

**Evaluation Report for
Random Number Generator
BillFold RNG version V.1.0 of
Digient Technologies Private Limited**

Manufacturer:	Digient Technologies Private Limited
RNG Name:	BILLFOLD RNG V.1.0
Certification Report Number:	DTPL.RNG.DIG.1001.01
Document Number:	1
Date issued:	22th. December 2011
Number of Pages:	5

BMM Spain Testlabs s.l.u

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Ver. 1.0 01/07/2011

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EVALUATION REPORT

Name and details of the applicant:	Digient Technologies Private Limited
Name and details of the manufacturer:	31 Bazulla Road; T Nagar; Chennai – 600017; Tamilnadu, India
Start date of the test:	19th December 2012
Completion date of the test:	21th December 2012
Name and details of the laboratory:	BMM Spain Testlabs, s.l. Parc Tecnològic del Vallés (C.E.N.T.) Avda. Parc Tecnològic del Vallés, 3 08290 – Cerdanyola del Vallés Barcelona – España
Type of test:	RNG Evaluation
Model, type and other identification:	BillFold RNG V.1.0
Manufacturer reference number:	Digient Technologies Private Limited submission Letter Dated 1 st December 2011
Model type:	Random Number Generator (RNG)
Jurisdictions recommended:	GLI Standard Casino markets.
Version of the standard used for the test:	M2_9_362
Reference number of BMM:	DIG.1001
Test engineer:	M. Novakovic
Certificate of the Engineer Name Position	Albert Daudé Director of Technical Services – Europe

1. SCOPE

Digient Technologies Private Limited requests BMM to evaluate their Random Number Generator (RNG) BillFold V.1.0 for the next jurisdictions:

- GLI 11 Standard Casino markets

2. RNG DESCRIPTION

Digient Technologies Private Limited requests provided the source code files to BMM for evaluation (see section 4.1).

The Random Number Generator (RNG) BillFold V.1.0 uses the MT19937 algorithm which has a cycle of $2^{19937}-1$ and has very good statistical properties. The RNG is initialized from a millisecond time of day and is cycled between games. Scaling is unbiased.

BMM has verified, through mathematical and statistic analysis, that the Random Number Generator (RNG) distributes numbers with fair distribution, lack of bias to particular outcomes and sufficient non-predictability. All statistical tests passed at the 99% confidence Interval level.

3. EVALUATION CARRIED OUT BY BMM

BMM has applied the following test/verifications for the evaluation of the RNG <NAME> <VERSION>:

- Frequency of numbers, pairs, triples and quads;
- Runs up and down;
- Gap tests;
- Coupon Collectors tests;
- Serial Correlation tests;
- Kolmogorov-Smirnov (KS) test; and

4. TEST RESULTS

4.1. DETAILS OF THE SOFTWARE USED FOR THE TEST.

Filename:	SHA-1 Checksum:
BackgroundCycling.java	034833A5AE79D2B1510037A631B8DA8F1648BDCA
GameRandom.java	59120EA9905B0CDBA86830C3DA9EAE252D8B87F3
PseudoRandom.java	6B989CF41D45B388E894D57CCA58C6A6E73CD691
RandomNumberGenerator.java	07523F28C9564DE3406FC11FD19A95F04E9E6F35

4.2. STATISTICAL RESULTS.

The RNG passed all tests within the expected 99% confidence range.

95%

Confidence	Expected	Observed	Probability
Low Outliers	4,5	4	19,1814%
High Outliers	4,5	3	16,9056%

99%

Confidence	Expected	Observed	Probability
Low Outliers	0,9	1	36,6922%
High Outliers	0,9	0	40,5653%

Number of tests: 180

Low Outliers at 95%

Observed	Expected	Prob	Result
4	4,5	19,1814%	PASS

High Outliers at 95%

Observed	Expected	Prob	Result
3	4,5	16,9056%	PASS

Low Outliers at 99%

Observed	Expected	Prob	Result
1	0,9	36,6922%	PASS

High Outliers at 99%

Observed	Expected	Prob	Result
0	0,9	40,5653%	PASS

Overall KS Test	22,0736%	PASS
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5. ADDITIONAL INFORMATION/OBSERVATIONS

Above tested Random Number Generator (RNG) BillFold V.1.0 is not limited to a certain type of game. It can be used for the complete game range from Digient Technologies Private Limited, such as Card Games, Slot Games, Bingo, Lotteries, Scratch Card, Poker Games, etc.

6. CONCLUSION

According to the tests performed and the results obtained, BMM confirms that the element (RNG) BillFold v1.0 subjected to a test¹ has an acceptable behavior.

Yours faithfully,



Albert Daudé Costa
Director Técnico Europa

¹ The results included in this document are referred exclusively to the sampled tested, such as it is described in the corresponding section.