# The Danish Gambling Authority's Certification Programme

Testing Standards for Online Casino – SCP.01.03.EN.2.1

# Contents

# Objectives of the testing standards

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The testing standards for online casino are set out to ensure that the gambling functionality of the gambling system operates in a suitable manner. The presentation of gambling functionality towards the customer can be distorted if the functionality does not operate in a manner that is true to what the customer can rightly expect. Therefore, the gambling system's gambling functionality shall be tested to ensure that it operates in a manner consistent with what is being presented to the customer.

## 1.1    Scope of this document

Requirements on how testing organisations obtain accreditation for testing the gambling system, business processes and business systems of the licence holder have been specified as well as requirements on how often testing shall be done. These requirements are described in section 2 "Frequency and testing organisations".

The random number generator(s) in the gambling system of the licence holder shall be tested to ensure that they are truly random and that the games are running independently from the device of the customer. Furthermore, testing shall ensure correct representation of chance, and it shall be tested that games without stake does not distort the customer's impression of the chance to win is also required. Finally, there are test requirements regarding jackpots and gambling equipment used for live casino. These tests are described in section 3 "Requirements for testing of gambling functionality".

## 1.2    Version

The Danish Gambling Authority continuously revises the certification programme. The latest version and the version history are accessible at The Danish Gambling Authority's website.

Version 1.0 of 2014.07.04
- A new document structure than the previous version 1.3 alongside with a range of updates in different areas. A new version 1.0 is therefore published. It is the intention to follow normal versioning for future changes.

Version 1.1 of 2018.01.01
- Changes completed because of liberalization of online bingo, betting on horse- and dog races and betting on pigeon races.

Version 1.2 of 2020.01.01
- Spillemyndigheden has removed the requirement saying the ATO's accreditation must refer to a specific version cf. section 2.2.

Version 2.0 of 2023.01.01
- Update of requirements for accredited testing organisations and staff. RNG requirements regarding result generating and RNG requirements regarding other functionality have been merged in one section.  Requirement regarding 3 second rule have been moved from the inspection standards to the testing standards. Requirements regarding test of equipment used for live casino have been added. Furthermore, general adjustments and specifications have been made.

Version 2.1 of 2023.10.01
- Updated visual layout of the document. Minor linguistic corrections. No changes to requirements.

When a new version of the certification programme is released, The Danish Gambling Authority will, if necessary, publish guidelines for a transition period and validity of already completed tests.

It must be emphasised that only the Danish version is legally binding. The English version holds the status of guidance only.

## 1.3 Applicability

Testing Standards for Online Casino are applicable for provision of online casino (§ 18 in the Danish Gambling Act).

For online bingo offered via television the following requirements does not apply:
- Section 3: 3.2.1.3, 3.4

### 1.3.1 Offer of online bingo via television

Requirements for online bingo are also applicable to online bingo offered via television. If the license holder does not use a gambling system for offering online bingo via television, the requirements shall be interpreted in the sense that "gambling system" also covers a license holder's manual procedures. This means that the license holder does not necessarily need to have a system, which automatically handles the requirements, but the license holder must have procedures in place to support the requirement and shall continuously document that the procedures are followed.

# Frequency and testing organisations

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## 2.1    Certification frequency

The licence holder is responsible to ensure to be certified in accordance with the requirements in this document with an interval of maximum of 12 months.

### 2.1.1    Initial certification

The licence holder must be certified before a licence to offer games can be issued unless the Danish Gambling Authority has informed otherwise. See section 2.1.3 in the general requirements for further information.

### 2.1.2    Renewed test

The licence holder must, as a rule, have completed a new test within 12 months of the latest test. The standard report must reflect when the test has been renewed.

The standard report, which documents the renewed test, must be in the Danish Gambling Authority's possession no later than two months after the test was done.

A renewal of the test may be based on sampling, spot checks and compliance with the requirements set out in the document "SCP06.00.DK - Change Management Programme".

### 2.1.3    Postponement of renewed test

The licence holder can choose to postpone the test up to two months from the time where a new test should have been completed. The new test must be finalised no later than 14 months after the latest test and the standard report must be submitted to The Danish Gambling Authority within the same deadline.

The Danish Gambling Authority must be notified before the test is postponed.

The deadline for renewal of the test is shortened with the equally amount of time the former 12-month deadline has been postponed. Meaning that if you for instance make use of the maximum two months postponement, then the next test is due 10 months later. The time for the next test shall be reflected in the standard report.

The option to postpone the test only applies to the licence holder. This means that the option does not apply to any suppliers the licence holder may have.

## 2.2    Accredited testing organisations

To ensure that the necessary qualifications are in place during the certification the testing organisation and their staff shall fulfil the requirements in this section.

### 2.2.1    Requirements for accredited testing organisations

Testing of online casino shall be conducted as accredited testing by a lab, who is accredited after ISO/IEC 17025 or ISO/IEC 17065 referring to Spillemyndighedens Certification Programme SCP.01.03.DK. Accreditation shall be done by DANAK (the Danish Accreditation Fund) or a similar accreditation body, who is co-signer of EA's (European co-operation for Accreditation) multilateral agreement on reciprocal recognition regarding testing, or for labs

outside EA's jurisdiction, by an accreditation body, who is co-signer of ILAC's (the International Laboratory Accreditation Cooperation) multilateral agreement on reciprocal recognition regarding testing.

Documentation for the accreditation shall be enclosed with the certification. Alternatively, a link to the accreditation can be provided in the certification report.

### 2.2.2    Requirements for personnel who performs testing

The certification work shall be carried out by staff with sufficient qualifications cf. section 6 in ISO/IEC 17025 or ISO/IEC 17065, which means that the accredited testing organisation shall hire sufficiently qualified, competent, and experienced personnel.

### 2.2.3    Requirements for personnel who supervise testing and attest the certification report

Testing shall be supervised, and the certification report shall be attested by one or more persons who warrant(s) that the work has been carried out to professional standards. These persons shall meet the following requirements:

a.  For testing of the Random Number Generator, the supervisor shall have a relevant master's or PhD degree or in other ways be able to prove relevant qualifications and have at least five years of professional experience in testing gambling systems.
b.  For testing of other gambling functions, the supervisor shall have a relevant educational background or in other ways be able to prove relevant qualifications and have five years of professional experience in testing gambling systems.

See section 2.2 of the General Requirements for further information.

# Requirements for testing of gambling functionality

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## 3.1   RNG Requirements

### 3.1.1   Random Number Generator suitability for generating results and other functionalities

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| 1 | The generation of results in games with an element of chance shall be based on a certified Random Number Generator (RNG) and related functionality (seeding, mapping, shuffling, etc.). |
| 2 | Functionality with an element of chance but not used for generating results shall be based on a certified Random Number Generator (RNG) and related functionality (seeding, mapping, shuffling, etc.).<br><br>Guidance: E.g., this could be a player's assignment of seat at the poker table in a poker tournament or the generation of bingo cards for online bingo. |
| 3 | The RNG shall be generally recognised as being a cryptographically strong source for drawing random numbers. |
| 4 | The RNG output shall pass one of the following statistical tests:<br><br>• The DIEHARDER test suite<br>• The NIST (National Institute of Standards and Technology) Statistical Test Suite, or<br>• A similar test suite of the same level.<br><br>The tests shall be conducted on a data set, which the accredited testing organisation considers to be sufficient for securing statistical valid results. |

### 3.1.2   Use of RNG-output

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| 1 | When RNG output is received, for example, when a game requests the RNG for a series of case numbers, the output must be used in the order it is received.<br><br>Guidance: RNG output must not be overridden due to "adaptive behavior", which prohibits automatic or manual intervention, which changes the probability of a given result while the game is being played. |
| 2 | The gambling system must ensure that there is traceability between RNG extracts and the event in the game.<br><br>Guidance: The licence holder shall be able to verify that the results of the RNG are the same as those found in the gambling system after the event. |
| 3 | If the rules of the game require a sequence or mapping of units or events to be set up in advance (e.g. location of hidden objects within a labyrinth), it is not permitted to assign a new sequence or new mapping to the units or events unless this is stated in the rules. |
| 4 | Random outcomes that decide games shall not be affected or controlled by anything else than number values produced in an approved manner by the verified RNG combined with the rules of the game.<br><br>Guidance: This does not exclude permissibility of games which temporarily change character while they are ongoing, or jackpots decided by anything else than simple game results.<br><br>Guidance: This means, for example, that the history of the game or player must not affect the probabilities of the game if it is not disclosed to the player. |

### 3.1.3   Error control procedures

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| 1 | In case of errors on the RNG output, including missing output, the RNG must be deactivated.<br><br>Guidance: It is possible to switch to a backup RNG, provided that it complies with the requirements set for the RNG in this document. |

### 3.1.4   Seeding

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| 1 | The gambling system shall secure the RNG output by applying an appropriate and efficient method for seeding and re- |

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| | seeding. |

### 3.1.5  Security

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| 1 | RNG output must be secured until used.<br><br>Guidance: RNG output must not be transmitted unencrypted between RNG server and game server. |
| 2 | RNG output which is mapped and scaled for a symbol or an event shall be applied immediately and in accordance with the game rules.<br><br>Guidance: This does not prevent games which temporarily change character while ongoing from being played in accordance with the game rules of these games. This does not prevent the visual presentation of the drawn numbers in a bingo game from being delayed, or that more RNG output has been drawn than the game needs. |

## 3.2   Gambling functionality

### 3.2.1  General

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| 1 | Games shall be independent of the characteristics of the customer's equipment and/or communication channel.<br><br>Guidance: The game logic must thus be executed in the gambling system and not on the player's equipment, which i.a. means that the gaming system may not use information about the customer or customers' equipment. |
| 2 | The gambling system shall ensure at least 3 seconds elapse between each settlement of a given game.<br><br>Guidance: Settlement must be understood as the entire process from the game is started until the result is presented to the customer, for example from the spin is pressed on a slot machine to the presentation of the result.<br><br>Guidance: When using "auto play" functionality, at least 3 seconds must elapse between each presentation of the result. |
| 3 | When conducting online bingo, the gambling system shall ensure at least 3 seconds elapse between the draw and/or visual presentation of each number/symbol.<br><br>Guidance: If numbers/symbols are drawn continuously in connection with the execution of the game, this must be done at least 3 seconds apart.<br><br>Guidance: If the numbers/symbols are drawn before the start of the game, the visual presentation of each number/symbol to the players must take place at least 3 seconds apart. |

### 3.2.2  Games without stakes

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| 1 | Games without stakes (free games, fun games, trial games, etc.) must be run by an RNG that is certified according to the requirements of this document and has the same game logic as when the game is played with stakes.<br><br>Guidance: Games without bets must not give the impression that the probability of winning is bigger than it actually is in games with stakes. |

### 3.2.3  Accurate representation of chance

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| 1 | All game events shall be presented correctly.<br><br>Guidance: Concepts such as "near-miss" are not regarded to be fair in this connection. |
| 2 | Games shall give a fair impression of whether a customer is able to affect the outcome.<br><br>Guidance: Games which give the customers the impression that they have control over the outcome of the game when |

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| | they do not are not permitted. |
| 3 | The gambling system shall ensure that all games which are being presented as being based on random outcomes actually have the same likely chance of producing a given combination each time the game is played.

Guidance: This probability must be the one the player is immediately impressed with in the user interface (e.g. by the visual expression). The exception to this is if it is also clear from the user interface that the player must look elsewhere for the real probabilities.

Guidance: The games must not adapt to the player's behavior, unless, for example, there is a specific choice in the game, which is part of the game logic and which is presented in the game rules. |
| 4 | Games which involve the simulation of a physical object (roulette wheels, playing cards, etc.) shall provide true and fair outcomes in accordance with expectations to this physical object.

Guidance: If a game is presented as a direct or indirect simulation of a physical object, the simulation shall be identical with the expected behaviour of the physical object. |

### 3.2.4   Return to player

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| 1 | The theoretical return to player, which is stated in the game rules, must be correct. |
| 2 | The return to player must not be manipulated by the system.
Guidance: Thus, no intervention must be made to maintain a constant return to player percentage. This does not prevent the presentation of the game from adapting based on specific choices made by the player cf. req. 3.2.3.2 and 3.2.3.3 |

## 3.3   Jackpots

### 3.3.1   General

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| 1 | The gambling system shall ensure that the actual funds transferred to a jackpot correspond to what is stated in the rules governing the jackpot in question.

Guidance: If there is a maximum amount on a jackpot, all further contributions after this maximum has been reached shall be credited to another pool. |
| 2 | The gambling system shall ensure that the return to player corresponds to what the customer has been led to expect, irrespective of the game unit stake. |
| 3 | If a minimum stake is required for a customer to trigger a jackpot, the basic game (excluding Jackpot) shall have the stated return to player. |
| 4 | The gambling system shall ensure that all customers who contribute to a jackpot have a chance of winning the jackpot while playing the game in question. |
| 5 | The gambling system shall ensure that the likely chance of winning the jackpot is linearly proportional to the customer's contribution to the jackpot. |

## 3.4   Live casino

### 3.4.1   Gambling equipment

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| 1 | The probability of winning on the individual numbers on the roulette wheel must be equal |
| 2 | Roulette wheels used exclusively for live casino must be certified with an interval of a maximum of 1 year.

Roulette wheels used from a physical land-based casino must be certified with an interval of a maximum of 2 years.

Guidance: The testing company assesses which tests are sufficient to ensure the probability, cf. 3.4.1.1. It is possible to transfer previously performed inspections, cf. requirement 2.3 in SCP.00.00 - General requirements. |

| 3 | The card shuffler must be designed so that it can eradicate any pattern (s) introduced for the playing cards before they are placed in the shuffle that will affect the outcome of the next game. |
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| 4 | It must not be possible to disturb or interrupt the operation of the card mixer (except when the power is interrupted) without it being detected. |
| 5 | During normal operation, the card shuffler must be able to shuffle and deliver the playing cards without leaving marks or damage to the cards, enabling the player to identify specific cards. |
| 6 | The card shuffler must not provide information to the player that makes it possible to:<br>• Predict the outcome of a game.<br>• Track the played cards and the cards to be played.<br>• Analyses the probability of an occurrence in the game.<br>• Analyses the strategy for the given game situation. |
| 7 | There must be mechanisms and controls in place that prevent tampering with any card inserted in the card shoe. |
| 8 | The card shoe must be designed to facilitate the dealing of the cards without revealing the value of the cards. |
| 9 | The card shoe must have a cover that hides the back of the cards in the shoe.<br>The back of the cards must be visible to the extent that it allows distribution from the shoe. |
| 10 | The card shoe must not leave any marks on the cards that may allow you to predict the outcome of a game. |
| 11 | The card shoe must not contain hidden spaces.<br><br>Guidance: This could be a hidden space for storing extra cards, which is considered a security risk. |