Linked Jackpot Equipment Technical Standard

Version 1.0

1 July 2023

Tasmanian Liquor and Gaming Commission

Table of Contents

1   Introduction

1.1   Authority

1.1.1   This Standard is authorised and issued as a standard by the Tasmanian Liquor and Gaming Commission under section 112PA of the *Gaming Control Act 1993*.

1.1.2   In this Standard, the term monitor refers to either a casino licensee in the case of a casino licensed to operate gaming machines or other gaming devices, or a licensed monitoring operator in the case of a person licensed to monitor gaming machines in hotels or licensed clubs in Tasmania.

1.1.3   In this Standard, the term venue operator refers to the holder of a venue licence.

1.1.4   Linked jackpot equipment used by a monitor must be approved by the Commission in accordance with the Act.

1.1.5   The Act requires that a monitor and venue operator must have a system of internal controls and administrative and accounting procedures approved by the Commission.

1.1.6   The requirements specified in this Standard are supplementary to and do not take the place of, any of the requirements of the Act or any regulations made under the Act.

1.2   Objective

1.2.1   The objective of this Standard is to require linked jackpot equipment to be designed to enable:

a) The integrity of hardware, software, interfaces and networks used by linked jackpot equipment, gaming machines and other gaming equipment;

b) The security and integrity of transactions between linked jackpot equipment, connected gaming machines and other gaming equipment;

c) The accurate monitoring, recording, reporting and secure storage of information gathered by linked jackpot equipment;

d) Only approved linked jackpot arrangements are available for play in casinos, hotels and licensed clubs in Tasmania; and

e) The correct awarding of player entitlements.

1.2.2   This Standard does not set out the content of internal controls or administrative and accounting procedures required of a monitor or venue operator. However, it is expected that such controls and procedures will address requirements outlined in this Standard.

1.2.3   A monitor and a venue operator is required under the Act to receive approval from the Commission for its proposed system of internal controls and administrative and accounting procedures.

1.2.4   It is not the intent of this Standard to unreasonably restrain the design, innovation, and application of technologies of linked jackpot equipment.

1.2.5   This Standard sets out linked jackpot equipment requirements but does not seek to

prescribe system implementation methods or use of specific technology to enable compliance with this Standard.

1.2.6 An EMS must be used for the purposes of monitoring and controlling gaming machine linked jackpot arrangements. The Commission will consider other monitoring and controlling arrangements for linked jackpot equipment where an EMS is not capable of providing linked jackpot control and monitoring functions required for FATG, table gaming or other approved gaming equipment.

1.3 Scope and Purpose

1.3.1 This Standard describes the Commission's minimum technical requirements for linked jackpot equipment and associated arrangements to be used by a monitor or venue operator in Tasmania.

1.3.2 This Standard must be used to evaluate a monitor's or a venue operator's proposed linked jackpot equipment and associated arrangements for compliance with the Commission's requirements, or to evaluate changes to previously approved versions of linked jackpot equipment.

1.3.3 This Standard will be used by an ATF to independently test linked jackpot equipment and associated arrangements, including any changes, and certify linked jackpot equipment compliance with this Standard.

1.3.4 This Standard will be used by the Commission to evaluate compliance by a monitor or venue operator with the requirements of their licence, and to evaluate changes to previously approved versions of the linked jackpot equipment, in accordance with the Act.

1.3.5 Compliance with this Standard does not exempt a monitor, venue operator or supplier from compliance with other laws (e.g. laws relating to privacy, consumer protection, prohibited content, copyright, electrical safety and electronic cash transactions).

1.3.6 Future updates to this Standard do not automatically require modification to linked jackpot equipment and associated arrangements approved and operating at that time, unless specifically required by the Commission.

1.4 Interpretation

1.4.1 Any comment or questions relating to understanding or interpretation of any aspect of this Standard should be referred to the Liquor and Gaming Branch for clarification.

1.5 Potential for Dispensations

1.5.1 Matters arising from the testing of linked jackpot equipment that have not been addressed in this Standard will be resolved at the sole discretion of the Commission, as part of the approval process.

1.5.2 At the sole discretion of the Commission, components of linked jackpot equipment which do not fully comply with all the requirements of this Standard, may be considered for approval, provided the linked jackpot equipment operates in a manner

that is suitable in respect of fairness, security, integrity, and consumer protection.

1.6 Equipment Statutory Testing and Certification

1.6.1 A monitor and a venue operator must only operate linked jackpot equipment that is 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.

1.7 Associated Documentation

1.7.1 Monitors and venue operators should familiarise themselves with the following documents and their respective impact on the design and functionality of their linked jackpot equipment:

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 Standard

f) TLGC Card Based Gaming Systems Technical Standard

g) TLGC Fully Automated Table Game Technical Standard

h) TLGC Responsible Gambling Mandatory Code of Practice

1.8 Copyright

1.8.1 This Standard is the property of the State of Tasmania (Department of Treasury and Finance).

1.8.2 Copying, making extracts or use of this Standard, without prior permissions, is prohibited.

2 Consumer Protection

2.1 General

2.1.1 Linked jackpot equipment must operate with integrity and it must be fair, secure and auditable.

2.1.2 Linked jackpot equipment must only be operated in accordance with arrangements and rules that have been approved by the Commission, in accordance with the Act.

2.2 Limitations on Jackpot Implementations

2.2.1 Linked jackpot equipment must be capable of implementing system-based limits or controls set by the Commission from time to time. These include:

a) Maximum jackpot prize;

b) Excessive jackpot prize pool increment rates;

c) Excessive total return to player percentage of a jackpot;

d) The ability to operate overflow pool arrangements;

e) Maximum number of gaming machines or gaming devices participating in a linked jackpot arrangement;

f) Exotic jackpot types (e.g. shared hit jackpots);

g) Recording of jackpot operations (such as to assist in resolving disputes over jackpot prize entitlement); and

h) Management of electronic artwork and connected jackpot display systems in casinos, hotels and licensed clubs.

3 Jackpot System Hosts

3.1 Definitions

3.1.1 For the purposes of this Standard, a jackpot system host typically consists of the following components:

a) A CPU, memory, databases, and interfaces for the operation of jackpot system software;

b) A secure cabinet housing the components referred to in a);

c) A power supply; and

d) A physical connection to external interfaces such as a local area network and display devices.

3.1.2 For the purposes of the Standard, jackpot system software is software which is integrated and operating within an EMS or software incorporated into linked jackpot equipment. This software provides the following functions:

a) Maintaining parameters defining a linked jackpot arrangement, including jackpot name, jackpot level number, start-out value, increment rate, maximum prize value, and participating devices;

b) The operation of random/mystery triggered jackpots, including an RNG;

c) Communication with participating devices;

d) Receipt of wager amounts and jackpot trigger events from participating devices;

e) Accumulation and management of jackpot prize pools;

f) Payment of jackpot prizes;

g) Broadcast of jackpot prize pool values;

h) Maintaining jackpot meters required by this Standard;

i) Creation of jackpot events required by this Standard; and

j) Communicating with an EMS.

3.2 Cabinet Physical Security

3.2.1 Where a venue EMS host is being used to perform the functions of a jackpot system host, the cabinet physical security requirements of a venue EMS host must be met as required by the Commission's Gaming Machine Electronic Monitoring System Technical Standard.

3.2.2 The following cabinet/device physical security requirements must be met where linked jackpot equipment, other than a venue EMS host, performs the functions of a jackpot system host:

a) The jackpot system host must be manufactured of materials that are suitable for allowing only authorised access to the inside of the cabinet, (e.g. doors and their associated hinges shall be capable of withstanding determined illegal efforts to gain access to the inside of the cabinet and leave evidence of tampering if an illegal entry is made), accessible areas of a cabinet do not have the potential to cause injury, and the door of a locked area must be designed to resist the entry of objects.

b) External door and logic door access sensors must be installed on linked jackpot equipment to detect all door openings and closings and the jackpot system software must record these events. These events must be recorded by jackpot system 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 jackpot system host only requires to record opening and closing events as a single entry.

c) It must not be possible to insert a device into the cabinet that will permit external manipulation of any aspect of the jackpot system host when a cabinet door is shut, without leaving evidence of tampering.

d) Liquid spills applied to the outside of a cabinet must not affect the integrity of the device or information stored inside the cabinet or affect the safety of patrons or staff operating the equipment.

e) If a door access detection system is disconnected, the jackpot system software must interpret this action as the door being opened.

f) It must not be possible to access the CPU data bus, address bus or CPU control lines without gaining access to a logic area.

g) Electronic components / items that are required to be housed in one or more logic areas are:

   i) CPUs and other electronic components involved in the operation of the jackpot system software;

   ii) equipment involved in the operation and calculation of jackpot prize pools, and

jackpot result determination;

  iii) communication controller equipment and components housing the communication program storage media;

  iv) interfaces and drivers for metering systems; and

  v) all devices that affect the operation of the jackpot system host.

 h) There must be the ability for the logic area to be sealed.

3.3 Access to Jackpot System Host

3.3.1 A jackpot system host must be designed so that power and data cables are not accessible to patrons.

3.4 Physical Integrity

External Mechanism Affecting Operation

3.4.1 A jackpot system host must have no external mechanism (such as dual in-line package switches, IP-switches and jumpers) that can affect the operation of jackpot system software.

3.5 Interference

3.5.1 A jackpot system host and associated equipment must comply with relevant and applicable electromagnetic compatibility standards.

Electromagnetic Compatibility

3.5.2 A jackpot system host must not be affected in any way by the application of radio frequency interference (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

3.5.3 A jackpot system host 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 jackpot system host.

3.5.4 A jackpot system host must not be affected by human body electrostatic discharges on all areas exposed to human contact.

3.5.5 Submissions for approval for a jackpot system host 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 ± 15kV and a contact discharge of ± 7.5kV; and

 b) A temporary disruption test that results in full recovery from significant

discharges, with the discharges being an air discharge of ± 25kV and a contact discharge of ± 10.0kV.

3.5.6 A jackpot system host may exhibit temporary disruption when subjected to an electrostatic discharge greater than generated by a human body, but it must exhibit a capacity to recover and complete any interrupted play without loss or corruption of any control or data information associated with the device.

3.6 Firmware and Memory

3.6.1 Any component that contains sensitive program or data information must be located within a secure locked area (e.g. logic cage).

3.6.2 A jackpot system host or jackpot system software must be capable of detecting change in primary storage media contents.

3.6.3 Linked jackpot equipment must be able to implement configurable parameters for linked jackpot arrangements without impacting the ability of an ATF or the Liquor and Gaming Branch to perform byte-by-byte verification of supplied PSDs against "master" file(s) or image(s).

3.7 Data Retention

3.7.1 Non-volatile memory must be capable of preserving its memory contents for at least 90 days without mains power being supplied to a jackpot system host.

3.7.2 Non-volatile memory must be checked at least every 24 hours so as the memory is preserved.

3.8 Critical Memory

3.8.1 There must be an ability for critical memory errors to be identified and rectified.

Contents of Critical Memory

3.8.2 The following critical data, vital to the continued operation of a Jackpot System Host, must be stored in non-volatile memory:

a) All auditing meters;

b) Current jackpot prize pool amounts; and

c) Jackpot configuration data.

3.8.3 To cater for disruptions occurring during the update process of critical memory, at any point in time during an update, there must be an ability for the software to recover lost information from disruptions.

Detection of Corrupted Memory

3.8.4 A validity check of the entire contents of the memory of a jackpot system host must be undertaken after:

a) Every restart of the device;

b) Parameter changes;

c) Logic door open and close events; and

d) Large wins.

3.8.5 After a jackpot system host restart (e.g. power off and on), the jackpot system host must complete a validity check of its critical memory area.

3.8.6 Any failure of a jackpot system host validity check must be reported either as a:

a) Recoverable memory corruption if at least one copy of critical memory is established to be good; or

b) Unrecoverable memory corruption.

Critical Memory Requirements

3.8.7 All critical memory must be maintained using a fault tolerant methodology in at least three logical and two physically separate and distinct devices at all times.

3.8.8 Critical memory storage must be maintained by a methodology that enables errors to be identified and acted upon. Acceptable methodologies may include hash values, signatures, checksums, partial checksums, multiple copies, timestamps, and/or effective use of validity codes.

3.8.9 When updating critical memory contents, jackpot system software must verify that the update was successful and that any error(s) in one logical store are not propagated through to known good critical memory stores.

3.8.10 To cater for disruptions occurring during critical memory update processes, at any point in time during the update, there must exist sufficient information that will allow the jackpot system software to fully cater for such disruptions. For example, jackpot system software must be able to identify the state of update of each copy of critical memory and recover from the most appropriate good copy to complete the update in the case of a disruption.

Unrecoverable Critical Memory

3.8.11 An unrecoverable memory corruption must result in a memory error, which must immediately cause the linked jackpot equipment to be disabled.

3.8.12 When an unrecoverable memory corruption occurs, the RAM must not be cleared automatically.

Non-critical RAM

3.8.13 All RAM that does not store critical memory must be checked for corruption at each power up.

Program Execution

3.8.14 The jackpot system host must prevent or detect unexpected or malicious changes to any program code that provides functionality central to the operation of the jackpot system host or jackpot system software.

3.8.15 If unexpected or malicious changes are detected to the jackpot system host or jackpot system software, they must register an unrecoverable RAM error (requiring a full RAM clear) and display an appropriate error message.

Communication Error Detection

3.8.16 Where critical memory contents and jackpot status messages and events (jackpot prize trigger events, jackpot pool updates and jackpot reset events) are transferred between microcontrollers, there must be error checking on the transferral so there is ongoing integrity of memory contents, status messages and events.

3.8.17 The check referred to in 3.8.16 must be at least a cyclic redundancy check (CRC) or the equivalent.

3.8.18 Communication error detection must not solely rely upon parity or simple checksum byte to perform validation of transmitted data.

3.9 Program Storage Device Integrity

3.9.1 The entire contents of all PSDs in the executable address space of a critical processor must be validated when:

a) The jackpot system host CPU is reset;

b) Initiated via audit mode; or

c) Initiated by an EMS that requires software signature results.

Unused Program Memory Storage

3.9.2 A jackpot system host must be protected from malicious or accidental use of the unused portions of the program memory storage media.

3.10 Random Access Memory Clear

3.10.1 A RAM clear to clear the meters and other areas of electronically stored data must only be possible by:

a) Accessing the logic area of the jackpot system host; or

b) Using another secure method, where no logic area exists.

3.10.2 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 require to be retained.

3.10.3 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 the jackpot equipment is no longer in setup mode.

3.11 Program Storage Device Security

3.11.1 Jackpot equipment must protect PSDs from unauthorised modification.

3.11.2 In the event an unauthorised modification of the contents of a PSD occurs, it must be logged as an event.

3.12 System Clock

3.12.1 A jackpot system host must maintain an internal clock that accurately reflects the date and time in Tasmania, which is to be used to provide for the following:

  a) Time stamping of significant events;

  b) Reference clock for reporting; and

  c) Time stamping of configuration changes.

3.12.2 If multiple clocks are supported, the jackpot system host must be capable of maintaining and synchronizing the time for all clocks in each system component so as time stamping of all events and data is correct.

3.12.3 A jackpot system host's time must be synchronized with an external reference clock and the reference clock must be maintained to an accuracy of one second.

3.12.4 A jackpot system host's 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.

4   Jackpot System Software

4.1 Jackpot Principles

Principles common to all linked jackpot types

4.1.1 The following principles apply to any jackpot system software:

  a) All players that play jackpot games must be eligible to win the jackpot;

  b) A gaming machine or gaming device participating in a jackpot must contribute to the corresponding jackpot pool(s) on every credit that is wagered;

  c) The contribution from a gaming machine or gaming device to a jackpot must be directly proportional to the number of credits wagered;

  d) Jackpot contributions must not be assimilated into revenue;

  e) If a cap is established on any jackpot, all contributions once that cap is reached are to be credited to a diversion pool; and

  f) The jackpot prize award event must be based upon a random event.

Further principles for Linked Progressive Jackpots

4.1.2 If a jackpot requires a certain minimum bet to participate in the jackpot, then:

  a) The player must be made clearly aware of this requirement;

b) There is a clearly indicated prize, which is paid to the player if the jackpot trigger combination is achieved but the minimum bet is not; and

c) The base game return to player (RTP), including the effect of the jackpot prize, must theoretically operate above the return to player proportion defined in the Act.

Further principles for Linked Mystery Jackpots

4.1.3 The probability of a player winning a linked mystery jackpot must be directly proportional to the size of the bet.

4.1.4 The bet size proportionality factor must not vary between type of gaming machine or gaming device, and/or game played.

4.1.5 The bet size proportionality factor must not be achieved by modification of the method of selection or determination of the game result.

4.2 Jackpot Configuration Management

4.2.1 Jackpot system software must include mechanisms to manage, update and control the configuration of a linked jackpot arrangement.

4.2.2 Any changes to any jackpot configuration must be time-stamped and logged by the jackpot system software.

4.2.3 Jackpot system software must only receive new or modified jackpot configurations via:

a) An approved EMS;

b) An operator terminal or portable computer; or

c) Direct entry using a connected keyboard and display.

Approved jackpot parameters

4.2.4 Jackpot system software must include a mechanism to create, delete, or update all the parameters of a linked jackpot arrangement approved by the Commission, including:

a) Jackpot name;

b) Jackpot approval number;

c) Number of jackpot levels;

d) Jackpot type (e.g. linked progressive or linked mystery);

e) For each jackpot level:

    i) Level number;

    ii) Level name;

    iii) Start-out amount;

    iv) Maximum prize (if applicable);

    v) Prize pool increment percentage;

    vi) Diversion prize pool (sometimes referred to as a hidden or auxiliary

jackpot) increment percentage (if applicable); and

vii) Prize payment rule (e.g. pool amount, fixed amount, non-cash); and

f) The most recent date and time that any of these parameters were set or changed by the jackpot system software.

Operational configuration

4.2.5 Jackpot system software must include a mechanism to create, delete, or update any of the following jackpot related parameters for each linked jackpot arrangement:

a) Identification of all participating gaming machines or gaming devices (e.g. floor location number); and

b) Identification of jackpot display controllers associated with that linked jackpot arrangement.

4.2.6 A monitor or venue operator must implement jackpot system software configurations in accordance with the following:

a) The combination of base game and link jackpot RTP are equal to or exceed the MIN RTP;

b) Linked jackpot parameters are configured identically for each gaming machine or other gaming device on the same jackpot link;

c) Linked jackpot levels are displayed on the gaming machine or gaming device's screen at all times and that the values displayed are the same when connected to the same jackpot link;

d) The maximum linked jackpot prize does not exceed $60 000 in hotels and licensed clubs (*note: no prize limit is specified for casinos*);

e) Linked jackpot payments of $300 or less are paid direct to the winning gaming machine or gaming device's credit meter; and

f) Linked jackpot payments exceeding $300 will be only paid by hand pay and not to the winning gaming machine or gaming device's credit meter.

Application of changes to a jackpot configuration

4.2.7 Jackpot system software must provide a means of displaying or reporting current and pending jackpot parameters.

4.2.8 Changes to jackpot parameters must be saved to apply immediately after that jackpot is next won.

Verification via EMS

4.2.9 All jackpot configuration parameters must be able to be accessed and verified by an EMS.

4.3 Jackpot Prize Pool Management

4.3.1 Jackpot system software must accurately calculate and update jackpot prize pool amounts using the applicable jackpot configuration parameters and wager amounts

received from connected gaming machines or gaming devices.

4.3.2   Jackpot prize pool amounts must be stored in absolute monetary amounts.

Excessive meter increments

4.3.3   Before calculating an increment to a jackpot prize pool, jackpot system software must perform a gaming machine or gaming device turnover meter integrity check to detect excessive meter increments.

4.3.4   Jackpot system software must detect gaming machine or gaming device excessive turnover increments for the following events:

   a)   Critical memory reset (e.g. RAM clear);

   b)   Meter rollover;

   c)   Errors during transmission of meter values; and

   d)   Meter self-audit check failure.

4.3.5   Jackpot system software must be able to handle and account for gaming machine excessive turnover increments.

4.3.6   Gaming machine excessive turnover meter increments detected by jackpot system software must not result in an increment to any jackpot prize pool.

Manual adjustment of jackpot prize pool value

4.3.7   Jackpot system software must include a facility to enable manual adjustments to be made to any jackpot prize pool value.

4.3.8   Any manual adjustment to a jackpot prize pool must comply with the security and auditability requirements set out in this Standard and internal controls and administrative and accounting procedures approved by the Commission.

Partial Jackpot Prize Pool Redirection

4.3.9   Commission approval must be received prior to the implementation of a diversion pool scheme.

4.3.10   Variable diversion rates must be approved by the Commission prior to implementation.

4.3.11   Jackpot schemes that allow for the redirection of a jackpot prize pool to a diversion pool must not be operated where the mathematical expectation of the diversion pool is infinite.

4.3.12   Jackpot schemes where a diversion pool is used to fund a "minimum" or "start-up level" must not be permitted unless the minimum jackpot amount is deemed to be zero for the purposes of calculation of expected player return.

4.3.13   Diversion pools must not be capped.

4.4　Linked Mystery Jackpots

Mystery Jackpot Prize Trigger Value

4.4.1　Jackpot system software operating a linked mystery jackpot must generate random mystery jackpot trigger values using a RNG algorithm, mapping algorithm and the jackpot minimum and maximum prize values.

4.4.2　Jackpot system software must not allow a mystery jackpot trigger value to be viewed, edited, created, calculated or otherwise altered by any other device, system, network command, or by a person.

4.4.3　A new jackpot trigger value after any reset must not exceed more than 80 per cent of the maximum jackpot pool value when added with other pool amounts, such as a hidden pool amount, off-line pool amount or overflow pool amount.

4.4.4　A new jackpot trigger value must be calculated in any of the following circumstances:

a)　When a jackpot prize is triggered;

b)　After any change to either the minimum or maximum pool values in a mystery jackpot configuration (in this event, the new jackpot trigger value must be randomly selected between the higher of the new jackpot minimum prize or current pool value, and the maximum prize value);

c)　After any change to the progressive increment rate of an active mystery jackpot; or

d)　After a jackpot system host logic door is sealed (in this event, the new jackpot trigger value must be randomly determined between the current jackpot prize pool value and the jackpot maximum prize amount).

Fundamental RNG Requirement

4.4.5　The use of RNG results in the selection of mystery jackpot values must:

a)　Be statistically independent;

b)　Be uniformly distributed over their range;

c)　Pass statistical tests determined by an ATF; and

d)　Be unpredictable.

4.4.6　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 must not be recurrent);

h)　Spectral test;

i) Serial correlation test potency and degree of serial correlation (outcomes must be independent from the previous game); or

j) Subsequences test.

Cryptographic RNG Requirements

4.4.7 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, for example 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, 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.

4.4.8 All new RNG implementations must be cryptographically strong by meeting the requirements set out in this Standard.

4.4.9 The 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

4.4.10 A monitor and a venue operator must only use algorithms that are demonstrated to be cryptographically strong for use in jackpot system software.

4.4.11 RNG requirements in this Standard will only apply if they are applicable to the type of RNG chosen.

4.4.12 Any RNG implementation must follow parameters specific to the algorithm.

Seeding

4.4.13 Where seeding is used, the method of the initial seed generation must not allow the same sequence of numbers to be used.

4.4.14 The method of seeding must not compromise the security of the RNG.

RNG Minimum Period

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

Minimum Range Requirement

4.4.16 The range of values produced by the RNG must produce event outcome probabilities

to accurately reflect the expected RTP.

Mapping

4.4.17 Mapping of random numbers into mystery jackpot values must be performed by linked jackpot equipment in accordance with the following principles:

a) Any outcome derived from the random number generator must be uniformly distributed;

b) Any mappings to convert random numbers into mystery jackpot 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 jackpot 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 for each of the possible jackpot outcomes within the jackpot range (e.g. reset value to maximum jackpot limit).

Scaling Algorithms

4.4.18 If a random number with a range shorter than that provided by the RNG is required for some purpose within the jackpot system software, 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.

4.4.19 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

4.4.20 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.

4.4.21 A hardware RNG must be able to provide sufficient non-deterministic entropy for continuous operation of the game.

4.4.22 A hardware RNG must manage insufficient entropy through blocking, until it is available.

4.4.23 A hardware RNG must be implemented in accordance with any necessary requirements, as specified by the hardware RNG implementation (e.g. entropy rate limits, output whitening).

4.4.24 Whitening of the hardware RNG output may be achieved by combining it with output from a demonstratively secure pseudo RNG.

Monitoring of a Hardware RNG

4.4.25 Monitoring of a hardware RNG must be implemented to detect if the RNG has deteriorated or malfunctioned.

4.4.26 Monitoring of a 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 the device has deteriorated or malfunctioned and randomness of the output is not guaranteed, the linked jackpot equipment must be disabled.

4.4.27 Monitoring of a hardware RNG does not require "run time statistical tests" for continued randomness of output, unless required by the hardware RNG manufacturer.

4.5 Jackpot Events and Software Meters

4.5.1 Jackpot system software must retain the following information for each jackpot level for each jackpot operated:

   a) Total turnover received from connected gaming machines or gaming devices;

   b) Total amount of jackpot prizes won;

   c) Total jackpot prize pool increments applied (including any diverted amounts, if applicable);

   d) Total amount of jackpot prize pool increments won;

   e) Number of times the jackpot has been won;

   f) Current jackpot prize pool amount; and

   g) Current jackpot prize diversion pool amount (if any).

4.5.2 Jackpot system software must retain the following information for a jackpot system host that is not a venue EMS host:

   a) Total number of times the logic door has been opened; and

   b) Total number of times a jackpot system host main door has been opened.

4.5.3 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.

Binary Meters

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

Meter Update

4.5.5 A meter must be updated on the occurrence of new events applicable to that meter.

Jackpot Reset

4.5.6 To minimise the potential for the possibility of a jackpot being won (or appearing to be won) by one or more players at approximately the same time, jackpot system software must give the highest priority to resetting the jackpot pool after a jackpot trigger event is received.

4.5.7 Jackpot system software must execute a jackpot pool reset no later than three seconds after a jackpot trigger event is received or determined (e.g. in the case of a mystery jackpot).

4.5.8 Jackpot system software must record details of each jackpot hit and prize payment (including exact time the hit was detected, exact time the prize payment was initiated and winning device identifier) and enable access to such records to assist in diagnostics and potential simultaneous, or near-simultaneous, jackpot award disputes.

4.6 Jackpot Shutdown / Re-activation

4.6.1 A monitor or a venue operator must only use linked jackpot equipment that is capable of immediately enforcing a jackpot shutdown if any of the following events occur:

a) The gaming hours of the casino, hotel or licensed club have expired;

b) A door open event is registered on the jackpot system host;

c) A signature failure of the jackpot system software;

d) A signature failure of the venue EMS host;

e) A logic cage open or equivalent event on the venue EMS host;

f) An internal fault with the jackpot system host;

g) No relevant jackpot displays are operational;

h) The communication link between the jackpot system host and the venue EMS host fails;

i) A jackpot has been eliminated or suspended; or

j) A venue EMS host functioning as a jackpot system host is unable to send its meters to the central EMS host for a period longer than 48 hours.

4.6.2 A jackpot system host or jackpot system software must have the ability to manually command a jackpot shutdown.

4.6.3 In the event a jackpot is shutdown, the following must occur:

a) Clear indication must be given to players that the jackpot is not operating (e.g. by saying "Jackpot Closed" on LED displays); and

b) It must not be possible for the jackpot to be won while in the shutdown state.

4.6.4 Re-activation of a jackpot from the shutdown state must return the jackpot with the identical parameters, including jackpot value and increment percentages, as before the shutdown.

4.6.5 On re-activation for linked mystery jackpots, hidden win amounts may be re-calculated in the range of current jackpot value and maximum jackpot amount, and in this event, the jackpot system software must pick a new number in the range of the current (recovered) amount and the maximum. The requirements set out under section 4.4.3 of this Standard are applicable in relation to this section.

4.7 Jackpot System Software Resumption after Restart

4.7.1 If jackpot system software is resumed after a restart, the following procedures must be performed:

a) Communications to any external device must not begin until the jackpot system

software resumption routine is completed successfully; and

b) All control programs and critical memory have been checked and cleared of corruption.

4.7.2 Jackpot system software must be able to detect any change in any jackpot system software program from when a jackpot system host was last powered down or interrupted.

4.7.3 If a change to the jackpot system software has been detected, the jackpot system host must lock-up, displaying an appropriate message until the lock up is cleared by an approved method.

4.8 Hashing Algorithm

4.8.1 A jackpot system host or jackpot system software must act upon an external command (system generated or manually by the monitor or venue operator) to conduct a verification of all program memory, firmware or PSD that influences the operation of that jackpot system host or jackpot system software, or influences the outcome of a jackpot.

4.8.2 A jackpot system host or jackpot system software must implement a variable signature hashing algorithm with externally provided initiating parameters.

4.8.3 A jackpot system host or jackpot system software must use a hashing algorithm as required by the Australian/New Zealand Gaming Machine National Standard, or use a hashing algorithm that is demonstratively peer reviewed and secure.

4.8.4 Hashing algorithms that use primitive techniques, such as parity or simple checksum byte, must not be used.

4.8.5 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.

4.9 Jackpot Recovery

4.9.1 To enable recovery of the current value of jackpot prize pool amounts in the case of a jackpot system host or jackpot system software failure, either:

a) The current value of all jackpot prize pool amounts must be stored in at least one other physically separate device from the jackpot system host, (it is not sufficient to rely on the amount displayed unless it can be shown that a jackpot system host failure would not corrupt the amount displayed at the time of failure); or

b) The current value of all jackpot prize pool amounts can be accurately calculated from other metering information.

5 Jackpot Display

5.1 General Jackpot Display Principles

5.1.1 The following must occur for all jackpot displays and messaging:

a) Unauthorised access must not be able to occur to alter the display content or display parameters;

b) Jackpot display signage must only be used for intermittent advertising purposes so as the display remains predominantly a jackpot display device; and

c) Jackpot prize pool values are to be displayed frequently so as players are kept informed of the current state of jackpot prize pool amounts.

5.2 Jackpot Prize Pool Display

5.2.1 A jackpot prize pool display must show the following information:

a) The current jackpot prize pool values for each jackpot level. The display of the jackpot prize may be incremented from its previous resting value (e.g. odometer effect). The display must accurately reflect the actual jackpot prize pool value within 10 seconds since the last turnover contribution;

b) Jackpot level identification (e.g. the level number or level name);

c) The maximum jackpot prize pool amount for each level of each connected mystery jackpot; and

d) For any linked jackpot arrangement operating with a maximum prize amount, a notification of what the maximum prize amount is, and the treatment of jackpot contributions if the maximum prize is reached.

5.3 Jackpot Display Controller

5.3.1 A jackpot display controller must be able to be programmed to accommodate the following display output modes:

a) Jackpot prize pool values;

b) Jackpot winner notification; and

c) Messaging advising communications have been lost with the connected jackpot system host.

5.3.2 A jackpot display controller must only generate display content relative to the linked jackpot arrangement(s) it is connected to and must always conform to the approved rules and conditions, if any, of that linked jackpot arrangement(s).

5.4 Jackpot Winner Notification

5.4.1 When the winning of a jackpot prize happens, the following notifications must occur,

unless all the information on the display is otherwise provided for on all the participating gaming machines or gaming devices:

a) Audible notifications;

b) Visual indication of the win on any connected jackpot prize pool display, including:

    i) the jackpot prize pool amount won;

    ii) the jackpot level number or name; and

    iii) the winning gaming machine or gaming device floor number.

c) Visual indication of such an event on the winning gaming machine or gaming device; and

d) A jackpot win event is logged (including the exact time the jackpot win event is received and the gaming machine or gaming device to which the jackpot prize is paid).

5.4.2 The notification of the winning of any jackpot must be passed by electronic means to the winning gaming machine or gaming device, which must then advise the player that they have won the jackpot and the amount that they have won.

5.4.3 Jackpot payment methods must always comply with the Commission's requirements.

5.4.4 The method of "resetting" jackpot displays to no longer show the last win details must require the use of a jackpot reset key at the jackpot controller or use a secure software command from the EMS.

6 Auditability

6.1 General

6.1.1 A jackpot system host or jackpot system software must provide functionality to facilitate inspection.

6.1.2 Access to the audit functionality must be restricted to prevent unauthorised access.

6.2 Identification of a Jackpot System Host

6.2.1 A jackpot system host that is not a venue EMS host must have a manufacturer's identification plate permanently affixed to the exterior of the cabinet and it must display the following information:

a) The manufacturer;

b) A unique serial number;

c) 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 a PCB must be identifiable (if track cuts and/or patch wires are added to a PCB then a new revision must be assigned to the assembly).

6.2.4   A PSD must be clearly labelled with sufficient information to identify the software and revision level of the software stored within the PSD.

6.2.5   A PSD located in the executable space of a critical processor must be socketed for external verifications.

6.3   Audit Mode

6.3.1   A jackpot system host that is not a venue EMS host must provide a method that enables validation of its jackpot system software.

6.3.2   The method for validation of jackpot system software that is not part of a venue EMS host must provide for the following steps to be undertaken at the jackpot system host:

a)   The input and display of a signature key;

b)   The display of an identifier for each PSD; and

c)   The display of the HMAC-SHA256 signature for each PSD, or other approved algorithm for the signature key entered.

6.3.3   An application must be made to the Commission for other validation methods relating to jackpot system software. The supplier, monitor or venue operator must provide the following details to the Commission if other validation methods are proposed to be used:

a)   The accuracy and integrity of the proposed method;

b)   The ability to conduct validation whilst the jackpot system host and jackpot system software are operating;

c)   The ability to conduct field validation at a casino, hotel or licensed club; and

d)   Certification of the method by an ATF.

6.4   Access Detection

6.4.1   A logic door open event must be stored for at least 14 days after the event, with and without mains power being available to the jackpot system host.

7   Jackpot System Source Code

7.1.1   A supplier, monitor or venue operator must not allow closed source software to be used to provide functions that are central to the operation of linked jackpot equipment, which include:

a)   Installation and configuration of jackpot parameters;

b)   RNG operation;

c)   Monitoring and recording of gaming machine or gaming device contributions, transactions and significant events;

d)   Protection of non-volatile memory;

e)   Jackpot control and monitoring functions;

f)   Security monitoring; and

g)   Linked jackpot equipment software verifications.

8   Jackpot System Host Communication Protocol

8.1.1   A jackpot system host or its jackpot system software must incorporate protocol-based communication to enable communication with an EMS.

8.1.2   A communication protocol must include error control, flow control and link control (for remote connection) capabilities.

8.1.3   A communication protocol must make use of cyclic redundancy checks (CRCs) or the equivalent.

8.1.4   A communication protocol must not use only parity or simple checksum byte to perform validation of transmitted data.

8.1.5   A communication protocol must be able to withstand varying error rates.

On-line Real Time Communications

8.1.6   A linked jackpot arrangement must be immediately disabled by the monitor if the EMS loses communications with linked jackpot equipment and the EMS is not capable of recording jackpot events.

9   Approval Submission Requirements

9.1   General

9.1.1   This section describes what must be provided to an ATF for evaluation, prior to being submitted to the Commission for approval.

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

9.2   Supply of Documentation

9.2.1   A supplier, monitor or venue operator must provide all linked jackpot equipment operator and service manuals to the representing ATF, and the Liquor and Gaming Branch on request.

9.2.2   The manuals referred to in section 9.2.1 must describe the operation and maintenance requirements of linked jackpot equipment.

9.2.3   The following information must be included in linked jackpot equipment manuals in order to assist operator staff and service personnel in the performance of their duties:

a)   Hardware and equipment specifications;

b)   Installation instructions, including mechanical installation instructions (e.g. removal of transportation hardware, mounting methods for stability and safety, surrounding clearances);

c) Commissioning instructions, covering the entering of various parameters as part of the commissioning process;

d) Diagrams showing details of all major components and connectivity of linked jackpot equipment;

e) Information detailing the replacement of major components, including parts lists;

f) A comprehensive description of the linked jackpot equipment operation in audit mode and any test modes;

g) Details of any routine maintenance required;

h) A fault-finding chart and repair instructions, including details of skill levels or training required to clear faults;

i) Instructions regarding the execution of jackpot system software and jackpot display controller configuration options; and

j) RAM clear instructions.

9.3 Full Hardware Submission

9.3.1 For a full hardware submission of a new jackpot system host or jackpot display controller, a supplier, monitor or venue operator must provide the following information to the representing ATF, and the Liquor and Gaming Branch on request.

General

9.3.2 A supplier, monitor or venue operator must supply the new linked jackpot equipment or components that require evaluation (e.g. jackpot system host or jackpot display controller).

9.3.3 A supplier, monitor or venue operator must supply the definition of the linked jackpot equipment or components.

9.3.4 A supplier, monitor or venue operator must supply the equipment model name.

9.3.5 A supplier, monitor or venue operator must supply the equipment model number.

9.3.6 A supplier, monitor or venue operator must provide the following information to minimise testing time and costs, where the hardware submitted is a variation of a previously approved model:

a) Jurisdiction in which the equipment is approved;

b) Model number;

c) Version number;

d) Copy of approval notice;

e) Significant differences; and

f) Date of approval.

9.3.7 A supplier, monitor or venue operator must supply test equipment to assist in the evaluation process.

9.3.8 A supplier, monitor or venue operator must provide instructions and operation

manuals for test equipment.

9.3.9   A supplier, monitor or venue operator must supply current operational installation and service manuals which are relevant to the submission.

Cabinet (where the jackpot system host is not a venue EMS host)

9.3.10   A supplier, monitor or venue operator must provide an overview of the linked jackpot equipment, including cabinet modules, illustrations, dimensions, and table of part numbers for the main cabinet modules.

9.3.11   A supplier, monitor or venue operator must provide relevant electrostatic and any other relevant certifications demonstrating the equipment's ability to withstand failure due to interference.

9.3.12   A supplier, monitor or venue operator must provide an identification plate to be externally mounted on the side of the equipment, if not already affixed.

9.3.13   A supplier, monitor or venue operator must provide extension cables for door photo-optic detectors and any other hardware, so that the machine may be tested with doors opened.

PCBs (where the jackpot system host is not a venue EMS host)

9.3.14   A supplier, monitor or venue operator must provide a table of primary and secondary PCBs, which includes name/description and part number.

Electronic Components

9.3.15   A supplier, monitor or venue operator must provide complete schematic diagrams of all sub-systems.

9.3.16   A supplier, monitor or venue operator must provide a wiring loom/harness connection diagram(s).

9.3.17   For the jackpot program storage media used by a jackpot system host, a supplier, monitor or venue operator must provide the following:

a)   Model;

b)   Type;

c)   Size; and

d)   Spare (blanks) PSDs.

9.4 Software

9.4.1   A supplier, monitor or venue operator must provide the following documentation to the representing ATF, and the Liquor and Gaming Branch on request, for any new jackpot system software or jackpot display controller software submission:

a)   A general overview of the system, describing how software and hardware are integrated;

b)   Program block diagrams and flow charts for the software; and

c) Software compilation environment.

9.4.2 A supplier, monitor or venue 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) A jackpot system host or other linked jackpot equipment model(s) and any hardware dependencies;

c) Submission date; and

d) Source code details.

9.4.3 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

9.4.4 For all open-source software included in the submission, a supplier, monitor or venue 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.

9.4.5 For all closed-source software included in a submission, a supplier, monitor or venue operator must provide the following to the 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.

9.4.6 A supplier, monitor or venue operator must have provisions in place to allow appropriate access to the closed source code to the representing ATF, and the Liquor and Gaming Branch on request, for the purpose of investigating software faults.

9.4.7 A supplier, monitor or venue operator must provide arrangements with closed source software vendors to the ATF, and the Liquor and Gaming Branch on request.

9.4.8 A supplier, monitor or venue operator must provide a master image that is identical to the image installed on a linked jackpot equipment's PSD.

Compilation Environment

9.4.9 For all software included in a submission, a supplier, monitor or venue 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.

9.4.10 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 the jackpot system host or jackpot system software.

9.4.11 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.

9.4.12 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 a supplier, monitor or venue operator.

9.4.13 Alternatively, where witness builds are not performed:

a) Non-reproducible build elements must not relate to functions central to the integrity of the linked jackpot equipment (refer to section 7.1.1) and this must be verified by the ATF;

b) A supplier, monitor or venue 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.

9.4.14 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 by a supplier, monitor or venue operator. If the tools are not available, a supplier, monitor or venue operator must develop and supply them to the ATF free of charge.

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

Program Storage Devices (PSDs)

9.4.16 A supplier, monitor or venue 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 type;

      ii)   a hashing algorithm signature; and

      iii) a PSD image file.

Miscellaneous Functions

9.4.17 A supplier, monitor or venue operator must provide test mode details in the service manual and/or displayed intest mode on the linked jackpot equipment.

9.4.18 A supplier and monitor must have clear RAM clear procedures in place for technicians.

Fault Conditions

9.4.19 A supplier or monitor must provide RAM fault condition details and instructions in jackpot equipment service manuals.

Random Number Generator

9.4.20 A supplier or monitor must provide full details in technical terms of random number algorithms used for mystery jackpot functions.

9.4.21 A supplier or monitor must provide all text and journal references used in the design of the RNG.

9.4.22 A supplier or monitor must provide information detailing all points in jackpot system host operation where the RNG is activated, updated, or numbers are obtained, including details of background RNG activity.

9.4.23 A supplier or monitor must provide information that explains the seeding process of the RNG.

9.4.24 A supplier or monitor must provide a detailed flow chart and software listing of the RNG process.

9.4.25 A supplier or monitor must provide results for any empirical and/or theoretical tests conducted on the RNG.

System Security/Integrity

9.4.26 A supplier or monitor must provide details of all dual in-line package switch settings, jumpers, wire wrap selectable options or other external mechanisms by which the functioning of the jackpot system host, linked jackpot equipment or jackpot system software may be affected in the service manual.

9.4.27 A supplier or monitor must provide details of all program checks and when they are performed.

Data Retention

9.4.28 A supplier or monitor must provide information that describes the jackpot system host or linked jackpot equipment program state retention and recovery capabilities, and procedures in the event of a mains power outage or RAM corruption.

9.4.29 A supplier or monitor must provide information that details power down procedures.

9.4.30 A supplier or monitor must provide information that fully describes the functions and tests performed on initial start-up of the jackpot system host, including the method of detection of corrupted critical memory.

9.4.31 A supplier or monitor must provide a list of information stored in critical memory.

Metering Systems

9.4.32 A supplier or monitor must provide metering detail information in the service manual.

Artwork

9.4.33 If the artwork (e.g. rules of the jackpot arrangement) is only displayed on a jackpot video screen, then a supplier or monitor must provide an exact printout or photograph of such displays in the submission to the ATF.

9.4.34 A supplier or monitor must submit to an ATF text manuscripts or the equivalent, provided they are an exact replica of the information displayed on jackpot display screens.

9.4.35 A supplier or monitor must provide full colour graphic images of all artwork associated with the jackpot for each jackpot submitted to an ATF for evaluation.

9.4.36 The images referred to in 9.4.35 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 symbols).

9.4.37 If requested by the Commission, a supplier or monitor must provide a separate disclosure of all jackpot messages, images or sounds presented to a player which do not provide instructions rules or information or do not provide part of the display of the jackpot. This disclosure must include the events which triggered each message, image, or sound.

9.4.38 A supplier, monitor or venue operator that provides or uses jackpot system artwork, including statements provided via jackpot display systems, must not use any artwork that is misleading.

9.4.39 A supplier, monitor or venue operator that provides or uses jackpot system artwork, including those relating to linked jackpots, must not use any artwork that includes statements that indicate that the chances of winning a progressive prize increases with an increasing bet.

9.5 Updated Software Submission

9.5.1 For any update to a previous submission (e.g. a revision to existing software), a supplier or monitor 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.

9.5.2 Where a supplier or monitor has previously provided to an ATF information, documentation, instructions, software, tools, utilities, equipment, or PSDs, and these are unchanged, resubmission is not required. References to the any items previously provided to an ATF must be included as part of the updated submission.

10 Glossary

Term or Abbreviation	Description
Act	Gaming Control Act 1993.
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*.
Casino Operator	The holder of a casino licence approved under section 13A or 13B of the Act.
Central EMS Host	Computer equipment where software and databases perform overall control and management of functions of the EMS.
Commission	The Tasmanian Liquor and Gaming Commission.
Communication Protocol	A communication specification that defines requirements for data interchange between devices, such as a jackpot systems host and gaming machines or gaming devices.
CPU	Central processing unit.
Diversion pool scheme	A jackpot arrangement that involves taking a portion of the jackpot contributions and redirecting them to another pool so that when the current jackpot is won, this pool is added to the restart level of the next jackpot.
EMC	Electromagnetic compatibility.
EMI	Electromagnetic interference.
FATG	Fully automated table game.
Hash value	A hash value is a numeric or alpha numeric value of a fixed length that uniquely identifies data.
Jackpot	A linked jackpot arrangement which includes operational arrangements and rules under which jackpots must be operated.
Jackpot Display Controller	A device used in conjunction with linked jackpot equipment that is primarily used for: • Receiving jackpot pool broadcast and trigger events from a jackpot system host; and • Managing content delivery to a jackpot display (such as prize pool updates, trigger animations, and marketing messages).
Jackpot Prize Pool Display	An electronic device connected to a jackpot display controller, which displays media content using video, LED or similar technologies, with or without audio output capabilities.
Jackpot System Host	A central EMS host, a venue EMS host or other linked jackpot equipment which provides jackpot system host functionality for FATGs and table game jackpots.
Jackpot System Software	Software integrated and operating within an EMS or software incorporated into linked jackpot equipment.
Licensed Monitoring Operator	A monitoring operator approved under section 48O of the Act.
Linked Jackpot Arrangement	An arrangement whereby two or more gaming machines or gaming devices are linked to a device that receives data from each linked machine and records any jackpot payable.
Linked Jackpot Equipment	A jackpot meter, payout display, linking equipment, computer equipment, programming, or other device (other than a gaming machine) forming, or capable of forming, part of a linked jackpot

	arrangement.
Linked Mystery Jackpot	A linked jackpot arrangement that involves two or more gaming machines or gaming devices where a jackpot prize is paid to a gaming machine or gaming device then the turnover contribution to the jackpot prize pool causes the jackpot prize pool amount to coincide with a random value generated by the jackpot system software, within a minimum and maximum amount.
Linked Progressive Jackpot	A linked jackpot arrangement involving two or more gaming machines or gaming devices where a jackpot prize is paid to a gaming machine or gaming device when that gaming machine or gaming device generates a specific jackpot winning combination and informs the jackpot system software that it has done so.
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 the gaming machine, gaming device or jackpot system.
Min RTP	The legislated minimum return to player percentage for a gaming machine.
Monitor	A licensed monitoring operator or a casino operator.
PCB	Printed circuit board.
PSD	Program storage device.
RNG	Random number generator.
RTP	Return to player percentage.
Source Code	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. - 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.
Venue EMS Host	The primary EMS computer located in a casino, hotel or licenced club (sometimes called a site controller).
Venue Operator	The holder of a venue licence approved under section 42 of the Act.