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RvA Registration Number of Accreditation applicable to this Report:	
Products	C577

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Report Type	Certification
Report Date	01 July 2026
Issuing Laboratory	GLI Europe B.V.
Evaluating Laboratory	Gaming Laboratories International, LLC. 600 Airport Road Lakewood, NJ 08701 USA
Recipient	Zentari Limitada Provincia 01 San José Cantón 01 San José Mata Redonda Sabana Oeste, Avenida Doce, Calle Noventa, 10108 Costa Rica
Tested against Requirements	Remote Gambling and Software Technical Standards (31 October 2025) Testing Strategy for Compliance with Remote Gambling and Software Technical Standards (31 October 2025)
Jurisdiction	UK Remote
Manufacturer	Zentari Limitada Provincia 01 San José Cantón 01 San José Mata Redonda Sabana Oeste, Avenida Doce, Calle Noventa, 10108 Costa Rica
Submitter	Zentari Limitada Provincia 01 San José Cantón 01 San José Mata Redonda Sabana Oeste, Avenida Doce, Calle Noventa, 10108 Costa Rica
Product Name	**QUACK RNG**
Description of the Product Tested	**Cases/LootboxGame.php** **Cases/LootboxGameManager.php** **Cases/NumberGenerator.php** **Plinko/NumberGenerator.php** **Plinko/PlinkoGameManager.php** **PlinkoExtreme/NumberGenerator.php** **PlinkoExtreme/PlinkoExtremeGameManager.php** **Decimal.php** **helpers.php** **UserSeedsManager.php** As requested per submitter's letter received 18 March 2026.

Evaluation Period	18 March 2026 – 02 June 2026
Internal Reference	RN-246-SN5-26-01
Result	Pass (See Comments and Conditions on the following pages)
Internal methods used reference	Random Number Generator (RNG) Analysis WI-MA-006* Pass PC-TC-001* Pass *The evaluation was conducted fully or partially by a subcontracted office. Please refer to “Evaluating Laboratories” on page 1.
Test Supervisor:	John Hischer
Revision Notice	The Revised Report replaces Report RN-246-SN5-26-01 dated 09 June 2026. The revised report was issued in order to update recipient, manufacturer and submitter address throughout the report due to updates in the submission documents.

Technical Evaluation authorized by:

James Boje
Managing Director EMEA
Executive

RANDOMNESS REPORT FOR THE QUACK RNG

The intent of this report is to indicate that **GLI** has completed its evaluation of the QUACK random number generator (RNG) provided by Zentari Limitada.

SECTION I — SCOPE OF TESTING

GLI was provided the required materials to conduct a randomness evaluation on the QUACK RNG. The scope of this evaluation was limited to software verification, source code review, and data analysis. The RNG was tested for its ability to randomly produce outcomes for the Cases (Lootbox), Plinko, and Plinko Extreme games.
The QUACK RNG was evaluated against the RNG-specific requirements of the technical standards listed in the first page of this report.

SECTION II — SOFTWARE VERIFICATION

Verify+ by Kobetron™ signatures for the QUACK RNG are as follows. Note that the RNG logic is mixed with the game logic for this submission, as each game has its own methodology for seeding and utilizing the RNG. The testing scope for the Cases game is larger than the Plinko games, as the RNG output for the Cases game is transformed further in its "*Game.php" module, while this is not the case for the Plinko games.

File	Type	Signature
Cases/LootboxGame.php	Kobe4	0637
	MD5	F25507B0F884FDCE115AB263AD5037C9
	SHA-1	2338F6947DCDD56D7C5BD989FA9190F4A7DB999F
Cases/LootboxGameManager.php	Kobe4	6232
	MD5	7227B13B2E9F91C2BC19373C78CCDF3E
	SHA-1	4E54A63178AFCF10D775213EA2FBF284A03DDFC5
Cases/NumberGenerator.php	Kobe4	PF12
	MD5	421065EFDCCE9499EA0006E75104AC7E
	SHA-1	2C5AEC53EEFB9198C71CF262EEB3B84215F9B105
Plinko/NumberGenerator.php	Kobe4	352P
	MD5	DCD3AB003DDC9AD87A132120D3F8CD72
	SHA-1	B886ED444953493911BD931BF8A010535A7A49B9
Plinko/PlinkoGameManager.php	Kobe4	680F
	MD5	1B592F8C300928C5F0A22FE577F6086C
	SHA-1	AE4037C4A1EE3D85B81502621B38C8AA39561B8E
PlinkoExtreme/NumberGenerator.php	Kobe4	UC17
	MD5	D539294E328BCF2FDBEE867B0C29E698
	SHA-1	95C0A6A8653AD11002F8D69B06EF76D932386FEB

RANDOMNESS REPORT FOR THE QUACK RNG

SECTION II — SOFTWARE VERIFICATION

File	Type	Signature
PlinkoExtreme/PlinkoExtremeGameManager.php	Kobe4	0U02
	MD5	215817DD0AE7505D8043E0FFAE30499C
	SHA-1	E5D37E04C687FA185717D254F3BC63F0E6418A7B
Decimal.php	Kobe4	P497
	MD5	5FFE821D9661D2C4C4868699676F684D
	SHA-1	149479277E419DA139134A11016FC8D527FD26B8
helpers.php	Kobe4	A85A
	MD5	BED0D13913B1BF3E6FDD7C9600E5502B
	SHA-1	57D8CCEBB6228D1F6ECECA4D8E6411B47ABF8FB5
UserSeedsManager.php	Kobe4	72P2
	MD5	55CCFCADFA42FDA536691412690EEA50
	SHA-1	FB7C10404F23C4CB938A145C381AD5FFBBB91A66

Table 1. Digital Signatures

SECTION III — SOURCE CODE REVIEW

GLI received the appropriate documentation and full source code which pertains to the generation of random numbers. GLI reviewed the source code provided by tracing the path of the RNG application from the initiation of the draw to the selected output of random numbers. GLI inspected the source code, where practicable, in an attempt to find any undisclosed switches or parameters having a possible influence on randomness and fair play. GLI assessed the ability of the RNG to produce all numbers within the desired range.

Note that the final outcome for the Cases game is a floating point value between 0 and 1. This value is calculated by taking a random integer between 0 and 99,999 inclusive, then dividing the result by 100,000. This methodology is valid and free of bias only as long as the minimum value for a potential outcome is 0.00001, and no probability value in the outcome table is expressed using a value that goes further than five digits past the decimal point.

RANDOMNESS REPORT FOR THE QUACK RNG

SECTION IV — STATISTICAL TESTING

The RNG parameters tested are listed in Table 2. GLI performed a data format check on each data set listed in order to confirm that these parameters were correctly represented in the data analyzed.
A set of numbers is said to be drawn *with replacement* if a number can be selected multiple times within the same draw. A set of numbers is said to be drawn *without replacement* if a number can only be selected once within the same draw.
Plinko and Plinko Extreme are functionally identical in how they generate a list of values from 0 to 1, so the data testing is shared for these two games.

Data Set	Range	Positions	Replacement
Cases	0-99,999	1	N/A
Plinko and Plinko Extreme	0-1	From 8 up to 16	Yes

Table 2. RNG Parameters

In addition to final outcome data, GLI tested raw outcomes consisting of binary output from the main RNG algorithm prior to the application of any scaling algorithms. For a summary of the statistical tests applied to each data set, see *Appendix A*. For a description of the overall test methodology and a description of each test used, see *Appendix B*.
Overall, the RNG passed the battery of tests for each configuration at the 95%, 98%, and 99% confidence levels.

SECTION V — SUMMARY

Overall Evaluation of the Random Number Generator

GLI's conclusion based upon the tests applied to the QUACK RNG data is that this random number generator has exhibited random behavior and is suitable for the applications as described herein. If a game utilizes different RNG parameters than the ones listed in this report, the RNG should be resubmitted to test that set of parameters.

APPENDIX A: Statistical Test Summary

					Test Names											
Data Set	**Range**	**Positions**	**Replacement**	**Draws**	**Runs**	**Serial Corr.**	**Interplay Corr.**	**Adj. Max-Min**	**Adj. High-Low**	**Coupon**	**Duplicates**	**Overlaps**	**Tot. Dist.**	**Tot. Dist. by Pos.**	**Count of Counts**	**Diehard**
Cases	0-99,999	1	N/A	2,000,000,000	X	X					X	X	X		X	
Plinko and Plinko Extreme	0-1	From 8 up to 16	Yes	1,000,000	X	X	X	X	X	X	X	X	X	X		
Binary	Not applicable															X

Table A 1. Tests Applied

APPENDIX B: Test Descriptions

B.1 Definitions. The following terms apply to the below test descriptions. Randomness Device or Random Number Generator (RNG) output may be collected multiple numbers at a time. Each set of numbers is called a draw. Each individual number has a particular order within the *draw*. This is referred to as the number *position*.

B.2 Distribution Comparisons. Many of the tests compare an observed numerical distribution with an expected distribution. Unless otherwise specified, this is done by means of a statistical chi-square goodness-of-fit test. The value chi-square is computed in the standard way. If *k* is a possible value, o_k is the observed count of that value, and e_k is the expected count:

$$\chi^2 = \sum_k \frac{(o_k - e_k)^2}{e_k}$$

In the case where expected counts are too small for accurate use of the above formula, values are 'binned' together to ensure an appropriate minimum expected count. The resultant value for chi-square is compared against the distribution for the appropriate number of degrees of freedom. Unusually high (distribution mismatch) or unusually low (insufficient randomness) chi-square values can be causes for data failure.

B.3 Meta-testing. Evaluation of groups of *p*-values may include a meta-test for extremity of high or low *p*-values, a meta-test for frequency of high or low *p*-values, and a meta-test for uniformity of *p*-values, as appropriate.

B.4 Confidence Level. The statistical tests conducted by GLI are done at a particular *confidence level*. Common confidence levels used include 95%, 98%, and 99%, depending on jurisdictional requirements, and intended use of the RNG. High confidence level testing has low risk of mistakenly failing a good RNG, but higher risk of passing a bad RNG. Lower confidence level testing has increased power of detecting bad RNGs, while also increasing the risk of false failures of good RNGs. Specifically, the confidence level represents the probability that an ideal source of randomness would pass the testing. If an RNG passes statistical tests at a given confidence level, passage at all *higher* confidence levels is implied.

B.5 Tests. Some tests are only applicable to certain types of data. Some tests may be applied only to a portion of the data. Some tests may require that the data be parsed, binned, or otherwise transformed, as necessitated by data format.

Adjacency High-Low:

For each draw, the number of local extrema ('highs' and 'lows') in the data is recorded and compared with the expected distribution. These are also referred to as 'turning points'. For example, if a draw consists of the numbers

$$1, 3, 5, 7, 2, 9$$

there would be one local maximum (7) and one local minimum (2). The resulting statistic would be 2.

Adjacency Max-Min:

For each draw, the difference between the maximum and minimum values is calculated and recorded. This is compared with the expected theoretical distribution. For example, if a draw consists of the numbers

$$2, 3, 6, 7, 4$$

the resulting statistic would be 5, the difference between the maximum value (7) and the minimum value (2).

APPENDIX B: Test Descriptions

Count of Counts:

The Count of Counts test first counts the occurrences of each value in each position of the data. These counts are then tallied and compared with the expected distribution of counts for the draw size and range of values.

Coupon Collector's:

The Coupon Collector's Test is applied positionally. The data is parsed until all possible values have been observed, then the number of values checked is recorded and the count is restarted. This is compared with the expected distribution. For example, if the set of all possible values is {0, 1, 2} and the first position of each draw is

$$1, 0, 1, 0, 2, 0, 1, 2, \ldots$$

then all values are observed in the first position by the fifth draw. All values are then observed within the next 3 draws, so the first two statistics for the first position would be 5 and 3.

DieHard:

The DieHard Battery of Tests is a standard assessment of the randomness in raw outcomes generated from an RNG. The collection, designed by George Marsaglia, tests for a variety of patterns in the individual binary bits of RNG output. GLI uses a custom implementation to conduct DieHard testing.

Duplicates:

The Duplicates Test counts the number of times a draw is exactly duplicated in the data. In the case that a particular draw is repeated more than twice, every possible way to generate a duplicate is counted. This is compared against the theoretical distribution to verify that the number of duplicate draws falls within expected bounds. For example, consider the dataset consisting of the following draws of two numbers each.

$$\begin{array}{l} a)\ 1, 3 \\ b)\ 4, 1 \\ c)\ 1, 3 \\ d)\ 1, 3 \\ e)\ 4, 1 \\ f)\ 3, 1 \end{array}$$

The duplicate pairs are (*a,c*), (*a, d*), (*c, d*), and (*b, e*), for a total of 4 duplicates. *(f)* is not counted as a duplicate since the draw must match in order as well as values.

Interplay Correlation:

The Interplay Correlation Test measures statistical correlation between different positions of the same draw. For each pair of positions, statistical correlation is calculated as in the Serial Correlation Test. In the case of without replacement data, an adjustment is made to account for the expected resulting negative correlation.

APPENDIX B: Test Descriptions

Overlaps:

The Overlaps Test compares consecutive draws for overlapping values. The number of overlapping values is recorded for each pair of draws. This observed distribution of overlaps is then compared against the expected distribution. For example, if the following draws are observed consecutively,

$$a)\ 1,4,5,6$$
$$b)\ 4,1,7,6$$

the number of overlaps would be 3, representing the values 1, 4, and 6.

Runs:

The Wald-Wolfowitz Runs Test is applied to each position within the draw. A center is established, typically the data median, and the number of 'runs' above and below the center are tallied. Values exactly equal to the center are discarded. This is compared to the expected distribution, which depends on the number of values above and below the center. For example, if the numbers drawn at a particular position were

$$2,3,1,5,4,7,3,2,3,2,3,2,6,7,3,5$$

and the established center were the data median of 3, the data would be parsed for runs above 3 and runs below 3.

$$\underbrace{2,3,1},\overbrace{5,4,7,3},\underbrace{2,3,2,3,2},\overbrace{6,7,3,5}$$

This would be counted as 4 runs.

Serial Correlation:

The Serial Correlation Test measures statistical correlation between consecutive draws of the same position. For each position, the sample Pearson correlation coefficient is calculated. If X represents the first number, and Y the number that follows, then the coefficient is

$$r = \frac{cov(X,Y)}{s_X s_Y}$$

where s denotes the sample standard deviation. The coefficients are used to generate a p-value for each position.

Total Distribution:

The Total Distribution Test is a simple tally of all observed values throughout the data. This is compared with the expected distribution. Typically the expected distribution is a uniform distribution. In the case of unequal weighting of values, an appropriate discrete distribution is used.

Total Distribution by Position:

The Total Distribution by Position Test tallies the observed distribution of values for each position within the draw. Each of these distributions is then compared with the expected.

Comments

This Report relates only to the product(s) listed.