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**Games — General requirements for
equipment and software used in gaming
activities**

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 572 was prepared by Technical Committee RSB/TC 21, *IT and multimedia*.

In the preparation of this standard, reference was made to the following standard:

Victorian Appendix to the Australian/New Zealand Gaming Machine National Standard, Version 10.0, 2008

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on *IT and multimedia* (RSB/TC 21) in the preparation of this standard.

Cheza Rwanda Games (CRG)

Continuity Group Ltd

Fortebet Rwanda

Lucid East Africa Ltd

Ministry of ICT and Innovation (MINICT)

Ministry of Trade and Industry (MINICOM)

National Bank of Rwanda (NBR)

National Council for Sciences and Technology (NCST)

New Oriental Casino

Rwanda Civil Aviation Authority (RCAA)

Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA)

Rwanda Utilities and Regulatory Authority (RURA)

University of Rwanda, College of Sciences and Technology, African Center of Excellence in the Internet of Things (UR, CST/ACEIoT)

Rwanda Standards Board (RSB) – Secretariat

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Introduction

The gaming industry was introduced in Rwanda in 2004 as a “Sports and Cultural Lottery” to support sports and cultural activities. The gaming industry in Rwanda was previously regulated by Rwanda Gaming Corporation Registered since October 2005. After enactment of law No 58/2011 of 31/12/2011 which governs gaming activities in Rwanda, Ministry of Trade and Industry was assigned the responsibility of monitoring and regulating the gaming sector and Rwanda Standards Board(RSB) was assigned to develop the standard related to games and gambling.

The gaming industry categories in Rwanda include, but are not limited to, the following:

- a) lottery;
- b) slot machines;
- c) casinos;
- d) sport betting; and
- e) internet (online) gaming.

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Games — General requirements for equipment and software used in gaming activities

1 Scope

This Draft Rwanda Standard specifies general requirements for equipment and software used in gaming activities and the environment in which these activities are conducted.

This standard applies to all types of gaming machines manufactured or imported into Rwanda as well as software.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

RS ISO/IEC 27001, *Information security, cybersecurity and privacy protection — Information security management systems — Requirements*

RS ISO 9001, *Quality management systems — Requirements*

ISO 32110, *Transaction assurance in E-commerce — Vocabulary*

3 Terms and definitions

For the purposes of this standard, the following terms and definitions given in ISO 32110 and the following apply.

3.1

gaming

any game played with cards, dices, tickets, equipment or any mechanical, electronic or electromechanical device or machine for money, property, checks, credit or credit card or any representative of value

3.2

gaming licence

certificate issued by a competent organ to authorize the engagement in gaming activities

3.3

regulatory authority

licensing authority of gaming and gaming industry as a regulatory authority

3.4

lottery

drawing of lots in which prizes are distributed to the winners among persons buying a chance or a situation whose success or outcome is governed by chance

3.5

player

individual who plays or participates in gaming activities

3.6

business

organization that produces or sells goods or services in order to make a profit

3.7

gaming operator

business entity that conducts gaming activities

3.8

user

visitor or registered individual or organization that uses services of gaming

3.9

player satisfaction

player perception of the degree to which the service provider has fulfilled the customer's requirements and expectations

Note 1 to entry: Complaints are a common indicator of low player satisfaction, but their absence does not necessarily imply high customer satisfaction.

Note 2 to entry: Even when player requirements have been agreed with the customer and fulfilled, this does not necessarily ensure a high customer satisfaction.

3.10

game monitor

approved video monitor or monitor(s) that were originally submitted with a gaming device prototype certification including approved modifications. A gaming device may have more than one game monitor.

3.11

gambling

placing something of value (typically money) at risk on an event with an element of chance in the outcome, with the potential to win a substantially larger prize

Note 1 to entry: Gambling also refers to participating in legal, state-sanctioned wagering.

Note 2 to entry: to gamble also refers to playing games of chance for money; betting.

4 Symbols (and abbreviated terms)

RAM: Random Access Memory

CMCS: Central Monitoring and Control System

LCD: Liquid Cristal Display

EPROMs: Erasable Programmable Read-Only Memory

ESD/EMI: Electrostatic Discharge/Electromagnetic Interference

PID: Player Information Display

RNGs: random numbers generators

AML: Anti Money-laundering

5 Hardware requirements

5.1 Logistic area

5.1.1 Determination of logistic area

If the logic area consists of a unit with no door as such, and if the entire unit can be removed and accessed, the security requirements for logic doors extend to logic units (that is, removal of unit is equivalent to opening the door).

5.1.2 Cabinet interference

Gaming equipment shall not be adversely affected by electromagnetic emitting devices commonly used including, but not limited to mobile phones and walkie talkies, and test shall be conducted using these devices immediately outside the cabinet.

5.1.3 Memory requirements

5.1.3.1 RAM: if applicable, batteries used for the purpose of backing-up Random Access Memory (RAM) shall be secured in a manner so that they cannot be easily disconnected;

5.1.3.2 Hard meters: If the Central Monitoring and Control System (CMCS) that monitors a gaming machine does not frequently gather and record the gaming machine's meter information, the authority in charge requires that gaming machines shall be installed with hard meters;

5.1.3.3 Types of hard metres: hard Meters may be implemented in gaming machines in either of two forms:

- a) an electro-mechanical meter;
- b) an electronic increment meter. The metre can only increment. Metre incrementing can only be performed by the gaming machine's computer. The metre shall be readable by human inspection (e.g. via an LCD display) and may be read by the gaming machine's computer. The logic and power source of an electronic increment meter shall be able to maintain and display the contents of its memory (metres) for a period of at least five (10) years after external power is disconnected from the device.

5.1.4 Security of programme and memory

5.1.4.1 Programme or data memory residing in a gaming machine shall not be able to be replaced or modified unless the methodology is secure and has been specifically approved by the regulatory authority.

5.1.4.2 Use of cleaning EPROMs or similar devices that write to memory is not permitted, unless the staff from regulatory authority has evaluated the source code of these devices and has established confidence in the associated controls to ensure that only approved devices are used in the field.

NOTE You can use the ISO/IEC 27001 controls as guide.

5.1.5 Circuit boards

5.1.5.1 Switches and jumpers

The normal mode for switches and jumpers (if it exists) shall be clearly marked on (or immediately adjacent) to device, and if there is no room for such marking, the regulatory authority requires that a diagram be easily visible somewhere within or on the logical area cabinet of the gaming machine.

5.1.5.2 Power supply and safety requirements

Where a gaming machine cabinet contains more than one power switch, each switch shall clearly identify which unit it applies to.

5.1.5.2.1 Power storage

The gaming operator shall install power storage batteries to back up for minimum 2 hours after power outage within the premise.

5.1.5.2.2 Power surge protection

The organization shall install power surge protection system on the premise by taking into consideration the following:

- a) a gaming device shall not present a mechanical, electrical or fire hazard when used in its intended mode of operation;
- b) a gaming device shall have proper grounding;
- c) power surge protection system shall be provided to protect the entire electrical/electronic installation; and
- d) the power supply used in a gaming device shall be designed to minimize leakage current in the event of inadvertent disconnection of the AC power ground.

5.1.6 Cash inputs systems

5.1.6.1 Coin validation

5.1.6.1 If a coin acceptor uses “reference coins” as a part of its validation process, the reference coins shall be securely sealed in the acceptor and any adjustment or calibration devices (e.g. potentiometers) shall be provided with an appropriate cover that will leave evidence of access of alterations occur after the device is calibrated.

5.1.6.2 A coin validator shall include a mechanism (referred to as “lockout”) which prevents the inputs of any coins, or alternatively rejects all coins entered, during periods when the gaming machine is inoperable for any reason.

5.1.6.3 Programmable devices used to program programmable coin validators are to be regarded as high risk components and may only be released to the gaming operator, casino operator or its maintenance group.

NOTE In addition to the Coin Validators; Bill Acceptors, Keys, Tickets and Player Card Systems shall be considered to be used on cash input system.

5.1.7 Cash output systems

5.1.7.1 Coin hopper

There is no mandatory requirement for a hopper cover in Casino.

5.1.7.2 Cash boxes

5.1.7.2.1 The cash box shall be isolated to a locked area (equipped with an electronic door access detection device) separate from the other locked areas of the gaming machine.

5.1.7.2.2 The coins can be replaced with tokens with the approval of regulatory authority, and the regulatory authority shall ensure that the token used are tested and complying with the applicable standards on tokens.

5.1.7.2.3 The token used by gaming operator shall be unique from a gaming operator to another.

NOTE In addition to the cash boxes and coin hoppers, keys, tickets and player card systems are considered to be used on cash output system.

5.2 Marking requirements

Each gaming machine shall have an identification sticker or marking of a resilient material permanently affixed to the exterior of the cabinet by the manufacturer which must not be easily removable, without leaving evidence of tampering. The following information shall be displayed on a gaming device:

- a) the manufacturer's name, address;
- b) country of origin;
- c) brand name/trademark;
- d) a unique serial number;
- e) the gaming machine model;
- f) date of manufacture;
- g) warranty;

h) electrical ratings.

6 Software requirements

6.1 Source code

6.1.1 Relevant software or application sources code for gaming machines shall be examined by a regulatory authority in charge.

6.1.2 The complying certificate shall be provided where applicable and determined by the regulatory authority including pre-releases.

6.2 Source compilation

The authority shall compile/assemble/link all version of software. these shall be compared for an exact match with the officially release software. The supplier is to describe the type of computer computer(s) necessary to perform the creation of the software and is to supply all compilers, assemblers, cross reference tools, linkers, etc. necessary to complete this task. for any software approval, if a method of comparing the source programs and the executable to be tested does not exist at the scheduled time of commencement of formal testing, the testing process shall not be commenced by the regulatory authority.

6.3 Source control and update

The gaming operator shall provide new versions of software updates with version control system to the regulatory authority. And the regulatory authority shall determine what qualifies as minor/major update before the new release is installed.

6.4 Software functions provided

All implemented functions shall operate according to the certified design, all messages displayed shall be true and accurate and the software shall be free of unlimited side effects.

6.5 System security

6.5.1 De-activation when a logic area has been accessed

When a gaming device determines that a restricted area has been accessed, the device is to deactivate itself until appropriate investigations are conducted, at which time the device may only be re-activated by a method approved by the regulatory authority.

6.5.2 Tampering, adjustment or manipulation of equipment

In order to prevent illegal tampering or itch, jumper or other software readable input device except for the following: manipulation that may affect game play (or outcome), or equipment operation, gaming machines shall not have any functions or parameters adjustable by or through any separate computer, input codes, application of ESD/EMI, dip sw

- a) the adjustment of features that are wholly cosmetic (i.e. that do not affect functionality in any manner);
- b) the down loading in an authorized manner of any software, data or operational parameter;
- c) the replacement of a reference coin for comparison purposes in a coin validation device;
- d) an approved configuration (set-up) mode;
- e) other operational parameters as approved by the regulatory authority.

6.5.3 Access to restrict features

Access to the following restricted features of gaming machines shall be regulated by at least a key operated switch, audit card, access to the inside of the machine cabinet, or other method to be approved by the regulatory authority:

- a) auditing Information; and
- b) metering Information.

6.5.4 Software signature checking

6.5.4.1 All memory crucial to the operation of the gaming machine (game application software, communications, operating systems, etc.) shall be included in the software signature check. Non critical memory (such as graphics) may be excluded.

6.5.4.2 No background signature checks are permitted.

6.5.4.3 The entire contents of a memory device shall be included in the software signature check if it has stored in it software crucial to the operation of the gaming machine.

6.5.5 Setup-gaming device configuration

6.5.5.1 A gaming bet option may be enabled or disabled in Audit Mode when applicable.

6.5.5.2 If memory becomes corrupted, a gaming device shall not assume default values and recommence gaming operation unless the assumed values have been configured by mechanism approved by the regulatory authority.

6.5.6 Coin diverter

The regulatory authority shall not approve where applicable any gaming machine without a hopper if the only method of routing coins to the drop box is "software diversion".

6.5.7 Coin hopper

In addition to accounting procedures used by software to determine the level of a hopper, if a hopper full sensor is provided, software shall also interpret that sensor output to determine if a hopper is full.

6.6 Credit redemption

6.6.1 Cash out while de-activated

The authority where applicable requires that players who have a non-zero credit balance when de-activation occurs should be given the option to “cash-out” their balance. In the situation where the deactivation may last for a lengthy period of time, if there is enough of the system available at subsidiary points to enable a safe and accurate pay, this may be performed.

6.6.2 Small credit values

The following requirements apply to redemption of small credit values less than the minimum legal coin value:

- a) it is not permitted for the gaming machine to round the odd credits down to zero or up to the minimum legal coin value;
- b) all appropriate gaming machine meter updates shall reflect “un-rounded” amounts;
- c) permissible methods for handling of such small credit values are:
 - 1) elimination of small credit values with an approved ‘Residual Credit Removal Play’ feature as described in that section;
 - 2) allow a cash ticket or cancel credit to include the amount of less than the specified value and to round up or round down the amount when the ticket or credit receipt is redeemed. If this implementation is adopted the “rounding” is not to be carried out by the CMCS unless it is accounted for by the CMCS in the cashier float reconciliation.

6.6.3 Cash clearance procedures

The gaming machine shall display the appropriate meter information. The accounting information must be available both for the entire period of operation of the gaming machine (since the last Memory Reset) and since the last Cash (Coin or Note) Clearance.

6.6.4 Central control versus stand-alone operation

6.6.4.1 Stand-alone gaming machines not permitted

Installed gaming machine shall at all times, while in operational mode (where valid game play is possible), be in on-line communication with the CMCS.

6.6.4.2 **Downloadable parameter not permitted**

A downloadable parameter to control whether stand-alone operation may occur shall not be permitted in this regard.

6.6.4.3 **Game details sheets**

It is not/a requirement in Rwanda that Game Detail Sheets be certified by a tester.

6.6.4.4 **Substantial wins**

Substantial wins shall cause the gaming machine to enter a lock-up mode until external intervention, e.g. attendant key or after system software verification by the central monitoring and control system followed by a "game enabled" command.

6.6.4.5 **Credit redemption**

Available credits may be collected from the gaming machine by the patron pressing the "COLLECT" button at any time other than:

- a) during a play;
- b) while in Audit mode;
- c) while any door open condition exists;
- d) while in Test mode;
- e) while the player's Credit Meter or Total Wins Metre is incrementing;
- f) while the game is in Player Information Display (PID) mode.

6.6.4.6 **Game fairness objectives**

Based on the requirements mentioned above in this standard, however such games may be acceptable where the issue of illusion of control is explicitly addressed via approved artwork, approved decals or other approved means.

6.6.4.7 **Last play information required**

The total number of external bonus/jackpot credits paid directly to the credit meter as a result of the last play and obvious to the player (e.g. where the credit metre has been incremented).

6.6.4.8 Non-fault gaming machine events (where substantial win occurs)

Under “Cleared By” Column change “Cleared by an attendant” to “Cleared by an attendant or other approved means such as the central monitoring and control system software verification followed by a “game enabled” command.”

7 Game design requirements

7.1 Stand-alone progressive game return

7.1 Where a stand-alone progressive prize is offered, it shall be implemented such that the “start-up value increment rate” of the progressive ensures that the 87 % minimum return is realized.

7.2 When transferring progressive prizes to the player’s credit meter, any residual amount less than the base credit value not transferred to the player’s credit meter shall be incorporated into the next progressive prize.

7.2 Random prize

A game may offer random prizes provided that there is an equal likelihood of obtaining a random prize on each play of a game.

7.3 Large win prize truncation

In no circumstances shall a large win have its prize amount truncated or limited due to constraints of a game rule, gaming machine’s memory storage, screen display, artwork or any other such reason. If there are possible prizes that may exceed a programme limit or constraint, the prize table and/or maximum wagers for a game shall be structured such that the highest win cannot exceed this limit. Permitted exceptions are respin/free games which provide a possible infinite prize but where the probability of this occurrence is infinitesimal.

7.4 Artwork requirements

For each game submitted, a legible, color copy or digital image of all game artwork shall be submitted.

7.5 Banknote acceptance devices requirement

7.5.1 Master metres

Banknote device master meters are required on the gaming machine, but they are not required to be sent to the CMCS.

7.6 Submission requirements

The equipment that is submitted for testing shall be of a production standard model and shall be in “normal operation” during test, including running software in communication with a CMCS or approved simulator (where the equipment employs some form of data communications).

7.7 Responsible gaming requirements

7.7.1 The gaming operators shall be responsible to features like self-exclusion programs, and age verification.

7.7.2 The gaming /operators shall provide the potential risks of gaming to the authority in charge.

7.8 Regulatory compliance

Gaming operators shall often subject to regulations set by by the competent authority, and these regulations shall cover issues like licensing, fair play, anti-money laundering and other gaming measures;

7.9 Fair play and randomness

Online casinos and gaming platforms shall use certified random numbers generators (RNGs) acceptable by the regulatory authority to ensure the fairness of games;

The third-party testing and certification by independent organization shall be a common practice and recognized by the regulatory authority.

7.10 Data security

Given the sensitive nature of financial transactions and personal information involved in gaming, the gaming operators shall comply with the requirements of standards related to data security, data protection laws and the use of encryption technology;

NOTE More information regarding the information security can be found in RS ISO/IEC 27001.

7.11 Advertising and marketing

The gaming operators shall comply with advertising and marketing policies and regulation set by the competent authority to prevent misleading promotions and protect vulnerable individuals.

NOTE The competent authority shall develop advertising policies and regulation that govern the gaming sector in the country.

7.12 Customer support

7.12.1 The gaming operators shall offer an adequate support to customers, that includes providing clear information about the terms and conditions of the game

7.12.2 The gaming operators shall offer support for the gaming problem, and ensuring the timely responses to customer request for enhancing the customer satisfaction.

NOTE Customer support can be offered to the game player before and after the game where applicable.

7.13 Payment processing

The gaming operators shall comply with available rules, regulations and standards related to financial transactions set by the competent authority. They include secure payment methods, transparency terms for deposits and withdrawals, and adherence to anti-fraud measures.

7.14 Anti-money laundering (AML) measures

The gaming operators shall implement AML measures to prevent their platforms from being used for money laundering activities such as identity verifications, reporting suspicious transactions and others that are applicable.

NOTE This can be guided by competent authority

7.15 Technical responsibility

The gaming operators shall ensure the confidentiality, integrity and availability of software and hardware used in gaming activities.

NOTE RS ISO/IEC 27001 provides more details.

7.16 Social responsibility

The gaming operators shall contribute to social responsibility initiatives such as funding program for addiction prevention and treatment.

NOTE Component authority shall set the social responsibility framework guidelines to be followed by operators.

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