GAMBLING COMMISSION (GREAT BRITAIN)

INDEPENDENT GAME TESTING SUMMARY REPORT

FOR

MAVERICK ELYSIUM

SPIRIT HUNTERS

HTML5-DESKTOP; HTML5-MOBILE,

1.0

CONFIDENTIAL

CERTIFICATE NUMBER: E221904MTLGBRM

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SECTION 1. GENERAL INFORMATION

License Holder:	ELYSIUM Studios Maverick Technology Limited The Cube Building LS3, Malta Life Sciences Park San Gwann SGN 3000 Malta
Game Name:	Spirit Hunters
Game ID:	SpiritHunters
Game Type:	Casino Slot
Platform Type:	HTML5-Desktop; HTML5-Mobile
Platform Version:	Linux 3.10.0-957.1.3.el7.x86_64
Platform Supplier:	ELYSIUM Studios Maverick Technology Limited The Cube Building LS3, Malta Life Sciences Park San Gwann SGN 3000 Malta
Channels Tested:	Desktop: Windows 10, Google Chrome Browser Version 98.0.4758.102 (Official Build) (64-bit) Mobile: Redmi 6, Android 9, Redmi 6 Build/PPR1.180610.011; Google Chrome Browser, Version 92.0.4545.131
Scope of Testing:	Remote Gambling and Software Technical Standards ("RTS") – February 2021, limited to RTS 7A, RTS 7B, RTS 7C, RTS 7E, RTS 9B.b and RTS 9B.d (and pre-release assessable elements of RTS 3A, RTS 3B, RTS 3C, and RTS 5A).
Certification Type:	Initial pre-release testing
Sampling Used for Retesting:	N/A
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:	Ethic Hadebe; Masego Msomi; Tyrone Rajah; Josephine Govender
Test Supervisor:	Thabang Maganedisa
Request for Report:	17 February 2022
Certificate Date:	24 February 2022
Certificate Number:	e221904MTLGBRM
Result of Testing:	Compliant (Refer to Test Results under Schedule 1)

I hereby certify that the abovementioned game complies with the applicable requirements of RTS 7A, RTS 7B, RTS 7C, RTS 7E, RTS 9B.b and 9B.d (and pre-release assessable elements of RTS 3A, RTS 3B, RTS 3C, and RTS 5A) of the Gambling Commission's Remote Gambling and Software Technical Standards – February 2021, as described in Section 6 of this report. In addition, we have verified that the game under certification does not contain the option to purchase direct access to any features.

Gary Lupton-Smith
Technical Services Manager
eCOGRA

SECTION 2. INTRODUCTION

eCOGRA has been appointed by Maverick ELYSIUM to evaluate and certify the following Slot game for compliance with the relevant Remote Gambling and Software Technical Standards – February 2021, and to highlight any exceptions identified during testing.

- Spirit Hunters (1.0)

This certification report highlights our key findings as a result of the evaluation conducted on HTML5-Desktop; HTML5-Mobile, Linux 3.10.0-957.1.3.el7.x86_64, which the pre-production environment which is essentially the same as the live environment. The testing was conducted on the aforementioned platform established at Maverick ELYSIUM during the period 17 February 2022 to 24 February 2022.

Please note that this is an initial certification conducted over Spirit Hunters HTML5-Desktop; HTML5-Mobile and therefore this game certificate does not supersede any previous certifications.

SECTION 3. GAME DESCRIPTION

Spirit Hunters (1.0)

Game Description:

SPIRIT HUNTER is an Asian theme game which DEMANDS THE PLAYERS ENGAGEMENT. With FAT TILES

characters, created with astonishing graphics and FREE SPINS and a CRAZY AND PLAYFUL BONUS LEVEL, you will experience a NEW TYPE OF A SLOT GAME!

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	Theoretical RTP %	eCOGRA RTP % Recalculation
Spirit Hunters	96.01%	95.63%

The Theoretical RTP percentage indicated in the table above is extracted from the game documentation as provided by Maverick ELYSIUM. eCOGRA recalculated the RTP percentage by performing additional independent mathematical calculations on the output of simulation game data.

SECTION 5. SOFTWARE DETAILS

The scope of the game evaluation and certification applies solely to the critical game files, game versions and associated hashes provided in the tables below:

Game Files

File Name / Identifier	Version Date	Version Number	Binary SHA#1 Hash
mvgEngineGodot2.yml	N/A	N/A	4f27c7936cc1b242bad459b47cf62208b44dba67
mvgEngineGodot3.yml	N/A	N/A	8914afaef6e17a9243dd806c95c6e5ceb8e93e0e
mvgEngineI.yml	N/A	N/A	1c792b7d94f377e2398879b4c7d0112f63460652
mvgEngineII.yml	N/A	N/A	200dce848a47ea31c7ce9b9039674ff66c332607
mvgEngineIII.yml	N/A	N/A	fdb2ca393bb9efcf2b985c48c0e36f33271e9ded
mvgEngineIX.yml	N/A	N/A	6b7520c5f9d2b730290ad3acd346ddb1393fe0f4
mvgEngineRoulette1.yml	N/A	N/A	d95fc66af4f3d1041c7a409965464f0a84cb3821
mvgEngineUnity1.yml	N/A	N/A	25d3a5b30a9ee45c57de9a1c923a902e5beb7452
mvgEngineV.yml	N/A	N/A	ae94f316bd02cf2944c47e122970c5812b8180a4
mvgEngineVII.yml	N/A	N/A	740bc0c8691639bde0f093f8b6ca4bb643bb7901
mvgEngineX.yml	N/A	N/A	79961ce8e324360c7854d6fa78dfc7c4f93a860d
mvgEngineXI.yml	N/A	N/A	d8205b0a16d837329a2b24544175d0dbb0b94988
mvgEngineXII.yml	N/A	N/A	738f2a5c4e76502edbeb74ebeab41194aefa6b31
mvgEngineXIII.yml	N/A	N/A	39a079de0666e55258f5bf44f8a51b0893677e8d
mvgEngineXIV.yml	N/A	N/A	5648260ef5359444ed6acbd27be8dbe0c40fdcd2
mvgEngineXV.yml	N/A	N/A	665449cf532cefc6ce6de0ba7a6646176ee0e042
mvgEngineXVI.yml	N/A	N/A	521b67b43b2a86959d1f505a90b9a9d2e7c21b80
mvgEngineXVII.yml	N/A	N/A	a16848e96d9726d2f1a01f661de3b8a9d41ff7e5
mvgEngineXVIII.yml	N/A	N/A	c8c52c7cf35abe274c659f6df5b30f880f87ea9c
testRespin.yml	N/A	N/A	a0a9535b3b166175824f98c7386d4c3f158a62ac

Random Number Generator

File Name / Identifier	Version Date	Version Number	MD5#
Mt19937.go	04/12/2019	2.0	1f4e940a3440e1c30e7a60d7b8ff074e

SECTION 6. REVIEW FINDINGS

The key findings of our evaluation of the game for compliance with the relevant sections of the Remote Gambling and Software Technical Standards – February 2021, are as follows:

RTS Requirement Assessed	Related RTS Requirements Assessed	Testing Applied	Assessment	Comments
RTS 7 – Generation of random outcomes *(Aim: To ensure that games and other virtual events operate fairly)*				
RTS requirement 7A Random number generation and game results must be 'acceptably random'. Acceptably random here means that it is possible to demonstrate to a high degree of confidence that the output of the RNG, game, lottery and virtual event outcomes are random, though, for example, statistical analysis using generally accepted tests and methods of analysis. Adaptive behaviour (i.e., a compensated game) is not permitted. Where lotteries use the outcome of other events external to the lottery, to determine the result of the lottery (for example, using numbers from the National Lottery) the outcome must be unpredictable and externally verifiable.	Not applicable.	Refer to RNG report: 92506MTLGB001	Compliant	Refer to eCOGRA RNG report: 92506MTLGB001
RTS requirement 7B As far as is reasonably possible, games and events must be implemented fairly and in accordance	***RTS requirement 3A*** An explanation of the applicable rules must be easily available to the customer before they	Refer to "1. Tests Performed" under "Schedule 1 –	Compliant	The scope of testing for the "Related RTS Requirements" did not include how game

RTS Requirement Assessed	Related RTS Requirements Assessed	Testing Applied	Assessment	Comments
with the rules and prevailing payouts, where applicable, as they are described to the customer.	commit to gamble. The content including artwork and text must be accurate, and sufficient to explain all of the applicable rules and how to participate. All reasonable steps must be taken to ensure that the content is understandable ***RTS requirement 3B*** Where relevant, as the game or event progresses, information that may reasonably be expected to enable the customer to understand the current state must be displayed. ***RTS requirement 3C*** For each virtual event, game (including bingo), or lottery, information that may reasonably be expected to enable the customer to make an informed decision about his or her chances of winning must be easily available before the customer commits to gamble. Information must include: i. a description of the way the game works and the way in which winners are determined and prizes allocated; ii. house edge (or margin);	Game Testing" below.		rules are made available to players (rules easily accessible via hyperlinks etc). eCOGRA has performed a review of the game display and content of player facing rules to ensure that they accord with the maths and enable players to verify game outcomes.

RTS Requirement Assessed	Related RTS Requirements Assessed	Testing Applied	Assessment	Comments
	iii. the return to player (RTP) percentage; or iv. the probability (likelihood) of winning events occurring. ***RTS requirement 5A*** All reasonable steps should be taken to ensure that gambles are accepted, processed and settled in accordance with the operator's published terms and rules, and the rules of the specific game, event, or bet.			
RTS requirement 7C Game designs or features that may reasonably be expected to mislead the customer about the likelihood of particular results occurring are not permitted, including substituting losing events with near-miss losing events and simulations of real devices that do not simulate the real probabilities of the device.	Not applicable.	Refer to "1. Tests Performed" under "Schedule 1 – Game Testing" below.	Compliant	Refer to Schedule 1.
RTS requirement 7E Except in the case of subscription lotteries, the system clearly and accurately displays the result of the game or event and the customer's gamble. The result must be displayed for a length of time that may reasonably be expected to be sufficient for the customer to understand the result of the game or event in the context of their gamble.	***RTS requirement 5A*** All reasonable steps should be taken to ensure that gambles are accepted, processed and settled in accordance with the operator's published terms and rules, and the rules of the specific game, event, or bet.	Refer to "1. Tests Performed" under "Schedule 1 – Game Testing" below.	Compliant	Refer to Schedule 1.

RTS Requirement Assessed	Related RTS Requirements Assessed	Testing Applied	Assessment	Comments
RTS 9 – Progressive jackpot systems *(Aim: To ensure that progressive jackpot systems operate fairly)*				
RTS requirement 9B.b Where a customer contributes to a jackpot pool, that customer should be eligible to win the jackpot whilst they are playing that game. The chances of winning a jackpot should increase in correlation with the amount contributed.	***RTS implementation guidance 7C*** f. Where a customer contributes to a jackpot pool, that customer should be eligible to win the jackpot whilst they are playing that game, in accordance with the game and jackpot rules.	Refer to "1. Tests Performed" under "Schedule 1 – Game Testing" below.	Not Applicable	Not Applicable
RTS requirement 9B.d The gambling system shall ensure that a winning customer is notified of a jackpot win immediately after it is triggered and that other participating customers are adequately notified of the jackpots reset value.	Not applicable.	Refer to "1. Tests Performed" under "Schedule 1 – Game Testing" below.	Not Applicable	Not Applicable
Feature Buy-Ins				
It shall not be possible for a player to directly access a game feature by placing an additional wager outside of the normal course of play.	***RTS requirement 14A*** Gambling products must not actively encourage customers to chase their losses, increase their stake or increase the amount they have decided to gamble, or continue to gamble after they have indicated that they wish to stop. ***RTS requirement 3A*** An explanation of the applicable rules must be easily available to the customer before they commit to gamble. The content including	Refer to "1. Tests Performed" under "Schedule 1 – Game Testing" below.	Compliant	The game under certification does not contain the option to purchase direct access to any features. Where the game contains a feature that may be activated by an additional wager that is made with winnings from the current game round (e.g. a gamble feature), this is deemed acceptable.

RTS Requirement Assessed	Related RTS Requirements Assessed	Testing Applied	Assessment	Comments
	artwork and text must be accurate, and sufficient to explain all of the applicable rules and how to participate. All reasonable steps must be taken to ensure that the content is understandable			

SCHEDULE 1. GAME TESTING

1. TESTS PERFORMED

Game design testing has included verification of the game mathematics, game artwork, the theoretical RTP and player-facing game rules. 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; HTML5-Mobile Linux 3.10.0-957.1.3.el7.x86_64 which is 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 house summary report. Please refer to eCOGRA RNG report 92506MTLGB001

2. TEST RESULTS

Numerous tests were performed to ensure the game operates in compliance with the applicable requirements of RTS 7A, RTS 7B, RTS 7C, RTS 7E, RTS 9B.b and 9B.d (and the pre-release assessable elements of RTS 3A, RTS 3B, RTS 3C and RTS 5A) of the Gambling Commission's Remote Gambling and Software Technical Standards – February 2021, including an evaluation and verification of the software implementation of the game artwork, theoretical RTP and maths. Based on the testing conducted, the game is assessed as compliant with the applicable requirements of RTS 7A, RTS 7B, RTS 7C, RTS 7E, RTS 9B.b and RTS 9B.d (and pre-release assessable elements of RTS 3A, RTS 3B, RTS 3C and RTS 5A) of the Gambling Commission's Remote Gambling and Software Technical Standards – February 2021. In addition, we have verified that the game under certification does not contain the option to purchase direct access to any features.