



**TECHNICAL STANDARDS
FOR
EGM–BASED
COMMUNITY GAMING
(SINGAPORE)**

Version 1.2

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Preface

The purpose of this document is to establish the requirements for the design and operation of any gaming equipment used for EGM-based community gaming within the Singapore jurisdiction and to guide testing and certification bodies on the areas for their technical compliance.

EGM-based community gaming (hereinafter known as “community gaming”) refers to a gaming activity whereby a group of connected gaming machines collaborates or competes among themselves in a gaming event, of which the outcome is shared by these gaming machines.

The intent of this document is to ensure that community gaming occurs in a manner that is:-

- a. Honest;
- b. Secure;
- c. Reliable; and
- d. Auditable.

It is not the intent of this document to:-

- a. Mandate a single solution or method to realise an objective;
- b. Limit technology application to gaming equipment;
- c. Limit creativity and variety of choice;
- d. Limit any manufacturer of equipment; and
- e. Preclude research and development into new technologies or innovative ideas.

As far as possible, this document specifies what the minimum technical requirements for gaming equipment used for community gaming are instead of how these standards should be met, and does not mandate a particular solution or method as the means to realise these standards.

The Gambling Regulatory Authority of Singapore (the “Authority”) is the regulatory authority that supervises and regulates the activities of casinos in Singapore. Casino operators are required to be licensed by law and the gaming equipment deployed on the casino floor must comply with these technical standards as part of their licensing requirements.

Where applicable, the provisions in the Casino Control Act 2006 and its subsidiary legislation shall take precedence over these technical standards. In the event of any inconsistency, the provisions in the Casino Control Act 2006 and its subsidiary legislations shall apply.

This document would be reviewed on an ongoing basis to take into account the evolution of technologies utilised in gaming equipment used for community gaming and the development of other casino related technologies that may require technical regulation.

Technical Standards for EGM-based Community Games (Singapore)

Comments on this document can be forwarded to:-

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1. INTRODUCTION

1.1 Purpose

1.1.1 The purpose of this document is to:-

- a. Create a set of technical standards that would ensure that the operation of gaming equipment used for community gaming in casinos in Singapore is secure, reliable, auditable and operated appropriately;
- b. Establish the minimum integrity standards for gaming equipment used for community gaming;
- c. Construct a set of technical standards that are technology neutral wherever feasible; and
- d. Construct a set of technical standards that do not specify or approve any particular method or algorithm. The intent being to allow a wide range of methods to be used to conform to the standards as long as the methods are secure, reliable and consistent with the best practices of the day for the relevant technologies.

1.2 Scope

- 1.2.1 The scope of this set of technical standards covers the minimum standards required in the operation of gaming equipment used for community gaming so that security, reliability and integrity of gaming equipment are achieved.
- 1.2.2 This set of technical standards should be read in conjunction with the Technical Standards for Electronic Gaming Machines (Singapore) and the Technical Standards for Progressives (Singapore) as similar requirements will be imposed on the gaming equipment used for community gaming, where applicable.

1.3 Terminology

1.3.1 The following terminology used in this document is to be interpreted as follows:-

- a. Shall: The guideline defined is a mandatory requirement, and therefore must be complied with;
- b. Should: The guideline defined is a recommended requirement. Non-compliance shall be documented and approved by the Authority. Where appropriate, compensating controls shall be implemented; and
- c. May: The guideline defined is an optional requirement. The implementation of this guideline is determined by the operator's environmental requirements.

1.4 Definition of Terms

<i>Term</i>	<i>Definition</i>
The Authority/ GRA	Gambling Regulatory Authority of Singapore.
Community Bonus	A gaming event of which its outcome is shared by a group of gaming machines.
Community Gaming	A gaming activity whereby a group of gaming machines collaborates and competes among themselves in a community bonus.
Community Gaming Controller	A device that manages community gaming, acting as a master for triggering community bonuses and determining the bonuses' outcomes for a group of gaming machines. The device may be in the form of a central server or a gaming machine.

1.5 Testing

- 1.5.1 Testing of gaming equipment used in community gaming by Approved Test Service Providers (ATSPs) shall be aimed at determining compliance with these technical standards. Areas of non-compliance shall be reported in the test/certification report. Where, in the opinion of the ATSP, these technical requirements spelt out in this document are insufficient, inappropriate or not pertinent to the design of the subject equipment, the ATSP shall seek direction and further clarification from the Authority before proceeding to testing/certification.

1.6 Consistency of Interpretation

- 1.6.1 The Authority recognises that the technical standards may be subject to different interpretations by manufacturers, casino operators and ATSPs. As such, any feedback where different interpretations may be applied to the technical standards provided in this document should be directed to the Authority for clarification when it arises.

2. COMMUNITY GAMING MACHINES

2.1 Applicability of EGM Standards

- 2.1.1 Gaming machines participating in community gaming shall comply with the requirements stipulated in the Technical Standards for Electronic Gaming Machines (Singapore) (EGM Standards).

3. COMMUNITY GAMING CONTROLLER

3.1 Physical Access

- 3.1.1 If the community gaming controller is in the form of a gaming machine, it shall satisfy clauses 2.1.2 to 2.1.6 under “Cabinet Security” and “Logic Area” of the Technical Standards for Electronic Gaming Machines (Singapore). If the community gaming controller is in the form of a central server, it shall be housed in a secure environment allowing only authorised access via a secured login mechanism.

3.2 Random Number Generator

- 3.2.1 Any Random Number Generator used shall meet the requirements stipulated in Section 3.4 of the Technical Standards for Electronic Gaming Machines (Singapore).

3.3 Program Interruption and Resumption

Program Interruption

- 3.3.1 After a program interruption (e.g., power down), the community gaming controller shall be able to recover to the state it was in immediately prior to the interruption occurring.

Program Resumption

- 3.3.2 On program resumption, the following procedures shall be performed at the minimum:-
- Communications to any external devices shall not begin until the program resumption routine, including self-tests, is completed successfully; and
 - Community gaming controller shall test themselves for possible corruption of program or critical memory using a robust and proven mechanism.

3.4 Independent Software Verification

- 3.4.1 The community gaming controller shall allow for an independent integrity check of the control program from an outside source. This may be accomplished by the medium being able to be removed and authenticated by an external device, or having an interface port for an external device to authenticate the media. This integrity check mechanism shall provide the means for field testing of the community gaming controller software for identification and validation purposes.

4. ERROR CONDITIONS

4.1 Community Gaming Controller Error

- 4.1.1 When an error had occurred on the community gaming controller, all gaming machines in the group shall be disabled and a clear and unambiguous error message that explains the stop of the game play shall be displayed on these gaming machines and the overhead display (if applicable).

4.2 Gaming Machine Error

- 4.2.1 When an error had occurred on an eligible gaming machine during the community bonus, all gaming machines in the group shall be disabled.
- 4.2.2 A clear and unambiguous message that explains the stop of the game play shall be displayed on any gaming machine which is disabled as a result of an error.
- 4.2.3 Errors mentioned herein shall include any communication errors between the community gaming controller and the gaming machines.

5. EVENTS AND GAME HISTORY

5.1 Logging of Game History

- 5.1.1 Outcomes of the community bonus shall either be logged on the community gaming controller or on each gaming machine. Each gaming machine shall be capable of accessing their individual community bonus replays during a log review.

Technical Standards for EGM-based Community Games (Singapore)

- 5.1.2 Last Game Recall information of at least the latest ten (10) community bonuses shall be logged and be available for replay. This requirement is in addition to clause 3.7.3 of the Technical Standards for Electronic Gaming Machines (Singapore).

5.2 Logging of Events

- 5.2.1 Events encountered within the community gaming controller shall be logged on the community gaming controller.
- 5.2.2 Community gaming controller events affecting a gaming machine shall be logged on the impacted gaming machine.

6. COMMUNICATION PROTOCOL

- 6.1.1 There shall be a secured, two-way communication protocol between the gaming machines and the community gaming controller.

7. PROGRESSIVE-STYLE COMMUNITY BONUS

- 7.1.1 The requirements stipulated in the Technical Standards for Progressives (Singapore) must be complied with, wherever applicable.