REPUBLIC OF CROATIA MINISTRY OF FINANCE

CERTIFICATE FOR RNG AND GAMES

FOR

MAVERICK ELYSIUM

CERTIFICATE NUMBER:

E221906MTLHRVM

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 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.

CONTENTS

SECTION 1: GENERAL 4
SECTION 2: INTRODUCTION 6
SECTION 3: DETAILS OF THE SOFTWARE 7
SECTION 4: OVERVIEW OF FINDINGS 8
SCHEDULE 1: INSPECTION OF THE RNG 9
1. TESTS PERFORMED 9
2. RESULTS OF INSPECTION 9
3. CONCLUSION 9
SCHEDULE 2: LIST OF GAMES 10

SECTION 1: GENERAL

Software Provider:	ELYSIUM Studios Maverick Technology Limited The Cube Building LS3, Malta Life Sciences Park San Gwann SGN 3000 Malta
Product Name:	Random Number Generator (RNG)
Game Name:	Spirit Hunters
Product Description:	The random number generator (RNG) used in Casino software products
Product Version:	2.0
RNG Type:	Software
RNG Supplier:	ELYSIUM Studios Maverick Technology Limited The Cube Building LS3, Malta Life Sciences Park San Gwann SGN 3000 Malta
Platform Type:	HTML5-Desktop; HTML5-Mobile
Applicable Games:	See the attached Schedule 2 for the games to be released in Croatia using the RNG Certified
Game Supplier:	ELYSIUM Studios Maverick Technology Limited The Cube Building LS3, Malta Life Sciences Park San Gwann SGN 3000 Malta
Scope of Testing:	Ordinance on Interactive Online Casino Games of the Ministry of Finance of the Republic of Croatia - 01.07.2010, Article 18
Testing Laboratory:	eCOGRA Limited 2/F Berkeley Square House Berkeley Square London W1J 6BD United Kingdom
Laboratory Accreditation:	ISO/IEC 17025: 2017 - Accredited Testing Laboratory No. 4656, issued by the United Kingdom Accreditation Service (UKAS) (Issue: 026, Issue date: 14 February 2022)
Test Engineers:	Ethic Hadebe; Masego Msomi; Tyrone Rajah; Josephine Govender
Supervisor:	Thabang Maganedisa

Testing Start Date:	17 February 2022
Date of Certification:	24 February 2022
Certificate Number:	e221906MTLHRVM
Certification Result:	Compliant (See Test Results under Schedule 1)

I hereby certify that the above-mentioned RNG is in accordance with the requirements of Article 18 of the Ordinance on Interactive Online Casino Games of the Ministry of Finance of the Republic of Croatia-01.07.2010 as described in Section 4 of this Report.

Bradley Khoury
Chief Technical Officer
eCOGRA

SECTION 2: INTRODUCTION

eCOGRA has been appointed by Maverick ELYSIUM to evaluate and confirm the randomness of the output of the RNG product (proprietary RNG) obtained by Maverick ELYSIUM and used in its Casino products (which will be in circulation in the Republic of Croatia) in relation to compliance with the relevant parts of Article 18 of the Ordinance on Interactive Online Casino Games of the Ministry of Finance of the Republic of Croatia - 01.07.2010, and to highlight all deviations identified during testing.

- Random Number Generator 2.0

This certification report highlights our key findings as a result of testing performed in a pre-production environment set up on Maverick ELYSIUM operations in the period of 17 February 2022 to 24 February 2022.

SECTION 3: DETAILS OF THE SOFTWARE

Scope of Assessment and Certification of the RNG applies only to the RNG files, RNG file versions, and related hashes provided in the following table:

RNG Components:

File Name	Version Date	Version Number	SHA#1 Sum/MD5 Hash
mt19937.go	04/12/2019	2.0	e9439549da6c39e228dc6573544b7b827e619261 1f4e940a3440e1c30e7a60d7b8ff074e

RNG Description:

Maverick ELYSIUM's RNG has not been subjected to any changes since the start of the test from 2022/02/17.

SECTION 4: OVERVIEW OF FINDINGS

Key Findings of our RNG Assessment for Compliance with relevant sections of Article 18 of the Ordinance on Interactive Online Casino Games of the Ministry of Finance of the Republic of Croatia - 01.07.2010, are as follows:

ORDINANCE ON INTERACTIVE ONLINE CASINO GAMES OF THE MINISTRY OF FINANCE OF THE REPUBLIC OF CROATIA - 01.07.2010, ARTICLE 18	**Assessment**	**Comments**
VI. SOFTWARE AND EQUIPMENT REQUIREMENTS AND SYSTEM AND GAMES CERTIFICATION		
(1) The certainty of an event of chance shall not be influenced or forced, i.e. shall be controlled by no means other than numeric values obtained in a certified manner and via certified random number generator (RNG) together with the rules of game.	Compliant	See Schedule 1. below
(1) Random number generator (RNG) and its methodology shall be based on pseudorandom algorithm of number generation. When multiple RNGs are used in a system, each of their variation shall be separately evaluated and certified.	Compliant	See Schedule 1. below

SCHEDULE 1: INSPECTION OF THE RNG

1. TESTS PERFORMED

The scope of the assessment consists of evaluating the following components:

- Documentation;
- An overview of the source code;
- Statistical and Mathematics Analysis;
- Seeding/Re-seeding;
- RNG Range; and
- RNG Scaling.

The RNG assessment has been carried out to ensure that the following requirements are met:

- Results are randomly generated;
- Results are unpredictable; and
- Results cannot be reproduced.

Test suite used to perform the assessment consisted of the following:

- Chi-square Tests
- Testing of Central Limit Theorem
- Runs Tests
- Frequency Tests
- Wald-Wolfowitz Tests

2. RESULTS OF INSPECTION

Numerous recognized statistical and mathematical trials have been conducted to certify that the RNG operates in accordance with relevant sections of Article 18 of the Ordinance on Interactive Online Casino Games of the Ministry of Finance of the Republic of Croatia - 01.07.2010, including tests for probability (to ensure the expected number of occurrences), randomness (so that one cannot predict the following occurrence with any degree of certainty) and uniformity (to determine that each possible outcome is equally likely in the long term). The acceptance criteria for the statistical tests is a 95% confidence level, which has been achieved.

3. CONCLUSION

The results of our study have produced statistically acceptable random numbers that were free of any significant statistical bias or predictability. Based on the conducted test, the RNG is aligned with the requirements of the relevant sections of Article 18 of the Ordinance on Interactive Online Casino Games of the Ministry of Finance of the Republic of Croatia - 01.07.2010.

SCHEDULE 2: LIST OF GAMES

We have been informed by Maverick ELYSIUM that the following games will be put into circulation in the Republic of Croatia:

Game Name	Game Version	File Name/ Identifier	SHA#1
Desktop / Mobile Games			
Spirit Hunters	1.0	mvgEngineGodot2.yml	4f27c7936cc1b242bad459b47cf62208b44dba67
		mvgEngineGodot3.yml	8914afaef6e17a9243dd806c95c6e5ceb8e93e0e
		mvgEngineI.yml	1c792b7d94f377e2398879b4c7d0112f63460652
		mvgEngineII.yml	200dce848a47ea31c7ce9b9039674ff66c332607
		mvgEngineIII.yml	fdb2ca393bb9efcf2b985c48c0e36f33271e9ded
		mvgEngineIX.yml	6b7520c5f9d2b730290ad3acd346ddb1393fe0f4
		mvgEngineRoulette1.yml	d95fc66af4f3d1041c7a409965464f0a84cb3821
		mvgEngineUnity1.yml	25d3a5b30a9ee45c57de9a1c923a902e5beb7452
		mvgEngineV.yml	ae94f316bd02cf2944c47e122970c5812b8180a4
		mvgEngineVII.yml	740bc0c8691639bde0f093f8b6ca4bb643bb7901
		mvgEngineX.yml	79961ce8e324360c7854d6fa78dfc7c4f93a860d
		mvgEngineXI.yml	d8205b0a16d837329a2b24544175d0dbb0b94988
		mvgEngineXII.yml	738f2a5c4e76502edbeb74ebeab41194aefa6b31
		mvgEngineXIII.yml	39a079de0666e55258f5bf44f8a51b0893677e8d
		mvgEngineXIV.yml	5648260ef5359444ed6acbd27be8dbe0c40fdcd2
		mvgEngineXV.yml	665449cf532cefc6ce6de0ba7a6646176ee0e042
		mvgEngineXVI.yml	521b67b43b2a86959d1f505a90b9a9d2e7c21b80
		mvgEngineXVII.yml	a16848e96d9726d2f1a01f661de3b8a9d41ff7e5
		mvgEngineXVIII.yml	c8c52c7cf35abe274c659f6df5b30f880f87ea9c
		testRespin.yml	a0a9535b3b166175824f98c7386d4c3f158a62ac