Evaluation Report for iMoon BV

imoon-rng-v3.js RNG

Version v3

Manufacturer:	**iMoon BV**
ATF Report Number:	**RNG.MAL.IMOON.1004.01.01**
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BMM Spain Testlabs s.l.u.

bmm spain testlabs, s.l.u.
Edificio Vinson del Parque Empresarial Vallsolana - Camí de Can Camps, 17-19 - 08174 Sant Cugat del Vallés - Barcelona (España)
t +34 93 143 3862
business no. B64622251
v. 3.2 2023/08/22

EVALUATION REPORT

Client name & Address:	iMoon BV Dr.H.Fergusonweg 1 Willemstad, Curaçao
Client Reference Number:	Client Submission Letter Dated: 25th July 2024
Testing dates:	Start date: 25th July 2024 End date: 28th August 2024
Product / Game Description:	Software RNG
Test Category:	Category 0
Jurisdictions Recommended:	Malta
Technical Standard used for Evaluation:	▪ Legal Notice 176 of 2004 of the Lotteries and other Games Act as amended by Legal Notice 110 of 2006, 270 and 426 pf 2007, 90 of 2011 and 131 of 2016 ▪ Directive 2 of 2018 V3 - Player Protection Directive (amended 12 January 2023)
Location where test was performed:	BMM Spain Testlabs s.l.u. Edificio Vinson del Parque Empresarial Vallsolana Camí de Can Camps, 17-19 08174 Sant Cugat del Vallés Barcelona (España)
Location where report was issued:	BMM Spain Testlabs s.l.u. Edificio Vinson del Parque Empresarial Vallsolana Camí de Can Camps, 17-19 08174 Sant Cugat del Vallés Barcelona (España)
Conclusion:	PASS
BMM Reference Number:	IMOON.1004
Method/Procedures used:	EURSAM-SPA-MO-41 v3.0
Consultant(s):	Marco Tocornal

1. SCOPE OF EVALUATION.

iMoon BV requested BMM Spain Testlabs s.l.u. to evaluate the products listed in section 2 for operation in the relevant below Malta market:

- Legal Notice 176 of 2004 of the Lotteries and other Games Act as amended by Legal Notice 110 of 2006, 270 and 426 pf 2007, 90 of 2011 and 131 of 2016
- Directive 2 of 2018 V3 - Player Protection Directive (amended 12 January 2023)

2. PRODUCT CHARACTERISTICS (PRODUCT UNDER TEST).

2.1. PRODUCT DESCRIPTION.

The product is a CSPRNG (Cryptographically Secure Pseudo Random Number Generator). Specifically, it is a Javascript wrapper for the functions crypto.getRandomValues() and crypto.randomFill(), which are used in Browser and Node.js environments, respectively.

The product is intended for generating random integers uniformly distributed within specified ranges that do not exceed 255, e.g., with the values 10, and 20 for the minimum and maximum, respectively, then the functions produce random values distributed uniformly in the set {10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}.

A positive step parameter can be included after the minimum and maximum values to produce random values that are at a non-negative multiple of the step above the minimum and do not exceed the maximum, e.g., with the values 10, 20, and 3 for the minimum, maximum, and step, respectively, then the functions produce random values distributed uniformly in the set {10, 13, 16, 19}.

The scaling function does not produce any bias, as verified by source code review. Since the wrapped functions produce random bytes (values between 0 and 255), it is notable that the output from those values will always be scaled (since the range of the values is 256, which exceeds the maximum range of 255).

If the range selected exceeds the maximum range allowed by the step value, then the program does not halt. No checks are included in the product evaluated to prevent this issue; however, those checks exist in the system where the product is used.

Since the RNG is cryptographically secure, it does not require manual seeding, reseeding, or background cycling.

2.2. STATISTICAL EVALUATION.

Statistical tests were performed on the output from the RNG. Raw output from the RNG was subjected to a range of tests in the Empirical, Diehard and NIST test suites.

Each test tests the hypothesis that the RNG is a random source of numbers. A “p-value” is produced for each test run, which is the probability that a truly random process would produce the same or a more extreme result. P-values are expected to be uniformly distributed between 0 and 1. The p-values for each test are evaluated using an Anderson-Darling test. This produces a single p-value, which is the probability that the individual p-values have been produced from a uniform distribution.

Finally, the p-values from each test in the same test suite are combined using the Holm-Bonferroni method to provide an overall p-value. This process adjusts each p-value to ensure that the overall probability of accepting the RNG as random matches the confidence interval used. The overall p-value, equal to the minimum of the adjusted p-values, is compared to a specific alpha value to determine if the RNG is accepted or rejected as being random for a specific confidence interval.

2.2.1. EMPIRICAL TESTS.

The Empirical Tests are based on the tests described by Donald Knuth in The Art of Computer Programming Volume 2: Seminumerical Algorithms (1968, revised in 1997). They test sequences of numbers scaled to specific ranges.

Frequency Test	Counts of each number occurring across the sample set.
Serial Correlation Test	Counts of non-overlapping groups of numbers occurring together. Group sizes of two, three, and four are tested separately.
Runs Test	Counts of ascending and descending sequences of numbers. Note that this is a different test to the Runs Test in the Diehard and NIST Tests.
Gap Test	Counts of the size of gaps between successive occurrences of a given number. Each number in the range is tested separately.
Coupon Collector Test	Counts of sequence lengths required to complete a full set of each number in the range.
Subsequences Test	Similar to the Serial Correlation Test for pairs of numbers, except looking at numbers separated by a specific gap. Step sizes of 5, 10, 15, and 20 are tested separately.
Poker Test	The sequence is split into groups of five. The number of unique values in each group is counted.

Test	P-values (Browser)	P-values (Node.js)	95% Confidence	99% Confidence
Frequency Test	0.537256	1.000000	PASS	PASS
Serial Correlation Test	1.000000	1.000000	PASS	PASS
Runs Test	0.824547	1.000000	PASS	PASS
Gap Test	1.000000	1.000000	PASS	PASS
Coupon Collector Test	1.000000	0.255533	PASS	PASS
Subsequences Test	1.000000	1.000000	PASS	PASS
Poker Test	0.773127	1.000000	PASS	PASS
Overall	**0.537256**	**0.255533**	**PASS**	**PASS**

Conclusion: The RNG is **ACCEPTED** as random at the 95% confidence interval.
Conclusion: The RNG is **ACCEPTED** as random at the 99% confidence interval.

2.2.2. DIEHARD TESTS.

The Diehard Tests are based on the test suite published by George Marsaglia in 1995. They test sequences of raw binary output from the RNG.

Binary Rank 32x32 Test	Matrices are created using 32 32-bit words. The ranks of the resulting matrices are counted.
Binary Rank 6x8 Test	Same as the Binary Rank 32x32 Test, except each matrix is formed using 6 values, each taking 8 bits from successive 32-bit words with a specific offset. All possible offsets are tested separately.
Birthday Spacings Test	26-bit values are taken from successive 32-bit words with a specific offset. The values are sorted, and the spacings between them calculated. The number of spacings of the same size are counted. All possible offsets are tested separately.
Bitstream Test	Blocks of 2^18 values are treated as a stream of overlapping 20-bit values. The number of possible 20-bit values that are not found in each block is counted.
Count The 1's Stream Test	8-bit values are taken and assigned a “letter” based on the number of one’s

	appearing in the binary representation of each value. Overlapping groups of 5 “letters” are counted.
Count The 1's Specific Test	Similar to the Count The 1’s Stream Test, except 8-bit values are taken from successive 32-bit words with a specific offset. All possible offsets are tested separately.
Runs Test	Counts sequences of increasing and decreasing 32-bit words. Note that this is a different test to the Runs Test in the Empirical and NIST Tests.
Squeeze Test	A value of 2^31 is repeatedly multiplied by 32-bit words, dividing by 2^32 and taking the ceiling of the result each time. The number of successive words that are required to reduce the value down to 1 is counted. The value is reset to 2^31 and the process is repeated.

Test	P-values (Browser)	P-values (Node.js)	95% Confidence	99% Confidence
Binary Rank 32x32 Test	0.861117	1.000000	PASS	PASS
Binary Rank 6x8 Test	1.000000	1.000000	PASS	PASS
Birthday Spacings Test	1.000000	0.704224	PASS	PASS
Bitstream Test	1.000000	1.000000	PASS	PASS
Count The 1's Stream Test	1.000000	1.000000	PASS	PASS
Count The 1's Specific Test	1.000000	1.000000	PASS	PASS
Runs Test	1.000000	1.000000	PASS	PASS
Squeeze Test	1.000000	1.000000	PASS	PASS
Overall	**0.861117**	**0.704224**	**PASS**	**PASS**

Conclusion: The RNG is **ACCEPTED** as random at the 95% confidence interval.
Conclusion: The RNG is **ACCEPTED** as random at the 99% confidence interval.

2.2.3. NIST TESTS.

The NIST Tests are based on the suite of tests released by the National Institute of Standards and Technology in Special Publication 800-22, Revision 1a (revised April 2010). They test sequences of raw binary output from the RNG.

Approximate Entropy Test	Similar to the Serial Test, count each possible m-bit value, except it does so for two adjacent m bit lengths and compares the two.
Block Frequency Test	Similar to the Frequency Test, except the data is split into equally sized blocks. The number of ones and zeroes in each block is counted.
Cumulative Sums Test	Random walks are created by converting the data to +1 / -1 for 1 / 0 respectively and summing consecutive values.
Discrete Fourier Transform Test	The data is transformed using a Discrete Fourier Transform. The number of peaks within the 95% threshold are counted.
Frequency Test	The number of ones and zeroes in the binary output is counted.
Linear Complexity Test	The length of the linear complexity of the random sequence is determined.
Longest Run of Ones Test	The data is split into equally sized blocks. The longest run of ones in each block is determined and counted.
Non-Overlapping Template Matchings Test	The data is split into equally sized blocks. Each block is searched for a specific pattern of bits and counted. A separate test is run for various bit patterns. Each bit pattern searched does not overlap with itself. That is, when the pattern is matched, the end of the pattern cannot be the start of another match.
Overlapping Template Matchings Test	Similar to the Non-Overlapping Template Matchings Test, except only one pattern is searched, which may overlap with itself.

Random Excursions Test	As with the Cumulative Sums Test, random walks are created by converting the data to +1 / -1 for 1 / 0 respectively and summing consecutive values. The number of times a given state is visited between returns to zero are counted. Separate tests are run for various states from -4 to +4, not including 0.
Random Excursions Variant Test	Similar to the Random Excursions Test, except the number of times the given state is visited is counted for the entire sequence. Separate tests are run for various states from -9 to +9, not including 0.
Rank Test	Matrices are created using 32 32-bit words. The ranks of the resulting matrices are counted. Note that this is fundamentally the same test as the Binary Rank 32x32 Test in the Diehard Tests, although the implementation may differ.
Runs Test	Runs of consecutive bits of the same value of various lengths are counted.
Serial Test	Counts of each possible m-bit values. Separate tests are run for various m bit lengths.
Universal Test	Distances between repeated patterns of bits are counted.

Test	P-values (Browser)	P-values (Node.js)	95% Confidence	99% Confidence
Approximate Entropy Test	1.000000	1.000000	PASS	PASS
Block Frequency Test	1.000000	1.000000	PASS	PASS
Cumulative Sums Test	1.000000	1.000000	PASS	PASS
Discrete Fourier Transform Test	0.646728	1.000000	PASS	PASS
Frequency Test	1.000000	1.000000	PASS	PASS
Linear Complexity Test	1.000000	1.000000	PASS	PASS
Longest Run of Ones Test	1.000000	1.000000	PASS	PASS
Non-Overlapping Template Matchings Test	1.000000	1.000000	PASS	PASS
Overlapping Template Matchings Test	1.000000	1.000000	PASS	PASS
Random Excursions Test	1.000000	1.000000	PASS	PASS
Random Excursions Variant Test	1.000000	0.763428	PASS	PASS
Rank Test	0.136944	1.000000	PASS	PASS
Runs Test	1.000000	1.000000	PASS	PASS
Serial Test	1.000000	1.000000	PASS	PASS
Universal Test	1.000000	1.000000	PASS	PASS
Overall	**0.136944**	**0.763428**	**PASS**	**PASS**

Conclusion: The RNG is **ACCEPTED** as random at the 95% confidence interval.
Conclusion: The RNG is **ACCEPTED** as random at the 99% confidence interval.

2.3. EVALUATED SOFTWARE.

Product: imoon-rng-v3.js					
File Name	**Version**	**Location**	**Function**	**Digital Signature Type**	**Digital Signature**
imoon-rng-v3.js	v3	Server	RNG	SHA1	E78F0B974226F178D2FD9153FD8B4F7906016311

3. BMM EVALUATION PERFORMED.

BMM has tested and confirmed compliance of the products specified in Section 2 against the appropriate applicable technical requirements for the Maltese Remote Gambling market. BMM performed the following tests to confirm compliance to the relevant regulatory specifications:

Player Protection Directive n. 2/2018	Results			
	OK	Fail	N/A	Observations
Part II				
Disclosure Requirements				
5.6) B2C licensees who market their services in one or more languages besides the English and, or Maltese language shall ensure that all the information required to be displayed by virtue of this Directive, is available in that, or those, foreign languages, as well as the English and, or Maltese language.	❑	❑	☑	RNG evaluation only.
5.7) For the avoidance of doubt, any website operated by a B2C licensee, or on his or her behalf, and all the content on such website, shall, as a minimum, be available in the English and, or Maltese language.	❑	❑	☑	RNG evaluation only.
Part III				
Terms and Conditions				
7.1.a) A B2C licensee shall make readily available to players the rules of the games which it is offering: (a) B2C licensees offering their gaming service online shall ensure that the game rules are made readily available to the player. Licensees shall ensure that the game rules are to be displayed in full no more than one (1) click away from the webpage in which the game can be played. With respect to games which are played after being downloaded and installed on a compatible device, licensees shall ensure that the game rules shall be made available to the player in any case prior to the player's first wager on the game; Provided that, for the avoidance of doubt, this paragraph shall be equally applicable to mobile sites and to mobile device applications. In such cases, the webpage or application interface containing the game rules may be further categorised into separate	❑	❑	☑	RNG evaluation only.

Player Protection Directive n. 2/2018	Results			
	OK	Fail	N/A	Observations
sections within the same webpage or application interface, possibly requiring further clicks to expand the sections due to limitation of space, provided that this shall in no manner prejudice the accessibility and understandability of the game rules.				
7.1.b) B2C licensees offering their gaming service by remote means other than online shall make the game rules readily available and shall inform the player how these may be accessed, in any case prior to the player's first wager; and	❑	❑	☑	RNG evaluation only.
7.1.c) B2C licensees offering their gaming service in gaming premises and, or controlled gaming premises shall make readily available to players the rules of the games which are offered in those premises.	❑	❑	☑	RNG evaluation only.
7.2) The game rules shall be written in plain and intelligible language and shall include, inter alia, the various ways in which the player can win or lose and, without prejudice to Part VII of this Directive, the prize which the player is eligible to receive in case of a win in each case.	❑	❑	☑	RNG evaluation only.
Part VI				
Player Activity and Support				
18A.4.a) The B2C licensees offering their gaming service online shall make the following information readily available and easily accessible to the player to whom it pertains: (a) the balance on the player's account, and the relevant currency, both of which shall also be visible at all times; Provided that where the game is displayed on a screen, the B2C licensee shall cause to be visible on the screen, at all times during a game, a live counter which automatically updates and shows the player's account balance in real time.	❑	❑	☑	RNG evaluation only.
18A.4.b) The ability to access the player's gambling history of the immediately preceding six (6) months, including but not limited to, data relating to the player's total wins and losses, amounts of money deposited, and amounts withdrawn. Provided that all amounts displayed relating to wagers and winnings	❑	❑	☑	RNG evaluation only.

Player Protection Directive n. 2/2018	Results			
	OK	Fail	N/A	Observations
shall be quoted with the symbol of currency that the player is playing with. Provided further that the entire player's gambling history shall be accessible to the player upon request.				
18A.4.c) the player support function concerning responsible gaming via online forms or personal contact, including but not limited to, live chat or telephone; and	❑	❑	☑	RNG evaluation only.
18A.4.d) helplines or means to contact organisations that aid persons with problem gambling issues. Provided that B2C licensees offering their gaming service by remote means other than online shall ensure that the players may avail themselves of the above information at any time, including by informing players upon registration that they can refer them to an organisation which aids persons who have gambling problems, should the players feel such need.	❑	❑	☑	RNG evaluation only.
18A.5 Without prejudice to anything contained in this Part, full screen games shall not be offered to players unless a real time clock is displayed on the screen at all times and players are given the facility to exit the game.	❑	❑	☑	RNG evaluation only.
18A.6 B2C licensees shall keep a readily available copy of the player's gambling history.	❑	❑	☑	RNG evaluation only.

L.N. 176/2004	Results			
	OK	Fail	N/A	Observations
Part VII - Registration of players				
Application for registration of players				
32.1 A licensee shall not permit a person to participate as a player in an authorised game conducted by the licensee unless that person is registered as a player and holds an account with the licensee.	❑	❑	☑	RNG evaluation only.

L.N. 176/2004	Results			
	OK	Fail	N/A	Observations
32.2.a The licensee may register a person as a player only if the licensee has received from that person an application for registration	❑	❑	☑	RNG evaluation only.
32.2.b The application shall at least include the following details:				
(i) that the player is over eighteen years of age	❑	❑	☑	RNG evaluation only.
(ii) the player's identity	❑	❑	☑	RNG evaluation only.
(iii) the player's place of residence	❑	❑	☑	RNG evaluation only.
(iv) the player's valid e-mail address	❑	❑	☑	RNG evaluation only.
32.2 Provided that if a licensee becomes aware that a person has provided false information in this respect, the licensee shall not register such person and where that person has already been registered, the licensee shall immediately cancel that person's registration as a player with the licensee.	❑	❑	☑	RNG evaluation only.
32.3 No person under eighteen years of age may be registered as a player and any funds deposited or any money won by any such persons shall be forfeited to the Authority.	❑	❑	☑	RNG evaluation only.
32.4 The licensee shall, at all times, keep a secure online list of all registered players.	❑	❑	☑	RNG evaluation only.
32.5 Any one player can only register a single account with the licensee.	❑	❑	☑	RNG evaluation only.

Part VIII - Player's Accounts and Payment of Winnings				
Players' account to be kept				
35.1 The licensee shall establish and maintain a player's account in relation to each player who is registered with the licensee.	❑	❑	☑	RNG evaluation only.

L.N. 176/2004	Results			
	OK	Fail	N/A	Observations
35.2.a The licensee must credit to the account established under sub-regulation (1) in respect of a registered player all funds a) Received by the licensee from or on behalf of the player, or	❑	❑	☑	RNG evaluation only.
b) owned by the licensee to the player.	❑	❑	☑	RNG evaluation only.
35.3.a The licensee shall not accept a wager from a player unless: (a) a player's account has been established in the name of the player and there are adequate funds in the account to cover the amount of the wager, or	❑	❑	☑	RNG evaluation only.
(b) the funds necessary to cover the amount of the wager are provided in an approved way.	❑	❑	☑	RNG evaluation only.
35.4 The licensee shall not accept cash from a player and funds may be received from the player only by any of the following methods: -credit cards -debit cards -electronic transfer -wire transfer -cheques -any other method approved by the authority	❑	❑	☑	RNG evaluation only.
35.5 A licensee shall not provide credit to a player or a player's account or act as agent for a credit provider to facilitate the provision of credit to a player or a player's account	❑	❑	☑	RNG evaluation only.
Payment to players				
36.1 A licensee shall not make a payment in excess of two thousand and three hundred and twenty-nine euro and thirty-seven cents (€2,329.37) out of a player 's account to a player until the player's identity, age and place of residence have been verified	❑	❑	☑	RNG evaluation only.

L.N. 176/2004	Results			
	OK	Fail	N/A	Observations
Part IX - Financial Protection of Players				
Problem gaming warning				
42 A licensee shall display at all times, in a prominent place, on the entry screen of the website, a warning of the addiction possibilities of gaming and information and links to other websites assisting compulsive gamblers.	❑	❑	☑	RNG evaluation only.
Limits set by Player				
43.1 A registered player may by written notice or electronic notice to the licensee:				
(a) set a limit on the amount the player may wager within a specified period of time(b) set a limit on the losses the player may incur within a specified period of time	❑	❑	☑	RNG evaluation only.
(b) set a limit on the losses the player may incur within a specified period of time	❑	❑	☑	RNG evaluation only.
(c) set a limit on the amount of time the player may play in any one session	❑	❑	☑	RNG evaluation only.
d) exclude the player from playing for a definite or indefinite period of time.	❑	❑	☑	RNG evaluation only.
43.2 A player who has set a limit or exclusion under this regulation may change or revoke the limit or exclusion by written notice or electronic notice given to the licensee.	❑	❑	☑	RNG evaluation only.
43.3 A notice increasing or revoking a limit or decreasing the exclusion has effect only after seven days after the licensee has received the notice.	❑	❑	☑	RNG evaluation only.
43.4 A notice reducing a limit or increasing the exclusion has effect immediately after it is received by the licensee	❑	❑	☑	RNG evaluation only.
43.5 A licensee shall not accept a wager from a player contrary to a limit or exclusion set by the player under	❑	❑	☑	RNG evaluation only.

L.N. 176/2004	Results			
	OK	Fail	N/A	Observations
this regulation.				
Display of counters				
44.1 Where the game is displayed on a screen the licensee shall cause to be displayed on the screen, at all times during the game, a counter which automatically updates and shows the player's account balance	❑	❑	☑	RNG evaluation only.
44.2.a) The licensee shall also make available to every player an automatic reality check at intervals of one hour	❑	❑	☑	RNG evaluation only.
44.2.b) The automatic reality check shall:				
(i) suspend play	❑	❑	☑	RNG evaluation only.
(ii) clearly indicate for how long the player has been playing	❑	❑	☑	RNG evaluation only.
(iii) display the player's winnings and losses during such period of time	❑	❑	☑	RNG evaluation only.
(iv) require the player to confirm that the player has read the message	❑	❑	☑	RNG evaluation only.
(v) give an option to the player to end the session or return to the game.	❑	❑	☑	RNG evaluation only.
Indication of currency				
45) All amounts displayed relating to wagers and winnings shall be quoted with the symbol of currency that the player is playing with.	❑	❑	☑	RNG evaluation only.

Player Protection Directive n. 2/2018	Results			
	OK	Fail	N/A	Observations
Part VII				
Return to Player				
22.1) A B2C licensee offering games online which use repetitively generated random selection for determining winning combinations to players, in accordance with the way in which the games offered thereby are designed, shall pay out on average a prize amounting to eighty five per centum (85%) or more of the money or money's worth wagered, or any such higher percentage as may be stipulated through a condition of the licence.	❑	❑	☑	RNG evaluation only.
22.3) A B2C licensee shall ensure that its systems monitor the average percentage returned to the players as prizes for these games. Provided that B2C licensees whose games are hosted and managed by an approved B2B licensee, may have this obligation fulfilled by the said B2B licensee.	❑	❑	☑	RNG evaluation only.

L.N. 176/2004 – Part X	Results			
	OK	Fail	N/A	Observations
Aborted and Miscarried Games				
Procedure to be followed when game aborts				
47.1) A licensee shall take all reasonable steps to ensure that the licensee's approved computer system enables a player whose participation in a game is, after he or she has made a wager, interrupted by a failure of the telecommunications system or a failure of the player's computer system that prevents the player from continuing the game, to resume, on the restoration of the system, his or her participation in the game that was interrupted as at the time immediately before the interruption.	❑	❑	☑	RNG evaluation only.
47.2) If a licensee's computer does not enable a player to continue, after the restoration of the system, with a game				

L.N. 176/2004 – Part X	Results			
	OK	Fail	N/A	Observations
interrupted by a failure of the telecommunications system or the player's computer system, the licensee shall				
(a) ensure that the game is terminated;	❑	❑	☑	RNG evaluation only.
(b) refund the amount of the wager to the player by placing it in the player's account.	❑	❑	☑	RNG evaluation only.
Procedure to be followed when game miscarries				
48.1) If a game is started but miscarries because of a failure of the licensee's computer operating system, the licensee shall:				
48.1.a) (i) refund the amount wagered in the game to the player by crediting it to the player's account or, if the account no longer exists, by paying it to the player in an approved manner; and	❑	❑	☑	RNG evaluation only.
48.1.a) (ii) if the player has an accrued credit at the time the game miscarries, credit to the player's account the monetary value of the credit or, if the account no longer exists, pay it to the player in an approved manner	❑	❑	☑	RNG evaluation only.
Third Schedule - Regulation 25				
Technical Requirement for Gaming System				
1. The gaming system must:				
(a) faithfully follow the game rules published by the operator and	❑	❑	☑	RNG evaluation only.
(b) provide over time no more than the expected house advantage to the operator.	❑	❑	☑	RNG evaluation only.
2.Both the gaming and financial transactions must be congruent and secure.	❑	❑	☑	RNG evaluation only.
3.The gaming system must satisfy the following criteria for randomness, following Schneier:				
(a) the data must be randomly generated, passing	☑	❑	❑	

L.N. 176/2004 – Part X	Results			
	OK	Fail	N/A	Observations
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.	☑	❑	❑	
4. The outcome of any game event, and the return to the player, must be independent of the CPU, memory, disk or other components used in the playing device used by the player	❑	❑	☑	RNG evaluation only.
5.The game or any game event outcome must not be affected by the effective bandwidth, link utilization, bit error rate or other characteristic of the communication channel between the gaming system and the playing device used by the player.	❑	❑	☑	RNG evaluation only.
6. The gaming system must be able to display for each game the following information on the current page or on a page directly accessible from the current page via a hyperlink:				
(a) the name of the game	❑	❑	☑	RNG evaluation only.
(b) restrictions on play	❑	❑	☑	RNG evaluation only.
(c) instructions on how to play, including a pay-table for all prizes and special features	❑	❑	☑	RNG evaluation only.
(d) the player's current account balance	❑	❑	☑	RNG evaluation only.
(e) unit and total bets permitted	❑	❑	☑	RNG evaluation only.
(f) the rules of the game.	❑	❑	☑	RNG evaluation only.

L.N. 176/2004 – Part X	Results			
	OK	Fail	N/A	Observations
(g) information relating to the average winnings paid out to players of the game over a period of time or a particular number of plays.	❑	❑	☑	RNG evaluation only.

4. ADDITIONAL INFORMATION/OBSERVATIONS.

N/A

5. CONCLUSION.

According to the test results[1], BMM Spain Testlabs s.l.u. confirms that the item tested is compliant with all the relevant Malta Technical Requirements described in the "Scope" section.

Yours sincerely,

30378334A RUBÉN ALBERTO BAPTISTA (C:B64622251)

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SVP Operations EURSAM

Rubén Baptista

[1]The results included in this document refer exclusively to the sample tested, as described in the corresponding section.