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(g) A slot machine that offers either a new progressive jackpot or undergoes a modification or RAM clear of an existing progressive jackpot may not be made available for play by the public until the slot machine has been tested and certified by the Bureau of Gaming Laboratory Operations. For purposes of this subsection, a modification includes any change in the software, hardware, including controllers, and any associated equipment that relates to progressive functionality.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(h) Progressive jackpot meters may not be turned back to a lesser amount unless one of the following occurs: (1) The amount indicated has been actually paid to a winning patron and the progressive jackpot amount has been recorded in accordance with a system of internal controls approved under § 465a.2 (relating to internal control systems and audit protocols). (2) With written approval, the progressive jackpot has been transferred to another progressive slot machine or wide area progressive system in accordance with subsection (k)(4). (3) The change is necessitated by a slot machine or meter malfunction. An explanation for the change shall be entered on the progressive slot summary required under this subpart and the Bureau of Gaming Laboratory Operations shall be notified of the resetting in writing.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(i) Once an amount appears on a progressive meter, the probability of hitting the combination that will award the progressive jackpot may not be decreased unless the progressive jackpot has been won by a patron, has been transferred to another progressive slot machine or wide area progressive system or has been removed in accordance with subsection (k).	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(j) When a slot machine has a progressive meter with digital limitations on the meter, the slot machine licensee shall set a limit on the progressive jackpot not to exceed the display capability of the progressive meter.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(k) A slot machine licensee or, as applicable, a slot system operator, may limit, transfer or terminate a progressive jackpot offered on a gaming floor only under the following circumstances: (1) A slot machine licensee may establish a payout limit for a progressive jackpot provided that the payout limit is greater than the then current payout amount on the progressive jackpot meter. The slot machine licensee shall provide notice to and receive written approval from the Bureau of Gaming Laboratory Operations prior to the imposition of a payout limit on a progressive meter or a modification thereto. (2) A slot machine licensee may terminate a progressive jackpot concurrent with the winning of the progressive jackpot provided its slot machine program or progressive controller was configured prior to the winning of the progressive jackpot to establish a fixed reset amount with no progressive increment. (3) A slot machine licensee may immediately and permanently remove one or more linked slot machines from a gaming floor, provided that: (i) When the slot machine is part of a wide area progressive system offered at multiple licensed facilities, the slot machine licensee retains at least one linked slot machine offering the same progressive jackpot on its gaming floor. (ii) When the progressive jackpot is only offered in a single licensed facility, at least two linked slot machines offering the same progressive jackpot remain on the gaming floor.	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		(4) A slot machine licensee may transfer a progressive jackpot amount on a stand alone slot machine or the common progressive jackpot on an entire link of slot machines with a common progressive meter, including a wide area progressive system, from a gaming floor provided the slot machine licensee receives written approval from the Bureau of Gaming Laboratory Operations prior to the transfer and the accrued amount minus the seed amount of the progressive jackpot is: (i) Transferred in its entirety. (ii) Transferred to one of the following: (A) The progressive meter for a slot machine or wide area progressive system with the same or similar probability of winning the progressive jackpot, the same or lower wager requirement to be eligible to win the progressive jackpot, and the same type of progressive jackpot (cash, annuity, annuity/cash option or a combination/alternate jackpot). (B) The progressive meters of two separate slot machines or wide area progressive systems, provided that each slot machine or wide area progressive system to which the jackpot is transferred individually satisfies the requirements of clause (A). (iii) Notice of intent to transfer the progressive jackpot is conspicuously displayed on the front of each slot machine for at least 30 days. (5) If a transfer cannot be made in accordance with subsection (k)(4) or with good cause shown, a slot machine licensee may remove progressive functionality, change the game theme or permanently remove a stand alone progressive slot machine, an entire link of slot machines with a common progressive jackpot or an entire wide area progressive system from a gaming floor, provided:		

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		(i) Notice of intent to remove the progressive slot machines or wide area progressive systems is conspicuously displayed on the front of each slot machine for at least 30 days. (ii) Prior to posting the notice of intent required under subsection (k)(5)(i), the slot machine licensee receives written approval from the Bureau of Gaming Laboratory Operations to remove the progressive slot machines or wide area progressive systems.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(l) Progressive slot machines and wide area progressive systems removed from the gaming floor in accordance with subsection (k)(5) may not be returned to the gaming floor for 90 days.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(m) The amount indicated on the progressive meter or meters and coin in meter on each slot machine governed by subsection (b) shall be recorded on a progressive slot summary report at least once every 7 calendar days and each report shall be signed by the preparer. If not prepared by the finance department, the progressive slot summary report shall be forwarded to the finance department by the end of the gaming day on which it is prepared. A representative of the finance department shall be responsible for calculating the correct amount that should appear on a progressive meter. If an adjustment to the progressive meters is necessary, the adjustment shall be made by a member of the slot operations department as follows: (1) Supporting documentation shall be maintained to explain any addition or reduction in the registered amount on the progressive meter. The documentation must include the date, asset number of the slot machine, the amount of the adjustment and the signatures of the finance department	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		member requesting the adjustment and of the slot operations department member making the adjustment. (2) The adjustment must be effectuated within 48 hours of the meter reading.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(n) Except as otherwise authorized by this section, a slot machine offering a progressive jackpot that is temporarily removed from the gaming floor shall be returned to active play or replaced on the gaming floor within 5 gaming days. The amount on the progressive meter or meters on the returned or replacement slot machine may not be less than the amount on the progressive meter or meters at the time of removal. This subsection does not apply to the temporary removal by a slot machine licensee, for a period not to exceed 30 days, of all linked slot machines that are part of a particular wide area progressive system, provided that the progressive jackpot offered by the temporarily removed slot machines remains available on slot machines that are part of the same wide area progressive system in another licensed facility.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.12. Progressive slot machines.	(o) When a slot machine is located adjacent to a slot machine offering a progressive jackpot, the slot machine licensee shall conspicuously display a notice advising patrons that the slot machine is not participating in the progressive jackpot of the adjacent slot machine.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(a) Two or more slot machine licensees may, with the prior written approval of the Board as required under subsection (c), operate a wide area progressive system.	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(b) A wide area progressive system shall at all times be installed and operated in accordance with relevant requirements of the act and this subpart.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(c) A wide area progressive system shall be operated and administered by participating slot machine licensees in accordance with the terms and conditions of a written agreement executed by the participating slot machine licensees. The agreement shall be referred to as a slot system agreement. Slot system agreements must be submitted in writing and approved by the Board prior to implementation	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(d) Slot machine licensees participating in a slot system agreement may delegate, in whole or in part, the operation and administration of a wide area progressive system to a licensed manufacturer provided that the slot system agreement is executed by the licensed manufacturer and its express terms are approved by the Board. The persons designated in a slot system agreement as being responsible for the operation and administration of a wide area progressive system shall be referred to as the slot system operator.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(e) An agreement between a licensed manufacturer and a slot machine licensee under which a licensed manufacturer sells, leases or services a wide area progressive system will not constitute a slot service agreement unless the agreement also covers operation and administration of the wide area progressive system.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game	§ 461a.13. Wide area progressive systems.	(f) Slot system agreements providing for the operation and administration of a wide area progressive system must identify and describe with specificity the duties, responsibilities and authority of each participating slot machine licensee and each slot system operator including all of the following:	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Device Testing and Control		(1) Details with regard to the terms of compensation for the slot system operator. The agreement must address to what extent, if any, the slot system operator is receiving compensation based directly or indirectly on an interest, percentage or share of a slot machine licensee's revenue, profits or earnings from the operation of the wide area progressive system. (2) Responsibility for the funding and payment of all jackpots, fees and gross terminal revenue taxes associated with the operation of the wide area progressive system. (3) Control and operation of the computer monitoring room required under subsection (g). (4) A description of the process by which significant decisions with regard to the operation of the wide area progressive system are approved and implemented by the participating slot machine licensees and slot system operator. (5) When applicable, the terms of apportionment of responsibility for establishing and servicing any trust agreement associated with any annuity jackpot offered by the wide area progressive system. (6) Responsibility for generating, filing and maintaining the records and reports required under the act and this part.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(g) A wide area progressive system shall be controlled and operated from a computer monitoring room. The computer monitoring room must: (1) Be under the sole possession and control of, and maintained and operated by, employees of the slot system operator designated in the slot system agreement for that system. The employees of the slot system operator may be required to obtain a license or permit if the Board determines, after a review of the work being performed, the employees require a license or permit for the protection of the integrity of gaming.	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		(2) Have its monitoring equipment subjected to surveillance coverage either by the surveillance system of a slot machine licensee participating in the slot system agreement or by a dedicated surveillance system maintained by the slot system operator. (3) Be accessible through a locked door. The door must be alarmed in a manner that audibly signals the surveillance monitoring room for the surveillance system elected under paragraph (2). (4) Have a computer monitoring room entry log. The log must be: (i) Kept in the computer monitoring room. (ii) Maintained in a book with bound numbered pages that cannot be readily removed. (iii) Signed by each person entering the computer monitoring room who is not an employee of the slot system operator expressly employed in the computer monitoring room on his assigned shift. Entries must contain all of the following: (A) The date and time of entering and exiting the room. (B) The name, department or employer, when applicable, gaming license or permit number of the person entering and exiting the room and of the person authorizing the entry. (C) The reason for entering the computer monitoring room. (5) Reside within a participating licensed facility or other approved location.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(h) A slot system agreement submitted to the Board for approval must be accompanied by a proposed system of internal controls addressing all of the following: (1) Transactions directly or indirectly relating to the payment of progressive jackpots including the establishment, adjustment, transfer or removal of a	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
		progressive jackpot amount and the payment of any fees or taxes associated therewith. (2) The name, employer, position and gaming license status of any person involved in the operation and control of the wide area progressive system.		
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(i) The Bureau of Licensing must review the persons identified in subsection (h)(2) and determine, based on an analysis of specific duties and responsibilities, which persons will be licensed to what level in this Commonwealth.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(j) A slot system operator may not commence operation and administration of a wide area progressive system under the terms of a slot system agreement until the agreement itself and the internal controls required under subsection (h) have been approved and the slot system operator has complied with any licensing requirements under subsection (i).	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(k) When a slot system agreement involves payment to a licensed manufacturer, functioning as a slot system operator, of an interest, percentage or share of a slot machine's licensee's revenue, profits or earnings from the operation of a wide area progressive system, the Board will evaluate the slot system agreement to determine if the total amounts paid to the licensed manufacturer under the terms of the agreement are commercially reasonable for the operational and administrative services provided.	Not Applicable	The game is not linked to any progressive jackpots.
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(l) Each party to a slot system agreement shall be liable for acts, omissions and violations of the act and this part related to its own individual duties and responsibilities under the slot system agreement, unless the slot system agreement specifically provides that the parties will be jointly and severally liable.	Not Applicable	The game is not linked to any progressive jackpots.

Chapter	Sub-section	Technical Requirement	Assessment	Comments
Chapter 461a. Slot Machine and Table Game Device Testing and Control	§ 461a.13. Wide area progressive systems.	(m) The Executive Director may waive one or more of the technical requirements applicable to wide area progressive systems adopted by the Board upon a determination that the wide area progressive system as configured nonetheless meets the operational integrity requirements of the act and this part.	Not Applicable	The game is not linked to any progressive jackpots.

SCHEDULE 1. GAME TESTING

1. TESTS PERFORMED

Game design testing has included verification of the game mathematics, game artwork, player-facing game rules and the theoretical RTP. Software testing has included evaluation and verification of the software implementation of the game design aspects tested. The game software testing has been conducted on HTML5-Desktop, which is representative of a pre-production environment which is reflective of the live environment, with verification procedures conducted over games rules and the actual RTP, using methods of simulation, emulation and manual testing, and verification of the scaling and mapping used to convert raw RNG output to game outcomes.

The game evaluation included the following tests, amongst others:

- Verification procedures over sufficiency and appropriateness of the client's internal testing conducted over the game under certification;
- Review of game documentation;
- Review of the mapping of the random inputs to game outcomes in accordance with prevailing probabilities and pay tables;
- Evaluation of the pertinent modules of the game source code for mapping of rules and RNG calling;
- Evaluation of game accounting in accordance with game pay tables;
- Inspection of game interface including artwork and graphics, and clear and correct presentation of the game rules;
- Comprehensive operational and functional client-side tests over the game mechanics to ensure that game pay tables, game rules and help files are correctly implemented in the operation of the game;
- Testing of rare outcomes through emulation to ensure that game pay outs, top prizes and jackpot features (if applicable) operate correctly;
- Review of the game design and game mathematics that determine the theoretical RTP%;
- A check on whether it is possible to place a wager outside of the base game and ordinary course of play; and if this wager directly activates a game feature outside of the ordinary course of play.
- Independent mathematical calculations of RTP% utilising complete, accurate and valid simulated game data output, to verify the theoretical RTP% as per the game mathematics documentation; and
- Game simulation (output) testing to ensure the game outcomes are randomly generated; and the actual RTP is within an acceptable range of the expected RTP.

The RNG utilised in evaluating the game output and games rules has been sufficiently and appropriately tested in a separately issued test lab report. The RNG has been certified in a separate independent test lab report dated June 26, 2023, with reference RAKE-OL10421-RNG_PA_E.

2. TEST RESULTS

Numerous tests were performed to ensure the game operated in compliance with relevant sections of Pennsylvania’s “Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board”, including an evaluation and verification of the software implementation of the game artwork, maths and theoretical RTP. Based on the testing conducted, the game is assessed as compliant with the requirements of relevant sections of Pennsylvania’s “Rules and Regulations Title 58. Recreation Part VII. Gaming Control Board”.

APPENDIX 1. FULL CALCULATIONS OF THE MAXIMUM ODDS FOR THE BASE GAME

Max Odds: Prize Description

- Super 20 Stars has a maximum odds of 1 in 16 666 666.67 spins.
- The feature is the Crystal Symbol Feature.
- When this feature triggers, a random row and column is selected. If the random grid position selected contains symbols D,E,F and G, then all occurrences of the selected symbol crystalizes.
- If a non- valid position is selected, another position is selected.
- After the selected symbols are crystalized, a multiplier between 4 and 50 is applied to the win resulting from the crystalized symbols.
- The maximum odds prizes is realized when symbol D Crystalizes and a x50 multiplier is awarded.

Max Odds: Calculation

- The calculation is based on a 5 sets of simulations each of size 20 million.

Symbol	Test 1	Test 2	Test 4	Test 4	Test 5
D	2	0	1	2	1
Sample Size	20000000	20000000	20000000	20000000	20000000
Probability based on simulation	0.0000001	0	0.00000005	0.0000001	0.00000005
Odds	10000000	0	20000000	10000000	20000000

- Taking the average across all simulations

$$\frac{\text{Max Prize Counts}}{\text{Total Base Simulations}} = \frac{6}{100000000}$$
$$= 0.00000006$$

The Maximum Odds for achieving the Max Prize is therefore, 1 in 16 666 666.7 spins.