



**RANDOM NUMBER GENERATOR EVALUATION CERTIFICATE**

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FOR

PRIMA NETWORKS LIMITED

CONFIDENTIAL

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## 1. INTRODUCTION

Prima Networks Limited requested eCOGRA to evaluate the randomness of the Random Number Generator (RNG) product embedded within their software products for the purpose of jurisdiction license applications.

Prima Networks Limited are a well established and leading provider of gaming software. Their products cover a wide variety of game types (including casino, poker and bingo) with an international client base. The RNG used for their gambling applications is software based.

## 2. COMPONENTS INSPECTED

<b>Software Provider:</b>	Prima Networks Limited
<b>Software Provider Address:</b>	MGS House, Circular Road, Douglas, Isle of Man, IM1 1BL
<b>Product Name:</b>	Random Number Generator
<b>Product Description:</b>	RNG version 35.0.0.657
<b>Jurisdiction:</b>	Various
<b>Test Entity:</b>	eCOGRA
<b>Test Entity Address:</b>	2 <sup>nd</sup> Floor Berkeley Square House, Berkeley Square, London, W1J 6BD
<b>Date:</b>	24 March 2014
<b>Test Engineer:</b>	Neil Murray Test Engineer
<b>Supervision and Approval:</b>	Gary Lupton-Smith Technical Services Manager

## 3. RNG VERSION 35.0.0.657 SOFTWARE DETAILS

### X86 Platform Supported Version

Description	File Version	MD5	SHA1
MGS.RNG.dll	35.0.0.657	145958ebd913692b1c8fc1a88181c4a1	e25f39d91c2abc5eaa91aa0162bf0e6794f090f5
MGS.Rng.Interop9-x86.dll	35.0.0.657	489c5e40fd14a2f34037a5d95916129e	db9e42a882c26638dc6561b9045ede9545572a2a
MGS.RNG.Verifier.dll	35.0.0.657	60cf749dc7777fc234dc2b10c743a3f4	282a7521f08bcb5c105cc3370ee5265a7ec20c3a
MGS.Rng.Verifier.Interop9-x86.dll	35.0.0.657	437b8548bc0ce88d95fb1c5048f6cc54	c4b6853b144e948a02e1cb8ba68ffc72c9b200f2
MGS.Rng9-x86.dll	35.0.0.657	c1d95b5950524beab1c437b6d6eae63	8c919e39efce797791f4cc66ce26a0fe8495185
RngVerifier9-x86.dll	35.0.0.657	d7c7137ccf68beb21acdaebe4ad2ab06	22d36e304eadbab3879e979742e3e7b7cb1979c6

### X64 Platform Supported Version

Description	File Version	MD5	SHA1
MGS.RNG.dll	35.0.0.657	145958ebd913692b1c8fc1a88181c4a1	e25f39d91c2abc5eaa91aa0162bf0e6794f090f5

MGS.Rng.Interop9-x64.dll	35.0.0.657	d0639ba8e1f69c1d826de5ba99314aa3	ddc93709be18f37e80061aafb6f88b5c9f3ef091
MGS.RNG.Verifier.dll	35.0.0.657	60cf749dc7777fc234dc2b10c743a3f4	282a7521f08bcb5c105cc3370ee5265a7ec20c3a
MGS.Rng.Verifier.Interop9-x64.dll	35.0.0.657	cf34270747e0cf56f8bcb638341b1647	092502fc34e0be776b8d56cfb0178c1fede12626
MGS.Rng9-x64.dll	35.0.0.657	689374ca6578f57e63abfdca133ca67f	81719b4a2029aac1ee881c3008da44584d786538
RngVerifier9-x64.dll	35.0.0.657	c6fb2af94a5356abd1ad8a45ad650a2a	b7364fd416991d0d4237a9baabc67f6bc2133d9e

#### 4. TESTS PERFORMED

The scope of the evaluation consisted of an assessment of the following components:

- Documentation;
- Source code;
- Statistical and mathematical analysis;
- Seeding/re-seeding;
- RNG range; and
- RNG scaling.

The RNG evaluation was performed to ensure the following requirements were met:

- The data must be randomly generated;
- The data must be unpredictable; and
- The series cannot be reproduced.

The test suite used to perform the evaluation included the following:

- Chi-Squared Tests
- Central Limits Theorem Tests
- Runs Tests
- Frequency Tests
- Wald-Wolfowitz Tests

#### 5. TEST RESULTS

A source code assessment, documentation review and recognised statistical and mathematical tests were performed to certify the RNG operated in compliance with the requirements stipulated in the regulations of highly regulated online gambling jurisdictions. This included 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 over the long-term). The acceptance criteria for the statistical tests is a pass at a 95% confidence level.

Our test results for Prima Networks Limited's RNG product produced statistically acceptable random numbers that were free of any significant statistical bias or predictability.

## 6. CONCLUSION

The results obtained from eCOGRA's testing confirm the random number generator embedded in Prima Networks Limited's products operates in compliance with the applicable requirements of the regulations of highly regulated online gambling jurisdictions.

eCOGRA is an ISO/IEC 17025:2005 UKAS accredited testing laboratory.

A handwritten signature in black ink, appearing to read 'Gary Lupton-Smith'.

**Project Approval:**

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Gary Lupton-Smith, Technical Services Manager