



Tasmanian Liquor and Gaming Commission

Fully Automated Table Game Technical Standards

1 July 2023



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Tasmanian Liquor and Gaming Commission 2023

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Preliminary

The Fully Automated Table Game Technical Standards are made in accordance with section 112PA of the *Gaming Control Act 1993* (the Act) and apply to the conduct of gaming and gaming activities. A prescribed licence holder and its employees must adhere to and enforce these Standards. Failure to comply may result in disciplinary action against the prescribed licence holder.

A term used in these Standards has the same meaning as the same term used in the Act. A reference in these Standards to 'wagering' means a 'gaming activity' under the Act. For the avoidance of doubt, a reference to an 'employee of the licence holder' includes the licence holder's agent or, where the licence holder is a natural person, itself.

These Standards are in addition to the conditions imposed on each licence by the Tasmanian Liquor and Gaming Commission and any other requirement under the Act.

Fully Automated Table Game Technical Standards

I. Introduction

I.1 Authority

- I.1.1. These standards are authorised and issued by the Tasmanian Liquor and Gaming Commission under section 112PA of the *Gaming Control Act 1993*.
- I.1.2. In these standards, the term casino operator refers to a general casino licence holder, as defined in the Act.
- I.1.3. Fully automated table game (FATG) equipment used by a casino operator must be approved by the Commission in accordance with the Act.
- I.1.4. The requirements specified in these standards are supplementary and in addition to, any of the requirements of the Act or any regulations made under the Act.

I.2 Definitions

- I.2.1. For the purposes of these standards, a FATG is an electronic game system or gaming equipment that allows one or more persons to play a game that:
 - a) Imitates a type of game played at a casino table game; and
 - b) Can be played:
 - i. From one or more terminals; and
 - ii. Without being conducted by a casino employee.
- I.2.2. For the purposes of these standards, a FATG machine refers to a player terminal on which a FATG game is accessible for play.
- I.2.3. For the purposes of these standards, a FATG machine may be designed to either:
 - a) Incorporate all the functions and requirements specified for a FATG machine in these standards (i.e. perform terminal and control functions); or
 - b) Operate in a 'terminal-only' or 'slave' mode where any of the following functions are facilitated through continuous connection to a FATG machine or a dedicated FATG controller:
 - i. Enabling a FATG machine and FATG game(s) to operate;
 - ii. Maintaining required meters;
 - iii. generating a random number for a FATG game;
 - iv. Detecting and generating events; and
 - v. Optionally, providing a video or data stream for external display devices.
- I.2.4. A FATG machine must be able to perform control functions of one or more connections to other FATG machines and a FATG controller.

- I.2.5. A FATG game must not be operated unless the rules of the game are approved by the Commission.
- I.2.6. A FATG controller is a device that connects to one or more FATG machines for any of the following purposes:
 - a) Enabling FATG machines and FATG games to operate;
 - b) Maintaining required meters;
 - c) Generating a random number for a FATG game;
 - d) Detecting and generating events; and
 - e) Providing a video or data stream for external display devices.

I.3 Objective

- I.3.1. The objective of these standards is to require that FATG machines and FATG games, are designed to enable:
 - a) The integrity of hardware, software, interfaces and networks used by FATG equipment and other connected gaming equipment;
 - b) The security and integrity of transactions between FATG equipment and other connected gaming equipment;
 - c) The accurate monitoring, recording and reporting of FATG information gathered by connected gaming equipment;
 - d) Only approved FATG equipment are available for play in Tasmanian casinos;
 - e) The correct calculation and reporting of gross profit;
 - f) The correct awarding of player entitlements; and
 - g) Minimise any potential for harm to players.
- I.3.2. These standards do not set out the content of internal controls or administrative and accounting procedures of a casino operator. However, it is expected that such controls and procedures will address requirements outlined in these standards.
- I.3.3. These standards set out FATG requirements but do not seek to prescribe system implementation methods or use of specific technology to enable compliance with these standards.
- I.3.4. It is not the intent of these standards to unreasonably restrain the design, innovation, and application of technologies of any FATG machine or FATG game.
- I.3.5. These standards are not intended to create an advantage or disadvantage to any supplier or manufacturer.

I.4 Scope and Purpose

- I.4.1. These standards describe the Commission's minimum technical requirements for FATG machines and FATG games to be used by a casino operator in Tasmania.
- I.4.2. These standards will be used by an ATF to independently test FATG machines and games, including any changes, and certify FATG machine and game compliance with these standards.
- I.4.3. These standards will be used by the Commission to evaluate submissions for approval for FATG machines and FATG games.

- I.4.4. Compliance with these standards does not exempt a casino operator, manufacturer or supplier from compliance with other laws (e.g. laws relating to privacy, consumer protection, prohibited content, copyright, electrical safety and electronic cash transactions).
- I.4.5. Future updates to these standards do not automatically require modification to FATG machines and games approved and operating at that time, unless specifically required by the Commission.

I.5 Potential for Dispensations

- I.5.1. Matters arising from the testing of a FATG machine or FATG game that have not been addressed in these standards will be resolved at the sole discretion of the Commission as part of the approval process.
- I.5.2. At the sole discretion of the Commission, components of a FATG machine or FATG game which do not fully comply with all the requirements of these standards, may be considered for approval provided that components operate in a manner that is suitable in respect of fairness, security, integrity, and consumer protection.

I.6 Equipment Statutory Testing and Certification

- I.6.1. A casino operator must only operate FATG machines and FATG games that are compliant with prevailing statutory and applicable EMI, EMC, electrostatic interference, and safety standards administered by relevant regulatory bodies through international and/or Australia/New Zealand or local standards.

I.7 Associated Documentation

- I.7.1. Suppliers, and developers should familiarise themselves with the following documents and their respective impact on the design and functionality of their FATG machine or FATG game:
 - a) *Gaming Control Act 1993*
 - b) Australian/New Zealand Gaming Machine National Standard
 - c) Tasmanian Appendix to the Australian/New Zealand Gaming Machine National Standard
 - d) QCOM Gaming Machine Communication Protocol and other QCOM Technical Standards
 - e) TLGC Gaming Machine Electronic Monitoring System Technical Standards
 - f) TLGC Card Based Gaming Systems Technical Standards
 - g) TLGC Linked Jackpot Equipment Technical Standards
 - h) TLGC Responsible Gambling Mandatory Code of Practice
 - i) TLGC Gaming Equipment Security, Verification, Seal and Passcode Control Standards
 - j) TLGC Gaming Equipment Transport, Storage, Installation and Disposal Standards

2. Consumer Protection

2.1 General

- 2.1.1. FATG machines and FATG games must operate with integrity and must be fair, secure and auditable.
- 2.1.2. FATG games must not present to players features that could expose players to potential harmful gambling behaviours.

Specific Measures to Minimise Harm

- 2.1.3. FATG machine games must:
 - a) Only be played in a venue with a general casino licence;
 - b) Imitate approved casino table games;
 - c) Operate in accordance with approved game rules;
 - d) Not give the player a false expectation of chances of winning;
 - e) Accurately display the result of a game outcome;
 - f) Provide clear game rules and instructions;
 - g) Not provide false information;
 - h) Not be misleading, illusory, or deceptive (such as a near miss design);
 - i) Provide sufficient information to facilitate informed choice;
 - j) Provide outcomes which are not dependent upon previous outcomes or favour one player over another (except if excluded elsewhere in these standards);
 - k) Not encourage the player to continue playing or increase the amount bet per play;
 - l) Not offer automatic play;
 - m) Not permit concurrent game play at a single FATG machine
 - Note:** this does not prohibit player selection of other games on a FATG machine, however bets must not be able to be placed on different FATG game until play has been completed for the current game).
 - n) Not alter or modify the presentation of mapped game outcomes, except in cases of animation during a play or as a part of the game rules;
 - o) Be able to be interfaced with a card based pre-commitment system.
- 2.1.4. Secondary gamble features are not permitted on FATG machine games
 - Note:** this requirement does not prohibit the operation of insurance and side bets approved under FATG game rules.
- 2.1.5. The current time in Tasmania in 12-hour format (hh:mm AM/PM) must be clearly and accurately displayed on the game screen of a FATG machine.

3. FATG Machine

3.1 Physical Security

- 3.1.1. FATG machines must be manufactured of materials that are suitable for allowing only authorised access to the inside of the cabinet (i.e. doors and their associated hinges shall be capable of withstanding determined illegal efforts to gain access to the inside of the FATG machine and leave evidence of tampering if an illegal entry is made). Accessible areas of a cabinet must not have the potential to cause injury. The door of a locked area must be designed to resist the entry of objects.
- 3.1.2. External door and logic door access sensors must be installed on FATG machines to detect all door openings and closings and the FATG machine software must record these events (with the exception of areas which have access to lighting only). These events must be recorded by FATG machine software when the mains power is in an “on” or “off” state and recorded event information must be retained when the mains power is off for at least 14 days. If an external or a logic door is opened more than once while mains power is off, the FATG machine only requires to record opening and closing events as a single entry (*See Table 2: FATG machine Door Open/Close Definitions*).
- 3.1.3. Access to a locked area must not be possible from another locked area without causing undue damage to the FATG machine.
- 3.1.4. It must not be possible to insert a device into the FATG machine that will permit external manipulation of any aspect of the FATG machine when the cabinet door is shut, without leaving evidence of tampering.
- 3.1.5. Liquid spills applied to the outside of a FATG machine must not affect the integrity of the gaming equipment or information stored inside the cabinet or affect the safety of patrons or staff operating the equipment.
- 3.1.6. If a door access detection system is disconnected, the FATG machine must interpret this action as the door being opened.
- 3.1.7. It must not be possible to access a FATG machine’s CPU data bus, address bus or CPU control lines without gaining access to the logic area.
- 3.1.8. A FATG machine logic area must be able to be sealed.
- 3.1.9. Electronic components / items that must be housed in one or more FATG machine logic areas are:
 - a) CPUs and other equipment involved in the operation of FATG machine software (e.g. game controller electronics, and components housing the FATG game software set or FATG firmware program storage media);
 - b) equipment involved in the operation and calculation of FATG game result determination;
 - c) equipment involved in the operation of FATG game display and components housing display program storage media (passive display equipment exempted);
 - d) communication controller electronics and components housing the communication program storage media;
 - e) interfaces and drivers for metering systems;
 - f) all devices that affect the game play function of the FATG machine.

3.2 Access to the Inside of a FATG Machine

- 3.2.1. FATG machine software must be able to detect access to the following doors or secure areas of a FATG machine:
 - a) External door(s);
 - b) Logic area door(s); and
 - c) Banknote acceptor doors.
- 3.2.2. Access to banknote acceptor components and banknote storage areas must be secured via separate key locks. Both are to be fitted with 'door open/close' sensors.
- 3.2.3. Power and data cables of a FATG machine must not be accessible to the general public.

3.3 Physical Integrity

Simultaneous Inputs

- 3.3.1. A FATG machine and its software must not be adversely affected by the simultaneous or sequential activation of various inputs.

External Mechanism Affecting Operation

- 3.3.2. A FATG machine must have no external mechanism (such as dual in-line package switches, IP-switches, and jumpers) that can affect the operation of a FATG game.

3.4 Interference

- 3.4.1. FATG machines and associated equipment within a FATG machine must comply with relevant and applicable electromagnetic compatibility standards.

Electronic Magnetic Compatibility

- 3.4.2. FATG machines must not be affected in any way by the application of Radio Frequency Inference (RFI) at a frequency range from 27MHz to 1000MHz with a field strength of three volts per metre, as specified in AS/NZS 61000-4-3 or any other equivalent international standard.

Electrostatic Interference

- 3.4.3. A FATG machine's conductive cabinet must be earthed so that static discharge energy shall not damage or inhibit the normal operation of the electronics or other components of the FATG machine.
- 3.4.4. FATG machines must not be affected by human body electrostatic discharges.
- 3.4.5. Submissions for approval for a FATG machine must pass the following tests using testing methodology as defined by AS/NZS 61000-4-2 or any other equivalent international standard:
 - a) An electrostatic interference test that results in total protection following an air discharge of $\pm 15\text{kV}$ and a contact discharge of $\pm 7.5\text{kV}$; and
 - b) A temporary disruption test that results in full recovery from significant discharges, with the discharges being an air discharge of $\pm 25\text{kV}$ and a contact discharge of $\pm 10.0\text{kV}$.
- 3.4.6. FATG machines may exhibit temporary disruption when subjected to a significant electrostatic discharge greater than a human body, but they must exhibit a capacity to recover and complete any interrupted play without loss or corruption of any control or data information associated with the FATG machine.

Printer

- 3.4.7. If a FATG machine is equipped with a printer:
- a) The printer must be located in a locked area of that FATG machine (e.g. inside the main door) but must not be located in the logic area.
 - b) The FATG machine may have a paper low or paper out sensor, or both.
 - c) The FATG machine with a paper sensor must display a “paper low” message upon detection of paper being low and must lock-up and display a “paper out” message upon detection of “paper out” conditions.

3.5 Information Displays

Video Monitors

- 3.5.1. Where adjustment mechanisms for a video display unit are provided for use by non-technical personnel, they must:
- a) Be clearly labelled;
 - b) Not require the use of a tool of any kind; and
 - c) Be accompanied by detailed instructions in the operator’s manual.

Game Screen Meters

- 3.5.2. Player entitlement meters (including credit, bet and win meters) must be displayed on the game screen in a format which is clearly visible to the player and easily distinguishable.
- 3.5.3. Each player entitlement meter (credit, bet and win) must be displayed in dollars and cents.

Credit Meter Display

- 3.5.4. The credit meter must always be prominently displayed on a FATG machine screen in all modes, except audit, configuration, and test modes.

Hidden Touch Points

- 3.5.5. There must be no hidden buttons/touch points on a FATG machine screen, except as provided for by the game rules or where the game outcome or game integrity cannot be impacted accidentally.
- 3.5.6. All buttons or touch points, regardless of whether they are hidden, must be documented.

3.6 Banknote/Ticket Input System

General

- 3.6.1. A FATG machine with a banknote input system must correctly increment the FATG credit meter after the validation and acceptance of:
- a) Valid Australian currency banknotes; and/or
 - b) Tickets/vouchers issued by a ticket management system approved by the Commission.
- 3.6.2. Banknotes and tickets must be validated by a banknote acceptor device (e.g. receptacle).
- 3.6.3. Validated banknotes accepted by a FATG must be held securely in a banknote storage area in the FATG.

Banknote acceptor security

- 3.6.4. If a FATG machine includes a banknote input system, that system must be constructed in a manner that protects against vandalism, abuse, or fraudulent activity. FATG machine banknote input systems must have the ability to:
- Prevent manipulation by the insertion of foreign objects into the banknote/voucher input system;
 - Deliver a banknote or voucher to the banknote storage area (e.g. receptacle); and
 - Prevent disabling any banknote/voucher validation features.
- 3.6.5. FATG machines must not have banknote dispensers.
- 3.6.6. A banknote storage area must be attached to a FATG machine in such a manner so that it cannot be easily removed by physical force.
- 3.6.7. A banknote storage area must be internally located within the FATG machine (i.e. not attached to the outside of the FATG machine).
- 3.6.8. A banknote acceptor device must be implemented with a means to enable or disable particular value banknotes.
- 3.6.9. The procedure for setting acceptable banknote values must be via a command from an EMS or access to a secure area of the FATG machine.
- 3.6.10. Banknote acceptors are to be factory set only and it must not be possible to access or conduct maintenance or adjustments in the field, other than:
- The selection of banknotes and limits, as defined in section 3.6.9; or
 - The changing of approved PSDs or the downloading of approved software.
- 3.6.11. The adjustment of the tolerance level for accepting banknotes of varying quality, or the alteration of any of the possible checking procedures, is prohibited. If a banknote reader has multiple tolerance levels, the reader must be set to the highest tolerance level.

Banknote Acceptor Signature Requirements

- 3.6.12. A FATG machine must provide a means for banknote/voucher acceptor software to be verified by a secure signature checking method.
- 3.6.13. If the banknote acceptor signature requirement is to be met by a self-checking method, evidence must be provided by the banknote acceptor supplier that the self-check is performed at start up, and details of the checks performed.

Banknote Acceptor Self-Test

- 3.6.14. The banknote acceptor device must perform a self-test at each power up. In the event of a self-test failure, the banknote acceptor must automatically disable itself and enter banknote reject state until the error state has been cleared.

Banknote Acceptor Disabled on High Credit Balance

- 3.6.15. FATG machine software must incorporate a facility which will automatically disable the banknote acceptor once the credit balance of the FATG machine exceeds [BKNTLIM], expressed in dollars.
- 3.6.16. This limit is to be displayed to the patron in the following format, or similar:
“Notes not accepted if credits over \$x are registered”.

3.7 Credit Input from Player Account

- 3.7.1. The credit meter of a FATG machine may be incremented from a player account by a cashless transfer system approved by the Commission.
- 3.7.2. FATG machine software must incorporate a facility which will automatically disable transfers from a player account once the credit balance of the FATG machine exceeds [MAXCASHLESSIN], expressed in dollars.
- 3.7.3. Where a player attempts a cashless transfer to a FATG machine that exceeds [MAXCASHLESSIN], the FATG must display a message indicating the amount to be transferred exceeds the permitted maximum amount.

3.8 Credit Redemption

- 3.8.1. The process of redeeming credits from the credit meter on a FATG machine is initiated by pressing a "COLLECT" button, or other method approved by the Commission (e.g. automated transfer to a player cashless account after removal of a player account card).
- 3.8.2. Acceptable credit redemption methods include:
 - a) Issuance of a ticket out voucher using a ticket management system approved by the Commission;
 - b) Transfer to a player account using a cashless transfer system approved by the Commission; or
 - c) Payment by cancel credit hand pay.
- 3.8.3. Barcodes on tickets must provide error checking capacity so that 99.9 per cent of all misreads on a FATG machine are able to be identified as an error.

Credit redemption limits

- 3.8.4. If a FATG machine is connected to an approved ticket management system, a ticket out must not be permitted if the credit meter value exceeds [MAXTICKET].
- 3.8.5. If a FATG machine is connected to an approved cashless transfer system, a cashless transfer out from a FATG must not be permitted if the credit meter value exceeds [MAXCASHLESSOUT].

3.9 Cancel Credit Hand Pay

- 3.9.1. Upon the following conditions, if "COLLECT" is pressed on a FATG machine with a non-zero credit balance, the FATG machine must automatically lock-up and enter a cancel credit hand pay condition:
 - a) The credit meter value exceeds [CRECANLIM];
 - b) The credit meter value exceeds [MAXTICKET] when a ticket out is expected; or
 - c) The credit meter value exceeds [MAXCASHLESSOUT] when a cashless out transfer is expected.
- 3.9.2. In a cancel credit hand pay condition, a FATG must remain in its lock-up state until the credits have been cancelled by external intervention or otherwise paid, or the player selects an option to exit from the credit redemption lock-up state (if such an option exists).

Display requirements following cancel credit

- 3.9.3. If a cancel credit is made after the completion of the last play, the FATG machine must display, until the start of the next play, the metered value of the credits cancelled, in dollars and cents, using the format "CANCEL \$#,###.##".

- 3.9.4. If more than one cancel credit is made after the completion of the last play or ticket pay, the FATG machine must display, until the start of the next play, the metered value of the last credits cancelled, in dollars and cents, and the total of all credits cancelled since the last play, in dollars and cents, using the format "CANCEL \$#,###.## (TOTAL PAID \$#,###.##)".

Display requirements following ticket pay

- 3.9.5. If a ticket out is made after the completion of the last play, the FATG machine must display, until the start of the next play, the metered value of the ticket pay, in dollars and cents, using the format "TICKET PAY \$#,###.##".
- 3.9.6. If more than one ticket out is made after the completion of the last play, or if a ticket pay is made after a cancel credit, the FATG machine must display, until the start of the next play, the metered value of the last ticket out, in dollars and cents, and the total of all credits cancelled and tickets since the last play, in dollars and cents, using the format "TICKET PAY \$#,###.## (TOTAL PAID \$#,###.##)".

3.10 FATG Machine Software Resumption after Restart

- 3.10.1. If FATG machine software is resumed after a restart, the following procedures must be performed:
- Communications to any external device must not begin until the FATG program resumption routine is completed successfully; and
 - All control programs and critical memory have been checked and cleared for corruption.
- 3.10.2. FATG software must be able to detect any change in any FATG machine program from when the FATG machine was last powered down or interrupted. If a change has been detected, the FATG machine must lock-up, displaying an appropriate message until the lock up is cleared by an approved method.

3.11 Events and Conditions

Audible Alarm

- 3.11.1. A suitable audible alarm in the FATG machine must be provided for effectively signalling any of the error or security features required by the relevant software standard.
- 3.11.2. A technique must be provided to enable authorised personnel to adjust the volume level (without the need to enter the logic area). However, the volume must not be set below a level so that an alarm is unable to be heard by a person standing within a three metre radius of a FATG (volume controls secured in a logic area are exempted).

Action on Occurrence of a Condition or Fault Event

- 3.11.3. Events listed in Table 1: FATG Machine Faults and Remedial Actions (if applicable) and Table 2: FATG Machine Door Open/Close Definitions must cause a clearly displayed message that an event has occurred and, unless otherwise indicated, must also result in the following:
- All player inputs must be disabled, except for a service button and any inputs required for audit mode. This includes disabling credit input;
 - An identifiable alarm must be sounded for at least 1.5 seconds;
 - Game play must be saved in its current incomplete condition. The FATG game must be paused immediately;

- d) Cash out of any kind is to be disabled except in the event of a banknote jam/full or ticket printer failure/paper error/External peripheral controller fault,
- e) Credit input must be disabled (may be re-enabled for the duration of a credit input test).

Action on Clearance of a Condition or Fault Event

3.11.4. The following actions must be performed upon clearing of a condition or fault event:

- a) The relevant condition or fault event messages must be removed;
- b) Any relevant player inputs must be re-enabled;
- c) The alarm must be turned off;
- d) Any game play when the fault event occurred must recommence from the beginning of the play or from the point at which the interruption occurred and conclude normally, using the data that was saved previously; and
- e) If the condition was a door open, a message is to be displayed until the next game play stating that the door(s) has been closed.

Faults to be treated as Events

3.11.5. The following table defines faults that are to be treated as events, together with the remedial action to be taken to clear the event.

Note: where a FATG machine does not support certain peripherals (such as a note input system), then events related to such peripherals are not required for that FATG machine.

Table 1: FATG Machine Faults and Remedial Actions (if applicable)

Fault	Condition	Remedial Action
Excessive meter increment.	A master meter has increased by more than the increment threshold since the end of the previous play.	Attendant intervention required for condition to be cleared (e.g. key activation).
External peripheral controller fault /disconnect	Any peripheral controller fault or communications failure (e.g. a progressive display controller).	Technician intervention required for condition to be cleared.
Printer paper low (if applicable)	The printer paper will soon be exhausted.	Paper low condition to be cleared by replacement of paper (paper low signal removed) or positive attendant intervention (e.g. key activation).
Printer paper out	The printer paper has been exhausted.	Paper out condition to be cleared by replacement of paper (paper out signal removed) and positive attendant intervention (e.g. door open/closed).

Fault	Condition	Remedial Action
Printer jammed	The printer paper is not feeding correctly.	Paper jam condition to be cleared by clearance of a jam (paper jam signal removed) and positive attendant intervention (e.g. door open/closed).
Printer failure	Software detects that the printer has not been able to correctly print a ticket.	Technician intervention required for condition to be cleared.
Printer disconnected	Software detects that the printer has been disconnected.	Technician intervention required for condition to be cleared.
Low RAM back-up battery	Back-up RAM battery has reached a voltage where back-up will become unreliable soon.	Technician intervention required for condition to be cleared.
Critical RAM errors, mismatch	A critical RAM error has occurred.	Full RAM clear by technician for condition to be cleared.
Low memory	The FATG machine has detected that it is running low on memory and cannot continue operation.	Technician to clear condition if recovery possible with no loss of critical memory, otherwise a full RAM clear is required.
PSD error	The software has failed its own internal security check.	Full RAM clear or replacement of PSD by technician.
Banknote acceptors	Banknote access or storage area door opened/closed.	Attendant intervention required for condition to be cleared.
	Banknote receptacle removed/replaced if the banknote storage area uses a receptacle.	Attendant intervention required for condition to be cleared.
	Banknote jams.	Attendant intervention required for condition to be cleared.
	Banknote yo-yo if a yo-yo is physically possible.	Attendant intervention required for condition to be cleared.
	Excessive banknote rejects (indicating that an attack may be happening on the FATG machine). Excessive is defined to be ten (10) consecutive rejects (the count may be reset on power-up).	Attendant intervention required for condition to be cleared.

Fault	Condition	Remedial Action
	Banknote acceptor cable disconnected.	Technician intervention required for condition to be cleared.
	Banknote acceptor receptacle full.	Attendant intervention required for condition to be cleared.

Table 2: FATG Machine Door Open/Close Definitions

Event:	Definition:
FATG machine door open.	The main cabinet door (as defined by the manufacturer) has opened.
Logic area door open.	The main CPU door has opened.
Banknote acceptor door open.	The banknote acceptor door has been opened.
Banknote stacker door open.	The banknote acceptor stacker door has been opened.
Other external door open.	Any other secure area has been accessed (e.g. belly door, top box door areas).
FATG machine door closed.	The main cabinet door (as defined by the manufacturer) has closed.
Banknote acceptor door closed.	The banknote acceptor door has been closed.
Banknote stacker door closed.	The banknote acceptor stacker door has been closed.
Logic area door closed.	The main CPU door has closed.

3.11.6. The following table lists the non-fault FATG events that must be reported to the user and the respective procedures must be performed:

Table 3: Non-fault FATG Machine Events

Fault:	Description:	Remedial Action:
FATG machine power off	The FATG machine has been powered off.	Cleared automatically by FATG machine power on.
FATG machine power on	The FATG machine has been powered on.	No remedial action required.
Substantial win	Any prize equalling or exceeding the substantial win amount [LARGEWIN].	Attendant intervention required for condition to be cleared.

3.12 Notification of Faults

- 3.12.1. To assist with service and fault diagnosis, the nature and location of any fault must be displayed by a message in English (if possible, this message is not to be abbreviated).

3.13 Data Retention

- 3.13.1. Non-volatile memory must be capable of reliably preserving its memory contents for at least 90 days when there is no mains power to the FATG machine.
- 3.13.2. Non-volatile memory must be checked for integrity at least every 24 hours or provide for another method of memory checking that enables the integrity of memory to be maintained.

3.14 Hashing Algorithm

- 3.14.1. A FATG machine or FATG controller must act upon an external command (system generated or manually by operator) to conduct a verification of all program memory, firmware or PSD that influences the operation of that FATG machine or FATG controller or influences the outcome of a FATG game.
- 3.14.2. A FATG machine or FATG controller must implement a variable signature hashing algorithm with externally provided initiating parameters.
- 3.14.3. Hashing algorithms must be of an equivalent standard to that required by the Australian/New Zealand Gaming Machine National Standard, unless a certificate from an ATF is supplied, under 3.14.5.
- 3.14.4. Hashing algorithms that use primitive techniques, such as parity or simple checksum byte, must not be used.
- 3.14.5. Hashing algorithms that do not meet the requirements of the Australian/New Zealand Gaming Machine National Standard must be supported by a certificate from an ATF that describes its assessment of the suitability of that algorithm.

3.15 Critical Memory

- 3.15.1. Critical memory storage shall be maintained by a methodology that enables errors to be identified.

Contents of Critical Memory

- 3.15.2. Critical memory that is stored in non-volatile memory, is to store all data that is considered vital to the continued operation of the FATG machine. This includes, but is not limited to:
- a) All auditing meters;
 - b) Current credits;
 - c) FATG machine/FATG game configuration data;
 - d) Information pertaining to the last two plays (including the current play if incomplete);
 - e) Software state (the last normal state the FATG machine software was in before interruption); and
 - f) Information pertaining to the last two tickets printed.
- 3.15.3. To cater for disruptions occurring during the update process of critical memory, at any point in time during an update, there must exist sufficient information that will allow the software to fully cater for such disruptions.

Detection of Corrupted Memory

- 3.15.4. A validity check of the entire contents of a FATG machine's critical memory must be undertaken after every restart of the device, transaction of significance (e.g. banknote input, logic door closed, large win, jackpot win, door closed, parameter change or reconfiguration), at the beginning of a game play (finishing before the result of the game is determined) and after a game play.
- 3.15.5. Any failure of a validity check is to be considered either a:
- a) Recoverable memory corruption (optional) if at least one copy of critical memory is established to be good; or
 - b) Unrecoverable memory corruption.

Critical Memory Requirements

- 3.15.6. A proven, robust, and reliable mechanism must be implemented to check for any corruption of critical memory locations.

Unrecoverable Critical Memory

- 3.15.7. An unrecoverable memory corruption must result in a memory error.
- 3.15.8. The RAM must not be cleared automatically and must require a full RAM clear.

Non-critical RAM

- 3.15.9. All other RAM must be checked for corruption at each power up.

Program Execution

- 3.15.10. A FATG machine must prevent or detect unexpected or malicious changes to program code that provides functionality central to the operation of the FATG machine or game.
- 3.15.11. If unexpected or malicious changes are detected, a FATG machine must enter an unrecoverable RAM error (requiring a full RAM clear) and display an appropriate error message.
- 3.15.12. Where a FATG machine expects changes to program code, the manufacturer must submit details of the expected changes to the FATG machine tester.

Communication Error Detection

- 3.15.13. Where critical data and information relating to credits, metering information or information pertaining to a game outcome are transferred between microcontrollers, there must be error checking on the transferral so there is ongoing integrity of memory contents and status messages and events.
- 3.15.14. The check referred to in 3.15.14 must be at least a cyclic redundancy check (CRC) or the equivalent.
- 3.15.15. Communication error detection must not solely rely upon parity or simple checksum byte to perform validation of transmitted data.

Non-volatile Memory Error Detection

- 3.15.16. If a back-up memory battery has reached a low battery power condition, and the back-up of critical memory is no longer reliable, a FATG machine must immediately lock-up and a message must be displayed stating that the condition requires to be repaired.

- 3.15.17. FATG machine low memory battery lock-up conditions must not be able to be cleared by an attendant (e.g. FATG reset key engaged) until the low battery condition has been rectified.
- 3.15.18. If a FATG uses dynamically allocated memory, and low memory condition is detected, detection of this condition must occur before a total 'out of memory' error corrupts memory or causes the FATG machine to fail.
- 3.15.19. If a critical memory error mismatch occurs on a FATG machine, and the memory is not recoverable, the FATG machine must immediately lock-up and cease communication to external devices. A message must also be displayed on the FATG describing the critical error mismatch error.
- 3.15.20. Access to FATG electronic meters must remain available following critical memory mismatch errors.

3.16 Program Storage Device Integrity

- 3.16.1. The entire contents of all PSDs in the executable address space of a critical processor must be validated when:
 - a) A FATG machine CPU is reset;
 - b) Initiated via audit mode; or
 - c) Initiated by an EMS that requires software signature results.
- 3.16.2. If FATG machine fails to validate its program storage devices, the FATG machine must immediately lock-up, communication to external devices must cease immediately and an error message must be displayed.

Unused Program Memory Storage

- 3.16.3. The integrity of the operation of a FATG machine or FATG controller must be protected from malicious or accidental use of the unused portions of the program memory storage media.

3.17 Source Code Module Requirements

- 3.17.1. The following items must appear in all source code modules:
 - a) Module name;
 - b) Version number; and
 - c) Brief description of module function.

Description of key Variables

- 3.17.2. All key variable declarations must be followed by a definition of the use of the key variable.

Unused Program Memory Storage

- 3.17.3. The integrity of the operation of the device must be protected from nefarious or accidental use of the unused portions of the program memory storage media.

Closed-Source Software

- 3.17.4. Closed-source software must not provide functions that are critical to the operation of a FATG machine or game, including:
- a) Random number generation and mapping;
 - b) Critical memory;
 - c) Prize determination;
 - d) Metering;
 - e) Last play recall;
 - f) Security monitoring;
 - g) Software verification; and
 - h) Credit acceptance and redemption.

Note: This section does not apply to software contained within peripheral devices, such as a banknote acceptor, ticket printer, hard disk drives or memory card reader.

3.18 Random Access Memory Clear

- 3.18.1. A RAM clear to clear the meters and other areas of FATG electronically stored data must only be possible by:
- a) Accessing the logic area of a FATG machine; or
 - b) Using another secure method, where no logic area exists.
- 3.18.2. All memory locations intended to be cleared in relation to non-volatile memory must be fully reset by performing a RAM clear. Partial RAM clears of non-volatile memory are only permitted to occur for information that is not required to be retained.
- 3.18.3. A configuration setting that is required to be entered during setup mode immediately following a RAM clear, must not be able to be changed after a FATG machine is no longer in setup mode.

3.19 Program Storage Device Security

- 3.19.1. FATG PSDs must be protected from unauthorised modification.
- 3.19.2. If any unauthorised modification of the contents of a PSD occurs, it must be logged as an event.

3.20 Substantial Wins

- 3.20.1. Substantial wins must cause a FATG machine to enter a lock-up mode in accordance with [LARGEWIN] until external intervention occurs that requires the attendant to clear the event using an audit key or other secure method.
- 3.20.2. Substantial wins on a FATG machine must not be transferred to the credit meter and must be paid as a cancel credit hand pay.

3.21 Meters and Data

- 3.21.1. Whenever credits are staked, the number of credits staked shall be immediately subtracted from the FATG machine's credit meter.
- 3.21.2. It is permissible to update the credit meter before the completion of play if critical memory is updated when the credit meter is updated.

Binary Meters

- 3.21.3. If the metered value exceeds the highest number capable of being stored in that meter, the relevant meter must automatically roll over to "0".

Credit Meter Prize Update and Progressive Prizes

- 3.21.4. The credit meter must roll over to zero upon the next occurrence, any time the meter exceeds ten digits, after 9,999,999,999 has been reached, or any other value that is logical.

Self-Audit Error Checking

- 3.21.5. A FATG machine must perform a self-audit of the appropriate master accounting data meters to ensure that the credit balance display on a FATG game reflects the result of the sum of all inputs/events that increment the credit meter balance LESS all actions/events that decrement the credit meter.

Note: The cases of a 'meter roll-over' must be taken into account when performing a "Self-Audit" check.

- 3.21.6. A self-audit check must be performed by the FATG machine when the following events occur:
- At the start of every play; and
 - Before commencing any process that transfers any monetary value out of the FATG machine (e.g. cancel credit/ticket pay or credit transfer out).
- 3.21.7. A FATG machine must enter an unrecoverable memory corruption state in the event that a self-audit check fails.
- 3.21.8. At the end of each play on a FATG machine, the value of the following master meter must be compared to the value of the same master meters at the end of the previous play.
- | Master Meter | Increment Threshold |
|--------------|---------------------|
| BANKNOTES IN | \$500. |
| CASHLESS IN | \$500. |
- 3.21.9. If the change in the value of the master meter is greater than or equal to the increment threshold, a FATG machine must register a fault event and display the error message 'Excessive Meter Increment'. (Refer to FATG machine Fault actions in section 3.11.5).

3.22 System Clock

- 3.22.1. A FATG machine must maintain an internal clock that accurately reflects the date and time in Tasmania, which is to be used to provide for the following:
- Time stamping of significant events;
 - Reference clock for reporting; and
 - Time stamping of configuration changes.
- 3.22.2. If multiple clocks are supported, a FATG machine must be capable of maintaining and synchronizing the time for all clocks in each system component to enable correct time stamping of all events and data.
- 3.22.3. A FATG machine must have the capability for synchronizing time with an external reference clock.
- 3.22.4. A FATG machine's host clock must automatically manage the transition between standard time and daylight saving time at the prescribed date(s) and time(s) in Tasmania, without compromising the integrity or accuracy of any data collection or reporting.

3.23 Test or Diagnostic Mode

- 3.23.1. FATG test modes must not affect gaming meters (other than temporary on-screen credit meters used during the operation of the test modes).
- 3.23.2. All test modes must be clearly indicated.
- 3.23.3. Test/diagnostic mode must be entered via an appropriate instruction from an attendant or technician during audit mode access.
- 3.23.4. Opening the main cabinet door of a FATG machine must not provide automatic entry to test/diagnostic mode.
- 3.23.5. If a FATG machine is in a game test mode, the machine must clearly indicate that it is in a test mode, not play mode.
- 3.23.6. If there are any test-mode states which cannot be automatically exited, the action necessary to exit the test-mode must be indicated on the FATG machine and in the operation manuals.

3.24 Configuration

- 3.24.1. All configuration settings required for the proper operation of a FATG machine must be entered before the machine can exit setup mode.
- 3.24.2. If all configuration settings required have not been entered, a FATG machine must detect this condition and remain in setup mode.

4. FATG Machine as Terminal-only

Master FATG Machine

- 4.1.1. It is acceptable for the requirements set out in these standards to be distributed between a FATG machine which relies on a master FATG machine to fulfil some functions. For example, a FATG machine may operate as a terminal which relies on another device to operate.
- 4.1.2. The functions performed by a master FATG machine must be approved by the Commission.
- 4.1.3. All event, meter and integrity information reported to an EMS or other approved monitoring system must clearly identify the exact FATG machine which generated that data.
- 4.1.4. A master FATG machine must direct any control commands individually to each connected FATG machine.

FATG Controller

- 4.1.5. It is acceptable for a separate device to act as a master controller connected to one or more FATG machine(s) operating in terminal-only mode.
- 4.1.6. The functions performed by a FATG controller must be approved by the Commission.
- 4.1.7. All event, meter and integrity information reported by a FATG controller to an EMS or monitoring system must clearly identify the exact FATG machine which generated that data.
- 4.1.8. A FATG controller must direct any software authentication or control commands individually to each connected FATG machine.

5. FATG Games

5.1 General Display Requirements

- 5.1.1. A FATG game must clearly display the following information to a player at all times when the FATG machine is on and available for play:
- The current credit balance;
 - The current bet amount;
 - The amount won for the last completed game (until the next game starts or the betting options are changed);
 - The results of the last completed game (until the next game starts);
 - The current time of the day; and
 - If applicable, the denomination of the game being played.
- 5.1.2. FATG game information must at all times be clearly visible to the player when being played.
- 5.1.3. Each individual bet on a FATG game must be clearly indicated on the player interface so that the player is in no doubt as to which wagers have been made.
- 5.1.4. A FATG game which uses multiple decks of cards must inform the player to the number of card decks in play.

5.2 Game Fairness

Simulation of real events of chance

- 5.2.1. A FATG's probability of each possible game outcome must equal the probability of that outcome in the same table game.

Card Games

- 5.2.2. Cards must be drawn fairly from a randomly shuffled pack, consisting of the full set of cards applicable to the game depicted.
- 5.2.3. Cards, once removed from the pack, must not be returned to the pack, except as provided by the rules of the game depicted.
- 5.2.4. The pack must not be reshuffled, except as provided by the rules of the game depicted.
- 5.2.5. As cards are removed from the pack, they must be immediately used as directed by the approved rules of the game (i.e. cards must not be discarded due to adaptive behaviour by a FATG game).

Ball drawing games

- 5.2.6. Balls must be drawn fairly from a randomly mixed barrel, consisting of the full set of balls applicable to the game depicted.
- 5.2.7. Balls, once removed from the barrel, must not be returned to the barrel, except as provided by the rules of the game depicted.
- 5.2.8. The barrel must not be re-mixed, except as provided by the rules of the game depicted.

Wheel spinning, dice rolling, coin tossing games

- 5.2.9. For each wheel/dice/coin depicted, the probability of any one face appearing must be as for the actual physical device (e.g. 1/20 for a 20 faced wheel; 1/6 for a 6 faced dice; 1/2 for a coin).

- 5.2.10. The behaviour of each wheel/dice/coin must be independent and uncorrelated with all other wheels/dice/coins.
- 5.2.11. The behaviour of each wheel/dice/coin must be independent and uncorrelated with its previous behaviour.

5.3 Game Result

- 5.3.1. There must be sufficient information displayed on a FATG machine to allow a player to determine the correctness of prizes awarded.
- 5.3.2. The display of the result of a game outcome must not be misleading or deceptive to a player.

5.4 Paytable

- 5.4.1. All game rules and payout for a FATG game must not deviate from the corresponding game rules approved by the Commission.
- 5.4.2. A FATG game must provide a means of displaying the rules of the game, game outline and collection schedule, and the prize that will be paid to the player when the player obtains a specific win.
- 5.4.3. A FATG game video display shall clearly indicate whether awards are designated in denominational units, currency, or some other unit, as provided for in approved rules of the game.
- 5.4.4. All payable information for a FATG game must be able to be presented to the player, prior to the player placing to a bet.

5.5 Artwork

- 5.5.1. All statements on the artwork must be true.
- 5.5.2. Written messages displayed must be both grammatically and syntactically correct in the language.
- 5.5.3. If a language other than English is available, a player must be able to toggle between the other language and English.
- 5.5.4. The default language used to display the messages must be English.
- 5.5.5. The message "Malfunction Voids All Pays and Play", or its equivalent, must be displayed on each FATG game.
- 5.5.6. FATG game instructions must be clearly visible, or the means of displaying such instructions must be readily available to a player, prior to the placing of a bet, as well as when the FATG game is waiting for player input.
- 5.5.7. FATG game instructions on the artwork must be easily interpreted, not be ambiguous, and be sufficient to explain all the game rules.

5.6 Multiple FATG Games

- 5.6.1. On a multi-game FATG machine, players may select a game to play from a given number of FATG games.
- 5.6.2. Available FATG game options must be clearly displayed to a player.
- 5.6.3. A player must be able to review the information on all the FATG games available for play, without the need to place a wager.
- 5.6.4. A FATG machine must unambiguously indicate the FATG game being selected for play, once a player makes a selection.

- 5.6.5. A FATG machine must display any residual credit left when a player has uneven credits left on a FATG machine.
- 5.6.6. When a game is selected from the game selection screen, a FATG game selected must default to the game's minimum bet.
- 5.6.7. Wagers must not be accepted on a FATG game unless a player has placed them on the FATG machine.
- 5.6.8. A new FATG game must not be started before the current FATG game is completed and all relevant meters have been updated (including features and other options of the game).
- 5.6.9. The set of FATG games available to a player for selection, or the payable, must only be changed by an approved method.
- 5.6.10. No changes to the set of games offered on a FATG machine to a player for selection (or to the payable) are permitted while there are credits on the player's credit meter, or while a game is in progress.

5.7 Mandatory Credit Return

- 5.7.1. A FATG game must reject and return the credits wagered by a player if the credits bet is less than the minimum bet value for the selected bet option (e.g. a roulette game that has different minimum bet values for different bet types).

6. Auditability

6.1 General

- 6.1.1. A FATG machine must provide on-screen audit functionality to facilitate inspection.
- 6.1.2. Access to the audit functionality of a FATG machine must be restricted by audit key or other secure method, to prevent unauthorised access.

6.2 Identification

- 6.2.1. A FATG machine must have a manufacturer's identification plate permanently affixed to the exterior of the cabinet displaying the following information:
 - a) The manufacturer;
 - b) A unique serial number;
 - c) The model number; and
 - d) The date of manufacture.
- 6.2.2. The identification plate must be located such that it can be easily read.
- 6.2.3. The revision level of the printed circuit board must be identifiable.
- 6.2.4. If track cuts and/or patch wires are added to the printed circuit board, a new revision must be assigned to the assembly.
- 6.2.5. All PSDs must be clearly labelled with sufficient information to identify the software and revision level of the software stored within the PSDs.
- 6.2.6. All physical artwork must be clearly identified by a unique part number and the name or logo of the manufacturer.
- 6.2.7. All PSDs in the executable space of a critical processor must be socketed to enable external verifications.

6.3 Game Play Information

- 6.3.1. A FATG machine must be designed to store complete information about the previous games played to allow those games to be redisplayed as they were originally presented.
- 6.3.2. The FATG machine must store and re-display complete information about the previous games played to allow the following to be determined:
 - a) The conditions that existed at the start of play;
 - b) The betting options selected by the player;
 - c) Any decisions or selections made by the player during the play;
 - d) Any winnings during the play;
 - e) The final outcome of the play;
 - f) The acceptance of any tickets or banknotes;
 - g) The payment of any tickets; and
 - h) The value of all master meters at the end of the play.
- 6.3.3. The last game information that is re-displayed in FATG audit mode must either display the residual credit removal play result or contain sufficient information (e.g. updated meters) to derive the result.
- 6.3.4. The re-display of previous games must be such the game can be paused and resumed at any time, in order to examine the information provided.

6.4 Last Play Recall

- 6.4.1. On return to normal game play mode, a FATG machine is to restore all previous on-screen information, as displayed before access to the last play information.

Number of Last Plays Required

- 6.4.2. Information on at least the last ten plays must be retrievable on the operation of a suitable external key-switch, entry of an audit card or other approved method.

Last Play Information Required

- 6.4.3. Last play information must provide all information required to fully reconstruct the last play. All values must be displayed, even if they are zero. The display of the last play must contain the following information:
 - a) FATG game result (e.g. wheels in final resting position, card values, balls drawn or other form of game result);
 - b) Total number of dollars and cents on the credit meter at the start of play (less dollars and cents bet);
 - c) Total number of dollars and cents on the credit meter at the end of play;
 - d) The total number of dollars and cents bet, including chosen betting options (available or deductible);
 - e) The total number of dollars and cents won associated with the prize resulting from the last play, or the value in dollars and cents for progressive prizes;
 - f) The total number of dollars and cents added (separated into coins, banknotes, tickets, and cashless) since the end of the previous play and through to the end of the last play;

- g) The total number of dollars and cents collected (separated into tickets and cashless) since the end of the previous play and through to the end of the last play;
- h) The total value cancelled (in dollars and cents) since the end of the previous play and through to the end of the last play (dollars and cents added or collected after the last play will be recorded on the completion of the next play);
- i) Any player choices involved in the play outcome, including lines selected, units wagered, cards held, balls selected; and
- j) The value of all standard meters as at the end of the last play.

Note: Specific meters that are not being used or applicable, may be excluded from last play information displays.

- 6.4.4. Events after the completion of the last play, such as, inserting money to add credits or collecting credits do not form a part of last play display requirements. However, it is permissible for the display of additional information provided game outcomes relating to the completion of the last play remain correct.

Game Sequences

- 6.4.5. If a FATG game provides free game sequences or any other feature whereby games are played automatically (i.e. without player control), the last play recall function must also meet the following additional requirements:
- a) Store results of all games in a feature or free game sequence associated with the primary game; and
 - b) Where two or more features or free game sequences occur and are contained in the last game recall audit function, only the most recent feature or free game sequence must be stored, in accordance with (a).
- 6.4.6. In all cases for a feature or free game sequence, the initial trigger game and final game must be available for display.
- 6.4.7. The replay of game sequences (e.g. free games, feature games) must allow each game in the sequence to be examined.
- 6.4.8. Progression to the replay of the next game in the game sequence must require external input using button presses or touch screen inputs. The replay function may provide a 'pause' input to allow the replay to be suspended between games of a game sequence.

6.5 Audit Mode

- 6.5.1. Audit Mode must include, as a minimum, the following requirements:
- a) Display of all electronic meter information;
 - b) Last play recall;
 - c) Display of terminal identification;
 - d) Display of software/game identification;
 - e) Display of game configuration; and
 - f) On-screen hashing algorithm signature results.

- 6.5.2. A FATG machine's audit functionality must provide for:
- The input and display of a signature key;
 - The on-screen display of an identifier for each PSD;
 - The on-screen display of the HMAC-SHA 1 or HMAC-SHA256 signatures for each PSD for the signature key entered; and
 - The on-screen display of the master result.

Manual Signature Key Entry

- 6.5.3. A FATG machine must allow the manual entry of a signature key for the hashing algorithm.
- 6.5.4. Signature key entry must be via an interface provided by the FATG gaming equipment and there must be an on-screen legend displayed.
- 6.5.5. The default signature key is hexadecimal 00.
- 6.5.6. Signature key entry must be:
- In hexadecimal characters;
 - Up to 40 characters in length for HMAC-SHA 1 or 64 characters in length for HMAC-SHA 256 algorithms;
 - Entered with least significant bytes first; and
 - Formatted for display with a space between every four characters.

Master Result (for Gaming Equipment with multiple PSDs)

- 6.5.7. For a FATG machine with multiple physical or logical PSDs, the master result is a result from individual signature results of each physical/logical PSD in the gaming equipment that are 'exclusive-OR'ed' (XOR) together.

Display of PSD Hashing Algorithm Signature Results

- 6.5.8. A FATG machine must display the PSD descriptions, signature key and hashing algorithm signature results.
- 6.5.9. The display must be able to be paused indefinitely in order to verify the displayed data.
- 6.5.10. Regardless of the algorithm implemented, the signature key and hashing algorithm signature results must be displayed in hexadecimal characters, using a format that is all uppercase or lowercase with a space between every four characters. For example, for HMAC-SHA 1:

Signature key:	897A 8000 BA1B 4EF8 E686 BA1B
PSD Description	HMAC-SHA256 Hex signature result
Master Result:	51D8 4BC4 D987 5C0C 5E5A 6EA3
System PSD 1:	4AC0 0219 38EF 3586 8760 61F7
System PSD 2:	A324 7733 73FD 1C84 5112 047E
Game PSD 1:	8031 7D54 864C FDE6 308A 0F87
Game PSD 2:	720F EFA7 C84A A2FD A324 803A
I/O Firmware:	4580 897A 8031 8622 1B98 C394

- 6.5.11. If the results cannot be displayed on one screen, they may be displayed across multiple screens.

7. Reporting

7.1 Minimum Reporting Requirements

7.1.1. The following table sets out minimum reporting requirements to be provided by a FATG system or a monitoring system connected to FATG terminals.

Table 4: FATG Reports

FATG Report	Description
Transaction reporting	Details of selected transactions of each terminal for the selected period, including bets, wins, ticket in/out, cashless in/out.
Bet reporting	Betting information for selected period for each FATG game, such as total turnover, total win, bet amount for each bet position, theoretical return to player.
FATG game outcome reporting	FATG game results.
Buy-in / cash-out reporting	Summary of buy in and cash out transactions for selected period and player terminals.
Game rate reporting	Average number of games played per hour per day for a selected FATG game in a bar chart and tabulated format.
Game statistics reporting	Game statistics for a selected period with table/s such as: dealer cash buy in, dealer cash cashout, ticket in/out (if applicable), cashless in/out (if applicable) and total turnover.
Note stacker reporting	Notes by value, count and amount for each terminal.
Terminal handpay reporting	Total handpays for each terminal and system total for the selected period.
Terminal drop reporting	Total number of bills and vouchers inserted and total amount for each terminal and system.
Terminal statistics reporting	FATG area reporting and terminal breakdown reporting of buy in, cash out, bets, and win/loss for player terminals.
Terminal voucher	Tickets issued and redeemed and amount for each player terminal and system totals for the selected period (if applicable).
User access FATG system reporting	User account access, including date and time of last login.
Unclaimed money reporting	Unclaimed money by terminal and game.
Terminal win/loss reporting	FATG area and terminal reporting breakdown of bets, win/loss, and unclaimed money for player terminals.
Total revenue reporting	Total turnover and win by FATG game type for each terminal.

Note: FATG reports with different name descriptions are acceptable, provided they generate the same reporting information as specified in this table.

8. Specifications

8.1 Random Number Generator and Symbol Selection

Game Result Determination

- 8.1.1. FATG game software must generate random game outcomes (e.g. wheel stop positions) from a random number generator (RNG) and mapping algorithm.
- 8.1.2. FATG game software must not determine the outcome of a play (critical to the game result) or gamble until after all player options pertaining to the play or gamble have been made.

Fundamental RNG Requirements

- 8.1.3. The use of a RNG results in the selection of a FATG game outcome must:
 - a) Be statistically independent;
 - b) Be uniformly distributed over their range;
 - c) Pass various recognised statistical tests by an ATF; and
 - d) Be unpredictable.
- 8.1.4. RNG tests that an ATF may use during an evaluation include:
 - a) Chi-square test;
 - b) Equi-distribution (frequency) test;
 - c) Gap test;
 - d) Poker test;
 - e) Coupon collector's test;
 - f) Permutation test;
 - g) Run test (patterns of occurrences should not be recurrent);
 - h) Spectral test;
 - i) Serial correlation test potency and degree of serial correlation (outcomes should be independent from the previous game); or
 - j) Subsequences test.

8.2 Cryptographic Random Number Generator Requirements

- 8.2.1. For the purposes of this section:
 - a) A direct cryptanalytic attack is when a sequence of previous RNG values is known and it must be infeasible to use this sequence to predict future RNG outcomes. This must occur through the appropriate use of a recognized cryptographic algorithm (RNG algorithm, hash, cipher).
 - b) An input-based attack is when it is not possible to modify the input to the RNG to attack it to put it into a known state (e.g. by "flushing" existing entropy out of the system).
 - c) A state compromise extension attack is when the internal state of the RNG is known at some point in time and it must not be feasible for knowledge of this state

to predict future output. If required by the type of RNG, the RNG must periodically modify its state through the use of external entropy.

- 8.2.2. All new RNG implementations must be cryptographically strong by meeting the requirements set out in these standards.
- 8.2.3. A RNG must be resistant to the following types of attacks:
 - a) Direct cryptanalytic attack;
 - b) Input-based attack; and
 - c) State compromise extension attack.

Choice of Algorithm

- 8.2.4. A manufacturer and casino operator must only use algorithms that are demonstrated to be cryptographically strong for use in FATG gaming equipment.
- 8.2.5. RNG requirements in these standards will only apply if they are applicable to the type of RNG chosen.
- 8.2.6. Any RNG implementation must follow parameters specific to the algorithm.

Seeding

- 8.2.7. Where seeding is used, the method of the initial seed generation must not allow the same sequence of numbers to be used.
- 8.2.8. The method of seeding must not compromise the security of the RNG.

RNG Minimum Period

- 8.2.9. The period of the RNG must be greater than its range.

Minimum Range Requirement

- 8.2.10. The range of values produced by the RNG must produce event outcome probabilities to accurately reflect the expected RTP.

Mapping

- 8.2.11. Mapping of random numbers into values must observe the following principles:
 - a) Any outcome derived from the random number generator must be uniformly distributed;
 - b) Any mappings to convert random numbers into game values must be linear, and the distribution of the mapped values is identical to the distribution of the unmapped random number from which they were derived;
 - c) The mapped random number sequence must demonstrate that they are statistically random when subject to the same statistical tests for randomness specified for the base random number generator; and
 - d) The game outcomes which are derived from either a combination of mapped values or directly from the unmapped random numbers must have the same distribution and probability of occurrence as the game that the FATG machine implements. In particular, poker games must have the same first-hand distribution and probability as hands dealt from a randomly shuffled deck of cards; spinning wheel games must have the same outcome probabilities and outcome distribution as the physical model upon which the game is based, and so on.

Scaling Algorithms

- 8.2.12. If a random number with a range shorter than that provided by the RNG is required for some purpose within a FATG machine, the method of re-scaling, (e.g. converting the number to the lower range) is to be designed such that all numbers within the lower range are equally probable.
- 8.2.13. If a particular random number selected is outside the range of equal distribution of re-scaling values, it is permissible to discard that random number which may be required to eliminate bias.

Hardware Based RNGs

- 8.2.14. A hardware RNG may be used for, or as part of, the RNG implementation to generate outcomes that achieve the cryptographic benchmarks, as set out in this section.
- 8.2.15. A hardware RNG must be able to provide sufficient non-deterministic entropy for continuous operation of the game.
- 8.2.16. A hardware RNG must manage insufficient entropy through blocking until it is available.
- 8.2.17. A hardware RNG must be implemented in accordance with any necessary requirements, as specified by the hardware RNG manufacturer (e.g. entropy rate limits, output whitening).
- 8.2.18. Whitening of the hardware RNG output may be achieved by combining it with output from a demonstratively secure pseudo RNG.

Monitoring of Hardware RNG

- 8.2.19. Monitoring of the hardware RNG must be implemented to detect if the RNG has deteriorated or malfunctioned.
- 8.2.20. Monitoring of the hardware RNG may be implemented by the hardware device itself. Such monitoring includes checks that the RNG remains accessible and is functioning correctly. In the event where the device has deteriorated or malfunctioned and randomness of the output is not guaranteed, the FATG must be disabled.
- 8.2.21. Monitoring of a hardware RNG does not require “run time statistical tests” for continued randomness of output, unless required by the hardware RNG manufacturer.

8.3 Access Detection

- 8.3.1. If a FATG machine logic door is opened, the FATG machine must lock-up until the door is closed and the event has been cleared by an approved method (e.g. command from a host computer system).
- 8.3.2. A logic door open event must be stored for at least 14 days after the event, regardless of whether mains power is available to the FATG machine.

8.4 Master Meters

- 8.4.1. The following master meters (and units) must be available within a single, separately identifiable section of audit mode on a FATG machine:

Table 5: Master Meters

Meter	Definition	UNITS
GAMES PLAYED	Total number of games played	[plays]
TURNOVER	Total value in dollars of bets made from a player's credit meter	[\$,]
TOTAL WINS	Total value in dollars of all prizes awarded to a player's credit meter	[\$,]
CANCELLED CREDITS	Total of all credits cancelled from a credit meter by an attendant plus credits paid from a credit meter by ticket	[\$,]
BANKNOTES IN	Total value of all banknotes accepted	[\$,]
CASHLESS IN	Total of all credits electronically transferred to a FATG machine, or paid to the credit meter and not added to TOTAL WINS	[\$,]
CASHLESS OUT	Total of all credits electronically transferred from a FATG machine	[\$,]
MONEY IN	Total value in dollars of banknotes and tickets inserted to register credits on a player's credit meter together with transfers to the machine to register credits on a player's credit meter	[\$,]
MONEY OUT	Total value in dollars of credits redeemed from a player's credit meter by ticket print, cancelled credit and cashless transfer out,	[\$,]

Note: additional and different master meters may be used provided the meter information is accurately recorded by the FATG machine to enable equivalent information to that provided by these master meters; and where a master meter is not relevant, its value may be displayed as "N/A" or null.

- 8.4.2. A FATG machine which contains a banknote acceptor device must maintain sufficient metering to be able to report the following:
- a) Total monetary value of banknotes accepted (banknote money in);
 - b) Total number of banknotes accepted (banknote counts);
 - c) Counts of all rejected banknotes (banknote rejects);
 - d) The number of banknotes accepted for each banknote denomination; and
 - e) The value of the last five banknotes accepted (with time stamps).
- 8.4.3. Master meter information must not be able to be cleared unless a RAM clear has been performed on a FATG machine.

Banknote Clearances

- 8.4.4. A FATG machine must maintain the data and report the following information via an audit screen and/or appropriate banknote clearance ticket when a banknote clearance operation has been performed:
- a) Total monetary value of banknotes expected to be removed from the banknote storage area; and
 - b) Total monetary value of banknotes denomination expected to be removed from the banknote storage area.

Soft Meter Update

- 8.4.5. A meter must be updated on the occurrence of the event.
- 8.4.6. All meters must be added to, not incremented. The term “added to” indicates the fetching of the current value from memory, conducting an arithmetic add operation and storage of the accumulated value in memory.

Credit Meter Decrement

- 8.4.7. When credits are staked (e.g. commencement of play and additional wagers during a play) then the number of credits staked shall be immediately subtracted from the credit meter.

Update of the Credit Meter

- 8.4.8. When the end of a play occurs after appropriate meters for a game have been updated, it is permissible for a FATG machine to update the credit meter before the completion of play, provided that critical memory is updated when the credit meter is updated.

Credit Meter Prize Update and Progressive Prizes

- 8.4.9. The value of every prize (at end of a play) must be added to the credit meter, except progressive prizes. Progressive prizes may be added to the credit meter if the:
- a) Credit meter is maintained in dollars and cents; or
 - b) Progressive meter is incremented to whole credit amounts; or
 - c) Prize in dollars and cents is converted to credits on transfer to the credit meter in a manner that does not mislead the player (e.g. a FATG machine must not provide unqualified statements “wins meter amount” and then round down on conversion) or cause accounting imbalances.

8.5 Multi-game Meters

- 8.5.1. For each FATG game in a multi-game configuration, the following must be recorded and displayed:

Table 6: Multi-game Meters

Meter	Definition	UNITS
GAMES PLAYED	Total number of games played	[plays]
TURNOVER	Total value in dollars of bets made from a player's credit meter	[\$,]

8.6 Records of Printed Tickets

- 8.6.1. A FATG machine must retain electronic records for the last 35 tickets printed, where applicable.

9. FATG Machine Communication Protocol

- 9.1.1. A FATG machine must incorporate a protocol-based communication scheme to enable communication with an EMS.
- 9.1.2. All communication protocols must include error control, flow control and link control (for remote connection) capabilities.
- 9.1.3. All communication protocols must make use of cyclic redundancy checks (CRCs) or the equivalent.
- 9.1.4. A communication protocol must not use only parity or simple checksum byte to perform validation of transmitted data.

On-line Real Time Communications

- 9.1.5. Game play on a FATG machine must only occur when that FATG machine is in communication with an EMS directly, or via an approved FATG controller and that FATG machine has been enabled for play by an EMS.

Communications Security

- 9.1.6. Communication between a FATG operating in 'terminal-only mode' and a FATG controller (including another FATG fulfilling FATG controller functions) must be secure.

10. Approval Submission Requirements

10.1 General

- 10.1.1. Submissions (other than source code) must be in English.

10.2 Supply of Documentation

- 10.2.1. A manufacturer, supplier or casino operator must provide all FATG operator and service manuals to the representing ATF, and the Liquor and Gaming Branch on request.
- 10.2.2. These manuals referred to in 10.2.1 must describe the operation and maintenance requirements of FATG gaming equipment.
- 10.2.3. The following information must be included in FATG manuals in order to assist operator staff and service personnel in the performance of their duties:
- Hardware and equipment specifications;
 - Installation instructions, including mechanical installation instructions (e.g. removal of transportation hardware, mounting methods for stability and safety, surrounding clearances);
 - Commissioning instructions, covering the entering of various parameters as part of the commissioning process;
 - Diagrams showing details of all major components of a FATG machine or FATG controller;
 - Information detailing the replacement of major components, including parts lists;
 - A comprehensive description of a FATG machine or FATG controller operation in audit mode and any test modes;

- g) A comprehensive description of all metering information.
- h) Instructions detailing the functions of all buttons, switches and other controls on a FATG machine or FATG controller;
- i) Details of any routine maintenance required;
- j) A fault-finding chart and repair instructions, including details of skill levels or training required to clear faults;
- k) Instructions regarding the execution of FATG game conversions and FATG machine configuration options; and
- l) RAM clear instructions.

Master FATG Machine or FATG Controller

10.2.4. A submission must clearly and accurately include information of FATG machine or FATG controller functions where they may be operated as a master for a FATG arrangement in 'terminal-only' mode.

10.3 Full Hardware Submission

10.3.1. Full hardware submissions of a new FATG machine type or FATG controller require the following information to be supplied to the representing ATF, and the Liquor and Gaming Branch on request.

10.3.2. A manufacturer, supplier or casino operator must supply:

- a) The FATG machine model name; and
- b) The FATG machine model number.

10.3.3. The following information must be supplied where the hardware submitted is a variation of a previously approved model:

- a) Jurisdiction in which the FATG machine is approved;
- b) Model number;
- c) Version number;
- d) Copy of approval notice;
- e) Significant differences; and
- f) Date of approval.

10.3.4. Test equipment must be supplied to assist in the evaluation process.

10.3.5. An emulator or other tool must be supplied which enables the placement of credits on a FATG machine for the purposes of testing must be supplied.

10.3.6. Instructions and operation manuals for test equipment must be supplied.

10.3.7. Operational, installation and service manuals relevant to the submission must be supplied.

10.3.8. An overview of a FATG machine model, including cabinet modules, illustrations, dimensions and a table of part numbers for the main cabinet modules must be supplied.

10.3.9. Electrostatic and any other relevant certifications demonstrating a FATG machine's ability to withstand failure due to interference must be supplied.

10.3.10. Identification plate to be externally mounted on the side of the FATG machine must be supplied, if not already affixed.

10.3.11. Extension cables for door photo-optic detectors and any other hardware, must be supplied so that a FATG machine may be tested with doors opened.

- 10.3.12. A table of primary and secondary printed circuit boards, including name, description and part number must be supplied.
- 10.3.13. A table of primary and secondary peripheral devices, including brand, model number, manufacturer part number and current firmware version (where applicable) must be supplied.
- 10.3.14. Complete schematic diagrams of all sub-systems must be supplied.
- 10.3.15. Wiring loom/harness connection diagram(s) must be supplied.
- 10.3.16. For game program storage media used by a FATG machine, the following must be supplied:
 - a) Model;
 - b) Type;
 - c) Size; and
 - d) Spare (blanks) PSDs.

10.4 Banknote Acceptor

- 10.4.1. A manufacturer, supplier or casino operator must supply the following banknote acceptor and stacker details:
 - a) Details of all denominations and banknote styles readable by the banknote acceptor;
 - b) Details of the method of adjustment or programming (if applicable) to accept different banknote denominations; and
 - c) Details of all dual in-line switch settings, jumpers, wire wrap selectable options or other external mechanisms by which the functioning of the banknote acceptor may be affected.

10.5 Software

- 10.5.1. A manufacturer, supplier or casino operator must provide the following documentation to the representing ATF, and the Liquor and Gaming Branch on request, for any new FATG machine or FATG game:
 - a) A general overview of the system, describing how software and hardware are integrated;
 - b) Description of a 'terminal-only' mode of operation and what functions are performed by a master FATG machine or FATG controller
 - c) Program block diagrams and flow charts for the software; and
 - d) Software compilation environment.
- 10.5.2. A manufacturer, supplier or casino operator must provide the following information to the representing ATF, and the Liquor and Gaming Branch on request, for all software submissions:
 - a) Software names and version numbers;
 - b) FATG machine model(s) and any hardware dependencies;
 - c) Submission date; and
 - d) Source code details.
- 10.5.3. The software submission must only contain those files, images and PSDs required for the testing of the referenced software submission.

Source Code and Build Output

- 10.5.4. For all open-source software included in the submission, a manufacturer, supplier or casino operator must provide the following information to the representing ATF, and the Liquor and Gaming Branch on request:
- a) Source code files;
 - b) Make or batch files;
 - c) Map files;
 - d) Master images; and
 - e) Any other files used in conjunction with the master images.
- 10.5.5. For all closed-source software included in the submission, the following information must be provided to the representing ATF, and the Liquor and Gaming Branch on request:
- a) Master images from the closed-source development environment; and
 - b) Any other files used in conjunction with the master images.
- 10.5.6. Provisions enabling access to the closed source code must be in place for the Liquor and Gaming Branch or representing ATF by request, for the purpose of investigating software faults.
- 10.5.7. Arrangements with closed source software vendors must be provided to the ATF, and the Liquor and Gaming Branch on request.
- 10.5.8. Master images that are identical to the images installed on a FATG machine's PSD must be supplied.

Compilation Environment

- 10.5.9. For all software included in the submission, a manufacturer, supplier or casino operator must provide the following to the ATF, and the Liquor and Gaming Branch on request:
- a) The necessary development environment, or access to that environment where software development facilities differ from those available within the evaluation laboratory; and
 - b) User guides, programming guides, instructions and/or manuals necessary to create the software.
- 10.5.10. The output of the compilation or build process must be reproducible on subsequent builds for at least the software components that provide functions that are central to the operation of a FATG machine or FATG game.
- 10.5.11. Where the output of the compilation or build process is entirely reproducible on subsequent builds, the output must be able to be verified against the master images provided in the software submission.
- 10.5.12. Where the output of the compilation or build process is not entirely reproducible on subsequent builds, an independently certified witness build must be performed, such that:
- a) The build environment, build process and all inputs are fully documented and verified by the ATF;
 - b) The subject of the evaluation by the ATF must be the software resulting from the successful verification at (a);
 - c) The software deployed to production must be the software resulting from the successful verification at (a); and

- d) All software components that will change if the build is repeated must be identified by the ATF, manufacturer, supplier or casino operator.

10.5.13. Alternatively, where witness builds are not performed:

- a) Non-reproducible build elements must not relate to functions central to the integrity of a FATG (refer to section 3.17.4) and this must be verified by the ATF;
- b) A manufacturer, supplier or casino operator must supply a tool that verifies the source input and distinct build output changes are as expected (e.g. through file-by-file comparison or equivalent) so that submitted production software can be verified; and
- c) The verification tool must clearly identify a failure of verification wherever the source input or build outputs are unexpectedly different.

10.5.14. If any special software or hardware tools need to be used by an ATF to verify software due to copy or intellectual property protection, these tools must be supplied free of charge. If the tools are not available, the manufacturer, supplier or casino operator must develop and supply them to the ATF free of charge.

10.5.15. All software and manuals provided must be legal and licensed copies.

Program Storage Devices

10.5.16. A manufacturer, supplier or casino operator must provide:

- a) PSDs containing the software submitted;
- b) Any instructions, hardware or software required to enable an ATF to:
 - i. generate and install software images onto PSDs from the files contained within the software submission;
 - ii. extract images from PSDs; and
 - iii. verify extracted images against the PSD image files provided with the submission.
- c) For each PSD:
 - i. a hashing algorithm signature; and
 - ii. a PSD image file.

Miscellaneous Functions

10.5.17. A manufacturer, supplier or casino operator must provide:

- a) test mode details in the service manual and/or displayed in test mode on a FATG machine;
- b) RAM procedures in for technicians; and
- c) Evidence that demonstration game mode functions are not be present in FATG software used for gaming.

10.5.18. RAM fault condition details and instructions must be included in FATG machine service manuals and/or displayed in audit mode on a FATG machine.

Random Number Generator

10.5.19. A manufacturer, supplier or casino operator must provide:

- a) Full technical details of random number algorithm operations used by FATG games;
- b) All text and journal references used in the design of the RNG;

- c) Information detailing all points in FATG operation where the RNG is activated, updated, or numbers are obtained, including details of background RNG activity;
- d) Information that explains the seeding process of the RNG;
- e) A detailed flow chart and software listing of the RNG process; and
- f) Any results for any empirical and/or theoretical tests conducted on the RNG.

System Security/Integrity

10.5.20. A manufacturer, supplier or casino operator must provide details of:

- a) All dual in-line package switch settings, jumpers, wire wrap selectable options or other external mechanisms by which the functioning of a FATG machine, or associated FATG equipment may be affected in the service manual; and
- b) All program checks and when they are performed.

Data Retention

10.5.21. A manufacturer, supplier or casino operator must provide the following information:

- a) A FATG machine's program state retention and recovery capabilities and procedures in the event of a mains power outage or RAM corruption;
- b) FATG power down procedures;
- c) A full description of the functions and tests performed on initial start-up of a FATG machine, including the method of detection of corrupted backup memory; and
- d) A list of information stored in critical memory.

10.6 FATG Game Specific

General

10.6.1. A manufacturer, supplier or casino operator must provide:

- a) Game name information; and
- b) Game development and version number information.

10.6.2. A manufacturer, supplier or casino operator must supply additional hardware and installation instructions required, in addition to that already supplied with the hardware platform, including:

- a) Button panel;
- b) Animation lights; and
- c) Wiring looms.

10.6.3. If a FATG game is a clone and the game uses same rules and payable of another game previously submitted, a manufacturer, supplier or casino operator must supply the following details:

- a) Original game name;
- b) Current version number of original game; and
- c) Images of the clone game's artwork.

Game Details

10.6.4. A manufacturer, supplier or casino operator must provide:

- a) A description of each game in plain language;

- b) Details of the table game that the FATG game imitates; and
- c) The rules of a FATG game.

Mathematics

- 10.6.5. For each game, a manufacturer, supplier or casino operator must provide to the ATF:
- a) A schedule of all prize payout amounts; and
 - b) A formal mathematical treatise of the derivation of the theoretical RTP.
- 10.6.6. A separate calculation for each different player option (e.g. number of credits bet) must be provided to the ATF, where different player options vary the payable.
- 10.6.7. A list of all player strategies that can affect the outcome of the game and the RTP must be provided to the ATF, where a FATG game requires or allows use of a player strategy.
- 10.6.8. Information on all elements of player strategy (if available in a FATG game) and actual game return statistics from development laboratories or field trials of the games operation in other jurisdictions must be provided to the ATF.

Artwork

- 10.6.9. If the artwork (e.g. rules of the game and payable) is only displayed on a FATG video screen, then a manufacturer, supplier or casino operator must provide an exact printout or photograph of such displays in the submission to the ATF.
- 10.6.10. Text manuscripts or the equivalent provided to the ATF must be the exact replica of the information displayed on a FATG video screen.
- 10.6.11. Full colour graphic images of all artwork associated with a FATG game must be provided.
- 10.6.12. The images referred to in 10.6.13 must be able to be printed on A4 or A3 paper. The images must be submitted in an industry standard format and the resolution must be sufficient to read all the text and artwork.
- 10.6.13. If requested by the Commission, a manufacturer, supplier or casino operator must provide a separate disclosure of all FATG messages, images or sounds presented to the player, which do not provide instructions rules or payable information or do not provide part of the display of the game. This disclosure must include the events which trigger each message, image, or sound.

10.7 Updated Software Submission

- 10.7.1. For any update to a previous FATG submission (e.g. a revision to existing software), a manufacturer, supplier or casino operator must provide the following information to an ATF:
- a) Each software version (submitted separately and assigned a unique identification); and
 - b) Details of changes made since the previous version.
- 10.7.2. Information, documentation, instructions, software, tools, utilities, equipment, or PSDs, and these are unchanged, do not require resubmission. References to the items provided previously to the ATF must be included as part of the updated submission.

11. Table of Parameters and Limits

11.1.1. The following definitions of the limits and parameters apply to FATG machines. Limits are imposed by the Commission. Parameter limits are not applicable where the functions do not require to be provided by a FATG machine

Parameter	Definition	Limit
BKNTLIM	The maximum credit balance which may exist on a gaming machine or account beyond which a note acceptor must be disabled due to a high credit balance condition.	\$500
LARGEWIN	Substantial Win amount - wins greater than or equal to this value must generate a significant FATG machine event.	\$5 000
CRECANLIM	Maximum number of credits payable to a win credit meter before a cancel credit must be initiated by an attendant.	\$1 000
MAXTICKET	Maximum size of payout that can be transferred to a ticket - anything above this amount will generate a cancel credit.	\$500
MAXCASHLESSIN	The maximum credit balance which may exist on a FATG beyond which a 'cashless in' must be disabled due to a high credit balance condition.	\$500
MAXCASHLESSOUT	The maximum credit mater balance above which a FATG suspends.	\$9 999

12. Glossary

Term or Abbreviation	Description
Act	<i>Gaming Control Act 1993.</i>
Attendant	A person employed by a casino operator to perform duties associated to the operation of a FATG, other than those duties required to be performed by a technician.
ATF	Accredited Testing Facility approved by the Tasmanian Liquor and Gaming Commission and listed on the Roll of Recognised Manufacturers, Suppliers and Testers of gaming equipment under section 71 of the Gaming Control Act 1993.
Liquor and Gaming Branch	Liquor and Gaming Branch, Tasmanian Department of Treasury and Finance
Casino Operator	The holder of a general casino licence approved under section 13A of the Act.
Commission	The Tasmanian Liquor and Gaming Commission.
Communication Protocol	A communication specification that defines requirements for data interchange between devices, such as FATG machines and electronic monitoring systems.
CPU	Central processing unit.
EMC	Electromagnetic compatibility.
EMI	Electromagnetic interference.
EMS	Electronic monitoring system.
FATG	A fully automated table game approved under section 80 of the Act.
FATG Controller	A device that connects to, and enables the operation of, FATG machines in a 'terminal-only' mode.
FATG Game	A game that is an imitation of a casino table game that is played on a FATG machine.
FATG Machine	Is a fully automated table game machine.
FATG Machine terminal-only mode	A FATG machine operating a mode where some of the requirements of this document are performed by another FATG machine or FATG controller

Term or Abbreviation	Description
Hash value	A hash value is a numeric or alpha numeric value of a fixed length that uniquely identifies data.
Logic Area	A locked cabinet area (with its own locked door) that houses electronic components that have the potential to significantly influence the operation of a FATG machine.
Master FATG Machine	A FATG machine operating in a mode where it connects to and enables the operation of FATG machines in 'terminal-only' mode.
Non-volatile Memory	Refers to FATG computer memory that is battery backed up and able to store and retain information even after mains power to the FATG has been turned off.
Peripheral Device	A peripheral device is an internal or external device that connects directly to a FATG machine but does not contribute to the operation of a FATG game or critical gaming functions.
Pre-commitment	<p>A consumer protection measure whereby pre-set limits on time, frequency, or money spent gambling are registered by players prior to the start of play.</p> <ul style="list-style-type: none"> • Mandatory pre-commitment requires player registration of pre-set limits before permitting participation on gaming machines to prevent players spending more money than they have pre-committed for a period. • Voluntary pre-commitment does not require mandatory participation, however, allows players to optionally register time, or money spent limits to track and inform them of their gaming expenditure.
PSD	Program storage device.
RAM	Random Access Memory.
RNG	Random number generator.
RTP	Return to player percentage.
Software Set	The combination of software components required for a device's operation (for example, a software set may consist of firmware, shell and game software components).

Term or Abbreviation	Description
Source Code	<p>A set of instructions and statements written by a programmer using a computer programming language. This code is later translated into machine language by a compiler.</p> <ul style="list-style-type: none">• Open-source code refers to software for which source code is available.• Closed source code refers to software provided by a third party, and where source code is not accessible under the terms of the software licence
Technician	<p>A person who undertakes technician duties as prescribed by the <i>Gaming Control Act 1993</i>.</p>

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