



GLI®

World Headquarters

600 Airport Road
Lakewood, NJ 08701
Phone (732) 942-3999
Fax (732) 942-0043
www.gaminglabs.com

Worldwide Locations

World Headquarters
Lakewood, New Jersey

U.S. Regional Offices
Colorado
Nevada

International Offices
GLI Africa
GLI Asia
GLI Australia Pty Ltd
GLI Austria GmbH
GLI Europe BV
GLI Italy
GLI South America

08 June 2016

Mr. Anthony Farrugia
Grinder Ltd.
Level 1
Portomaso Business Tower
Portomaso
Malta PTM01

Dear Mr. Farrugia,

Re: GLI Evaluation of the Grinder Ltd. RNG

This Evaluation Results Letter pertains to Gaming Laboratories International (GLI)'s evaluation of Grinder Ltd (Grinder)'s Random Number Generator (RNG) developed by Wirex s.r.l., for use within the jurisdiction of Malta, as regulated by the Lotteries and Gaming Authority (LGA).

GLI's evaluation of Grinder's RNG was performed with the aim of identifying and detailing system weaknesses and potential issues of non-compliance with any applicable requirements from the following set of standards and specifications:

- Grinder's technical specifications for their RNG, and
- The Technical Standards Document (TSD) for online gambling within the jurisdiction of Malta: LGA's **Remote Gaming Regulations, 2004**, Third Schedule – Technical Requirement for Gaming System, which states the following RNG requirements:

- | |
|---|
| <p>3. The gaming system must satisfy the following criteria for randomness, following Schneier:-</p> <ul style="list-style-type: none">(a) the data must be randomly generated, passing appropriate statistical tests of randomness;(b) the data must be unpredictable, i.e. it must be computationally infeasible to predict what the next number will be, given complete knowledge of the algorithm or hardware generating the sequence, and all previously generated numbers;(c) the series cannot be reliably reproduced, i.e. if the sequence generator is activated again with the same input (as exactly as is reasonably possible) it will produce two completely unrelated random sequences. |
|---|

Accordingly, the scope of work for the evaluation of Grinder's RNG included (but was not necessarily limited to) the following elements:

- General RNG Analysis,
 - Submitted Documentation Review,
 - Source Code Read,
 - Theoretical Mathematics Analysis,
 - Assessment of the RNG Period,
 - Determination of the RNG Range,
 - Investigation of the Seeding / Re-Seeding, and
 - Inspection of the Background Cycling / Activity.

- DIEHARD Battery of Tests, and
- Final Outcome Distribution Tests.

GLI gathered Message Digest Five (MD5) checksums of all Java files in the RNG package, as follows:

File Name	MD5 Checksum	Effective Date
DiceRollRngOutcome.java	add5993df0bfca7e4e5188197ad94e51	22/12/2009
Shuffler.java	864a3fa64c7d5387841496eb4cf34390	22/12/2009
SlotRngOutcome.java	82ae14bde999856f60106b7ca5017fff	22/12/2009
BGCycledSecureRandom.java	85f88314b502e97eaab2dfef0c6a38b5	22/12/2009
RandomPool.java	b4953e20395c7bbe4b72b2d414ba5664	22/12/2009
DiceRollRngOutcomeTest.java	42240d184504123f7b6543c0ce623fb7	22/12/2009
ShufflerTest.java	f13f9100a973eaac68ff2a3a9ac9ab51	22/12/2009
SlotRngOutcomeTest.java	82afa1aa7bcd68277bedaa06b613bd02	22/12/2009

GLI has verified, through mathematical and statistical analysis, that Grinder's RNG distributes numbers with sufficient non-predictably, fair distribution and lack of bias to particular outcomes. GLI's Final Outcome Distribution Tests were performed using confidence intervals between 95% and 98%, which are documented intervals of confidence for such statistical analysis.

Please note that this letter was issued as a wholesale amendment issued on 18 January 2010, to update the issuing laboratory to GLI and is intended to replace the original report in its entirety. No additional testing on Grinder's RNG was performed subsequent to the original evaluation completed on 18 January 2010.

Subject to 1) the inherent limitations of laboratory compliance testing, and 2) any specific limitations stemming from the scope of work as listed above, it is GLI's position that Grinder's RNG complies with any applicable requirements from the set of standards and specifications listed above. Accordingly, GLI recommends the approval of Grinder's RNG, for use within the jurisdiction of Malta, as regulated by LGA.

GLI's evaluation was performed using a specific version of Grinder's RNG. GLI's evaluation was therefore based on specific information and materials (including, but not necessarily limited to, software, configurations, source code, documentation and general correspondence), as submitted to GLI throughout the duration of the project. For verification purposes, GLI has maintained a control version (or the means of verifying the control version) of all information and materials submitted during the evaluation.

Sincerely,
GAMING LABORATORIES INTERNATIONAL, LLC



Christine M. Gallo
 Vice President of Technical Compliance and Quality Assurance