GLI Europe B.V.
RNG Inspection Report

Client
Belatra Co., Ltd
Office 402
5/1 Melezh Str.
Minsk 22113
Republic of Belarus

Tested against
Conformance Criteria
GLI-11 V1.3 Revision Date: 09-OCT-2008 08:30

Manufacturer/Supplier
Belatra Co., Ltd
Office 402
5/1 Melezh Str.
Minsk 22113
Republic of Belarus

Submitter
Belatra Co., Ltd
Office 402
5/1 Melezh Str.
Minsk 22113
Republic of Belarus

Product name
Multi Vision

Product style
Video Multi Gaming Platform

Product ID's of Items tested
POKER 02.03-000
MV1-IE v103
As requested per manufacturer's letter dated 17 October 2008

Date Received / Date Completed
21st October 2008 / 27th February 2009

Results (Pass/Fail)
Pass (See Comments and Conditions on Page 2)

Laboratory
GLI Europe B.V.
- Comments/Conditions
- Hardware Product Detail
- Software Product Detail
- Applied Tests
- Product Characteristics
- Analysis of the RNG
- Plot of the Chi Square Test
- Plot of the Runs Test
- Plot of the Serial Correlation Test
- Plot of the Interplay Correlation Test
- Plot of the Poisson Distribution Test Results
- Duplicates Test

Annexes

Tested By:
Edwin Bentveld
Test Engineer

Internal Reference: RN-123-BTR-09-01

Revision 1.6
Created on 22 September 2004
Modified 24 July 2008-4S
GLI Europe B.V. RNG Report
Comments/Conditions

Comments

As from 1st July 2006, it is the manufacturer’s responsibility to ensure that their product is RoHS compliant with EU directive 2002/95/EG.

A request was made to conduct an evaluation against GLI-11 with no reference to any particular jurisdictional requirement. Upon request for transfer of this evaluation to a jurisdiction, GLI Europe will process this in accordance with the jurisdictional requirements that are required.

This Inspection Report is issued for the evaluation of the RNG only and covers the game ranges supplied in the Report.

Conditions

The tested RNG may only be used in connection to games, which call the RNG with numbers within the ranges as specified in this Inspection Report.

Additional evaluation and Inspection Reports will be required for the games and systems used in conjunction with the RNG detailed in this Inspection Report.

This Inspection Report is supplied for the internal use of the Manufacturer only.

There has been no evaluation of the game logic that would utilize the range of numbers detailed in this Inspection Report.

Tested By:

[Signatures]

Edwin Bentveld
Test Engineer

Alojz Zdejar
Technical Manager

Internal Reference: RN-123-BTR-09-01
# GLI Europe B.V. RNG Report
## Hardware Product Detail

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product ID / Model No</th>
<th>Function</th>
<th>Certificate/Approval ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belatra</td>
<td>POKER 02.03-000</td>
<td>Gaming Cabinet</td>
<td>*</td>
</tr>
<tr>
<td>Belatra</td>
<td>BA4/PB rev:03.2FA</td>
<td>Main Board</td>
<td>*</td>
</tr>
<tr>
<td>Belatra</td>
<td>BA4/EB rev:02</td>
<td>Expansion Board</td>
<td>*</td>
</tr>
<tr>
<td>Belatra</td>
<td>PO2.03/TB rev:01</td>
<td>Back plane Board</td>
<td>*</td>
</tr>
<tr>
<td>AU Optronics</td>
<td>M190EG01</td>
<td>19&quot; Monitor</td>
<td>*</td>
</tr>
<tr>
<td>SUZO</td>
<td>16-3004-8</td>
<td>Hopper</td>
<td>*</td>
</tr>
<tr>
<td>Tyco Electronics</td>
<td>CTR-270-00-IT-RSU-00R</td>
<td>Touch Screen</td>
<td>*</td>
</tr>
<tr>
<td>NRI</td>
<td>G-13</td>
<td>Coin Acceptor</td>
<td>*</td>
</tr>
<tr>
<td>Cash Code</td>
<td>MFL-0237</td>
<td>Bill Acceptor</td>
<td>*</td>
</tr>
<tr>
<td>Future LogicGEN2</td>
<td>PSA-66-ST2R</td>
<td>Printer</td>
<td>*</td>
</tr>
</tbody>
</table>

* Test results are in this Inspection Report.

Tested By:

Edwin Bentveld  
Test Engineer

Aloj Zdelar  
Technical Manager

Internal Reference: RN-123-BTR-09-01

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Revision 1.0  
Created on 22 September 2004  
Modified 24 July 2008-KS  
123RNG  
Controlled  
Page 3 of 35  

**GLI**  
Africa • Asia • Australia • Europe  
North America • South America  
www.gaminglabs.com  
CERTIFICATION DOCUMENT
<table>
<thead>
<tr>
<th>Product ID</th>
<th>Media Type</th>
<th>Function</th>
<th>Pos.</th>
<th>Size</th>
<th>Kobetron</th>
<th>CRC</th>
<th>MD5</th>
<th>SHA-1 Signatures</th>
<th>Min % - Max %</th>
<th>Certificate/ Approval ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV1-IE v103</td>
<td>On Board</td>
<td>Gaming</td>
<td>Main</td>
<td>3.88MB</td>
<td>N/A</td>
<td>FE17</td>
<td>4683AC3B4F27DBC99F2</td>
<td>7373D21F4E04107B506D1585</td>
<td>90.11%</td>
<td>*</td>
</tr>
</tbody>
</table>

* Test results are in this Inspection Report.

Tested By:

Edwin Bentveld  
Test Engineer

Alojz Zdelar  
Technical Manager

Internal Reference: RN-123-BTR-09-01
# GLI Europe B.V. RNG Report

## Applied Tests

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Test Performed</th>
<th>Reference No.</th>
<th>Results Pass/Fail/N/A</th>
<th>Additional Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVI-IE v103</td>
<td>Random Number Generator Analysis</td>
<td>W1 TL01_01 Rev. 3.5</td>
<td>Pass</td>
<td>Internal Reference: RN-123-BTR-09-01</td>
</tr>
<tr>
<td></td>
<td>Source Code Review</td>
<td>W1 TL02_05 Rev. 1.6</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jurisdictional Regulations Review</td>
<td>W1 TL01_07 Rev. 1.9</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Poker 02.03-000</td>
<td>Jurisdictional Regulations Review</td>
<td>W1 TL02_04 Rev. 2.0</td>
<td>Pass</td>
<td>Transfer From: PA-140-BTR-08-01</td>
</tr>
</tbody>
</table>

Tested By:

Edwin Bentveld  
Test Engineer

Aloj Zdelar  
Technical Manager

Internal Reference: RN-123-BTR-09-01
# GLI Europe B.V. RNG Report

## Product Characteristics

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poker 02.03 000</td>
<td>Gaming Machine Cabinet, supporting 2 video screens, Touchscreen on the Bottom Monitor, Bill Validator, Coin Acceptor, Printer and Hopper.</td>
</tr>
</tbody>
</table>

Game package, containing the following modules:

<table>
<thead>
<tr>
<th>MV1-IE v103</th>
<th>Main Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The main program for the Multi Vision gaming platform is a multi game platform, supporting up to five games. The program supports denominations, in a wide range: 0.01, 0.05, 0.10, 0.20, 0.25, 0.50, 1, 2, 5, 10, 20, 50, 100. The main program supports the Cash code bill validator (ID-003 protocol), CCTALK coin acceptors, hopper, touch screen and up to two monitors.</td>
</tr>
</tbody>
</table>

Tested By:

Edwin Bentveld  
Test Engineer  

Alojz Zdehar  
Technical Manager  

Internal Reference: RN-123-BTR-09-01
GLI Europe BV RNG Report
Analysis of the RNG

RANDOMNESS REPORT FOR THE BELATRA RNG

The intent of this report is to indicate that Gaming Laboratories International, LLC has completed its evaluation of the Belatra Hardware RNG Version 1.02. This letter is a review of the Belatra Hardware Random Number Generator.

SECTION I - SCOPE OF TESTING

The standard suite of tests used by Gaming Laboratories International, LLC includes the Chi-Square, Runs, Serial Correlation, Interplay Correlation, Duplicates, and Poisson Distribution tests. These tests were applied to the Belatra Hardware RNG for several types of games. The game types that this RNG is to be applied to are the “Draw Poker”, “5 Reel Slot” and “Slot Bonus” games. All standard tests were applicable and utilized.

Gaming Laboratories International, LLC reviewed the source code provided to our firm by tracing the path of the RNG application from the initiation of the draw to the selected output of random numbers. We inspected the source code where practicable to attempt to find undisclosed switches or parameters having a possible influence on randomness and fair play. Additionally, we reviewed all design documentation to assess the existence of any potential conflicts with the rules and parameters of the game. We assessed the ability of the RNG to produce all numbers within the desired range.

Data was collected and tested from the RNG in the following game types:

<table>
<thead>
<tr>
<th>Game Type</th>
<th>Range Minimum</th>
<th>Range Maximum</th>
<th>Numbers From Range</th>
<th>Total Games Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poker</td>
<td>0</td>
<td>51</td>
<td>10</td>
<td>1,013,630</td>
</tr>
<tr>
<td>5 Reel Slot</td>
<td>0</td>
<td>63</td>
<td>5</td>
<td>1,357,312</td>
</tr>
<tr>
<td>Slot Bonus</td>
<td>0</td>
<td>9,999</td>
<td>1</td>
<td>16,752,786</td>
</tr>
<tr>
<td>Slot Bonus</td>
<td>0</td>
<td>100</td>
<td>1</td>
<td>154,410</td>
</tr>
<tr>
<td>Slot Bonus</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>10,188,287</td>
</tr>
</tbody>
</table>

SECTION II - RANDOM NUMBER GENERATOR TESTS

Parameters of the Standard Test Procedures

We partitioned the number of games into 150 samples. Four tests were each applied to all of the 150 samples, producing 150 individual results each. They were then plotted for easier interpretation of the results.

All of the graphs included in the Report represent the resulting distribution of test statistics. This distribution is produced by applying each of the four tests and plotting the test statistics against their corresponding critical values. The scaling of the Y-axis is representative of the number of samples from each of the 150 samples obtained that fall between each critical value category. The X-axis scale represents the 15 categories of either Chi-square or Normal critical values, depending on the test being applied, including the numbers 2 through 14, with 1 & 15 landing outside the limits of the test. The distribution of numbers should resemble a bell-shaped curve that is symmetric around the mean, which is the eighth position on the X-axis.
Chi-Square Test

The Chi-Square Test is used to verify that each number in the given range is chosen at an acceptable frequency. For example, in a sample of 100 games of a game that picks from 01 to 10, the expected theoretical occurrence of each number from the range in that sample would be ten. Therefore, we would expect to see the number 01 appear ten times in each number position in each sample. However, provided that the RNG is random, we will not always see that exact number of occurrences. The Chi-Square Test compares the observed number of occurrences of each particular number against its theoretical expectation. Using the formula provided below, a Chi-square test statistic is calculated for each position of numbers drawn for the given game format. High Chi-square values, or data skewed to the right, indicate that the actual occurrences are tending to deviate too much from theoretical. Deviating too much from the theoretical expected number of occurrences implies that at least one of the numbers from the range is not being chosen frequently enough or is being picked too frequently. Low Chi-square test statistics, or data skewed to the left, indicate that the observed occurrences do not deviate enough from the theoretical. Deviating too little from the theoretical implies that the data is too predictable. Therefore, if the number 01 had not been drawn recently, it will most likely be drawn soon. Either of the two scenarios will produce non-random data.

The parameters and formula used to calculate the Chi-square test statistics are as follows:

Given

\[ i \] = the number of samples,
\[ \chi_i^2 \] = the calculated Chi-square test statistic,
\[ o_j \] = the observed number of occurrences of a number from the range,
\[ e_j \] = the expected number of occurrences of the number from the range,
\[ n \] = the range, and

\[ \chi_i^2 = \sum_{j=1}^{n} \frac{(o_j - e_j)^2}{e_j} = \frac{(o_1 - e_1)^2}{e_1} + \frac{(o_2 - e_2)^2}{e_2} + \ldots + \frac{(o_n - e_n)^2}{e_n} \]

The calculated Chi-square test statistic for each of the given positions is compared with a Chi-Square Distribution using a 99% confidence level. This comparison involves creating an interval of which 99% of the test statistics will lie inside and 1% of the test statistics will lie outside. Non-random data will not conform to this interval.

Conclusion: The Belatra Hardware RNG Version 1.02 data performed normally on the Chi-Square Test for all games. The results showed no significant deviation from expected random behavior. Therefore, it is our opinion that the data passes the Chi-Square Test.
GLI Europe BV RNG Report
Analysis of the RNG

Runs Test

This test determines the observed median of the data obtained for each game, for each number position, and counts the numbers of runs of data that are either all above the median or all below the median. Data with too few runs will produce streaks of numbers sometimes running high and other times low. Data with too many runs tends to alternate high-low-high-low more than expected.

The runs count $V$ is normally distributed, with a mean of $\mu_v$ and a standard deviation of $\sigma_v$. These parameters are converted into Z-scores to be evaluated against a normal distribution to create ranks for plotting.

The parameters and formulas used for this test are as follows:

Given $N_1$ = the sum of numbers above the median,
$N_2$ = the sum of numbers below the median,
$V$ = the total number of observed runs above or below the median,

$$\mu_v = \frac{2N_1N_2}{N_1 + N_2} + 1$$
$$\sigma_v = \sqrt{\frac{2N_1N_2(2N_1N_2 - N_1 - N_2)}{(N_1 + N_2)^2(N_1 + N_2 - 1)}}$$

The observed test statistic, $Z$, of each of the given positions is compared with a normal distribution using a 99% confidence level. This comparison involves creating an interval of which 99% of the test statistics will lie inside and 1% of the test statistics will lie outside. Non-random data will not conform to this interval.

Conclusion: The Belatra Hardware RNG Version 1.02 data showed no significant deviation from random behavior on the Runs Test for all games. The results produced were well within the normal range. It is our opinion that there are no detectable patterns within any selected number position and that the analyzed data passes the Runs Test.

Serial Correlation Test

The Serial Correlation Test determines whether or not the numbers picked for the current game in any way determines subsequent plays. This test is a measurement of the dependency of values within a given position against other game outcomes in the same game position in the game format being evaluated. The correlation coefficient $r$ is calculated based on a pairs of data taken from the same number position on consecutive game plays. Values for $r$ range from -1.00 to +1.00, with 0.00 indicating no correlation between events.

$$r = \frac{n \sum XY - \sum X \sum Y}{\sqrt{(n \sum X^2 - \sum X \sum X)(n \sum Y^2 - \sum Y \sum Y)}}$$

The value $r$ is calculated for each position in the given game format. An accepted value will be within 2.578 standard deviations to left or to the right of the mean given that the value 2.578 is representative of a 99% confidence level of a normal distribution.

Conclusion: The Serial Correlation Test produced results that were well within the normal range. The Belatra Hardware RNG Version 1.02 data performed well on this test for all games. It is our opinion that the Random Number Generator does not produce significant statistical patterns with regard to serial correlation.
Interplay Correlation Test

The Interplay Correlation Test determines whether or not there is any relation between two positions of numbers chosen within the same game play. It is essentially the same analysis that is performed in the Serial Correlation Test, but it is performed on pairs of data taken from different number positions within the same game play rather than between game plays. Each position is compared with the others and a correlation coefficient $r$ is calculated for each comparison. As in the Serial Correlation Test, an accepted value for $r$ will be within 2.578 standard deviations to the left or to the right of the mean. In games played “with replacement”, the mean will be zero, which indicates no correlation. In games played “without replacement”, the mean will be slightly negative depending upon the amount of values in the range. The adjusted mean represents that once a particular number is chosen in a game play, it may not be selected again. In either case, we expect to see a standard bell curve given the correct value of the mean respective to the game format.

**Conclusion:** The Interplay Correlation Test was applied to the Belatra Hardware RNG Version 1.02 data. All results were within the normal range. The standard bell curve signifies that the calculated correlation coefficients conform to the proper distribution. Therefore, it is our opinion that there are no detectable patterns between any pair of positions for any of these games and that the analyzed data passes the Interplay Correlation Test.
Poisson Distribution Test

The drawing of a single number from a large range theoretically follows a Binomial distribution with parameters $n$ and $p$. The following parameters and formulas are used for this test:

Given $n =$ the total number of game plays,

$$p = \frac{1}{\text{Range}},$$

$x =$ the frequency of occurrences of numbers within the range and

$B_x =$ the probability of there existing $x$ occurrences given $n$ and $p$,

$$B_x = \binom{n}{x} p^x (1 - p)^{n-x}, \text{ for } x = 0, 1, 2, \ldots$$

However, as $n$ approaches infinity and $p$ is close to zero, the distribution can be approximated using a Poisson distribution for a game with a large range. The criterion required to utilize a Poisson approximation to the Binomial distribution are that $n \geq 100$, $p \leq 0.01$, and $np \leq 20$.

There is one parameter that determines a Poisson distribution and that parameter is $\lambda$. The parameter $\lambda$ is the expected number of occurrences of a number in the range given that each number in the range has an equal probability of being drawn.

The equation for the Poisson distribution and its parameter is as follows:

Given $\lambda = \frac{n}{\text{Range}},$

$$P_x = \frac{e^{-\lambda} \lambda^x}{x!}, \text{ for } x = 0, 1, 2, \ldots$$

From the data obtained, the frequency of each number was determined and grouped together into occurrences. The distribution of these occurrences was calculated and $\lambda$ was calculated. The theoretical distribution was approximated using a Poisson distribution with the same $\lambda$ parameter that was calculated from the data.

Since $n$ is sufficiently large, the sample average has approximately a Normal distribution. At the 99% confidence level, confidence limits were calculated using the theoretical $\lambda$ as the sample average, $n$ and the Standard Normal probability distribution. It is with 99% confidence that all of the sampled occurrences from the data are expected to fall within the calculated confidence limits.

**Conclusion:** The Belatra Hardware RNG Version 1.02 data performed normally on the Poisson Distribution Test for the Slot Bonus with a range of 0 to 9,999, and the Slot Bonus with a range of 0 to 100. The results showed no significant deviation from expected random behavior. The resulting solid line falls between the 99% confidence boundaries as expected. Therefore, it is our opinion that the data passes the Poisson Distribution Test.
Duplicates Test

This test compares the observed number of duplicate game plays within the data to the expected number of duplicate game plays. The expected number of duplicate game plays is directly calculated from the range of the game, the amount of numbers within a single game play and the amount of game plays collected within the data to be evaluated. In the case of the “Draw Poker” and “5 Reel Slot” games the expected number of duplicates was calculated and the observed number was evaluated.

Conclusion: The Duplicates Test was applied to the Belatra Hardware RNG Version 1.02 data. The observed number of duplicates in the “Draw Poker” and “5 Reel Slot” games is within the range of the expected number of duplicates. Based on this information, it is in our opinion that the analyzed data passes the Duplicates Test.

SECTION III - OVERALL EVALUATION OF THE RANDOM NUMBER GENERATOR

It has been our experience that the Chi-Square, Runs, Serial Correlation, Interplay Correlation, Duplicates, and Poisson Distribution tests are very good indicators of randomness. The Belatra Hardware RNG data performed well on all of these statistical tests that were applied to it. Therefore, our conclusion based upon these tests is that this Random Number Generator has exhibited random behavior.
GLI Europe BV RNG Report
Plot of the Chi Square Test

5 Reel Slots Plots and Duplicates Test

Chi-Squared Test
GLI Europe BV RNG Report
Plot of the Runs Test

5 Reel Slots Plots and Duplicates Test

Runs Test

Occurrences

Ranks

0 5 10 15 20 25 30 35 40 45
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

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Plot of the Serial Correlation Test

5 Reel Slots Plots and Duplicates Test

Serial Correlation Test

[Bar chart showing occurrences across ranks]
GLI Europe BV RNG Report
Plot of the Interpay Correlation Test

5 Reel Slots Plots and Duplicates Test

Interplay Correlation Test

Occurrences

Ranks
# GLI Europe BV RNG Report
## Duplicates Test

### 5 Reel Slots Plots and Duplicates Test

<table>
<thead>
<tr>
<th>Duplicates Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Game Name</strong></td>
</tr>
<tr>
<td><strong>Drew</strong></td>
</tr>
<tr>
<td><strong>With Replacement</strong></td>
</tr>
<tr>
<td><strong>Confidence Level</strong></td>
</tr>
<tr>
<td><strong>n</strong></td>
</tr>
<tr>
<td><strong>m</strong></td>
</tr>
<tr>
<td><strong>y</strong></td>
</tr>
<tr>
<td><strong>Observed Duplicates</strong></td>
</tr>
<tr>
<td><strong>Expected Duplicates</strong></td>
</tr>
<tr>
<td><strong>Game Cycle</strong></td>
</tr>
<tr>
<td><strong>Max Chi-Squared Critical Value</strong></td>
</tr>
<tr>
<td><strong>Min Chi-Squared Critical Value</strong></td>
</tr>
<tr>
<td><strong>Upper Limit of the Confidence Interval Around the Expected Number of Duplicates</strong></td>
</tr>
<tr>
<td><strong>Lower Limit of the Confidence Interval Around the Expected Number of Duplicates</strong></td>
</tr>
<tr>
<td><strong>Confidence Interval Around the Expected Number of Duplicates</strong></td>
</tr>
<tr>
<td><strong>Results</strong></td>
</tr>
<tr>
<td><strong>Should the Pearson Distribution Test be run?</strong></td>
</tr>
</tbody>
</table>

Report N° | 2009BTR004RN123  
Date | 27 February 2009

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Revision 1.6  
Created on 22 September 2004  
Modified 24 July 2006-KS
GLI Europe BV RNG Report
Plot of the Chi Square Test

Draw Poker Plots and Duplicates Test

Chi-Squared Test

Occurrences

Ranks
GLI Europe BV RNG Report
Plot of the Runs Test

Draw Poker Plots and Duplicates Test

Runs Test

Occurrences

Ranks

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

0 5 10 15 20 25 30 35 40 45

Revision 1.6
Created on 22 September 2004
Modified 24 July 2008-KS
GLI Europe BV RNG Report
Plot of the Serial Correlation Test

Draw Poker Plots and Duplicates Test

Serial Correlation Test

Occurrences

Ranks
GLI Europe BV RNG Report
Plot of the Interpay Correlation Test

Draw Poker Plots and Duplicates Test

Interplay Correlation Test

![Graph showing occurrences against ranks]
## GLI Europe BV RNG Report

### Duplicates Test

#### Draw Poker Plots and Duplicates Test

<table>
<thead>
<tr>
<th>Game Name</th>
<th>Draw Poker</th>
<th>Was the data sorted or not within a game?</th>
<th>7E3: NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorted</td>
<td>NO</td>
<td>Level of the Test, or Alpha, to 0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>With Replacement</td>
<td>YES</td>
<td>m: 1,000,500 Enter n of Games Executed</td>
<td>52</td>
</tr>
<tr>
<td>Confidence Level</td>
<td>99.9%</td>
<td>s: 10 Enter Gen Range Evaluated</td>
<td>10</td>
</tr>
<tr>
<td>n</td>
<td>10</td>
<td>Enter n of Hard Points Pairs Chosen</td>
<td>0</td>
</tr>
<tr>
<td>Obs</td>
<td>0</td>
<td>Enter # of Observed Duplicates</td>
<td>0</td>
</tr>
<tr>
<td>Exp</td>
<td>0.00</td>
<td>Enter # of Expected Duplicates</td>
<td>0.00</td>
</tr>
<tr>
<td>Game Cycle</td>
<td>57.440,708,896,544,000</td>
<td>Standard Deviation</td>
<td>0.00</td>
</tr>
<tr>
<td>Min Chi-Squared Critical Value</td>
<td>2.706499</td>
<td>From Excel CHIINV Function</td>
<td>0.000039</td>
</tr>
<tr>
<td>Max Chi-Squared Critical Value</td>
<td>0.000039</td>
<td>From Excel CHIINV Function</td>
<td>0.000039</td>
</tr>
<tr>
<td>CI Upper</td>
<td>0.01</td>
<td>Upper Limit of the Confidence Interval Around the Expected Number of Duplicates</td>
<td>0.00</td>
</tr>
<tr>
<td>CI Lower</td>
<td>0.00</td>
<td>Lower Limit of the Confidence Interval Around the Expected Number of Duplicates</td>
<td>0.00</td>
</tr>
<tr>
<td>CI</td>
<td>0.00</td>
<td>Confidence Interval Around the Expected Number of Duplicates</td>
<td>0.00</td>
</tr>
<tr>
<td>Results</td>
<td>PASS</td>
<td>Do the Observed number of duplicates fall within the expected confidence bounds or not</td>
<td>PASS</td>
</tr>
<tr>
<td>Passed</td>
<td>PASS</td>
<td>Pass Fail</td>
<td>PASS</td>
</tr>
</tbody>
</table>

**Should the Poisson Distribution Test be run?** NO

---

**Revision 1.6**
**Created on 22 September 2004**
**Modified 24 July 2008-KS**

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CERTIFICATION DOCUMENT
GLI Europe BV RNG Report
Plot of the Chi Square Test

Slot Bonus 0 to 9,999 Plots and Duplicates Test

Chi-Squared Test

Occurrences

Ranks

123RNG
GLI Europe BV RNG Report
Plot of the Runs Test

Slot Bonus 0 to 9,999 Plots and Duplicates Test

Runs Test

Occurrences

Ranks

0  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
GLI Europe BV RNG Report
Plot of the Serial Correlation Test

Slot Bonus 0 to 9,999 Plots and Duplicates Test

Serial Correlation Test

Occurrences

Ranks

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

40
35
30
25
20
15
10
5
0
GLI Europe BV RNG Report
Plot of the Poisson Distribution Test Results

Slot Bonus 0 to 9,999 Plots and Duplicates Test

Poisson Distribution Test Results

- Sampled Occurrence Distribution
- Lower Bound of CI
- Upper Bound of CI

Frequency of Occurrences

Probability

0% 0 5 10 15 20 25 30 35 40

12% 10% 8% 6% 4% 2% 0%
GLI Europe BV RNG Report
Duplicates Test

Slot Bonus 0 to 9,999 Plots and Duplicates Test

## Duplicates Test

<table>
<thead>
<tr>
<th>Game Name</th>
<th>Slot Bonus</th>
<th>Was the data sorted or not within a game? (YES/NO)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Web Replacement</th>
<th>YES</th>
<th>Can the same + across within a game? (YES/NO)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>99.9%</th>
<th>Level of the Test or Alpha is 0.01</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>x</th>
<th>1,318.375</th>
<th>Enter # of Games Evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#</th>
<th>10,000</th>
<th>Enter # Range Evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Obs</th>
<th>32,473.395</th>
<th>Enter # of Observed Duplicates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exp</th>
<th>32,473.395</th>
<th>Enter # of Expected Duplicates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SD</th>
<th>14.411</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Game Cycle</th>
<th>10,000</th>
<th>From Excel CHIDINV Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max Chi-Squared Critical Value</th>
<th>17.1749</th>
<th>From Excel CHIDINV Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min Chi-Squared Critical Value</th>
<th>2.000099</th>
<th>From Excel CHIDINV Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CI Upper</th>
<th>34,996,030.84</th>
<th>Upper Limit of the Confidence Interval Around the Expected Number of Duplicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI Lower</td>
<td>34,994,522.27</td>
<td>Lower Limit of the Confidence Interval Around the Expected Number of Duplicates</td>
</tr>
<tr>
<td>CI 95%</td>
<td>34,994,522.27 to 34,996,030.84</td>
<td>Confidence Interval Around the Expected Number of Duplicates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result</th>
<th>CI 95%</th>
<th>Do the Observed number of Duplicates fall within the expected confidence bounds or not</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preferred Number of Duplicates</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pass Fail</th>
<th>PASS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would the Pearson Chi-Square Test be run?</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GLI Europe BV RNG Report
Plot of the Chi Square Test

Slot Bonus 0 to 100 Plots and Duplicates Test

Chi-Squared Test

![Chi-Squared Test Graph]
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Plot of the Runs Test

Slot Bonus 0 to 100 Plots and Duplicates Test

Runs Test

Occurrences

Ranks

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Plot of the Serial Correlation Test

Slot Bonus 0 to 100 Plots and Duplicates Test

Serial Correlation Test

Occurrences

Ranks

0  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15
GLI Europe BV RNG Report

Plot of the Poisson Distribution Test Results

Slot Bonus 0 to 100 Plots and Duplicates Test

Poisson Distribution Test Results

- Sampled Occurrence Distribution
- Lower Bound of CI
- Upper Bound of CI

Frequency of Occurrences

0% 2% 4% 6% 8% 10% 12% 14% 16% 18%
0 9 11 13 15 17 19 21 23 25 27 29 31 33

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Duplicates Test

Slot Bonus 0 to 100 Plots and Duplicates Test

<table>
<thead>
<tr>
<th>Duplicates Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Game Name</td>
<td></td>
</tr>
<tr>
<td>Sorted</td>
<td>NO</td>
</tr>
<tr>
<td>With Replacement</td>
<td>YES</td>
</tr>
<tr>
<td>Confidence Level</td>
<td>99.0%</td>
</tr>
<tr>
<td>n</td>
<td>194,419</td>
</tr>
<tr>
<td>m</td>
<td>101</td>
</tr>
<tr>
<td>Obs</td>
<td>113,809,406</td>
</tr>
<tr>
<td>Exp</td>
<td>118,031,596</td>
</tr>
<tr>
<td>dd</td>
<td>10,810.30</td>
</tr>
<tr>
<td>Max Chi-Squared Critical Value</td>
<td>7.88449</td>
</tr>
<tr>
<td>Min Chi-Squared Critical Value</td>
<td>0.000506</td>
</tr>
<tr>
<td>CI Upper</td>
<td>118,031,591.75</td>
</tr>
<tr>
<td>CI Lower</td>
<td>118,031,588.84</td>
</tr>
<tr>
<td>C11800000012001</td>
<td>118,0017.010</td>
</tr>
<tr>
<td>Rej</td>
<td>45</td>
</tr>
<tr>
<td>Pass Fail</td>
<td>PASS</td>
</tr>
<tr>
<td>Should the Poisson Distribution Test be run?</td>
<td>NO</td>
</tr>
</tbody>
</table>

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Date 27 February 2009

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123RNG
Controlled
Page 32 of 35

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Occurrences

Ranks
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Slot Bonus 0 to 10 Plots

Runs Test

Occurrence vs. Ranks

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

40
35
30
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121RNG

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