Australian/New Zealand

Gaming Machine National Standard

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1 Introduction

> This chapter introduces the Standard concept, and briefly discusses the phases involved in the origin and development of this Standard.

1.1 General

1.1.1 The Australian / New Zealand Gaming Machine National Standard ("the Standard") has been developed by participants from the following gaming regulators:

a) ACT Gambling and Racing Commission Tel. +61 2 6207 0359;

b) NSW Office of Liquor, Gaming and Racing Tel. +61 2 9995 0980;

c) New Zealand; The Department of Internal Affairs, Regulation and Compliance Branch Tel. +64 4 495 7200, web http://www.dia.govt.nz/;

d) Northern Territory Department of Justice - Licensing, Regulation and Alcohol Strategy Tel. +61 8 8999 1308;

e) Queensland Office of Liquor, Gaming and Racing Tel. +61 7 3872 0999;

f) South Australian Office of the Liquor and Gambling Commissioner Tel. +61 8 8226 8410;

g) Tasmanian Department of Treasury and Finance, Revenue, Gaming and Licensing Division Tel. +61 3 6233 4563;

h) Victorian Commission for Gambling Regulation Tel. +61 3 9651 3333;

i) Western Australian Department of Racing, Gaming and Liquor Tel. +61 89 425 1888.

1.1.2 The purpose of the Standard is to set out the core requirements, common to all jurisdictions, for the design of gaming machines and games for operation throughout Australia and New Zealand and to guide testers in their testing for compliance with the Standard.

Each jurisdiction will provide an Appendix to the above setting out any additional or differing requirements for that jurisdiction.

Chapter 8 Supplementary Standard Document lists the sections of this document that do not yet have continuity between all participating regulators, and the focus of the Working Party will be to merge these requirements into the core Standard.

1.1.3 Any word in square parentheses, (e.g. [VALUE]), refers to a value that may be subject to change due to a change in policy. These terms are defined in Chapter 3, Section 3.20 Parameter/Limit Definitions, and their values are listed in Chapter 8, Section 8.3 Parameter/Limit Values.

1.1.4 It is the prerogative of each jurisdiction on the extent to which this document is adopted. Whilst it is intended for there to be no conflict between the "core" requirements and individual jurisdictional requirement, in the event of a conflict the local requirement for that jurisdiction overrides the Standard.

1.1.5 Copying or reproducing this Standard (or any part of this Standard) for commercial gain, without prior permission is prohibited.

1.2 History

1.2.1 The National Standard Working Party was established by the Australian and New Zealand gaming regulators on 21 March 1994. The purpose of the working party is to develop technical requirement documents to be used by each individual jurisdiction as the basis for working towards a common technical requirement for the evaluation of gaming machines.

1.2.2   Commonality of technical requirements reduces duplication of effort on the part of manufacturers in the design and manufacture of a gaming machine supplied into multiple jurisdictions and provides cost savings when equipment previously approved in one jurisdiction is assessed for approval in other jurisdictions.

1.2.3   The process for developing the National Standard involves consultation with equipment manufacturers.

1.2.4   It has not been, in bringing the document to this stage within the scope of the working party, to attempt to change the divergent industry structures that exist between some jurisdictions. These structural differences result, not only from current regulatory policy but also from the different approaches to gaming machine ownership (venue, private monopolies or duopolies and government) and the level of technology (particularly monitoring and control system technology) available when machine gaming commenced in each jurisdiction.

1.2.5   Whilst these structural differences exist, jurisdictional specific technical requirements are inevitable. The working party has identified these differences and the focus of the National Standard development process will now shift to ensuring that any difference in technical requirements between jurisdictions are for valid and unresolvable reasons.

1.3   Intent

1.3.1   The intent of this document is to ensure gaming on gaming machines occurs in a manner that is:
   a)   fair;
   b)   secure; and
   c)   auditable.

   and that gaming machines are reliable in terms of these issues.

1.3.2   It is not the intent of this document to unreasonably:
   a)   mandate a single solution or method of realising an objective;
   b)   limit technology application to gaming equipment;
   c)   limit creativity and variety of choice;
   d)   limit marketability;
   e)   advantage any supplier or manufacturer of equipment; or
   f)   preclude research and development into new technology, equipment or innovative solutions.

1.3.3   New developments in gaming technology are recognised. Alternative implementations to the specifications will be considered on their merit on a case by case basis. Manufacturers should also be aware that purchasers of equipment may set requirements additional to the Standard provided that the additional requirements are compatible with the Standard.

1.3.4   Regardless of whether gaming equipment meets this Standard, it must operate as intended.

1.4   Adoption & Amendment of the National Standard

1.4.1   It is anticipated that amendments to the Standard will occur on a biennial basis and then be adopted by the participating jurisdictions. Individual jurisdictions can be expected to amend their respective requirements documents in advance of the National Standard where player fairness, security or auditability is considered to be jeopardised.

   This process should ensure manufacturers are given information well in advance of changes to the Standard. As a general rule when jurisdictions adopt new requirements:
   a)   a grace period of 6 months will be granted before new requirements come into force;
   b)   previously approved equipment remains unaffected and revisions to that equipment will be conducted under the requirements in force when the item was originally tested;
   c)   equipment under test at the time the new requirements come into force will be tested against the requirements in force when the item was submitted for testing.

1.4.2   Where non-proprietary enhancements are made to a previously approved gaming machine (e.g. conversion to a more technically advanced coin acceptance mechanism) as a general rule the test will be that the modification results in a gaming machine that is fair, secure and effectively auditable with functionality above that required at the time the gaming machine was originally approved but without having to meet newer requirements.

1.4.3   Games submitted for evaluation against a new revision of the Standard must meet all requirements. Where software is modularised (eg. 'shell' and 'game' software), the combination of the modules will be the subject of the evaluation and certification and not individual modules. For example, new 'game' software will not be certified for use on an existing 'shell' unless the existing 'shell' also complies with all the requirements of the new Standard.

1.5   Testing

1.5.1   Testing of gaming equipment by testers in a laboratory environment must be aimed at determining compliance with all requirements of the Standard. Non-compliance with the requirements must be reported in the certification.

Where, in the opinion of the tester, the requirements of the Standard are insufficient, inappropriate or not pertinent to the design of the subject gaming equipment (e.g. new technology or innovative game design is submitted), the tester must seek direction from the regulator before proceeding to certification.

1.5.2   Except where specifically identified in the Standard, testing is not directed at health or safety matters or at ensuring legislative requirements administered by other regulatory bodies such as for electrical wiring and of radio frequency emission, etc. These matters are the domain and responsibility of the manufacturer, purchaser and operator of the equipment. Each of these parties are required to assure themselves of such matters.

1.6   Interpretation Consistency

1.6.1   Australian and New Zealand gaming regulators recognise that common technical requirements can be subject to different interpretations by regulators and evaluation laboratories. Accordingly, the Chief Executive Officer of each gaming regulatory body extends an invitation for any gaming machine or equipment manufacturer to provide feedback direct to the Chief Executive Officer when different interpretations are applied to common technical requirements.

2   Hardware

> This chapter sets out the core hardware requirements of the Australian and New Zealand Gaming Machine Technical Standard.

2.1   Introduction

Gaming Machine Monitoring

2.1.1   If an electronic gaming machine is to be connected to an external device such as a cash transfer system or monitoring system, this Standard does not define the complete electronic hardware interface requirements. It is a requirement that the manufacturer (or supplier) of the external gaming machine equipment shall supply the complete hardware and software interface requirements for that connection.

2.2   General

Gaming Machine Evaluation Submissions

2.2.1   Information regarding requirements for submitting gaming equipment for approval are contained in Chapter 6 Submissions.

Gaming Machine Approvals

2.2.2   Information on the process involved in obtaining an approval can be obtained from the relevant regulatory body as set out in Chapter 1 Introduction.

2.2.2a   Each item of gaming equipment supplied by a manufacturer, must be functionally identical to the specimen tested and approved. For example, a gaming machine supplied as an approved device must not have different internal wiring, components, firmware, circuit boards, circuit board track cuts or circuit board patch wires, from the approved specimen unless that change is also approved.

Gaming Machine Documentation

2.2.3   All gaming machines and related equipment must have associated manuals at the time of approval. These manuals must adequately describe the operation and maintenance requirements of those units (typically an operator manual and a service manual). To facilitate timely equipment approvals manuals may be in draft form during the evaluation phase of the approval process however they must be finalised prior to approval being granted.

2.2.4   The following information must be presented in a comprehensive and professional format in order to assist gaming staff and service personnel in the performance of their duties :

a)   The machine specifications (Service manual);

b)   Installation instructions :

(i)   mechanical installation instructions (e.g., removal of transportation hardware, mounting methods for stability and safety, surrounding clearances) (Service manual);

(ii)   commissioning instructions, entering of various parameters as part of the commissioning process (Service manual);

c)   Diagrams showing details of all major components of the gaming machine (Operator and Service manuals);

d) Information detailing the replacement of major components, including parts lists (Service manual);

e) A comprehensive description of the machine's operation in audit mode and any test modes (Operator and Service manuals);

f) Instructions detailing the functions of all buttons, switches, and other controls on the gaming machine (e.g. explain how to cancel credits, empty the hopper, etc.) (Operator manual - operator related functionss only and Service manual - all);

g) Details of any routine maintenance required such as how to replace a light globe or fuse, or clean the monitor (Operator manual if appropriate);

h) A fault finding chart and repair instructions. Also detail which personnel can clear which faults (Operator manual if appropriate, and Service manual);

i) Instructions regarding the execution of game and denomination conversions (Service manual); and

j) RAM clear (Service manual).

2.2.5 The manufacturer shall use sound judgement in selecting the information content of both the service manual and the operator manual from the above requirements.

2.3 Cabinet

Cabinet Identification

2.3.1 A gaming machine must have an identification badge permanently affixed to its cabinet by the manufacturer, and this badge must include the following information:

a) the manufacturer;

b) a unique serial number;

c) the gaming machine model number; and

d) the date of manufacture.

2.3.2 The ID badge is to be fixed on the exterior of the gaming machine in a position that allows it to be easily read.

2.3.3 The cabinet model identification number of the gaming machine (at the time of installation) must reflect the model approved for that jurisdiction.

2.3.4 -

2.3.5 All external key-switches of the gaming machine cabinet, switches and player buttons must be securely labelled according to their function or the series of events that are initiated by their action. If a key-lock initiates some kind of user activity other than simply unlocking a door, then its function should be labelled (e.g. if a key-lock turns one way to enter audit mode, and turns the other way to enter cancel credit mode, then the directions should be labelled). Stickers are not considered secure labels.

Cabinet Artwork

2.3.6 Information regarding requirements for gaming equipment artwork are contained in Chapter 4 Artwork .

Cabinet Construction

2.3.7 The cabinet shall be of a sturdy construction with a locking system which resists the kind of unauthorised entry which the gaming machine is likely to be subjected to in a gaming venue. The cabinet must be designed to protect internal components from external abuse which the gaming machine is likely to be subjected to in a gaming venue.

Note : This requirement is not to be interpreted as requiring the cabinet to be resistant to power drilling, forced entry with a crowbar or a similar attack that venue staff supervision should detect.

2.3.8 Areas of a cabinet which are generally accessible to patrons shall be constructed and finished so as to not have the potential to cause injury.

2.3.9 All protuberances (e.g. buttons, handles) on a cabinet that are accessible to the general public, and attachments to a cabinet (e.g. labels and identification plates) must be sufficiently robust to avoid unauthorised removal.

Doors

2.3.10 All doors shall close and lock in an easily executed and satisfactory manner.

2.3.11 Doors shall be manufactured of materials that are suitable for allowing only legitimate 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 gaming machine and leave evidence of tampering if an illegal entry is made).

2.3.12 Door hinges must be of solid construction to prevent sagging of the door and thus creating any door sensor alignment problems.

2.3.13 A door may open in any direction provided that when fully opened, it presents minimal interference to adjacent machines or patrons.

2.3.14 Devices used to limit the door opening must be robust in nature.

2.3.15 The seal between the cabinet and the door of a locked area shall have minimal gaps.

2.3.16 The seal between the cabinet and the door of a locked area must be designed to resist the entry of objects.

Liquid Spills

2.3.17 Liquid spills applied to the outside of a gaming machine must not affect the normal operation of the machine, or affect the integrity of the material or information stored inside the cabinet (or affect the safety of the patrons operating the equipment). It is recognised that as a result of a liquid spill a touch screen may lose normal operation until the surface dries.

2.3.18 Spilled liquid shall not:
   a)   enter the logic cabinet;
   b)   disrupt the normal function of push buttons; or
   c)   enter the power supplies, (or must not enter high voltage wiring).

   Note :   Requirement b) is not to be interpreted as requiring push buttons not to stick after sugar based liquids dry.

2.3.19 If liquids are spilled into a coin validator, the only degradation permitted is for the validator to reject all coins.

   Note :   Entering a state where incorrect coins are accepted (or correct coins are accepted but not credited to the customer) is not acceptable.

Keys and Locks

2.3.20 The cabinet (and door) must be designed so as to allow for proper operation and security once locks are installed.

2.3.21 Keying requirements for gaming machines are jurisdictional specific.

Cabinet Environment

2.3.22 Gaming machines in Australia and New Zealand can be expected to operate in a variety of extreme environments. In the event that the designed operational parameters of a gaming machine are exceeded the machine if incapable of continued proper operation must perform an orderly shutdown without loss of game status, accounting and security event data. Typical operating environments may have:

a)   a temperature variation from 10 degrees to 40 degrees Celsius;

b)   a humidity variation of 15% to 85%; and

c)   dust and smoke particles.

Note :   In some remote locations, gaming equipment operates in an environment of 50 degrees Celsius and 99% humidity, and thus adequate ventilation must be provided for components within the gaming machine.

Cabinet Security

Locked Areas

2.3.23   The entirety of a gaming machine's equipment which does not form part of the player's input interface (e.g. buttons) must be stored within one or more locked areas of the gaming machine. These locked areas must be equipped with door access detection devices (with the exception of areas which have access to lighting only).

2.3.24   Access to a locked area 'A', must not be possible from another locked area 'B' without the use of a key for locked area 'A' or without causing undue damage to the gaming machine.

2.3.25   Where holes, gaps, or slots exist in the exterior of a locked area (on the outside of a gaming machine cabinet), there must be sufficient protection to ensure that the insertion of foreign objects will not compromise the security or safety of that locked area.

2.3.26   A locked area must resist forced entry and must retain evidence if a forced entry has occurred.

Door Access Detection Devices

2.3.27   Door access sensors must detect all door openings and provide applicable feedback to the gaming machine software.

2.3.27a   A mechanical door access detection device is only permitted on the main door when used in conjunction with additional door access detection devices (e.g. optical sensor system).

2.3.27b   The door access detection system must prevent simple bypassing (e.g. exposing an optical sensor to a fixed beam of light).

2.3.28   It must not be possible to disable a door open sensor without first opening the door using the designed manner (e.g. key).

2.3.29   It must not be possible to insert a device into the gaming machine that will disable a door open sensor when the machine's door is shut without leaving evidence of tampering.

2.3.30   If a door access detection system is disconnected (including the cashbox), the gaming machine must interpret this action as the door being opened.

2.3.31   The sensor system must register a door as being open when the door is moved from its fully closed and locked position, (and inversely, it must not be possible for the sensor system to register the door as being closed when in fact the door is not fully closed).

2.3.32   The door access detection system must be secure against attempts to disable it or interfere with its normal mode of operation.

Note :   There must be no false alarm door open conditions (e.g. when the door is bumped).

2.3.33   Cable runs and mountings for door access detectors are to be fitted in such a way that any interference with them is obvious.

2.3.34   The cables for the console door open sensor should be of sufficient length to ensure that they can be run along the inner walls of the console.

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

<u>Logic Area</u>

2.3.36 The logic area is 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.

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

a) CPU's and other electronic components involved in the operation and calculation of game play (e.g. game controller electronics, and components housing the game or system firmware program storage media);

b) electronics involved in the operation and calculation of game result determination;

c) electronics involved in the calculation of 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; and

f) all flash memory devices that affect the game play function of the gaming machine.

2.3.38 Communication, I/O and display interfaces which do not significantly influence the gaming machine's behaviour may be excluded from a logic area; consideration will be given on a case by case basis.

2.3.39 Logic areas shall be fitted with door access detection systems that shall enable software to detect whether the logic door is open or closed regardless of whether mains power is switched on or off (and it shall detect and store information of a logic door open event with the mains power off for at least 14 days). See Table 3-7 : Gaming Machine Door Open/Close Event Definitions.

Note : If the logic door is opened more than once while off-line or powered off, it is only necessary for the gaming machine to treat this as a single entry.

2.3.40 If the logic access detection device fails, the gaming machine must assume that the logic door is open and respond accordingly (and it shall detect and store information of a logic door open event with the mains power off for at least 14 days).

2.3.41 There shall be a facility for storing a logic door open event for at least 14 days whether the mains power to the gaming machine is switched on or off.

2.3.42 A logic area should be located inside another locked area of the gaming machine; if not it must possess two physical locks (this does not exempt physical seals if required).

Rationale : This requirement provides for additional physical security of the logic area.

2.3.43 Provision must be made for a physical seal on the logic area door (check local regulations or the appendix on the type of seal that is necessary) which must be broken on entrance or removal of the logic area.

2.3.44 It must not be possible to reset the logic area door open state by either hardware or software means, if the processor board is outside the gaming machine or the sensor(s) indicate that the logic door is still open.

2.3.45 It must not be possible to insert a device into the logic area (without detection or without leaving evidence of tampering) that will disable the logic area door open sensor when the door is shut.

Cabinet Electrical

<u>Cabinet Wiring</u>

2.3.46 The gaming machine shall be designed so that power and data cables into and out of the gaming machine can be routed so that they are not accessible to the general public.

2.3.47 Security related wires and cables that are routed into a logic area must not be able to be removed without triggering a logic area access detection.

2.3.48 Internal provisions (following established engineering practices) for cable routing and cable shielding must be followed in order to minimise the introduction of electrical noise onto data and control lines.

2.3.49 All plugs, sockets, connectors, and wiring looms must be easily identifiable in both the machine and on the circuit diagrams in the relevant manuals. Connectors should be keyed so as to prevent insertion in the wrong orientation.

2.3.50 Connectors and sockets are to be of a sound quality, being capable of multiple insertions without exhibiting signs of unreliability, and wiring looms must have strain relief protection if warranted.

Cabinet Interference

2.3.51 -

Electrostatic Interference

2.3.52 Protection against static discharges requires that the machine's conductive cabinets be earthed in such a way that static discharge energy shall not damage, or inhibit the normal operation of the electronics or other components within the gaming machine.

2.3.53 Gaming machines must exhibit total immunity to human body electrostatic discharges on all areas exposed to player contact.

2.3.54 Tests will be conducted on the gaming machine with a severity level of ±15 kV for air discharge, and ±7.5 kV for contact discharge.

Note :	The testing methodology to be used is defined at IEC 61000-4-2 Category 'A' or later. Testing against IEC 61000-4-2 Category 'A' or later must be performed by an independent laboratory that is NATA (or equivalent) accredited to perform this type of testing.

Temporary Disruption Test

2.3.55 Gaming machines may exhibit temporary disruption when subjected to a significant electrostatic discharge greater than human body discharge 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 gaming machine.

2.3.56 There shall be under no circumstances an abnormal pay-out from the coin hopper (if one exists) when exposed to the higher levels of ESD.

2.3.57 Tests will be conducted on the gaming machine with a severity level of ±25 kV for air discharge, and ±7.5 kV for contact discharge.

Note :	The testing methodology to be used is defined at IEC 61000-4-2 Category 'B' or later. Testing against IEC 61000-4-2 Category 'B' or later must be performed by an independent laboratory that is NATA (or equivalent) accredited to perform this type of testing.

Radio Frequency Interference

2.3.58 Gaming machines must not divert from normal operation by the application of RFI at a frequency range from 27 to 1000 MHz with a field strength of 3 volts per metre.

Note :	The testing methodology to be used is defined at IEC 61000-4-3 Category 'A' or later. Testing against IEC 61000-4-3 Category 'A' or later must be performed by an independent laboratory that is NATA (or equivalent) accredited to perform this type of testing.

Magnetic Interference

2.3.59   Gaming machines shall not have their operational properties changed by the application of a magnetic interference level that produces a maximum of 10 Gauss at a distance of 5 cm from the surface of the gaming machine.

Note :   The tests conducted must be in accordance with Mil-Std-461 and as per Mil-Std-462 or later. Testing against Mil-Std-461 or later must be performed by an independent laboratory that is NATA (or equivalent) accredited to perform this type of testing.

2.4   Computer & Peripheral Hardware

Memory Requirements

RAM

2.4.1   Sufficient random access memory (RAM) must be installed in the gaming machine to allow the recording and logging of all information required by the relevant Software sections of the standard.

2.4.2   RAM data storage must be capable of reliably preserving its memory contents for at least 90 days with the mains power switched off. A rechargeable or non-rechargeable backup power source may be used. If a rechargeable backup power source is used, it must have the ability to recharge itself to its full potential in a maximum of 24 hours.

2.4.3   The gaming machine must use a backup power source to retain the contents of random access memory when the mains power is off and must have a detection system which will provide a method for software to interpret and act upon a low or failed backup power source condition.

2.4.4   Where a rechargeable backup power source is used, it must have a life span of at least 5 years and the low/fail condition must be checked on every power up and at least every 24 hours.

2.4.5   Where a non-rechargeable backup power source is used, it must have a life span of at least :-
   a)   5 years and the low/fail condition must be checked on every power up and at least every 24 hours, or
   b)   10 years and the low/fail condition must be checked on every power up.

2.4.6   Clearing memory must only be able to be undertaken by accessing the logic area in which it is housed.

Critical Memory Requirements

2.4.7   Critical Memory is to be maintained in at least three (3) logically and two (2) physically separate and distinct devices at all times (refer Section 3.2.1 Contents of Critical Memory).

Note :   Critical Memory may be maintained in two (2) logically and two (2) physically separate and distinct devices if the manufacturer can demonstrate that the method of validation of critical memory provides reliability and recoverability equal to or exceeding that of the above requirement. (refer Section 3.2.3 Maintenance of Critical Memory)

PSD Labelling

2.4.8   All PSDs (and other programmable logic elements) must be clearly marked with sufficient information to identify the software and revision level of the information stored in the devices.

2.4.9   All PSDs and PLDs having erasure windows shall have such erasure windows appropriately covered.

Hard Meters

2.4.10   If electromechanical meters are required by the local regulations, they must not have the ability to be decremented or reset, and in the event of either occurring they must show evidence of tampering.

2.4.11   Electromechanical meters must be located in a locked area. However, they must be able to be easily read and must be appropriately labelled.

2.4.12   Each meter must be capable of displaying a minimum of 7 digits.

2.4.13   The cable construction between a hard meter and the logic area must not contain any joins or connectors except at either end of the cable. The cable to the meters may only be disconnected from the gaming machine :

a)   by accessing the logic area or,

b)   at the connection to the Hard Meters, by removal of a physical cover requiring the use of a tool.

2.4.14   Electromechanical meters shall have detection devices which provide a method to enable software to interpret and act upon the condition whereby the cable between the meter and the logic area has been disconnected.

2.4.15   Manufacturers shall standardise on the following hard meter names:

a)   Turnover - total value in dollars of bets made from the player's credit meter (note gamble bets such as double up are not bet from the player's credit meter);

b)   Total Wins - total value in dollars of all prizes awarded to the player's credit meter;

c)   Money In - total value in dollars of coins and or banknotes inserted to register credits on the player's credit meter together with transfers to the machine to register credits on the player's credit meter; and

d)   Money Out - total value in dollars of credits redeemed from the player's credit meter by hopper pay, ticket print, cancelled credit or account transfer; but not extra coin out errors or short pays.

Note :   In the above order.

2.4.16   Where hard meters are supplied in addition to those required by 2.4.15, the hard meters should be labeled with names corresponding to the appropriate software meters as defined in the National Standard. For practical reasons, appropriate abbreviations are acceptable.

Circuit Boards

PCB Identification

2.4.17   Each printed circuit board (PCB) must be identifiable by some sort of name (or number) and revision level.

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

2.4.19   Both identifications are to be permanently displayed on the board.

2.4.20   Manufacturers must ensure that circuit board assemblies, used in their gaming machines, conform functionally with the documentation and the approved versions of those PCBs that were evaluated and certified by the testing body.

PCB Construction and Modification

2.4.21   PCB manufacturing techniques should be of industry standard quality. For example: top and bottom solder masks, and top side screen overlay.

2.4.22   Where track cuts and modifications exist, they must be consistent across all boards with the same revision level.

2.4.23   Patch wires must be robust and reliable in nature.

2.4.24 All patch wires and track cuts must be documented, in an appropriate manner, in the relevant service manual.

2.4.24a All PSDs in the executable address space of a critical processor shall be socketed.

Switches and Jumpers

2.4.25 All switches or jumpers must be fully documented for evaluation by the testing body.

2.4.26 Switches or jumpers that have the potential to affect the security, integrity or the game result (e.g. percent return) of the gaming machine are not permitted.

Power Supply

2.4.27 The equipment must operate from a voltage range of 230V to 250V, 50 Hz main power source.

2.4.28 All ratings of fuses must be clearly stated on or in close proximity to the fuse holder, and switches on the power supply must show On/Off positions.

2.4.29 There may be a facility whereby the machine can be switched into a power save mode. For example, the lighting of the gaming machine is powered off, but the communications and relevant security features of the machine are still enabled.

2.4.30 Gaming machines must employ power supply filtering sufficient to prevent disruption to the device after a recovery from any of the following occurrences (orderly shutdown of the device is considered acceptable):

a) Application of a fast transient voltage of 2.5 kV to AC power lines (rise: 5 ns, duration: 50 ns), and 1 kV to external I/O lines.

Rationale : This test ensures proper operation of the gaming machine when its power source or communication lines are exposed to high inductance coupling of transients via the power cycling of nearby industrial equipment.

b) Injection of a surge voltage of 2 kV (rise: 1.2 micro Sec, duration: 50 micro Sec) to AC power lines.

Rationale : This test ensures protection for the gaming machine against power cycling of the mains circuit breaker (or the operation of nearby high inductive loads).

c) Continued operation at voltages within the legislated supply variations to which utility companies are required to comply (typically ±10% of 240 volts Australia & 230 volts New Zealand).

Rationale : Electricity companies only guarantee voltages within this range. Also in typical wiring situations there is often a considerable drop in voltage levels.

d) Surges or dips of ± 20% of the supply voltage. Note that it is acceptable for the equipment to reset provided no damage to the equipment or loss or corruption of data is experienced.

Rationale : Experience has shown that this range of variation occurs in the field.

e) Repeated switching on and off of the AC power supply.
f) Jiggling the AC cord at the wall outlet.

Information Display

Reels and Wheels

2.4.31 Electromechanically controlled display devices such as spinning reels, roulette etc., shall have a sufficiently closed loop of control so as to enable the software to detect a malfunction, or an attempt to interfere with the correct operation of that device.

Rationale :	This requirement is designed to ensure that if a reel is not in the position it is supposed to be in, an error condition will be generated.

2.4.32 Reel assemblies must have a clearly identifiable reference point at which the start of the strip symbol artwork is located.

2.4.33 Reel assemblies must be constructed such that winning symbol combinations match up with pay lines.

2.4.34 A reel/wheel assembly must be so designed that the spin of each reel is not obstructed by any other components.

Video Monitors

2.4.35 Monitors or their associated shields shall be securely mounted and shall be constructed of toughened material to resist patron abuse.

2.4.35a Where adjustment mechanisms for a video display unit are provided for use by gaming attendants (i.e. not service technicians), they shall :

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.

Touch Screens

2.4.36 Touch screens must be resistant to scratching from conditions likely to occur during normal use.

2.4.37 Touch screens must be accurate, and once calibrated must maintain that accuracy for at least the manufacturers recommended maintenance period.

2.4.38 A touch screen should be able to be re-calibrated by venue staff without access to the machine cabinet other than opening the main door.

Printers

2.4.39 If a gaming machine is equipped with a printer, it must be located in a locked area of the gaming machine (e.g. require opening of the main door) but not in the logic area or the cash box.

2.4.40 Where a ticket printer is incorporated into a gaming machine, either the printer must have the capability to simultaneously generate two identical copies of any print out ticket, or a system must be utilised whereby the gaming machine and/or CMCS retains sufficient evidence of the print out ticket and its contents to satisfy patron enquiries and operator/regulator audit purposes.

2.4.41 A printer must have mechanisms to allow software to interpret and act upon the following conditions:

a) Out of paper / Paper low;

b) Printer jam/failure; and

c) Disconnected.

Audible Alarm

2.4.42 A suitable audible alarm in the gaming machine must be provided for effectively signalling any of the error or security features required by the relevant software standard.

2.4.43 There may be a method whereby legal access can be made into the internal area of the gaming machine (by authorised personnel via an audit mode or other accountable method) where the audible alarm is not activated.

2.4.44 A technique should be provided to enable authorised personnel to adjust the volume level (without the need to enter the logic area). However the adjustment of the volume shall not allow the alarm output to be below a threshold level whereby the alarm cannot be heard with the door shut in a typical gaming environment (volume controls secured in a logic area are exempted).

2.4.45 The duration of the alarm when activated shall be at least 1.5 seconds.

2.5 Cash Input Systems

Note and Acceptor Devices

2.5.1   Refer to Chapter 5 Banknote Acceptance Specifications.

Coin Input Systems

2.5.2   The coin input system must be constructed in such a way that it protects the gaming machine against vandalism, abuse, or fraudulent activity. The coin input system shall have the following capabilities:

a)   the ability not to have its coin path easily altered from the exterior of the gaming machine without leaving evidence of physical modification;

b)   the ability to resist liquid spills;

c)   the ability to deliver the coin to the correct area of the gaming equipment with minimal failures;

d)   the ability to accurately detect and account for all valid inserted coins (and it should effectively detect and reject invalid coins); and

e)   the coin input system must be able to prevent manipulation by the insertion of foreign objects.

2.5.3   The coin input system must provide means through which software (or hardware) may detect and/or logically deduce when potential cheating is in progress.

Coin Validators

2.5.4   The coin acceptor device must be electronically based and be so designed that it accepts coins of appropriate legal tender or approved tokens. It must credit the customer's credit balance by the appropriate amount for each accepted coin, and return to the coin tray all other coins.

2.5.4b   The registering of credit must involve a form of communication (e.g. a complex series of pulses) which prevents the illegal or accidental registering of credit.

2.5.5   The coin validator should be easily removed from its mounting bracket for inspection, and its removal should not require the use of any tools.

2.5.6   Removal and replacement of a coin validator must not cause any necessary re-calibration or adjustment of that validator.

Programmable Coin Validators

2.5.7   In the case of coin validators which are electronically programmable to recognise a coin, the coin validator must be preprogrammed at the factory and it must not be capable of being reprogrammed in the field without access to the equipment used at the factory (or without detailed technical knowledge).

Coin Diverter Chutes

2.5.8   The coin chute and diverter mechanism shall be constructed to ensure that coins inserted into the gaming machine are deposited into either the hopper, the cash box, or the coin tray without coin jams occurring, or without spillage of coins onto the internal floor of the machine.

2.5.9   Means must be provided to enable the software to determine the coin's direction of travel as they are fed into the gaming machine (e.g. to detect yo-yoing).

2.5.10   There must be a sufficient closed loop control to enable the software to determine:

a)   if a coin is travelling to a cash box or to a hopper;

b)   if a coin diverter has failed; and

c)   if an internal coin jam has occurred (e.g. a coin has passed the acceptor but has not reached the sensors).

Rationale : This requirement maintains that the detection of a hopper overflow condition by means of software alone is inefficient.

2.6 Cash Ouput Systems

2.6.1 The cash output system must be resistant to manipulation by the insertion of any foreign object (e.g. into its output path).

Coin Hoppers

2.6.2 Where a gaming machine may be operated using coins and is fitted with a coin hopper, the hopper shall be located in a suitably secured area (generally within the gaming machine).

2.6.3 A hopper's design and materials of construction must be of an acceptable quality and shall require no adjustments for at least the manufacturers recommended maintenance period.

2.6.4 The hopper must have a cover fixed evenly around the perimeter of the coin container, and the cover should have an opening only large enough to allow refilling of the hopper by the method intended by manufacturer.

2.6.5 Hoppers shall have detection devices that provide a method of enabling software to interpret and act, upon the following conditions:
   a) hopper full, when the hopper full condition is detected, coins are to be diverted to the cash box (this hopper full level must incorporate a physical sensor);

Note : The hopper level adjust mechanism may be incorporated in the gaming machine's software in conjunction with a physical sensor which can over-ride the SW counter.

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   b) hopper empty/ hopper jam; and
   c) extra coin paid/hopper runaway (one or more unintended coins exiting the hopper).

Note : When possible the manufacturer is to distinguish between the hopper runaway and the extra coin paid out condition.

2.6.6 When power to the hopper is removed, the hopper is to prevent further coins from being dispensed without access to the secure area in which the hopper is located.

Cash Boxes

2.6.7 A gaming machine must provide an input for software to detect cash box door open / close.

2.6.8 Appropriate coin shunting must be provided within the gaming machine to deliver coins to the cash box.

2.7 Communications

Communications Interface

2.7.1 Ports for communication cabling are to be clearly labelled in accordance with their function.

2.7.2 Communication ports are to be located within a secure area to prevent unauthorised access to the ports or cable connectors.

3   Software Standard

This section sets out the core software requirements for each Australian and New Zealand jurisdiction's gaming machine technical standard.

3.1   Introduction

3.1.1   This section is designed to cover only the software operations of electronic gaming machines available to players and gaming attendants. Many security aspects generally implemented by software have been omitted on the grounds that the monitoring device will enforce these via its communication protocol.

3.1.2   Any word in square parentheses, (e.g. [VALUE]), refers to a value that may be subject to change due to a change in policy. These terms are defined in the Chapter 8, Section 8.3 Parameter/Limit Values where their values are listed.

Hashing Algorithm

3.1.3   The hashing algorithm for the verification of gaming equipment software, firmware and PSDs is the HMAC-SHA1 algorithm. References to the calculation of hashing algorithm signatures requires the use of the HMAC-SHA1 algorithm unless stated otherwise.

3.2   Memory

Contents of Critical Memory

3.2.1   Critical memory is to store all data that is considered vital to the continued operation of the gaming machine. This includes, but is not limited to:

a)   all auditing meters;

b)   current credits;

c)   gaming machine/game configuration data;

d)   information pertaining to the last two plays (including the current play if incomplete) (refer to *Section 3.12 Last Play Recall*);

e)   software state (the last normal state the gaming machine software was in before interruption);

f)   RNG seed(s), and

g)   information pertaining to the last two tickets printed (refer to *Section 3.7.14 Cash Ticket Information Required*)

Maintenance of Critical Memory

3.2.2   All critical data must be stored using a fault tolerant methodology with multiple logical and physical storage. See Section 2.4.7 Critical Memory Requirements.

3.2.3   Critical Memory storage must be maintained by a methodology that enables errors to be identified and acted upon. This methodology may involve hash values, signatures, checksums, partial checksums, multiple copies, timestamps and/or effective use of validity codes.

Where only two (2) logical copies of Critical Memory are maintained, appropriate hash values, signatures, and/or validity codes must be used by the method validating the data stored in Critical Memory.

3.2.4   When updating meters in Critical Memory, the software is to ensure that the update was successful and that any error(s) in one logical copy of the meters are not propagated through to the other good copies.

3.2.5   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 (e.g. the 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 case of a disruption).

Detection of Corrupted Memory

3.2.6   A validity check of the entire contents of gaming machine Critical Memory must be undertaken at least 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) and before and after a game play. After a device restart (e.g. power off and on), the device must complete its validity check of the Critical Memory area and then perform a comparison check of all good logical copies of Critical Memory.

3.2.7   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.

Recoverable Memory Corruption and Critical Memory Recovery (optional)

3.2.8   If validity checking of Critical Memory information fails, and data memory remains operational, the software may recover Critical Memory information in order to continue game play. This option has the following implications:
   a)   All logical copies of Critical Memory must be re-created using the good logical Critical Memory(s) as a source.
   b)   The device must verify that the re-creation of the Critical Memory was successful to attempt to identify a permanent physical memory failure. If such is determined the device should enter the Unrecoverable Memory Corruption sequence.

Unrecoverable Critical Memory

3.2.9   An unrecoverable memory corruption must result in a RAM error.

3.2.10 The RAM must not be cleared automatically, and must require a full RAM clear.

3.2.11 If the gaming machine is so designed that after an unrecoverable memory corruption it is possible to view all logical copies of meters, including the customer's credit meter, the gaming machine must highlight which of these figures are expected to be good as opposed to those that may be corrupted.

Data Partitioning

3.2.12 Gaming machine software should be designed so that machine specific information (e.g. machine address or other configurable parameters) are not stored within the same PSD (or file for file-based PSDs) as game and system software.

Non-critical RAM

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

Program Execution from Secondary Storage Media

3.2.14 Program execution from the approved primary PSDs is preferred. However, if program execution occurs from secondary storage media (eg. RAM), then the following conditions will apply:
   a)   When the program is loaded from the primary media to the secondary media, verification must take place at the end of loading. If the secondary media image is invalid, then an

appropriate error message must be displayed and the image either re-created, or execution halted;

b) Once loaded, the secondary media image must be continuously verified against the contents of the primary storage media. Each verification must commence within 2 minutes of the completion of the previous verification and a verification must be completed at least once in every hour;

c) The verification procedure must use secure techniques such as CRC's or similar;

d) If the verification procedure detects an error, the EGM will enter an unrecoverable RAM error requiring a full RAM clear;

e) On each processor restart, the program contents of the secondary storage media must either be re-created or re-verified.

Note :   These requirements should not be seen as an impediment to the use of future technologies or alternative use of existing technologies which feature designs based on adequate software verification and security measures.

PSD Verification

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

a) the CPU is reset;

b) initiated via Audit Mode; or

c) initiated by a monitoring system that requires software signature results.

3.2.16 -

Unused Program Memory Storage

3.2.17 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. Specific requirements that apply to particular types of storage media are discussed in the following paragraphs.

Read Only Storage

3.2.18 All unused areas of PSDs must be written with the inverse of the erased state. Other effective means of filling unused areas with programming will be considered on a case by case basis.

Write Once Read Many (WORM) Program Storage

3.2.19 A WORM (e.g. CD-ROM) used as a program or fixed data storage device must be written such that only the actual program and data required is written to the WORM.

3.2.20 The operational software must provide an integrity check method to verify that there are no additional or missing program or data records/files on the WORM.

3.2.21 There must be an ability to conduct an integrity check independent of the device's operational software to verify that there are no additional or missing program or data records/files on the WORM (e.g. inserting a CD-ROM in another PC which then conducts a full hashing algorithm signature check and directory search check over the CD-ROM space).

3.2.22 Old approved versions of programs may be held on a WORM. However, it must be possible to clearly identify which files belong to which version of the program.

3.2.23 The method of changing to different versions of the program, including reverting to an older version must be approved.

Read/Write Storage Media

3.2.24 A Read/Write Storage device (e.g. Disk or Tape) used for storage of program or fixed data must be written in such a way that only the actual program and fixed data required by the program is written to the storage device.

3.2.25 The operational software must provide an integrity check method to verify that there are no additional or missing program or fixed data records/files on the storage device.

3.2.26 There must be an ability to conduct an integrity check independent of the device's operational software to verify that there are no additional or missing program or data records/files on the storage device. For example, attach and boot from an external floppy disk which initiates a full hashing algorithm signature and directory search check over the entire device storage space.

3.2.27 All methods of integrity check must have the ability to identify files/records that are variable data and exclude them from the hashing algorithm signature calculation.

3.2.28 The method of loading programs to the storage media (e.g. disk file transfer or down line load) must be approved.

3.2.29 Superseded approved versions of programs may be held on the storage media. However, it must be possible to clearly identify which files belong to which version of the program.

3.2.30 The method of changing to different versions of the program, including reverting to older versions must be approved.

Flash Memory Devices

Security Controls

3.2.31 If in-circuit writing of flash memory is available the use of flash memory devices presents additional security risks to some other forms of firmware and therefore this technology will only be accepted if there are adequate controls to prevent unauthorised reading, erasure or copying of flash memory devices.

Physical Protection against Modification

3.2.32 A flash memory device must be protected from unauthorised modification which is to be permitted only once appropriate security measures are satisfied (e.g. a high voltage chip that allows modification of the flash memory devices is installed on the PCB).

3.2.33 The use of jumpers or similar devices can be used to enable/disable erasure/writing to flash memory provided there is a feedback signal to the software so that the setting of the jumper position can be recorded or appropriately acted upon. These jumpers must be located within the logic area of the machine.

3.2.34 Any change to the contents of the Flash Memory Device through erasure, writing to the contents, and so on, should result in a hardware signal feeding back to the gaming machine software.

3.2.35 Any unauthorised access to the contents of a Flash Memory Device through erasure, writing to the contents, and so on, should trigger an event that must be stored in NVRAM in the same way that a "door open" event is. Clearance of the event should not be possible other than under the control of the gaming machine hardware and software.

3.2.36 -

Downloading Programs to Flash Memory Devices

3.2.37 The method of loading programs to the flash memory device (e.g. Down-line load from CMCS) must be approved.

3.2.38 Only the actual program and fixed data required are to be written to the flash memory device.

Program Verification

3.2.39 During the programming operation on flash memory, each byte programmed should be verified by a program comparison controlled by the programming device.

3.3   Metering

Soft Meter Update

3.3.1   A meter must be updated on the occurrence of the event. All meters must be added to, not incremented with the exception of coin handling meters (i.e. coin in and out meters) which may be either added to or incremented. The term "added to" indicates the fetching of the current value from memory, conducting an arithmetic add operation and storage in memory.

Credit Meter

3.3.2   -

Credit Meter Decrement

3.3.3   Whenever credits are staked (e.g. commencement of play, additional wagers during a play) then the number of credits staked shall be immediately subtracted from the player's credit meter.

Update of the Credit Meter

3.3.4   The end of a play is defined to be when all appropriate meters for a game have been updated (see Section 3.9.6 Game Play / Idle). It is permissible to update the credit meter before the completion of play provided that:

a)   critical memory is updated when the credit meter is updated; and

b)   only credits held on a win meter may be wagered on a gamble feature, i.e. it is not possible to wager any credits transferred to the credit meter on gamble.

Credit Meter Prize Update and Progressive Prizes

3.3.5   The value of every prize (at end of a play) must be added to the player's credit meter, except progressives. Progressives may be added to the credit meter if either (a) the credit meter is maintained in dollars and cents, or (b) the progressive meter is incremented to whole credit amounts or (c) the prize in dollars and cents is converted to credits on transfer to the player's credit meter in a manner that does not mislead the player (e.g. make unqualified statement "wins meter amount" and then rounds down on conversion) or cause accounting imbalances.

Substantial Win

3.3.6   Substantial Wins must cause the gaming machine to enter a lock-up mode until external intervention, eg attendant key. The gaming machine will require a gaming attendant to clear the Substantial Win event prior to or immediately following the transfer of the Substantial Win amount to the player's Credit meter.

Note :   This value may be a $ amount or infinity.

3.3.7   The prize amount is defined as the grand total of all winnings for all game elements. Thus multiple part games such as those with free game sequences, bonus sequences, gamble or other such features are to have their total winnings added, regardless of whether partial transfer to the credit meter has occurred or not. Furthermore, at the completion of all of these game elements, if that sum of winnings is greater than or equal to [LARGEWIN], this play is considered a Substantial Win. A Substantial Win is not to be considered to have occurred:

a)   for individual game elements of a multi-part game; or

b)   if during a play, the Substantial Win threshold is exceeded and subsequent losses (e.g. losing gamble attempt) result in the final sum being below [LARGEWIN].

3.3.8   -

3.3.9   -

3.3.10   -

Meter Internal Storage, Width and Wraparound

3.3.11 Meter values may be stored in either decimal (generally Binary Coded Decimal - BCD) or binary form.

Decimal Meters

3.3.12 Decimal Meters must be of at least ten (10) digits in width.

3.3.13 If the metered value exceeds the highest number, e.g. 9, 999, 999, 999 the appropriate meter is to automatically 'roll over' to 0, 000, 000, 000.

Binary Meters

3.3.14 Binary Meters must be of at least 32 bits in width.

3.3.15 If the metered value exceeds the highest number, e.g. $2^{32} - 1$, the appropriate meter is to automatically 'roll over' to 0.

Definition of Software Meters

Master Meters

3.3.16 The following master meters must be displayed within a single, separately identifiable section of Audit Mode. Wherever displayed, master meters must be labelled with the name, in the order and using the units specified in the table below.

Where a master meter is not supported by a corresponding machine or game function (e.g. BANKNOTES IN for a gaming machine which will not be fitted with a banknote acceptor) that master meter must display as its value 'N/A' or null.

Table 3-1 : Master Meters

METER	Definition (see **Glossary of Terms and Abbreviations**)	UNITS
GAMES PLAYED	total number of games played	[plays]
TURNOVER	total value in dollars of bets made from the player's credit meter (note gamble bets such as double up are not bet from the player's credit meter)	[$,]
TOTAL WINS	total value in dollars of all prizes awarded to the player's credit meter (incl. Residual Credit Gamble prizes)	[$,]
CANCELLED CREDITS	total of all credits cancelled from the Credit meter by attendant and all credits paid from the Credit meter by ticket	[$,]
CASH BOX	total of all coins deposited to the cash (drop) box	[$,]
COINS IN	total of all coins in but not hopper refills	[$,]
COINS OUT	total of all coins out from hopper, but not extra coins out or short pays	[$,]
EXTRA COIN OUT	total of all coins detected as dispensed in error from hopper (excluded from "coins out")	[count]
BANKNOTES IN	total of all banknotes accepted, if applicable.	[$.]
CASHLESS IN	total of all credits electronically transferred to the gaming machine (if applicable), or paid to credit meter and not added to Total Wins	[$.]
CASHLESS OUT	total of all credits electronically transferred from the gaming machine, if applicable	[$.]

MONEY IN	total value in dollars of coins and or banknotes inserted to register credits on the player's credit meter together with transfers to the machine to register credits on the player's credit meter	[$.]
MONEY OUT	total value in dollars of credits redeemed from the player's credit meter by hopper pay, ticket print, cancelled credit or account transfer, but not extra coin out errors or short pays	[$.]

Self Audit Error Checking

Self Audit Check Formula

3.3.17 A gaming machine shall perform a "self audit" of the appropriate master accounting data meters as described in the following formula:

Credit Balance = [(Coins IN + Banknotes IN + Cashless IN + Total WINS) - (Coins OUT + Cancel Credits + Cashless OUT + Turnover)]%2^32

Where:% is the modulus operator (to handle meter roll over).

Note : The cases of a 'meter roll-over' should be taken into account when performing a "Self Audit" check. In the case of decimal meters, the modulus is 10^10.

Occurrence of Self Audit Check

3.3.18 The self audit check shall be performed at least at the following times:
   a) At the start of every play.
   b) Before commencing any process that transfers any monetary value out of the gaming machine (e.g. hopper pay, cancel credit/ticket pay or credit transfer out).

Action on Failure of Self Audit Check

3.3.19 The EGM shall enter an Unrecoverable Memory Corruption state in the event that this self audit check fails.

Meter Increment Test

3.3.19a At the end of each play, the value of the following master meters must be compared to value of the same master meter at the end of the previous play :-

Master Meter	Increment Threshold
COINS IN	$1,000
BANKNOTES IN	$10,000

If the change in the value of the master meter is greater than or equal to the increment threshold, the gaming machine must register a fault event and display the error message 'Excessive Meter Increment' (see also Table 3-6 and Section 3.16.3 Gaming Machine Faults).

Progressive Meters

3.3.20 Stand alone progressive gaming machines must display upon request the following additional meters (in order) for each progressive prize offered:

Table 3-2 : Progressive Meters

METER	Definition	UNITS
CURRENT VALUE	current prize amount	[$,]
OVERFLOW	amount exceeding ceiling	[$,]
HITS	number of hits for this progressive	[count]

WINS	total value of wins for this progressive	[$,]
STARTUP	startup value	[$,]
CEILING	ceiling value	[$,]
INCREMENT	percentage increment rate	[%]
HIDDEN INCREMENT	percentage increment rate for the reserve pool	[%]
INITIAL	VALUE initially entered after last RAM clear. (Used for creating a 'lost' jackpot.)	[$,]

Multi-game Meters

3.3.21 For each game in a multi-game configuration, the following must be recorded and preferably displayed in the following order:

Table 3-3 : Multi-game Meters

METER	Definition	UNITS
GAMES PLAYED	total number of games played	[plays]
TURNOVER	total of all bets made from the credit meter	[$,]
TOTAL WINS	total of all wins, but not interim gamble wins	[$,]

Residual Credit Removal Meters

3.3.22 If residual credit removal meters are provided, the following meters must be recorded and displayable in audit mode (see also Section 3.9.55) :

Table 3-4 : Residual Credit Removal Meters

METER	Definition	UNITS
RCR STROKE	the number of times residual credit removal play has been used	[count]
RCR TURNOVER	residual credit removal turnover	[$.]
RCR WIN	residual credit removal wins	[$.]

Note :   RCR meters can be a separate game, or a part of the last played game.

Labelling of Other Meters

3.3.23 All other electronic statistics or information must be suitably labelled.

Additional Meters

3.3.24 If any of the following additional meters are provided the following terminology is to be used:

Table 3-5 : Additional Meters

METER	Definition	UNITS
HOPPER REFILL	total of all hopper refills	[$.c]
REFILL COUNT	number of hopper refills	[count]

DOOR OPENS	number of door opens (main cabinet, cash box, logic area)	[count]
OPEN TIME	time of last door open (main cabinet, cash box, logic area)	[time]
COINS TO HOPPER	total of all coins deposited to the hopper	[$.c]
HOPPER LEVEL	calculated hopper level	[$.c]
GAMBLE METERS	Gamble games played	[count]
	Gamble games won	[count]
	Gamble Turnover (total of all Gamble Bets)	[$.c]
	Gamble Wins (total of all Gamble Wins)	[$.c]
	<u>Example</u> 10c won on base game, player gambles 10c and wins, player gambles again and loses. Gamble meters show :- Gamble games played 2 Gamble games won 1 Gamble Turnover 0.30 Gamble Wins 0.20	
FEATURE	other feature game stats (hits / wins / etc.)	[various]

Display of Date and Time

3.3.25 If the current time is displayed on the game screen, it must be :-
   a) in local time,
   b) in 12 hour format (hh:mm AM/PM), and
   c) clearly visible at all times.

3.3.26 Times displayed for other purposes must be in 24 hour format - i.e. hh:mm:ss.

3.3.27 Any dates displayed must be in Australian/New Zealand format either as dd,mm,yy or dd/ mm/yy or dd,MMM,yy where MMM is, at least, an alphabetical 3-character representation of the month. Note that "yy" may also be "yyyy".

3.4   Program Interruption & Resumption

Recovery from Program Interruption

3.4.1 After a program interruption (e.g. power down), the software must be able to recover to the state it was in immediately prior to the interruption occurring.

Recovery from Test Mode

3.4.2 If in a test mode, any test that incorporates credits entering or leaving the gaming machine (e.g. a hopper test) must be completed prior to the resumption of normal operation.

Restoration of Fault Condition

3.4.3 If a gaming machine is powered down whilst in a fault condition, then upon restoring power the fault message must be displayed and the gaming machine must remain locked-up. This is unless power down is used as part of the error reset procedure or if on power up or door closure the gaming machine checks for the fault condition and detects that the fault is no longer in existence.

Program Interruption Procedures

3.4.4   On program interruption, the following procedures must be successfully performed as a minimum requirement:

a)   the hopper must be turned off and the brake applied, if applicable;

b)   the integrity of critical variables must not be compromised by the interruption procedures; and

c)   the power-down routine completes fully.

Program Resumption Procedures

3.4.5   On program resumption, the following procedures must be performed as a minimum requirement:

a)   any communications to an external device must not begin until the program resumption routine, including self-tests, is completed successfully;

b)   gaming machine control programs must test themselves for possible corruption due to failure of the program storage media. Use of Cyclic Redundancy Check (CRC) calculations is a minimum (at least 16 bit). Other test methodologies must be of an approved type;

c)   the integrity of all critical memory must be checked;

d)   the power down process must be tested for correct completion, and an appropriate message must be displayed if incorrect completion detected; and

e)   the software must be able to detect any change in the gaming machine program from when the gaming machine was last powered down or interrupted. If a change has been detected, the gaming machine must lock-up, displaying an appropriate message until the gaming machine is reset by an authorised person.

Program Interruption During Play

3.4.6   The gaming machine when disabled in a non-fault condition during a play (for example, a gaming machine at a venue is disabled by the Site Controller, or a gaming machine disables itself because the hours of operation have expired), must finish the current play (including any free games or gamble games) and enable the player to perform credit redemption.

Note :   This clause does not apply under power fail conditions.

3.5   Door Open/Close

Doors to be Monitored

3.5.1   The software must be able to detect access to the following doors or secure areas:

a)   main gaming machine cabinet door(s);

b)   cash box door(s);

c)   logic area door(s);

d)   banknote acceptor doors;

e)   any other area housing a critical processor; and

f)   communication boards or hard meters if accessible without opening any of the above.

Power Fail Detect of Logic Area Door Open

3.5.2   On power up, the software must check if access to the logic area occurred while power was off, and act as if the logic area access had occurred at that point in time. Refer 8.2.4 Logic Area Access.

Door Open Procedures

3.5.3 The following procedures must be performed on any door open:

a) any software state prior to door opening must be saved;

b) any game play must be saved in its current incomplete condition;

c) the reels must stop spinning at least by the end of the current spin in progress;

d) credit input must be disabled (may be re-enabled for the duration of a credit input test or hopper test);

e) the machine must clearly indicate that the door has opened and game play is not possible;

f) if in hopper payout, the hopper must be turned off and the brake applied (may be re-enabled for the duration of a hopper test);

g) all player inputs which can affect a play in progress must be disabled (unless used in door open/test mode);

h) cash out to players of any kind is to be disabled; and

i) an illegal door open must cause an identifiable alarm to be sounded for at least 1.5 seconds.

Door Close Procedures

3.5.4 Except for logic area access, when all doors are closed the software must return to the condition prior to when the first door open state occurred. This means:

a) a message stating that the door(s) has closed must be displayed. This may be for a preset period or until the next game play;

b) any relevant player inputs must be re-enabled;

c) the alarm must be turned off; and

d) any game play when the event occurred must recommence from the beginning of the play or from the point at which interruption occurred and conclude normally, using the data that was saved previously.

3.6 Credit Acceptance

Coin Acceptance Conditions

3.6.1 Acceptance of coins for crediting to the credit meter must only be possible when the gaming machine is enabled for play. Other states such as fault conditions, and audit mode must cause the disabling of the coin acceptor system.

Credit Meter Update on Coin Insertion

3.6.2 Each coin inserted must register the actual dollar/cents value or a number of credits on the player's credit meter. If registered directly as credits, the conversion rate must be clearly stated or be easily discernible from the gaming machine. For the requirements relative to the maintenance and display of credit, see Credit Meter Display, 3.8.3 and 3.8.4.

Coin Validation

3.6.3 Coin validation must be electronically based and be so designed as to ensure that each coin inserted and accepted as valid by the gaming machine is added to the credit meter and that it updates all appropriate meters.

Coin Entry and Invalid Coins

3.6.4 The software must be capable of accurately counting each valid coin at the highest speed in which the coins may be fed into the gaming machine.

3.6.5 Coins deemed invalid by the validator must be rejected to the chip tray, and must not be counted as credits.

Coin Diverter

3.6.6 The software must ensure that the diverter directs coins to the hopper, or to the cash box when the hopper is full. The hopper full detector must be continually monitored to determine whether a change in diverter status is required. If the state of the detector changes, the diverter must operate as soon as possible after the state change without causing a disruption of coin flow, or creating a coin jam.

3.6.7 It is preferred that diverter operations are dependent only on hopper sensor status, not software counters. If a software counter is used, it must be used in conjunction with a mechanical sensor, which will override the software counter.

3.6.8 Hopper-less gaming machines must always divert coins to the cash box.

3.6.9 Gaming machines with hoppers must have the diverter default position to the cash box unless strategies are in place to prevent the overflow of coins from the hopper if the diverter fails.

Cashless In

3.6.10 Gaming machines that accommodate a 'money in' transfer from a card or account (for instance, a smart card, or account bet magnetic stripe card) must do so using a method that is secure and has been proven to be reliable.

3.6.11 Acceptance of cashless transfers to a gaming machine for crediting to the credit meter must only be possible when the gaming machine is enabled for play. Other states such as fault conditions and Audit mode must cause the acceptance of cashless transfers to be disabled.

3.7 Credit Redemption

Credit Redemption Conditions

3.7.1 Available credits may be collected from the gaming machine by the patron pressing the "COLLECT" button at any time except :
a) during a play;
b) while in Audit mode;
c) while any door open condition exists;
d) while in Test mode;
e) while the player's Credit Meter or Total Wins Meter is incrementing;
f) while disabled by CMCS (see *Chapter 8 Section 8.2.1 Credit Collect*); or
g) while any fault condition exists

(at the manufacturer's discretion, credits may be collected from the gaming machine if the only existing fault condition(s) is(are) :-
i) ticket printer failure/paper error,
ii) progressive controller error or
iii) banknote acceptor full.)

Cancel Credit

3.7.2 If the "COLLECT" button has been pressed where greater than [CRECANLIM] credits for non-tokenised games or [MAXHOPPER] for tokenised games are registered on the credit meter, then the software shall automatically lock-up and go into a cancel credits condition. The software shall remain in this state until the credits have been cancelled by external intervention or the player selects an option to exit from the Cancel Credit state.

3.7.3 Cancel Credit amount is to be displayed in dollars and cents.

Hopper Pay

Hopper Pay Conditions for tokenised games

3.7.4   If less than or equal to [MAXHOPPER] credits exist on the credit meter and the COLLECT button is pressed, then these credits must be converted to the appropriate number of coins and dispensed from the hopper. For the requirements covering the removal of residual credits, see Section 3.9.40 Residual Credit Removal.

Control of Hopper Pay

3.7.5   Once initiated, a hopper pay must not be able to be cancelled, paused or otherwise controlled by a player.

Update of Money Out Meters

3.7.6   Each coin that is paid from the hopper must be registered on the Coin Out and Money Out meters and decremented from the player's credit and hopper level meters.

Hopper Error Conditions

3.7.7   The hopper shall be interfaced in such a way as to allow the software to identify at least the following events:
   a)   coin paid out;
   b)   hopper full detection;
   c)   hopper overflow, if required;
   d)   hopper coin out sensor failed, disconnected, malfunction or locked;
   e)   hopper jam or empty detection, no coins past the hopper coin out sensor in time out period; and
   f)   illegal or extra coin out detection/hopper runaway.

Cashless Out

3.7.8   Gaming machines that transfer money out to a card or an account (for instance, a smart card, or account bet magnetic stripe card), or other devices (such as a site controller or cash kiosk) must do so using a method that is secure and has been proven to be reliable.

Hopper Refill

Hopper Refill Procedure

3.7.9   The refill procedure must be an option clearly different from any other procedure.

3.7.10 When a 'hopper jam/empty' error message or equivalent is displayed, if the gaming machine does not issue clear instructions on the steps necessary to perform either a hopper refill or to reset the fault these must be clearly set out in the operator manual.

Hopper Refill Conditions

3.7.11 Entry to a hopper refill procedure may be via instruction by an attendant from a gaming machine audit mode or while in a hopper empty condition.

3.7.12 In the case of a 'hopper refill' option being chosen; a number of coins equal to the hopper refill amount must be added to the hopper and the hopper refill and hopper level meters updated.

Printers

Ticket Voucher Printing

3.7.13 Credit redemption by printed ticket is only acceptable where the gaming machine communicates with a CMCS or Cash Control System which provides validation of the printed ticket.

3.7.13a A gaming machine providing printed tickets as a form of credit redemption must :-
   a)   generate two identical copies of each ticket printed, one copy being provided to the player while the other copy is to be retained within the machine for audit purposes, or

b) maintain an electronic record of all details at *Section 3.7.14* for the last thirty five tickets printed and provide access to these details via Audit Mode functionality.

3.7.13b Where credit redemption by printed ticket is provided, the gaming machine must be capable of producing a ticket for all credits owed to the player at the completion of each play.

Cash Ticket Information Required

3.7.14 A valid ticket must contain the following information:
a) the unique gaming equipment terminal identification number;
b) the current date in the prescribed format (see *Section 3.3.27* Display of Date and Time);
c) the time of day in the prescribed format (see *Section 3.3.25* Display of Date and Time);
d) the value of the credit in numbers and or words;
e) the unique identifying number of the ticket voucher; and
f) the validation (check) number. The validation number computation method must be approved.

Ticket Barcodes

3.7.15 Barcodes or other form of machine readable markings on a ticket must have enough redundancy and error checking to ensure that 99.9% of all misreads are flagged as an error.

3.8 Displays

User Options

3.8.1 The artwork must display sufficient information to the player to indicate the available player options.

Credit Meter Width

3.8.2 The credit meter must have sufficient digits to be capable of displaying at least the maximum prize attainable for the gaming machine (including gamble, etc., but not including progressive prizes).

Game Screen Meters

3.8.2a 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.

Each player entitlement meter (Credit, Bet and Win) must :-
a) be displayed in $-and-¢ and credits (unless 1 credit = $1), and
b) be of the same size in both forms.

A display which alternates between $-and-¢ and credits will be acceptable provided that both values are clearly visible and easily distinguished. Such a display is not to alternate during a play nor during the incrementation of meters following a win.

For a multi-game gaming machine providing games with different credit values (e.g. 1¢, 2¢), Multi-Game Select Mode is only required to display the Credit meter in $-and-¢."

Standalone Progressive Jackpot Display

3.8.2b The display of a standalone progressive jackpot prize may be incremented from its previous resting value, however the display must accurately reflect the actual jackpot prize value within 10 seconds of the end of the last play.

3.8.2c -

Credit Meter Display

3.8.3   The player's credit meter must always be prominently displayed in all modes except audit, configuration and test modes. During game play in second screen bonus features the player's credit meter amount does not need to be displayed- provided the player is not required to bet additional credits during the feature.

3.8.4   Values displayed to the player (e.g. wins and credits) may be incremented or decremented to the value of the actual meter for visual effect. However, the internal storage of these meters must be immediately updated (not incremented or decremented).

Game Result

3.8.4a   The outcome of each game element must be displayed for a reasonable length of time.

Multi-line Games

Display of Lines Selected

3.8.5   In regard to multi-line games, each individual possible line which is activated as a lit selected line (by betting additional credits) must be clearly indicated by the gaming machine, so that the player is in no doubt as to which lines are being bet on.

Display of Lines Won

3.8.6   For multi-line games, the payline(s) won must be clearly highlighted to the player. This may be accomplished by drawing a line over the symbols on the payline and/or flashing of winning symbols and/or line selection box. Where there are two or more winning patterns, a sequential indication of each winning pattern must be given by flashing the participating symbols or highlighting the symbols and associated payline.

Note :   See Chapter 7 Glossary of Terms and Abbreviations and Chapter 4 Artwork for definitions and further information on 'possible lines', 'selected lit lines' and 'paylines'.

Idle Mode Display

Display Requirements with Non-zero Credit Meter

3.8.7   While the gaming machine is in idle mode, if there are credits on the credit meter, the following must remain on view until the next play. (Note that section 3.8.12 clarifies these requirements for multi-game gaming machines) :-
a)   the total number of credits staked for the last play;
b)   the final reel stop positions, card values, etc. for the last game play;
c)   the total number of credits won and other prizes associated with the combination resulting from the last play.

or following player input related directly to the next play :-
d)   the total number of credits that would be staked on the next play;
e)   the initial states of all cards, tables, reels etc. for the next play;
f)   where supported by the game, the prizes that may be won on the next play

Display Requirements Following Collect (including Residual Credit Collect)

3.8.8   If a payment from the hopper is made after the completion of the last play, the gaming machine must display, until the start of the next play, the metered value of coins, in dollars and cents, which were paid from the hopper, using the format "COLLECT $#,###.##".

3.8.9   If more than one payment from the hopper is made after the completion of the last play or if a
          payment from the hopper is made after a Cancel Credit, the gaming machine must display, until
          the start of the next play, the metered value of coins, in dollars and cents, which were paid in the
          last payment from the hopper and the total of all payments from the hopper and credits
          cancelled, in dollars and cents, since the last play, using the format "COLLECT $#,###.##
          (TOTAL PAID $#,###.##)"

Display Requirements Following Cancel Credit

3.8.10   If a Cancel Credit is made after the completion of the last play, the gaming 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 $#,###.##".

3.8.11   If more than one Cancel Credit is made after the completion of the last play or if a Cancel Credit
          is made after a payment from the hopper, the gaming 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
          payments from the hopper and credits cancelled since the last play, in dollars and cents, using
          the format "CANCEL $#,###.##   (TOTAL PAID $#,###.##)"

Multi-game gaming machines

3.8.12   Multi-game gaming machines may have a Game Select Mode entered from Idle Mode where
          Section 3.8.7 is not required. For the specification regarding display requirements for multi-
          game gaming machines and Game Select Mode, see Section 3.13 Multiple Games.

3.8.13   -

Video Displays

Attract Mode

3.8.14   An attract mode may be used, as long as the information outlined in the previous Section Idle
          Mode Display is displayed after it has completed.

Paytable Display

3.8.15   If the display is overwritten by the paytable while game play is in progress (e.g. waiting to enter
          double up), any winning combination resulting from the current play must be suitably highlighted
          on restoration of the game display.

Touch Screens

Calibration Facility

3.8.16   Touch screens must have a software re-calibrating facility unless the touch screen is designed
          never to require re-calibrating.

3.8.17   If the opening of the gaming machine door is found to affect touch screen calibration and re-
          calibration is carried out with the door open, there must be in place means to ensure that the re-
          calibration is correct when the door is closed (e.g.: two sets of calibrations one for door open
          and one for door closed).

Accuracy

3.8.18   Touch screens must be accurate so that a user's actions can be interpreted correctly.

Button Icons

3.8.19   Touch screen button icons must be sufficiently separated to reduce chances of the wrong icon
          being selected due to miscalibration or parallax errors.

Hidden Touch Points

3.8.20   There must be no hidden or undocumented buttons/touch points anywhere on the screen except
          as provided for by the game rules (e.g.: spot the ball).

Power Save Mode

Power Save Mode Requirement

3.8.21 Gaming machines may be required to have a Power Save Mode (see the PSAVACT parameter in Section 8.3 Parameter/Limit Values table for jurisdictions requiring a Power Save Mode.).

Power Save Mode Activation Conditions

3.8.22 Power Save Mode shall only be activated when there are no credits or faults on the gaming machine, the gaming machine is in a disabled state (i.e. the venues licensing hours have expired) and the gaming machine has been idle for a period of time not less than [PSAVACT]. (Note: this value may be infinity.)

3.8.23 For the purposes of this section, a gaming machine will be defined as being "idle" if for [PSAVACT] it:

a) does not have any key-switch activated (e.g. accessing Audit Mode);

b) does not have any door open;

c) is not enabled;

d) has no credits on the "win" meter yet to be transferred to the player's credit meter;

e) has not had any coins or banknotes input;

f) has not had its touch screen touched has not had any button pressed; or

g) does not have any fault condition.

Power Save Mode Control

3.8.24 Power Save Mode must be capable of being enabled or disabled by a technician via Set Up Mode, or via a CMCS (if applicable).

Exit from Power Save Mode

3.8.25 The gaming machine will exit from Power Save Mode and return to the normal display mode immediately upon it ceasing to be "idle", (if not using a manual power save implementation).

Components De-energised during Power Save Mode

3.8.26 While in Power Save Mode, power must be removed from the coin diverter, incandescent display, monitor and all fluorescent lights. Critical security functions of the gaming machine must still be performed.

Hardware activated Power Save Mode

3.8.27 Power save mode may be activated manually (i.e. via an auxiliary power switch or key switch) and in this case the conditions listed under Section 3.8.22 and 3.8.23 are void.

Mechanical Reels/Wheels

Re-spin after gaming machine Re-activation

3.8.28 Microprocessor controlled reels (e.g. stepper motor reels) must re-spin automatically to the last legally obtained play-mode result when the play mode is re-entered (e.g. the main door is closed, power is restored, audit mode is exited, or a fault condition cleared).

Reel Bounce

3.8.29 Reel bounce and float must be prevented when stopping each spinning reel.

Minimum Reel Spin

3.8.30 Each microprocessor controlled reel must spin at least one revolution per play.

Active Monitoring of Reel Position

3.8.31 Microprocessor controlled reels must be monitored to detect malfunctions such as a reel which is jammed, or is not spinning freely, or any attempt to manipulate their final resting position.

3.9   Game Play

Game Rules

3.9.1   A game must follow a constant set of rules and must at no time deviate from those rules. A rule change constitutes a different game, although variations to the maximum number of credits bet per play (and/or lines per play) are permitted. This requirement does not preclude implementations of games with multiple parts or features and/or gamble provided that the rules are clear to the player.

Independence of Events

3.9.2   Except as provided by the rules of the game and for metamorphic games, events of chance within the games must be independent of (i.e. not correlated with) any other events within the play or any other events within previous plays.

Modification of a Game

3.9.3   A play must not alter or modify the presentation of mapped symbols or artwork, except in cases of animation during a play or as a part of the game rules which must be clearly described on the artwork, otherwise this constitutes a different game.

Commencement of Game Play

3.9.4   A machine must not have any faults present, or be in any test, metering, door open or lockup mode, etc., for a game play to commence (the updating of hard meters is exempted).

Wagers

3.9.5   Credits bet must only come from the Credit meter, which is to be decremented at the start of play or when additional wagers are made during the play as per the game rules. (Additional wagers from the Credit meter must not be available to Gamble games.)

Game Play / Idle Mode

3.9.6   A 'play' commences when the player irrevocably commits a wager from the player's credit meter that is not part of any previous play.

3.9.7   A play is considered completed when the final transfer to the player's credit meter takes place (in case of a win) or when all credits wagered or won that have not been transferred to the credit meter are lost. The following are all considered to be part of a single play, i.e. must finish before the play is considered completed:
   a)   games that trigger a free game feature and any subsequent free games;
   b)   "second screen" bonus feature(s);
   c)   games with player choice e.g. Draw Poker or Blackjack;
   d)   games where the rules permit wagering of additional credits e.g. Blackjack Insurance or the second part of a two part Keno game; and
   e)   gamble (e.g. Double-up).

3.9.8   The period after completion of a play and before commencement of the next play is 'Idle Mode'.

Game Play Information

3.9.9   A gaming machine must display the following information to the player:
   a)   the player's current credit balance;
   b)   the current bet amount;
   c)   all possible winning outcomes, or be available as a menu item or help menu;
   d)   win amounts for each possible winning outcome or be available as a menu or help screen item;

e) the amount won for the last completed play (until the next play starts, or following player input related directly to the next play); and

f) the player options selected (e.g. bet amount, lines played) for the last completed play (until the next play starts, or following player input related directly to the next play).

Note:- For games which implement a fixed betting period before the start of the next play (eg. a horse racing simulation), the information at e) and f) is only required until the next fixed betting period commences.

3.9.9a All game rules pertaining to the game about to be played must be true and correct.

Initiation of Game Play

3.9.10 The player must initiate game play by pressing a play or bet button, or similar input device.

Each play must be initiated by a distinct and separate activation of the player interface (e.g. play button or touch screen etc.) and the gaming machine must not allow a player to circumvent this requirement by external interference (e.g. holding down or jamming play buttons).

Automatic Game Play Initiation

3.9.11 The gaming machine must not automatically initiate play after credits have been entered onto the credit meter via coin, banknote entry, or cash transfer.

Games with Components of Skill

3.9.12 Games involving player physical dexterity (e.g. hand/eye coordination) must return at least the minimum return to player [MINRTP] without adaptive strategies. For example, it is not permitted to increase or decrease the size of a target area dependent upon previous results.

3.9.13 Games that have a component of strategic skill (e.g. Draw Poker and Blackjack) must meet the following requirements:

a) the player return for the optimal strategy must not exceed [MAXRTP] and must not be lower than [MINRTP];

b) where an automatic hold feature or strategy advice is provided to the player, the player return must not be lower than [MINRTP] when calculated using the selections provided by such a feature or using the advice provided;

c) where an automatic hold feature or strategy advice is provided to the player, it must be fair and not misleading; and

d) the player must be able to override any automatic hold feature and reject any or all strategy advice provided.

Prize Determination

3.9.14 Prize determination shall:

a) be clearly specified on the exterior of the device, or easily accessible to the player; and

b) be exclusively a consequence of the outcome of a computer based RNG in conjunction with the prevailing payout table and rules of the game.

c) be attainable combinations of the mapped symbol set (except random prizes).

Game Minimum RTP

3.9.15 A game must have a theoretical/estimated statistical expectation that the minimum player return (RTP) of the game will be greater than or equal to [MINRTP].

Game Maximum RTP

3.9.16 A game must have a theoretical/estimated statistical expectation that the maximum player return (RTP) of the game will be less than or equal to [MAXRTP].

RTP Tolerance

3.9.16a Within a single game variation or configuration, a change to the betting options selected must not cause a change to the resultant theoretical player return (RTP) of more than 0.20%. Where one version of game software contains identifiably different games (such as an ante-bet game), the requirement on RTP tolerance will apply to each game separately.

Probability

3.9.16b The probability for attaining any winning event must not be less than 1/7,000,000 (at a rate of at least 1 in 7 million plays).

The calculation of the probabilities is to:

a) be multiplied by the maximum number of possible lines, ways or patterns available in one play (using the configuration which provides the lowest number of 'maximum lines' etc. available in one play);

b) combine the probabilities for the same winning pattern when occurring in different elements of a play (e.g. base and feature elements);

c) combine the probabilities for the same winning pattern occurring with and without substitute symbols;

d) exclude 'multipliers'; and

e) ignore all linked progressive jackpots.

Standard Deviation

3.9.17 The Nominal Standard Deviation (NSD) of a game must be no greater than 15.

While the standard deviation of individual components of a game (e.g. feature games, metamorphic sequences etc.) may exceed 15, the NSD of the whole game must not exceed 15.

In determining the NSD for a game, the following conventions must be applied :

a) Calculate standard deviation of the base game at minimum bet and single line play or equivalent. (Should the underlying game algorithm or randomising mechanism change with a change to play options selected (e.g. different virtual reels are activated upon a change to the number of lines played or certain prize categories are only available by selecting specific play options), the highest standard deviation result must be used);

b) Coinciding prizes are to be treated as separate prizes (e.g. a payline prize of 20 coinciding with a scatter prize of 50 are to be treated as two separate prizes of 20 and 50);

c) Feature game prize contribution must, as a minimum, be calculated using a set of individual feature prizes with corresponding weighted probabilities for each prize. (The calculation method must not use the mean of all feature prizes treated as a single base game prize);

d) For the purposes of c) above, feature game prizes are to be calculated under conditions applicable to the feature when the base game is in the mode referred to in a) above (i.e. using the same bet and line pattern or equivalent);

e) Gamble features (e.g. Double-up) are to be excluded;

f) Progressive prize components, both standalone and linked, are to be excluded;

g) All calculations must be made to a minimum accuracy of four decimal places and the NSD must be reported to a minimum accuracy of two decimal places.

Note 1: For the certification of games with a NSD of greater than 15, the tester must provide clear evidence, in the form of actual game play data produced independently of the manufacturer, that the game will provide the expected rate of return. Despite such evidence being provided, the approval of games with a NSD of greater than 15 will remain at the discretion of the regulator.

Note 2: It is recommended that regulators consider special dispensation for clones of games which were approved prior to the adoption of NS Rev. 5.0 and have been observed, through the audit of in-field operation, to be operating within the range of expected theoretical return to player rates.

Non-linear Paytables

3.9.18   The [MINRTP] must be met when playing at the lowest end of a non linear paytable (e.g. if a game is continuously played at a minimum bet level for its total game cycle and the theoretical RTP is lower than [MINRTP], then the game is unacceptable). This example also extends to games such as Keno where the continuous playing of any spot combination results in a theoretical RTP lower than [MINRTP].

Carded Percentage

3.9.19   A manufacturer may for venue information purposes provide a "carded percentage" which, for games of skill or games with non-linear paytables, represents the player return expected in operation when historical knowledge of player preference or skill is applied. This percentage may appear on the gaming machine program provided it is clearly marked as "carded percentage" or another term not likely to be confused with [MINRTP].

Bet Limit

3.9.20   A limit may apply to the maximum wager that can be made from the player's Credit meter, [MAXWAGER]. (Refer 8.3 Parameter/Limit Values)

Win Limit

3.9.20a   A limit may apply to the maximum amount that can be won in any game element for non-progressive games [MAXNPWIN] and by any progressive prize for progressive games [MAXPWIN]. (Refer 8.3 Parameter/Limit Values)

[MAXNPWIN] may be won in any individual game element. This is further clarified as being the sum of all prizes (coinciding wins) awarded in a game element (ie. the total of all prizes resulting from winning patterns, bonuses, multipliers etc. in that individual game element).

Example :- A play consists of base game element, 5 free game elements and 2 gamble game elements. [MAXNPWIN] may be won in each and every game element - 8 in total.

Win Truncation

3.9.20b   The value of prizes awarded in any individual game element or sequence of game elements must not be truncated (i.e. individual prizes, coinciding wins or wins accumulated over a feature sequence must not be truncated).

Feature Exit

3.9.21   A game must not automatically exit a feature before the feature has been completed.

Autoplay

3.9.22   Autoplay is prohibited.

Gamble

3.9.23   A maximum of five consecutive Gamble attempts per single play may be made following a win. The first Gamble attempt must only be offered at the completion of all other game elements (i.e. Gamble game elements can only be offered as the last elements of a play).

3.9.23a   If the Gamble feature is selected, the player must be able to exit the Gamble feature without committing any winnings to a Gamble element.

3.9.24   The gamble option must have a theoretical return to player of 100%.

3.9.25   If Gamble is offered on the result of bonus/feature games, only moneys not transferred from the win meter to the credit meter may be wagered on the Gamble feature.

3.9.25a   -

3.9.26   Amounts bet on gamble are not to be added to the turnover meter.

3.9.27   Gamble bets may incorporate a variety of symbols, player choices, or win chances.

3.9.28   Partial transfer of winnings to the Gamble feature is acceptable (e.g. half stake Double-up) however amounts not wagered on a Gamble element must be transferred to the player's Credit meter:-

    a)   at the time the player selects partial Gamble,

    b)   immediately after the completion of the Gamble element, or

    c)   immediately after the completion of the play.

Note: Amounts not wagered on a Gamble element and not transferred to the player's Credit meter as at a) or b) must be stored in critical memory.

3.9.28a   Where the division of winnings for partial transfer to the Gamble feature results in a remainder, the remainder must be included in the amount transferred to the Credit meter.

    Example   Win on base element = 101 credits

                    Transfer to half stake Gamble = 50 credits

                    Transfer to Credit meter = 51 credits

3.9.29   Gamble may offer other multipliers other than two (2) e.g. "pick a suit" where four outcomes may be offered provided that the other requirements of this section are met (e.g. a 100% RTP).

3.9.30   The maximum win that can be obtained from each single gamble attempt is not to exceed [GAMBWIN].

3.9.31   At all times during a Gamble feature, the amount to be wagered or available to the Gamble feature must be simultaneously displayed in both dollars and cents and credits. A display which alternates between dollars and cents and credits will be acceptable provided that both values are easily distinguished.

<u>Auto Gamble</u>

3.9.32   If Auto Gamble is provided, automatic entry to a Gamble feature should only be activated upon a win from a primary game or completion of a feature game(s). It must be possible for the player to disable the Auto Gamble feature at any time. If Auto Gamble is used, the player should be given the option to exit the Gamble feature without playing.

Metamorphic Games

<u>Requirements of Metamorphic Games</u>

3.9.33   Games that are not completely independent of player's history (i.e. metamorphic) must:

    a)   display clearly to the player which game rules apply to the current game state;

    b)   display to the player sufficient information to indicate the current status towards the triggering of the next metamorphosis of the game (e.g. if the game collects tokens towards a feature, the number of tokens missing or the total number required to trigger the metamorphosis must be indicated along with the number of tokens collected at that point);

    c)   not adjust the likelihood of a metamorphosis occurring, based on the history of prizes obtained in previous games (i.e. games must not adapt their theoretical return to player based on past payouts); and

    d)   not be misleading. If a game's metamorphosis is triggered after accruing a certain number of tokens or combination of tokens of different kind, the probability of obtaining like tokens must not deteriorate as the game progresses (e.g. for identical tokens it is not permitted that the last few tokens needed are more difficult to obtain than the previous tokens of that kind).

Extra Credits Wagered During Metamorphic Games

3.9.34 If a feature of metamorphic games requires extra credits to be wagered and the game accumulates all winnings (from the trigger and the feature) to a temporary "win" meter (rather than directly to the credit meter), the game must:

a) provide a means where winnings on the temporary meter can be bet (via the credit meter) to allow for instances where the player has an insufficient credit meter balance to complete the feature; and

b) transfer all credits on the temporary meter to the credit meter upon completion of the feature.

Metamorphic Game's Return

3.9.35 The game's player return over the cycle of both the metamorphic and non-metamorphic part of the game must conform to the minimum theoretical return to player [MINRTP].

3.9.36 If features of a metamorphic game require extra credits to be wagered, the game's theoretical return to player during the feature must be greater than the return of the base game.

3.9.37 If the player is allowed to wager at less than the available optimum strategy during a metamorphic game feature, the manufacturer must provide evidence that this option will not reduce the overall player return for that game below the minimum theoretical return to player [MINRTP].

3.9.38 Any accumulated metamorphic game tokens are not to be lost during a full re-configuration if the game that includes the tokens is still available after the full reconfiguration.

3.9.39 The progressive component of a metamorphic game must be set to the mean progressive amount subsequent to a RAM reset. Note that this requirement applies to tokens (or points) that have accumulation towards a feature (or prize), but not a stand-alone progressive jackpot (see Section 7 Glossary of Terms and Abbreviations).

Residual Credit Removal

3.9.40 If less than or equal to [CRECANLIM] credits for non-tokenised games or [MAXHOPPER] for tokenised games exist on the credit meter and the COLLECT button is pressed, credits must be converted to either the appropriate number of coins and dispensed from the hopper, or if applicable an amount payable via a printed ticket or account transfer. If residual credits exist the manufacturer may provide a residual credit removal play or allow a cancel credit or ticket print to remove the residual credits or return the gaming machine to normal game play (i.e. leave the residual credits on the player's credit meter for betting).

3.9.41 If the cancel credit option is implemented the player must have the ability to terminate the cancel credit mode and return to normal game play.

3.9.42 The method of implementation of the residual credit removal play must be approved.

3.9.43 Residual credits bet on the residual credit removal play must be added to the TURNOVER meter.

3.9.43a The turnover from the residual credit removal play must not contribute to a standalone progressive jackpot feature.

3.9.44 If the residual credit removal play is won, the value of the win must :-

a) be added to the Total Wins meter;

b) be automatically paid out to the player; and

c) the value paid be added to the appropriate meters.

3.9.45 If a residual credit removal feature is offered, the meters specified in Section 3.3.22 Residual Credit Removal Meters must be implemented.

3.9.46 All other appropriate gaming machine meters (e.g. Hopper Level) must be appropriately updated.

3.9.47 If the residual credit removal play is lost, all residual credits are to be removed from the credit meter.

3.9.48   If the residual credits are cancelled rather than wagered, the gaming machine must update the relevant meters (e.g. cancel credit) and the last play information.

3.9.49   The residual credit removal play must return at least [MINRTP] and not more than 100% to the player.

3.9.50   The player's current options and/or choices must be clearly indicated, either on static artwork, or electronically or by video display. These options must not be misleading.

3.9.51   If the residual credit removal play offers the player a choice to complete the game (e.g. select a hidden card) the player must be also given the option of exiting the residual credit removal mode and returning to the previous mode.

3.9.52   -

3.9.53   The result of the residual credit removal play must be displayed to the player for between 1.5 seconds and 5 seconds.

3.9.54   It must not be possible to confuse the residual credit removal play with any game feature, e.g. gamble.

3.9.55   If the residual credit removal play is offered on a multi-game gaming machine, the play must (for meter purposes of each individual game) either be considered to be a part of the game from which the play was invoked or be treated as a separate game.

3.9.56   The Last Game Recall must either display the residual credit removal play result or contain sufficient information (e.g. updated meters) to derive the result.

Game Fairness Objectives

3.9.57   All games are to be fair to players in that the game must not be designed to give the player a false expectation of better odds by falsely representing any occurrence or event. For example, games (and features within games) that incorporate an illusion of control in that players are offered an option which appears to provide an opportunity to influence the outcome of a game using skill, when in fact the outcome cannot be influenced by the use of skill and/or the outcome has already been determined, are not acceptable.

3.9.57a   The display of the result of a game outcome must not be misleading or deceptive to the player (e.g. must not improperly indicate a near-miss).

3.9.58   The mapping of numbers directly from the RNG output or through a scaling algorithm shall not influence a symbol to occur with a probability not equal to its statistical expectation.

3.9.59   Symbols of virtual reel games (video) must be displayed in the same arrangement as per the reel strips. No manipulation and rearrangement of the reel's symbols when displayed to the player is permitted.

3.9.59a   Games from a manufacturer must not have the same name as another game from the same manufacturer if the rules of the game are different.

Note : The rules of a game are not different where the only distinction concerns a progressive jackpot component.

Card Games

3.9.60   The consequences for games depicting cards being drawn from a pack are the following:
   a)   card selection must be from a deck of cards that correctly reflects the status of previously drawn cards;
   b)   cards once removed from the pack must not be returned to the pack except as provided by the rules of the game depicted;
   c)   the pack must not be reshuffled except as provided by the rules of the game depicted; and
   d)   as cards are removed from the pack they must be immediately used as directed by the Rules of the game (i.e. are not to be discarded due to adaptive behaviour by the gaming machine).

Ball Drawing Games

3.9.61   The consequences for games depicting balls being drawn from a barrel (e.g. Keno) are as follows:

a)   at the start of each play only balls applicable to the game are to be depicted;

b)   balls once removed from the barrel must not be returned to the barrel except as provided by the rules of the game depicted;

c)   the barrel must not be re-mixed except as provided by the rules of the game depicted; and

d)   as balls are drawn from the barrel they must be immediately used as directed by the Rules of the game (i.e. are not to be discarded due to adaptive behaviour by the gaming machine).

Roulette Wheel, Spinning Reels, Dice Rolling, Coin Tossing Games

3.9.62   For games that simulate or involve :-

a)   spinning reels,

b)   spinning wheels (such as roulette),

c)   rolling of dice,

d)   tossing of coins, or

e)   other similar activities

the following will apply:

i)   for each spinning reel, the probability of any one position appearing must be as for the actual physical device (e.g. 1/20 for a 20 position reel), unless the game rules clearly indicate otherwise (refer Artwork requirements),

ii)   for each spinning wheel, die, or coin etc., the probability of any one face appearing must be as for the actual physical device (e.g. 1/10 for a 10 segment wheel; 1/6 for a 6 faced die; 1/2 for a coin),

iii)   the behaviour of each reel, wheel, die, or coin etc. must be independent of all others, and

iv)   the behaviour of each reel, wheel, die, or coin etc. must be independent of its previous behaviour.

3.9.62a   This clause applies only to games involving physical reels and reel strips, and where the symbols of a virtual reel are mapped to and presented by a physical reel.

a)   each position of the virtual reel must have the same probability of occurring (i.e. if the virtual reel consists of n positions, the probability of occurrence of each position must be 1/n).

b)   symbols of the physical reel must appear to the player in the same arrangement as for the virtual reel (i.e. it must not be possible to determine by observing the symbols displayed on the machine that the physical reels are used instead of virtual reels). This observation extends to all symbols visible to the player.

c)   accordingly, mapped symbols must have identical sequences of preceding and following symbols (if these symbols are visible to the player) on both the physical and virtual reels.

Other Games

3.9.63   Game fairness objectives for other games such as horse/car/animal racing, golf/football, virtual reality, etc. will be assessed on a case by case basis applying the general game fairness objectives specified earlier in this document.

3.9.64   Any games which have a finishing sequence shall display all of the sequence, eg a race will display all contestants finishing.

3.10 Audit Mode

Audit Mode Requirements

3.10.1 Audit mode is to include as a minimum, the following items:

a) display of all electronic meter information as per the section Definition of Software Meters;

b) Last Play Recall;

c) display of terminal identification;

d) display of software/game identification;

e) display of any other game statistics (e.g. wins by category), if maintained by the gaming machine and not transferred to and maintained by the CMCS;

f) on-screen hashing algorithm signature results; and

Audit Mode Access

3.10.1a Access to Audit Mode is limited to the operation of a key-switch or other secure device or from within the interior of the gaming machine cabinet.

3.10.2 Auditing of metering information must be accessible by an authorised person at any time, except during collect in progress or during play (except where play is interrupted by a fault condition).

3.10.3 The gaming machine must not be playable while in Test mode or Audit mode. If coins or notes are inserted they must be rejected (except during coin or banknote acceptor testing). The software must return to the state immediately preceding entering Test or Audit mode when the mode is exited.

3.10.4 Suitable information must be presented to instruct the user on how to move between the different audit screens available. This includes access to all meters and access to all Last Play Recall screens.

Signature Key Entry

3.10.5 The gaming equipment must allow the manual entry of a signature key for the hashing algorithm. Signature key entry must be via an interface provided by the gaming equipment and there must be an on-screen legend displayed. The default signature key is hexadecimal 00. Signature key entry is to be :-

a) in hexadecimal characters,

b) of up to 40 characters in length,

c) entered least significant bytes (LSB) first; and

d) formatted for display with a space between every 4 characters.

A 2-byte CCITT-CRC16 of the signature key (displayed MSB first, calculated LSB LS bit first) must also be displayed to the right of the signature key. This value must be enclosed within parentheses. (The CRC16 shall not be displayed for signature results.)

Examples:

```
Signature key:00                                          (0000)
Signature key:64c5 f08e 45f1 5ad7 8031 0ccd 306a e94c c262 64e4 (69ea)
```

Master Result (for Gaming Equipment with multiple PSDs)

3.10.6 For gaming equipment 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 'exclusive-OR'ed' (XOR) together.

Display of PSD Hashing Algorithm Signature Results

3.10.7 The gaming equipment must display the PSD Descriptions, signature key and hashing algorithm signature results.

The display must be able to be paused indefinitely in order to verify the displayed data. The signature key and hashing algorithm signature results must be displayed in hexadecimal characters (either all uppercase or all lowercase), least significant byte first and formatted with a space between every 4 characters.

Example:

```
Signature key:64c5 f08e 45f1 5ad7 8031 0ccd 306a e94c c262 64e4 (69ea)

PSD Description  HMAC-SHA1 Hex signature result

Master Result:5aa5 c54f 8622 d7ae a78e c394 249a 3fe9 2535 465a
System PSD 1: 6651 1216 9cc0 d1df 679d 9240 38cf 8db7 1410 47e1
System PSD 2: 01c8 4a2f da32 4580 3a6a 97dc 5095 8c57 659f 83b7
Game PSD 1:   41ba 1b98 2116 31db 1b39 507d 579c 28c5 61f8 9981
Game PSD 2:   2077 335e 5834 4ef8 b68e cc65 66b1 bc89 ad37 d49d
I/O Firmware: 4c94 72e6 073f defa 7720 f873 08af de68 64c7 d546
```

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

3.11 Test/Diagnostic Mode

Entry to Test/Diagnostic Mode

3.11.1 Test/Diagnostic Mode may be entered via an appropriate instruction from an attendant during an Audit Mode access.

3.11.2 Opening the main cabinet door of the gaming machine shall not provide automatic entry to Test/Diagnostic Mode.

Display During Test/Diagnostic Mode

3.11.2a During any test that incorporates credits entering or leaving the gaming machine (e.g. a hopper test) the gaming machine must display a message on screen indicating that the gaming machine is in Test Mode.

Exit from Test/Diagnostic Mode

3.11.3 If there are any test-mode states which cannot be automatically superseded by exit from Audit Mode, then the action necessary must be indicated on the machine and in the relevant manuals.

Test Games

3.11.4 Test games, if implemented must:
   a) not increment any meters (other than a temporary on screen credit meter);
   b) only be available after entering a specific test game mode within door open mode; and
   c) be clearly indicated as not in normal game play mode.

Information Required in Test Mode

3.11.5 The following information must be accessible in test mode if not available in audit mode:
   a) revision number for game (and if applicable, base) software in the machine;
   b) set-up/configuration data; and
   c) expected return to player.

Special Test Modes

Combination and Paycheck Mode

3.11.6 If a Combination and Paycheck Mode is available, the following conditions must be met:

a) every stop position on all reels or play result may be selected, allowing testing of any combination;

b) the number of credits staked can be varied;

c) the number of lines can be varied;

d) the value of the prize attained for the combination with respect to the number of credits staked is displayed; and

e) triggering of all features and the prize resulting from the feature is displayed where possible.

<u>Hopper Test</u>

3.11.7 If a Hopper test is implemented, the following requirements must be met :

a) the main door of the machine must be opened immediately prior to the hopper test commencing;

b) only a specific number of coins are dispensed at each test;

c) a play cannot commence/continue until all coins dispensed are re-inserted into the hopper via the coin acceptor mechanism;

d) there must be visual indication of the number of coins dispensed and re-inserted; and

e) no meters (refer *Section 3.3 Metering*) are to be affected throughout the hopper test.

<u>Coin In Validation Test</u>

3.11.8 If a coin in validation test is provided, the following conditions must be met:

a) the number of coins accepted as valid by the comparator is displayed;

b) the number of coins passing coin direction sensors is displayed; and

c) no meters are affected.

Note : Alternative implementations such as providing indicators of the line status (jammed, activated, faulty etc.) of the validator outputs and diverter outputs are acceptable if at least the same level of diagnostics is achieved.

Coin Payout

3.11.9 Coins shall not be capable of being paid out other than by normal play unless in hopper test mode.

Credits Input During Test Mode

3.11.10 Where the possibility exists to obtain credits whilst the door is open for any purpose (e.g. coin-in test) including the service mode, such credits shall be automatically cancelled when the door is closed and shall not be credited to any meters.

3.11.11 Test mode credits must be clearly identified as such.

3.12 Last Play Recall

3.12.1 For the Last Play information held by the gaming machine, it must be possible to show to the player the results of the play(s) as the player originally saw it. The manner in which the information is provided must enable observers to clearly identify the game sequences and result(s) that occurred.

3.12.2 On return to normal game play mode, the gaming machine is to restore all images/reels and meters to the position, form and value as displayed before access to the Last Play information.

Number of Last Plays Required

3.12.3　Information on at least the last five (5) plays is to be always retrievable on the operation of a suitable external key-switch, entry of an Audit Card or other approved method.

Note :　See *Section 3.2.1 Contents of Critical Memory.*

Last Play Information Required

3.12.4　Last play information must provide all relevant 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)　reels in final resting position, card values, balls drawn or other form of game result;

b)　total number of credits at the start of play (less credits bet);

c)　total number of credits at the end of play;

d)　the total number of credits bet including number of lines played and credits per line;

e)　the total number of credits won associated with the prize resulting from the last play or the value in dollars & cents for progressive prizes;

f)　the total number of credits added (separated into coins, banknotes and cashless) since the end of the previous play and through to the end of the last play;

g)　the total number of credits collected (separated into coins, 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 & cents) since the end of the previous play and through to the end of the last play (credits added or collected after the last play will be recorded on the completion of the next play);

i)　any player choices involved in play outcome including lines selected, units wagered, cards held, balls selected, etc.;

j)　results of Gambles, (includes Residual Credit Removal features); and

k)　the value of all Standard Meters (as defined in Table 3-1) as at the end of the last play. Specific meters that are not applicable (eg. Games Played, Extra Coin Out, Banknotes In for machines which do not have a Banknote Acceptor etc), may be omitted.

Note :　The above requirements are the default for Last Play Information in that events after the completion of the last play (such as inserting money to add credits, or collecting credits) do not form a part of the Last play Requirements. However, it is permissible for manufacturers to display this information provided it is clear what happened after the completion of the last play.

Game Sequences

3.12.5　If a 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, or

b)　if the feature is retriggerable within the feature (i.e. the number of games in a feature sequence can theoretically be infinite), the Last Play Recall function must be able to replay a minimum of X games of the feature sequence.　The mathematical determination of X will be that 99% of all feature sequences are of X games or less.　For example if, theoretically, 99% of all feature game sequences in a particular game will be 15 games or less, then the Last Play Recall function must be capable of displaying a minimum of 15 feature games;

c)　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) or b).").

3.12.6   In all cases for a feature or free game sequence, the initial trigger game and final game must be available for display.

3.12.7   The replay of game sequences (free games, feature games etc) must allow each game in the sequence to be examined. Progression to the replay of the next game in the game sequence must require external input, eg button press, touch screen input etc. Alternatively, the replay function may provide a 'Pause' input to allow the replay to be suspended between games of a game sequence.

3.13   Multiple Games

Selection of Game for Play

3.13.1   A Game Selection Screen must be provided where the full amount of the player's credit balance is displayed in dollars and cents (an additional display in credits is optional).

3.13.2   The methodology employed by a patron to select and discard a particular game for play on a multi-game gaming machine must be clearly explained to the patron on the gaming machine, and be easily followed.

3.13.3   The gaming machine must clearly inform the patron of all games available at that time and offer them for selection.

3.13.3a   When a game is selected from the Game Selection Screen, the game selected shall default to the game's minimum bet.

3.13.4   The patron must at all times be made aware of which game has been selected for play and is being played, as applicable.

3.13.5   The player must not be forced to play a game just by selecting that game.

3.13.6   It should not be possible to start a new game before the current play is completed and all relevant meters have been updated (including features, gamble and other options of the game) unless the action to start a new game terminates the current play in an orderly manner.

3.13.7   The set of games offered to the patron for selection, or the paytable, can be changed only by a secure approved method.

3.13.8   No changes to the set of games offered to the patron for selection (or to the paytable) are permitted while there are credits on the player's credit meter or while a game is in progress.

Location of Meters

3.13.9   It is preferred that all non-game specific meters displayed on the play screen (e.g. credit meter, collect meter, etc.) are displayed in the same position for all games.

Configuration of Multi-Game Gaming Machines

3.13.10   All games resident in a gaming machine's memory shall be certified by the designated testing body prior to approval. Exceptions to this rule may be granted but only on a case by case basis.

3.13.11   If it is possible to select between multiple games that are resident in a gaming machine's memory, this selection shall take place in Setup Mode by a technician on the gaming machine prior to being enrolled by a central system, or by a configuration command from a central system. Configuration by both methods will only be permitted if certified by the designated testing body. Where a certification is not in place, the gaming machine must reject the unapproved method. If there is no CMCS, the selection may either take place in the Setup Mode by a technician or as an Audit Mode function.

3.14 Random Number Generator and Symbol Selection

Game Result Determination

3.14.1 Game software must generate random symbols (or reel stop positions) from a Random Number Generator (RNG) algorithm and mapping algorithm.

3.14.2 The 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 Requirement

3.14.3 The fundamental requirement is that the use of an RNG results in the selection of game symbols or production of game outcomes or selection of "mystery" jackpot values which are able to be proven to:
    a) be statistically independent;
    b) be uniformly distributed over their range;
    c) pass various recognised statistical tests; and
    d) be unpredictable.

3.14.4 RNG tests that may be applied 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); and
    j) test on subsequences.

Choice of Algorithm

3.14.5 The choice of algorithm is at the discretion of the supplier of equipment, however, it must comply with the requirements of this document.

Background RNG Activity Requirement

3.14.6 The RNG must be cycled continuously between plays.

RNG Seeding

3.14.7 The method of seed-set generation must be approved.

3.14.8 The method of seed generation must ensure that:
    a) the same sequence of random numbers is never used in more than one device at the same time (i.e. there is to be a method whereby each gaming machine can have a unique seed generation technique or RNG startup values).
    b) the "next" game outcome is not able to be predicted.

3.14.9 Seeding and re-seeding must be kept to an absolute minimum. Both the method of re-seeding and the instances when it may occur must be approved. Re-seeding should not in general be under operator control. Re-seeding should not be a routine or regular practice.

3.14.10 If for any reason the background RNG activity is interrupted (e.g. gaming machine power down), the next input variable(s) for the RNG must be a function of the value(s) produced by the RNG immediately prior to interruption.

Minimum Period for Prize Determination using One RNG Value.

3.14.11 Following a low probability game outcome (e.g. a jackpot win, major prize win, or a particular graphic game result presentation), where that game outcome is represented by only one RNG value or a small number of RNG values, it is important that subsequent game play on that machine is unpredictable. The intent here is to ensure that the machine does not subsequently go through one defined sequence of game outcomes, or one of only a few possible sequences of game outcomes, and that game outcomes are consistent with the mathematical model of the game. Thus in such implementations, the 'Period' of the RNG must be a factor greater than its 'Range'.

Minimum Range Requirement

3.14.12 The range of values produced by the RNG must be adequate to provide sufficient precision and flexibility when setting event outcome probabilities, (i.e. so as to accurately achieve a desired expected return to player).

Mapping

3.14.13 Mapping of random numbers into symbols (or reel stop positions) should observe the following principles:

   a)   the output resulting from the mapping of an RNG to symbols (or reel stop positions) must not be predictable;

   b)   any outcome derived from the random number generator are uniformly distributed;

   c)   any mappings to convert random numbers into game symbols are linear, and the distribution of the mapped symbols is identical to the distribution of the unmapped random number from which they were derived;

   d)   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

   e)   the game outcomes which are derived from either a combination of mapped symbols or directly from the unmapped random numbers must have the same distribution and probability of occurrence as the game that the 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 reel 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

3.14.14 If a random number with a range shorter than that provided by the RNG is required for some purpose within the gaming machine, the method of re-scaling, (i.e. converting the number to the lower range), is to be designed such that all numbers within the lower range are equally probable.

3.14.15 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 and select the next in sequence for the purpose of re-scaling.

3.15 Standalone Progressive Jackpots

3.15.1 -

Modification of Jackpot Parameters

Method of Modification

3.15.2 The method by which system jackpot parameter values are modified or entered is to be secure. Parameters to be addressed are:

   a)   increment values;

b) secondary pool increments;

c) reset values; and

d) maximum values.

Modified Parameters do not Affect Active Jackpots

3.15.3 If jackpot parameters are to be changed, then the change cannot be made until the jackpot is won, or after a full RAM reset of the gaming machine.

Reset of Jackpot Amounts

3.15.4 The current jackpot amounts, including overflow meters, must be able to be set once per RAM reset in configuration mode. The default values will be the reset amounts and game play shall not be permitted until the current values are set to a value equal to or greater than the default value and accepted (or the default values have been accepted).

3.15.5 -

3.15.6 -

Progressive Jackpot Prize Expectation

3.15.7 Where games include a progressive component, the expected trigger value of the progressive value of the progressive meter must be less than or equal to the ceiling amount.

3.16 Gaming Machine Events

3.16.1 Gaming machine events include the occurrence of a fault condition, incidents of de-activation, the changing of an important state such as a door open, and large jackpot wins, etc.

3.16.2 Gaming machine events require different gaming machine de-activation depending upon the event. Re-activation requires different level of intervention (e.g. none, attendant, technician, Central System) depending upon the type of event. See the following tables: Table 3-6 : Gaming Machine Faults and Remedial Actions, Table 3-7 : Gaming Machine Door Open/Close Event Definitions and Table 5-1 : Banknote Faults and remedial Actions.

Gaming Machine Faults

Action on Occurrence of a Fault Event

3.16.3 Events listed in Table 3-6 : Gaming Machine Faults and Remedial Actions must cause a clearly displayed message that an event has occurred and, unless otherwise indicated, must also result in the following:

a) all player inputs must be disabled except for a Service Button and, optionally, any inputs required for Audit Mode. This includes disabling coin and banknote input;

b) an identifiable alarm must be sounded for at least 1.5 seconds;

c) any game play must be saved in its current incomplete condition. The reels must cease spinning immediately; and

d) if the gaming machine was in hopper payout, the hopper must be turned off and the brake applied.

Action on Clearance of a Fault Event

3.16.4 The following actions must be performed on clearing of the fault:

a) any messages must be removed;

b) any relevant player inputs must be re-enabled;

c) the alarm must be turned off; and

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.

<u>Faults to be Treated as Events</u>

3.16.5 The following table defines faults that are to be treated as events, together with the remedial action to be taken to clear the fault:

Table 3-6 : Gaming Machine Faults and Remedial Actions

Fault	Definition	Cleared by:
Coin Yo-Yo	Inserted coin detected moving in the incorrect direction: A single Coin Yo-Yo may be treated as an information only event Consecutive Coin Yo-Yos are to lead to a gaming machine fault condition	Cleared by an attendant intervention, e.g. key activation
Coin-in Jam	Coin detected not moving - e.g. sensors are continually blocked	Cleared by an attendant intervention, e.g. door open/closed
Coin to Cashbox or Diverter Fault	Coins (exceeding a manufacturer-defined amount or ratio) detected going to the cashbox instead of the hopper, or vice-versa. (count of misdirected coins may be reset on power-up)	Cleared by the fault being rectified.
Excessive Meter Increment	A master meter has increased by more than the increment threshold since the end of the previous play. (see Section 3.3.19a)	Cleared by attendant intervention, e.g. key activation
Hopper Empty	Coins not passing a hopper output sensor within a specified time	Cleared by an attendant intervention, e.g. door open/closed
Hopper Jam	The hopper output sensor(s) are blocked	Cleared by an attendant intervention, e.g. door open/closed
Extra Coin Paid	Single coin passed hopper sensor after hopper payout completed	Cleared by an attendant intervention, e.g. door open/closed
Hopper Run-away	Multiple coins passing hopper sensor	Cleared by an attendant intervention, e.g. door open/closed
Hopper Failure	Disconnection or failure of the hopper (not covered by other fault definitions)	Cleared by an attendant intervention, e.g. door open/closed
Reel Not Spinning Freely (if applicable)	Software detecting a reel not spinning correctly	Cleared by an attendant intervention, e.g. door open/closed
Illegal Reel Movement (if applicable)	Software detects unauthorised reel movement	Cleared by an attendant intervention, e.g. door open/closed
External Peripheral Controller Fault / Dis connect	Any Peripheral controller fault or com munications failure (e.g. a Progressive Display Controller)	Cleared by technician

Printer Paper Low (if applicable and possible)	The printer paper will soon be exhausted: This should lock up the gaming machine upon completion of a predetermined number of tickets calculated to ensure "Paper Out" is not possible. If a paper out sensor is also provided then "Paper Low" results only in a message Note that if a gaming machine has a printer it must have a paper low or paper out sensor or both	Paper low condition to be cleared by replacement of paper (paper low sig nal removed) or positive attendant intervention, e.g. key activation
Printer Paper Out (if applicable)	The printer paper has been exhausted. The gaming machine must lock-up until the paper out state is cleared	Paper out condition to be cleared by replacement of paper (paper out signal removed) and positive attendant intervention, e.g. door open/closed
Printer Jammed (if applicable)	The printer paper is not feeding cor rectly	Paper jam condition to be cleared by clearance of jam (paper jam signal removed) and positive attendant intervention, e.g. door open/closed
Mechanical Meter Dis connected (if applicable)	Software detects that the mechanical meters have been disconnected	Cleared by technician
Low RAM Back-up Battery (if applicable)	Back-up RAM Battery has reached a voltage where back-up will become unreliable soon: A message stating that the repairer must be called urgently must be displayed The gaming machine must lock-up until the battery low event is no longer present and positive indication has been given by an attendant, e.g. jackpot reset key engaged	Cleared by technician
Critical RAM Errors, Mismatch	Some critical RAM error has occurred: When a non-correctable RAM error has occurred, the data on the gaming machine can no longer be considered reliable. Accordingly, any communication to external devices must cease immediately An appropriate message must be displayed Access to electronic meters must still be available	Full RAM clear by Technician

Low Memory	The gaming machine has detected that it is running low on memory and cannot continue operation. Detection of this fault must occur before a total 'out of memory' condition corrupts RAM or crashes the gaming machine. This fault may be considered a recoverable RAM error if it occurs for volatile memory, otherwise it must be deemed an irrecoverable RAM error. This fault is applicable only to gaming machines which use dynamically allocated RAM.	Cleared by Technician if recovery possible with no loss of Critical Memory, else full RAM clear by Technician must occur.
PSD Error	The software has failed its own internal security check. Any communication to external devices must cease immediately. An appropriate message must be displayed, if possible. No modifications to critical meters in RAM must be possible. The gaming machine must lock-up until the fault is rectified.	Full RAM clear or replacement of PSD by a technician.

Banknote Faults and Remedial Actions

Note :   See *Chapter 5 Banknote Acceptance Specifications* for a list of the faults and remedial actions.

Door Open/Close Events

3.16.6   The following table defines Door Open/Close events:

Note :   All of the door open events must be indicated to the user upon their occurrence, with the procedures defined in *Section 3.5.3 Door Open Procedures* to be performed.

All of the following events are door closed events and must be indicated upon their occurrence to the user. Only when all doors are closed should the gaming machine perform the procedures defined in the *Section 3.5.4 Door Close Procedures*.

Table 3-7 : Gaming Machine Door Open/Close Event Definitions

Event	Definition
Gaming Machine Door Open	The main cabinet door has opened
Cash box Door Open	The cash box door has opened

Logic Area Door Open (see *Chapter 8 Section 8.2.4 Logic Area* Access)	The main CPU door has opened. This event is to cause the gaming machine to lock up until the door is closed and the event cleared by an approved method, e.g. command from a host computer system
Other Secure Area Accessed	Any other secure area has been accessed (e.g. banknote acceptor door)
Gaming Machine Door Closed	The main cabinet door has closed
Cash box Door Closed	The cash box door has closed
Logic area Door Closed	The main CPU door has closed
Other Secure Area Secured	Previously accessed secure area has been secured

Non-fault Gaming Machine Events

3.16.7 The following table lists the non-fault gaming machine events that must be reported to the user and the respective procedures must be performed:

Table 3-8 : Non-fault Gaming Machine Events

Fault	Definition	Cleared by
Gaming Machine Power Off	The gaming machine has been powered off: a) any game play must be saved in its current incomplete condition (reels may finish spinning, but any wins must only be paid on clearing of the error); b) if the gaming machine was in hopper payout, the hopper must be turned off and the brake applied; and c) all requirements from Gaming Machine Faults (sections to inclusive) must be adhered to.	Cleared by: gaming machine Power On
Gaming Machine Power On	The gaming machine has been powered on: a) any relevant player inputs must be re-enabled; and b) any game play when the event occurred must recommence from the beginning of the play or from the point at which interruption occurred and conclude normally, using the data that was saved previously.	See definition
Stand Alone Progressive Award	A Standalone progressive prize has been won: a) an appropriate message must be displayed; and b) unless the prize is transferred to the player's credit meter the software must lock-up until the award has been paid by the attendant.	See definition

Linked Progressive Award	A linked progressive prize has been won: a) an appropriate message must be displayed; and b) unless the prize is transferred to the player's credit meter or paid through an automatic printing of prize ticket the software must lock-up until the award has been paid by the attendant.	See definition
Substantial Win	Any prize equalling, or exceeding the Substantial Win Amount [LARGEWIN] in a completed game, shall instigate this event.	Cleared by an attendant.
Maximum Hopper Pay out Exceeded	A cashout attempt which exceeds the Maximum Hopper Payout amount [MAXHOPPER] shall require the gaming machine to perform a cancel credit manual pay for the full amount (or a ticket printout in accordance with the relevant sections of this document).	Cleared by: Cancel credit confirmation by attendant, completion of ticket print out or the player cancelling the cashout.

Notification of Faults

3.16.8   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).

3.16.9   All fault conditions may activate a tower light if applicable.

3.16.10   It is preferred that the gaming machines become 'user friendly' in situations requiring human interaction. For example, if a "hopper jam/empty" condition occurs, the gaming machine should instruct the attendant with further instructions and take the operator through the process of clearing the fault step-by-step. It is envisaged that implementing this procedure would greatly reduce training time on gaming machine operations, call-outs and accidental damage.

3.17   Code and Compilation

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;

Source Code Comments

3.17.2   All source code submitted must be commented in an informative and useful manner.

3.17.3   Poorly commented code may seriously impair the software validation process and greatly reduce the degree of confidence in the reliability and integrity of the code.

Source Code Completeness

3.17.4   All source code submitted must be correct, complete and able to be compiled. The resultant compiled object code must be identical to that in the storage media submitted for evaluation, and to that in the media to be operational in sites.

Redundant Code Sections

3.17.5   Reduction of sections of redundant code will assist in minimising time spent appraising software.

3.17.6   The above requirement does not apply to different player return variations of games provided that the software defining the characteristics of the unique variations is localised to a limited number of areas.

3.17.7   If redundant sections of code do exist in the program, the manufacturer is to provide documentation of the areas of code which are redundant. One way of achieving this goal is to use compiler directives that omit sections of code, for example if a particular compiler option is set (or not set).

Description of Variables

3.17.8   All variable declarations must be followed by a thorough description and definition of the use of the variable.

Program Storage Media Identification

3.17.9   All program storage media must be uniquely identified, displaying:
   a)   Game name (and/shell name, if applicable);
   b)   Manufacturer;
   c)   Game development number or variation;
   d)   Version number;
   e)   Jurisdiction;
   f)   Type and size of media; and
   g)   Location in gaming machine (if critical, e.g. socket position 3 on PCB).

3.17.10   Manufacturer specifications on the program storage media must be accessible.

3.18   Security/Integrity

Modification of Gaming Machine Characteristics

External Mechanism Affecting Play

3.18.1   There shall be no external mechanism (DIP-switches, jumpers, etc.) that can affect the outcome of a play. For example, there shall be no externally selectable options that alter or affect the random number generator.

Permitted Reconfiguration

3.18.2   The gaming machine may be reconfigured to modify the following parameters, but only by a secure approved method:
   a)   the mapping of random numbers to cards or symbols;
   b)   the game or sets of games approved for play;
   c)   denomination and tokenisation; and
   d)   the paytable.

Display Following Reconfiguration

3.18.2a   Immediately following a configuration change, the gaming machine must;
   a)   reset the Win meter to zero;
   b)   reset any player options selected (e.g. bet amount, lines played etc.) to the minimum available value and apply this value or values to appropriate on-screen displays (e.g. Bet meter);
   c)   change, if necessary, the display of the game screen to a non-winning result or combination;
   d)   clear the Last Play Recall information held by the gaming machine.

Note : The requirement at 3.18.2a(d) is optional where the Last Play Recall function of the gaming machine is able to provide all information relating to the play(s) stored prior to the reconfiguration. For example, if a reconfiguration causes changes to the paytable, the paytable information pertaining to the play(s) stored prior to the reconfiguration must be available from the Last Play Recall function.

Gamble Configuration

3.18.3 A Gamble option must only be enabled or disabled in Setup Mode prior to being enrolled on the CMCS. If the gaming machine's artwork (without changes) supports the game with the Gamble option both enabled and disabled, the Gamble option may be enabled or disabled by the CMCS alone.

3.18.4 Features within the Gamble Bet Mode such as the style or type of game may be selected in Audit Mode.

Approval of Gaming Machine Configuration Settings

3.18.5 There shall be no configurable settings on a gaming machine (after it leaves the manufacturing facility), in Setup Mode, Demo Mode, or Audit Mode on the gaming machine that are not certified by the designated testing body, and approved by the relevant authority.

Validation of Gaming Machine Configuration Settings

3.18.6 All configuration settings required for the proper operation of the gaming machine must be entered before the machine can leave Setup Mode. If all configuration settings required have not been entered, the machine must detect this condition and remain in Setup Mode.

Gaming Machine Central System Address Entry in Setup Mode

3.18.7 If a gaming machine Central System address is capable of being entered into the gaming machine at the venue, the gaming machine Central System address shall only be able to be configured in a gaming machine during the Setup Mode prior to being enrolled on the Central System.

Configuring a Gaming Machine via a Central System

3.18.8 All game parameters, game details, and game statistics which are configurable from a Central System shall be defined on a Game Detail Sheet.

3.18.9 If a gaming machine is not capable of supporting a game configuration parameter as sent from a Central System (the gaming machine does not operate in accordance with this Standard when configured in such a way) then the gaming machine must reject that parameter.

3.18.10 There shall be no configurable parameters on a gaming machine as set by the Central System which are not certified by the designated testing body, and approved by the relevant authority.

Game Detail Sheets

3.18.11 Game Detail Sheets are used by the Central System operators to correctly enrol a game onto a monitoring system. Game Detail Sheets will be certified by the testing body and approved by the relevant authority at the time the game software is approved.

3.18.12 A Game Detail Sheet shall contain all the information necessary in order to enrol a game on a Central System in a clear and understandable manner.

3.18.13 There shall be no game parameters, or game details on a Game Detail Sheet that are not certified by the designated testing body.

Required Hardware Detection

3.18.13a Software which provides games designed to operate on gaming machines fitted with required hardware (eg. touch screen, top box LCD, additional RAM), must detect that the required hardware is present.

The detection of required hardware is to occur during configuration.

If the required hardware is not detected as present, the game must not operate and an appropriate message is to be displayed.

There must be no facility to disable the function of detecting required hardware.

Communication Error Detection

3.18.14 Where critical data and information (e.g., credits, metering information, information pertaining to a game outcome, etc.), is transferred between microcontrollers, there must be error checking on the transferral. This check must be at least a Cyclic Redundancy Check (CRC). Parity checking or simple check sums are not adequate.

RAM Resets

RAM Reset Method

3.18.15 There must be no method providing a 'RAM reset' to clear the meters and other areas of electronically stored data without first accessing the logic area of the gaming machine.

3.18.16 -

Function of RAM Reset

3.18.17 Following the initiation of a RAM reset procedure (utilising an approved RAM Clear method) the game program must execute a routine which initialises each and every bit in RAM to the default state.

3.18.18 The default reel position or game display after a RAM reset must not be a winning combination on any selectable line. The default game display upon entering game play mode must also be a non winning game.

3.18.19 A configuration setting that is required to be entered during Setup Mode immediately following a RAM Reset must not be able to be changed after the machine leaves Setup Mode.

Simultaneous Inputs

3.18.20 The program must not be adversely affected by the simultaneous or sequential activation of the various inputs and outputs, such as 'play buttons', which might whether intentionally or not, cause malfunctions or invalid results.

Demonstration Mode

3.18.21 A gaming machine may have a Demonstration Mode for the purposes of training, testing, etc. All gaming machine software with a Demonstration Mode must meet the following requirements:

Entry to Demonstration Mode

3.18.22 Demonstration Mode may only be entered after performing a full RAM reset on the machine via an approved method.

Exiting from Demonstration Mode

3.18.23 Once the Demonstration Mode is exited (e.g. the gaming machine is connected to a live system or is commissioned) it must not be able to go back to the Demonstration Mode unless the gaming machine memory is cleared via a RAM Reset.

Notification

3.18.24 While the gaming machine is operating in the Demonstration/Test/Service Mode, there must be clear notification on the screen that the gaming machine is in that mode.

Metering During Demonstration Test or Service Mode

3.18.25 Hardware meters are not to be incremented in Demonstration, Test or Service Mode.

3.18.26 If software meters are incremented in the Demonstration Mode, these meters must be cleared upon the change of the gaming machine from Demonstration Mode to Game-Play Mode.

<u>Illegal Gaming in Demonstration Mode</u>

3.18.27 A gaming machine in Demonstration Mode must not be capable of being used as an off-line gaming machine. While in Demonstration Mode, the gaming machine must :

    a)   not allow coins to be entered into the gaming machine (i.e. lockout) except in accordance with approved coin test procedures;

    b)   not allow any coins out for credits in the gaming machine except in accordance with approved hopper test procedures;

    c)   if a "ticket" cash out is allowed, clearly mark the ticket as a non-valid ticket including a non-valid serial number (e.g. all zeroes or nines).

3.19 Card Reading and Account Betting

Security Aspects

3.19.1 If cards employing a form of electronic storage of data are to be utilised, some of the major concerns with aspects of security are:

    a)   prevention of illegal alteration of data;

    b)   protection from loss of data;

    c)   recovery of information from damaged or lost cards;

    d)   accuracy of read/write operations; and

    e)   protection from fraudulent duplication of card information.

Card Locking Mechanism

3.19.2 Software must activate a locking mechanism to retain a card used for cashless gaming within a reading device, and lock a card into the unit once inserted, except if an amount debited from the card or account is placed directly on the credit meter and no further transactions are required from the card or account (eg updating of account balance).

De-activation of Card Locking Mechanism

3.19.3 Where a card locking mechanism is used, the software must not de-activate the locking mechanism until one of the following conditions is met:

    a)   a player has requested a collect of remaining credits and all updating of account records and/or information has been successfully completed;

    b)   a player has a zero credit balance and all updating of account records and/or information has been successfully completed;

    c)   an invalid card event condition has been cleared by an approved method; or

    d)   power or communications failure (if a and b are met, update accounting information before releasing card).

Account Betting

3.19.4 Where account betting is used, no bet will be permitted to exceed the balance of an account.

3.20   Parameter/Limit Definitions

3.20.1   The following are definitions of the parameters/limits that will be established for gaming machines. These parameters may be set by the Jurisdiction, Operator or Manufacturer. Some parameters may vary depending upon the gaming machine itself (e.g. there may be a different Hopper Refill amount depending upon relative sizes of hoppers): See Chapter 8 Supplementary Standard Document for parameter values.

[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.
[CRECANLIM]	Maximum number of credits payable from the hopper for non-tokenised gaming machines before a cancel credit or ticket pay must be used.
[GAMBWIN]	The maximum win that can be obtained from each single gamble attempt.
[LARGEWIN]	Substantial Win amount - wins greater than or equal to this value must generate a gaming machine Event.
[MAXHOPPER]	Maximum amount of money payable from the hopper for tokenised gaming machines before a cancel credit or ticket pay must be used.
[MAXNPWIN]	Maximum non-progressive win permitted in any game element (any individual primary or feature or gamble or bonus element).
[MAXPWIN]	Maximum progressive win permitted in a gaming machine game.
[MAXRTP]	Maximum theoretical acceptable return to player.
[MAXWAGER]	Maximum wager permitted in a gaming machine game.
[MINRTP]	Minimum acceptable return to player.
[PSAVACT]	The period of time a gaming machine must be in "Idle Mode" before activating power save.
[TIMEDISP]	Time must be displayed on the game screen. [Yes/No]

4   Artwork

> This chapter sets out the core artwork requirements for each Australian and New Zealand jurisdiction's gaming machine technical standard.

4.1   Introduction

4.1.1   For the purposes of this chapter, artwork is defined as any of the following, represented by any image, text or sound that is provided by the gaming machine (except in audit and test modes) :

    a)   game instructions;

    b)   paytable;

    c)   game name;

    d)   reels and symbols

    e)   any other text or images;

    f)   any other visual components of the game (eg. themes, multigame panels, linked progressive panels etc).

This includes, but is not limited to, anything that appears on the top panel, belly panel, buttons, video display surround, and the video display itself.

This definition of artwork includes any messages, images or sounds presented to the player which do not provide instructions, rules or payscale information or do not provide part of the display of the game. Such messages, images or sounds will be subject to the requirements of this chapter.

4.1.2   This chapter refers to all forms of artwork as defined in 4.1.1. The combination of all relevant messages appearing anywhere on the artwork must comply with the clauses in this chapter. Conflicting or ambiguous statements must not be provided.

4.1.3   This chapter is structured in the following way:

    a)   *Section 4.2* refers to general requirements for artwork for all games.

    b)   *Sections 4.3* through *4.6* address requirements for specific game types. These sections primarily include a definition of the information that must be available to the player by way of the artwork. In some cases, specific requirements are given.

    c)   *Section 4.7* addresses requirements for Gamble which may apply to all game types. Again this section primarily includes a definition of the information that must be available to the player by way of the artwork for Gamble (or similar features). In some cases, specific requirements are given.

4.1.4   Wording in bold font appears in clauses throughout this chapter. If the mathematical treatise of the game indicates behaviour as described by the relevent clauses, the wording in bold font must be included in the artwork. Where there is more than one option, a list is provided.

4.1.4a   Two or more statements of the wording in bold font may be presented in combination by the use of "**,**" and/or "**and**" provided that the meaning of the resulting statement remains clear.

4.1.5   If the term "**[X]**" is used in this chapter, then either a depiction of the symbol, or a phrase or word that represents the symbol may be used. The term "**[X] [Y] and [Z]**" refers to more than one symbol in the same way.

4.2   General

4.2.1   By making a submission to a jurisdiction for evaluation, the manufacturer, supplier and operator of gaming equipment indemnifies the relevant jurisdiction, its duly appointed testing agents, the government of the jurisdiction and the Crown of any claim by any party for breach of copyright, trademark, or registered name or design which may arise from the distribution of literature (such as rules of play) or operation of approved gaming equipment.

4.2.2   -

4.2.3   To the extent that is practicable for the range of games offered on a gaming machine, a gaming machine is to clearly and consistently use the same method of displaying win amounts for all games offered.

4.2.4   All static artwork supplied must be clearly identified by a part number and the name or logo of the manufacturer. The part number on static artwork providing a pay table or game rules must be legible without requiring the use of any tools or dismantling of the machine. Physical reel strips shall also have a reel number.

Successive versions of artwork of the same type (eg. belly, casino top etc.) must have different part numbers. All artwork from the same manufacturer must have a unique part number.

4.2.5   Artwork which makes use of stickers (e.g. gamble instructions) must use stickers that will not shrink or peel with time or heat. If applied on an artwork panel, all stickers should be applied on the back of the artwork to avoid intentional removal. Stickers applied to other parts of the gaming machine must not be easily removed. Stickers must meet the part number requirement, however where size limitations occur, the part number may be printed on or affixed to the sticker backing or surroundings.

4.2.6   The functions of all physical or touch screen buttons must be clearly indicated, preferably on the button.

4.2.7   Artwork must not be indecent or offensive to the general population, eg. depictions of nudity, pornography and excessive alcohol consumption.

Game Instructions

4.2.8   All game instructions on the artwork must be easily interpreted, not ambiguous, and sufficient to explain all game rules.

4.2.9   There must be sufficient game instructions to allow a player to determine the correctness of prizes awarded.

4.2.10   Game play and device usage instructions must be stated unambiguously and must not be misleading to the player.

4.2.11   All statements on the artwork must be true.

4.2.12   The game instructions must be clearly visible, or the means of displaying such instructions must be readily available to a player at any time a game is available to be played.

4.2.13   If any game instructions are on the video screen only, they must be accessible and visible without the need for credits to be inserted or bet. This requirement does not apply during game play except where specific instructions may be required to proceed to the next stage of the game.

4.2.14   Game instructions that are presented aurally must also be provided by visual instructions.

4.2.15   Game instructions that refer to the entire game (ie. Global Instructions) must be indicated with "**ALL**" . Global Instructions that have exceptions (eg. All wins left to right only except scatters) must indicate the exceptions with wording such as "**EXCEPT**".

4.2.15a General game rules that do not apply to progressive prizes should be suitably grouped and titled "Game Rules (Excluding Progressives, if Available)" or similar.

4.2.16   Game instructions must be printed in a colour that contrasts with the background colour to ensure that all instructions are clearly readable.

4.2.17   Game instructions that visually belong to a symbol, group of symbols or feature through the use of boxing, framing or similar, are only applicable to the symbol, group of symbols or feature. For example, global game rules cannot be placed inside an area of grouped instructions dealing specifically with a free spin feature.

4.2.18   In cases where player input is required within a finite period of time (e.g. selection of bonus prize symbols), an appropriate statement and a suitably labelled dynamic display of the time remaining (in seconds) must be provided by the on-screen artwork. An audible warning must also be provided for the period of five seconds immediately before this time elapses.

For example, a player is required to select three bonus symbols from a field of twenty within 30s or the game will make a random selection of three symbols. In this case the on-screen artwork must include an appropriate statement regarding the possibility of an automatic selection of symbols, a count-down timer from 30s and an audible warning from 5s."

Paytable

4.2.19   The paytable displayed on the artwork must correspond to the paytable used in the mathematical treatise of the game.

4.2.20   All prizes that are used in the mathematical treatise must be contained on the artwork. Where a range of prizes exists, a statement defining the range must be included on the artwork. For Example, if a mystery prize of between 5 and 500 credits can be randomly awarded, the statement "A Mystery prize of between 5 and 500 credits mulitplied by credits bet per line can be awarded" or similar, must be included on the artwork.

4.2.21   There must be no prizes contained on the artwork that are not used in the mathematical treatise.

4.2.22   The paytable applicable to the game must be clearly visible, or the means of displaying such information must be readily available to the player at any time a game is available to be played.

4.2.22a   For games that provide a standalone progressive jackpot prize, the artwork must explain the treatment of contributions once the jackpot ceiling has been reached.

Messages

4.2.23   Written messages must be in English, or other official language (unless specifically requested to be in another language by the operator, and then only with an adjacent English or official language message) and be both grammatically and syntactically correct, in the languages.

4.2.24   Artwork that specifies a maximum win may only be included as part of a paytable or as per section 4.7.2.

4.2.25   The message "**Malfunction Voids All Pays and Plays**" must be clearly and permanently displayed on each EGM at all times, except during audit and test modes.

4.2.26   Minimum and maximum bets must be able to be deduced, or stated on the artwork.

4.2.27   The name of the game being played must be visible to the player.

4.2.28   If random prizes are offered, the minimum and maximum values obtainable from the random prize must be indicated. If the value of the random prize depends on credits bet this must be stated.

Tokenisation

4.2.29   The coin input denomination and tokenisation of the game must be stated using the message "**$Y = Z Credits**" or "**Y¢ = Z Credits**" (where Y is the token value and Z is the number of credits for each token) regardless of whether or not the game is tokenised.

For example, a 5c, $1 tokenised game must have the message "$1 = 20 Credits" displayed. A 20c non-tokenised game must have the message "20¢ = 1 Credit".

4.2.30   All games must have all prize references in credits and display the statement "**All wins shown in credits**" or where the game provides a progressive prize "**All wins shown in credits, except progressives**".

4.3   Spinning Reel Games

Introduction

4.3.1   This section applies to spinning reel games. The layout of the reels display window is not specified.

Virtual Reel Mapping

4.3.1a   Where the symbols of a virtual reel are mapped to and displayed by a physical reel, the artwork must contain the statement **"The symbols and reels are used only to display the result of each game, and do not represent the chances of winning"**.

Note: This statement is not required where the virtual reels and corresponding physical reels are identical in size, structure, content and behaviour.

Prizes Layout

Symbol-prize Relationship

4.3.2   The prizes for the winning patterns of each symbol must be placed in an area that visually belongs to the symbol. This can be achieved with appropriate boxing or framing. The symbol or group of symbols must be associated with its prize, and must not invade the area that visually belongs to a different symbol or a different group of symbols if this could cause ambiguity.

Number of Symbols Required for a Prize

4.3.3   The number of symbols required to appear in the reels display window in order for a prize to be awarded must be indicated. These numbers must line up with the prizes in order to avoid any ambiguity as to which prize corresponds to which number of symbols.

Shared Paytables

4.3.4   If more than one symbol shares the same paytable, those symbols must be placed in an area that visually belongs to the paytable. This can be achieved with appropriate framing or boxing. The words "**Of a kind**" must be placed near the number of symbols required to form a winning pattern and within an area that visually belongs to the paytable for those symbols.

Mixed or Grouped Symbols

4.3.5   If prizes can be awarded for mixed or grouped symbols, the artwork must clearly specify the mixture or grouping of the symbols either by placing the symbols in an area that clearly belongs to the paytable and labelled "**Mixed**" or "**[X] or [Y] or [Z]… mixed**" where [X], [Y] and [Z]… are all the symbols that can participate in a grouped or mixed win. Care must be taken with such phrases as "Mixed Bars" or "Mixed Fruit" to ensure that there can be no misinterpretation or ambiguity.

Prize Tabulation

4.3.6   In games that permit multiple credits to be bet, the artwork must include one of the following:

a)   a full tabulation of the prizes for multiple credits bet. The number of credits bet required for each prize must be placed in a location that clearly indicates which prizes apply to which multipliers. Such numbers must have associated with them the wording "**Credits bet per line**" or "**Total credits bet**" which ever case applies.

b)   a tabulation of the prizes for a single credit bet and either the statement "**Line wins multiplied by credits bet per line**" or "**Line wins multiplied by total credits bet** ", whichever is applicable.

c)   a tabulation of the prizes for the minimum bet, if the game does not have a single credit bet available (eg. minimum bet is 20 credits). Statements that address how line wins are multiplied must be included on the artwork.

For point b) above, the term "**Line wins**" may be replaced by "**All wins**", "**All wins except scatters**" or "**All wins except scatters [X]**" if those are the rules of the game.

<u>Scattered Wins and Prize Tabulation</u>

4.3.7   The artwork must clearly indicate how scattered wins are multiplied . If statements in 4.3.6 do not address this, the artwork must :

a)   include the statement "**Scatter wins are multiplied by the total credits bet, as indicated**" if the prizes for the scatter symbol are fully tabulated.

b)   include the statement "**Scatter wins are multiplied by the total credits bet**" if the prizes for the scatter symbol are tabulated for a single credit bet.

c)   If scatter wins are not multiplied by total credits bet, include a statement which indicates how scatter wins are multiplied.

<u>Scatters</u>

4.3.8   Every scatter symbol must be clearly labelled with the word "Scatter" at least once. Other occurrences of the scattered symbols in the game instructions do not require labelling.

Positioning, Size, Colour And Shape

<u>One Symbol/Prize Instructions</u>

4.3.9   Game instructions that belong to only one symbol/prize or a group of symbols/prizes must be clearly associated with the symbol/prize or group of symbols/prizes. This may be achieved with appropriate framing or boxing. Additional wording such as "these symbols" could also be used.

<u>Symbol Appearance</u>

4.3.10 A symbols appearance must remain the same throughout all artwork, except while animation is in progress. Any symbol that changes appearance during an animation process must not appear in a way that might misrepresent another symbol in the game.

<u>Symbol Reference</u>

4.3.11 If game instructions refer to a particular symbol via the name of that symbol, and the name of the symbol may be mistaken for another symbol or may imply other characteristics (e.g. "Pair of Sunglasses" may be interpreted as two Sunglasses symbols), the visual display of the instructions must clearly indicate to which symbol the instruction is referring. This may be via the display of the actual symbol or a clear description or both.

<u>Change of Symbol Function or Appearance</u>

4.3.12 If the function of a symbol changes (eg. a non-substitute symbol becomes a substitute symbol during a feature), or the symbol's appearance changes, (eg. a red ball changes to a blue ball in a feature) the artwork must clearly describe this change of function or appearance and any special conditions that may apply.

<u>Miscellaneous Symbols</u>

4.3.13 If a symbol does not appear on all reels, the artwork must clearly state which reels the symbol appears on "**[X] appears on reel [reels] only**".

Where the term [reels] defines the reel number identifier.

Substitution

<u>Substitute Symbols</u>

4.3.14 Substitution can be implemented in various ways depending upon the design of the game and it's associated rules. Regardless of the implementation selected, specific substitution rules, in isolation or in combination with other game rules, must clearly explain the operation of a substitute symbol.

4.3.15   The artwork must state which symbols are substitute symbols. If a symbol is a substitute symbol, the artwork must state for which winning patterns and for which symbols the symbol substitutes, and any conditions that may apply. This must be done in the following manner:

   a)   If the substitute symbol substitutes for all symbols, the statement "**[X] substitutes for all symbols**" must be used.

   b)   If there is more than one substitute symbol, and each substitutes for all symbols, then the statement "**[X] [Y] and [Z] substitute for all symbols**" must be used.

   c)   If the substitute symbol does not substitute for all symbols then either the statement "**[X] substitutes for all symbols except [A], [B] and [C]**" where [A], [B] and [C] are the exceptions, or the statement "**[X] substitutes for [A], [B] and [C]**" must be used.

   d)   If there is more than one substitute symbol, where each substitute symbol has the same exceptions, the statement "**[X] [Y] and [Z] substitute for all symbols except [A], [B] and [C]**" must be used, where [A], [B] and [C] are the exceptions.

   e)   If the substitute symbol substitutes for line wins and for only the highest paying scattered symbol appearing, the statement "**[X] substitutes for the highest scatter win only and for all other symbols**" is required.

   f)   If the substitute symbol(s) does(do) not behave according to a) through e), then statements that completely identify which symbols are substituted for and which symbols are not substituted for, are required.

Prizeless Substitutes

4.3.16   Where substitute symbols do not have a pay scale, the prize(s) applicable to an 'all substitute' combination must be clear from the standard game rules, otherwise specific rules regarding prize(s) for an 'all substitute' combination must be provided.

Vertical Substitutions

4.3.17   A "vertical substitute" substitutes for one or more symbols in all positions on the same reel (ie. the symbol substitutes vertically). If the game contains such a symbol, the following applies :

   a)   If the vertical substitute symbol substitutes for all symbols, then the statement "**[X] substitutes for all symbols in all positions on that reel**" is required.

   b)   If the vertical substitute symbol substitutes for one or more (but not all) symbols, then the statement "**[X] substitutes for [A] [B] and [C] in all positions on that reel**" is required.

   c)   If the vertical substitute symbol substitutes for all symbols except scatters, which are substituted in one position only, the statements "**[X] substitutes for all symbols in all positions on that reel except [A] [B] and [C]**" and "**[A] [B] and [C] are substituted in one position only**".

   d)   It is acceptable to replace [A] [B] and [C] with the word "scatters" or a phrase that represents the scatter symbol, provided 4.3.13 is satisfied.

   e)   If the vertical substitute symbol does not behave according to a), b) or c), then statements that clearly explain the operation of the substitute symbol are required.

Substitutes and Extra Pays

4.3.18   If extra pays or multipliers are awarded when substitutes participate in winning patterns then a tabulation of all prizes associated with the substitution(s) with all possible multipliers must be displayed or one of a) through d) below :

   a)   If the game provides for multipliers to apply when one or more occurrences of a substitute participate in a winning pattern, the statement "**If one or more [X] substitutes in a win the pay for that win is doubled**" must be used, where the word "doubled" may be replaced with the appropriate game rule (such as "tripled", "multiplied by 5" etc.);

   b)   If the game provides for multipliers to apply for each substitute appearing in a winning pattern, the statement "**Every [X] that substitutes in a win doubles the pay for that win**" where the words "doubles the win for that combination" may be replaced with the appropriate game rule (such as "triples the win for that combination" or "multiplies the win for that combination by 5" etc.);

c) If the win for the substitute symbol itself is multiplied, the artwork must contain the statements required at a) or b) and an additional statement regarding the treatment of wins for the substitute symbol alone;

d) If the game rules defined at a), b) or c) do not apply, the artwork must contain statements to clearly explain the application of extra pays or multipliers awarded for substitute symbols participating in winning patterns;

Winning Patterns

Patterns – Order of Reels

4.3.19 The order of reels (or "pattern") on which symbols must appear in order for a prize to be awarded or a feature to be triggered (according to the game rules) must be displayed or accessible on some form of artwork. The following applies :

a) If all winning patterns, including scatters, occur in a common pattern, the statement "**All wins [common pattern] only**" must be included on the artwork.

b) If all winning patterns, excluding certain symbols, occur in a common pattern the statement "**All wins [common pattern] only except [X] [Y] and [Z] which pay [common pattern]**" must be used.

In a) through b) above, the term "[common pattern]" must be replaced with one of the following defined common patterns according to the game rules :-

1. "left to right"
2. "right to left"
3. "left to right or right to left"
4. "left to right and right to left"
5. "adjacent"
6. "any" (or "pay any" if used in a) or b) above).

Complicated patterns which do not satisfy a) or b) above must be clearly explained (e.g. by pictorial representations).

4.3.20 If either "**All wins left to right and right to left**" or "**All wins left to right and right to left except [X] [Y] and [Z]**" is stated on the artwork, coinciding wins from both directions are presumed to be added without the need for an additional statement to describe this. If a 5-of-a-kind combination is paid only once, a statement which clarifies this must be included in the artwork.

4.3.21 -

Graphical Representations of Winning Patterns

4.3.22 If winning patterns are only represented graphically (without the aid of a written explanation) then they must be supplemented with numbers to indicate how many correct symbols each pattern corresponds to; except for unusual winning patterns (e.g. X_X_x_X_X) where numbers must not be displayed and the pattern must be positioned in proximity to the prize. When unusual winning patterns are implemented then a consistent approach to numbering for usual patterns of the same symbol must be implemented. For example (X_X_x_X_X) is displayed without number then (X_X_x_x_x) of the same symbol can be displayed without number.

Difficult Patterns

4.3.23 Winning patterns other than common patterns as defined in 4.3.19 must be clearly explained. Graphical representations may be useful.

Lit Lines

4.3.24 Where winning patterns are paid on lit lines only, the artwork must include the statement "**All wins on lit lines only except [X] [Y] and [Z]**" where [X] [Y] and [Z] are the exceptions to this rule (eg. scatters, feature wins etc.)

4.3.25, 4.3.26 and 4.3.27 refer to games with 5 reels, and 3 rows of symbols

4.3.25 Games consisting of 1 line must contain the following line:
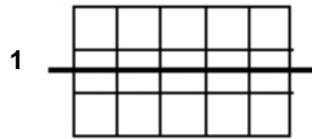
4.3.26 Games consisting of 3 lines must contain the following lines, numbered as shown :
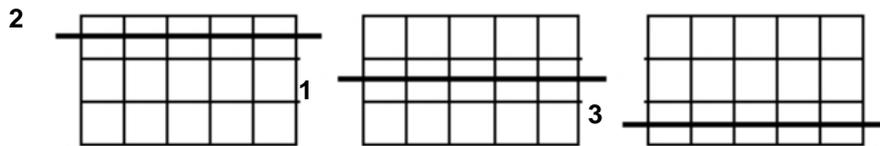
4.3.27 Games consisting of 5 lines must contain the following lines, numbered as shown :
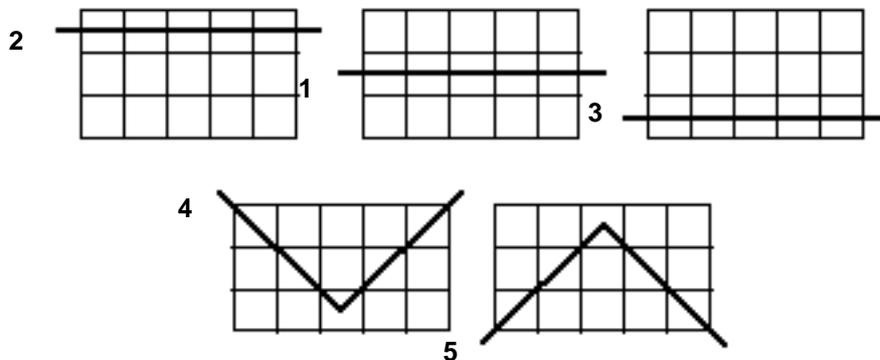
Extra Lines

4.3.28 If it is possible to bet on more than 5 lines, the lines must be schematised, appropriately labelled and displayed on the artwork. This schematic or the means of displaying it, must be available at any time a game is available for play.

4.3.29 All games with 5 reels and 3 rows, consisting of more than 5 lines, must contain at least the lines as indicated in 4.3.27, numbered as shown, and all other lines numbered in any order.

Displaying Paylines

4.3.30 Upon a win, all paylines must be indicated in a manner such that the player can identify each line on which a win has occurred. (eg. paylines are sequentially highlighted)

Coinciding Wins

4.3.31 The artwork must clearly state the rules for payments of prizes where multiple wins for the same pay line are possible. The following applies:

a) If only the highest prize is paid on a lit line, the statement "**Highest win only on each line**" must be included on the artwork.

b) If multiple wins are paid on the same lit line, the statement "**Coinciding wins on each line are added**" must be included. If the statements "All wins left to right and right to left only" or "All wins left to right and right to left only except [X] [Y] and [Z]" appears on the artwork, this requirement does not apply.

c) If the game contains mixed symbols (refer 4.3.5), where prizes for combinations of mixed symbols are paid, the treatment of prizes that may be interpreted to be both mixed and straight must be described.

d) If the game provides for coinciding wins that differ from a) through c) above, then statements that completely describe the treatment of coinciding wins are required.

Sub-Sets

4.3.32   If Sub-sets of winning patterns are awarded additional pays (f*or example, 5 Aces pays for 1, 2, 3 and 4 Aces as well)*, this must be stated on the artwork.

Scattered Prizes added to Payline Wins

4.3.33   If the game contains a scatter symbol that has a paytable associated with it, the statement "**Scatter wins are added to line wins**" must be included on the artwork.

4.3.33a   If the game contains a bonus prize and scatter symbol that has a paytable associated with it, the statement **"Scatter wins and Bonus Prizes are added to line wins"** must be included on the artwork where the wording **"Bonus Prizes"** may be replaced by the name of the Bonus Prize (eg. Red ball bonus).

Wins on Different Paylines

4.3.34   If it is possible to bet on more than one line, and wins on different lit lines are added, the artwork must state "**Wins on different lines are added**". If wins on different pay lines are not added, the artwork must indicate this.

Features

It is not possible to define a standard for all kinds of game features that may be developed over time. The following requirements apply to feature games that are commonly in use in Australia and New Zealand. If framing or boxing is used to group the rules associated with the feature, the rules inside the framing are defined as "feature rules".

Feature Trigger Patterns

4.3.35   The trigger pattern(s) and all other conditions that must occur in order to trigger the feature must be stated on the artwork.

Feature Re-trigger

4.3.36   With respect to re-triggering features, the following applies :
   a)   If the combination that initially triggered the feature, re-triggers the feature, the statement "**Feature can be triggered again during the feature**" must be included on the artwork where the word 'feature' may be replaced by the name of the feature (eg. free games feature, or red ball feature).
   b)   If the combination that initially triggered the feature can occur during the feature, and the feature can only be triggered once, the statement "**Feature cannot be triggered again during the feature**" must be included on the artwork where the word 'feature' may be replaced by the name of the feature (eg. free games feature, or red ball feature).
   c)   If the feature re-trigger does not behave according to a) or b), then the action of the game when feature trigger patterns occur during the feature (e.g. free games) is to be stated on the artwork (e.g. further triggers, bonus payout and/or no further trigger).

Feature Tokens Accumulation

4.3.37   For games with rules which allow accumulation of feature tokens to qualify for a feature or game metamorphosis, the artwork must clearly show:
   a)   the definition of the event that leads to the accumulation of feature tokens;
   b)   a description of how many feature tokens are accumulated with each occurrence of the event;
   c)   a description of how many feature tokens are required to trigger the feature;
   d)   an indication of how many feature tokens are currently accumulated;
   e)   if sub-feature tokens accumulate to feature tokens, a description of the number of sub-feature tokens needed to accumulate a feature token and the number of sub-feature tokens and feature tokens currently accumulated;
   f)   if the accumulation of feature tokens may lead to free games, the number of possible lines and credits per line that are to be bet during the free games; and

g) game rules when further feature tokens are not accumulated during the feature sequence for events which normally would qualify to earn feature tokens.

If credits bet affects the accumulation of feature tokens, this must be clearly explained.

Free Games

4.3.38 The artwork must explain all rules relevant to free games. Areas relevant to free games that must be addressed in addition to the general requirements above are:

a) additional prizes for non-winning games during the free game sequences, if any, are to be displayed on the artwork. A clear indication is to be given if these prizes are to be multiplied by credits bet per line or total credits bet, or are effected by any other game instructions;

b) any multipliers for prizes, special prizes, substitutes and other special rules during free games, are to be displayed on the artwork;

c) a clear display of an accumulated win amount is required at all times during the free games if the gaming machine does not directly add wins to the credit meter;

d) Where possible, either "**Free game X of Y**" or "**X Free games remaining**" must be used to indicate the number of free games remaining.

e) appropriate game instructions defining the number of lines played and the credits bet during the free games must be included on the artwork. If the number of lines played and the credits bet during the free games are the same as the game that triggered the feature, then the statement **"Credits bet and lines played are the same as the game that triggered the feature"** must be included on the artwork. Alternatively, the statement **"Credits bet and lines played during the feature are the same as the game that triggered the feature"** must be included on the artwork if the preceding statement is not included in the feature rules. In the above statements, the word 'feature' may be replaced by an appropriate term (eg. free games or 'red ball feature').

Re-spins/Held Reels

4.3.39 The following requirements apply to artwork for games where one or more reels are automatically held for one or more "re-spins" of the remaining reels:

The criteria for the re-spin and which reel positions are held must be stated without ambiguity or possible misinterpretation. If applicable for a game, the following must be addressed :

a) which reels are to be held (e.g. first two reels);

b) whether reels are held on winning or non-winning patterns;

c) the requirements of the trigger combination, if any (e.g. "ON THE CENTRE LINE", or scattered if that is the actual requirement of the game);

d) if a partial number of reels (e.g. 2, 3 or 4 reels) are held for some criteria, it must be clearly stated what happens when the criteria forms part of a larger pattern (e.g. what happens when all 5 reels meet said requirement);

e) if the trigger is a winning pattern which is not awarded during re-spins, this must be clearly stated on the artwork; and

f) the rules for extensions or termination of the re-spin sequences including additional held reels, (e.g. when there are improvements to the original held combination), are to be clearly explained on the artwork.

g) if more than one re-spin is offered, the number of re-spins that have occurred or the number of re-spins remaining must be displayed.

Bonus Features

4.3.40 The following requirements apply to games in which one or more bonus prizes may be paid to the player during a feature. Generally, bonus prizes are awarded as a result of some second (or subsequent) game feature :

a) criteria for entry to further bonus features as well as the initial entry are to be clearly stated;

b) all instructions and player choices for the bonus feature are to be clearly stated;

c) a display of total amounts won must be available at the end of each stage of the game including on second screen animations. This is to include display of bonus prizes won to date in multiple sequence bonus features; and

d) if bonus prizes are multiplied the artwork must clearly state whether they are multiplied by credits bet per line or total credits bet where appropriate.

Metamorphic Sequences

4.3.41 The following requirements apply to games which incorporate a metamorphic feature where the player "pays" for the metamorphic sequence game(s):

a) all instructions for the game including the differences between the main game and the metamorphic game are to be stated (e.g. [X] appearing anywhere in window pays the original prize which started the feature);

b) where applicable, the artwork must state that the number of lines and/or number of credits bet during the metamorphic sequence may not exceed the wager of the game or games which triggered the feature;

c) any special prizes, substitutes, multipliers or similar rules during the metamorphic sequence must be clearly stated on the artwork; and

d) if the metamorphic sequence consists of more than one feature game, the number of games in the metamorphic sequence that have been completed or the number remaining (or the total number) must be displayed.

Held Reel Games

4.3.42 This section refers to spinning reel variations with Draw Poker characteristics where the player may hold one or more reels for a second chance to improve the hand. The artwork must address the following:

a) held and non-held reels, including recommended reels, must be clearly marked on the screen at all times;

b) the method for changing holds must be clearly displayed to the player;

c) if the player must wager additional credits to participate in the held reels phase of the game, this is to be stated; and

d) display that the player is able to hold or release reels.

4.4 Keno/Bingo Games

4.4.1 This section refers to games, such as Keno and Bingo, where numbered balls are selected from a simulated cage or the equivalent and a player attempts to predict which of these balls will be selected.

a) The player must be able to view or access, while no game is in progress, a tabulated display of the scorecard which displays the prizes for all winning results.

b) Any special rules which are outside the standard game of Keno must be clearly explained.

c) All of the player's selections must be clearly identified on the screen.

d) The balls drawn must be clearly identified on the screen.

e) The game must highlight balls drawn which match the player's selections (i.e. "Hits").

f) Special hits, if any, are to be clearly identified.

g) The screen must provide clear indication of how many selections were made by the player and how many hits have occurred.

h) Rules for the purchase of additional features of the game, if any, are to be explained.

i) The artwork must clearly state how the player makes or changes selections. Areas to be addressed are:
   - how individual selections are made;
   - how individual selections are cleared; and
   - how all selections are cleared.

4.5 Card Games

4.5.1 This section refers to games which involve the simulated dealing of cards from a deck or deck(s).

General

4.5.2 Card faces are to clearly display the card value (e.g. it must be obvious which is a Jack and which is Queen).

4.5.3 Card faces are to clearly indicate the suit. The faces of all cards from each suit are to be the same colour.

4.5.4 Jokers are to be distinguishable from all other cards.

4.5.5 It must be clearly stated if more than one deck of cards is used in the game.

4.5.6 The artwork must clearly state if the rules of the game do not shuffle the deck after every game. In this instance, the artwork must indicate when shuffles actually occur.

4.5.7 The artwork must clearly indicate the cards available in the deck, in particular the type and number of non-standard cards.

4.5.8 As a minimum, the player must be able to view, when no game is in progress, a tabulated display of the scorecard which shows all winning hands and the associated prizes.

Poker

4.5.9 The artwork must provide clear indication if Stud Poker rules apply. Common Draw Poker is assumed if nothing is stated.

4.5.10 The artwork must provide a definition of winning patterns outside the scope of standard Poker, e.g. Royal Flush without Wild Cards, Four of a kind, "Jacks or better", 4 Deuces (when Deuces are wild), etc.

4.5.11 Wild card rules must be clearly explained, e.g. Jokers Wild or Deuces Wild.

4.5.12 Held and non-held cards, including recommended holds (if implemented), in Draw Poker or the equivalents must be clearly marked on the Screen, and the method for changing Holds clearly displayed to the player.

4.5.13 Winning hands must be clearly labelled with the win category, e.g. "Full House".

4.5.14 All special rules outside the scope of common Poker must be clearly explained.

4.5.15 When player options outside the scope of common Poker are currently available, they must be clearly explained on the artwork.

Blackjack

4.5.16 Insurance rules are to be clearly explained if Insurance is available.

4.5.17 Pair Split rules must be explained. Where applicable, the following areas must be addressed :-
   a) split aces have only one card dealt to each ace ;
   b) further splits; and
   c) double-down after splits.

4.5.18 Double-down rules are to be clearly explained including limitations of which totals may allow a double down to be selected.

4.5.19 The current total of all hands, including the Dealer's total, must be displayed during and at the end of the game. The term "**Bust**" or the equivalent may be used to indicate a hand whose total has exceeded 21.

4.5.20 Dealer play rules must be clearly explained including, where applicable, special treatment of a soft 17 count.

4.5.21 Any limits on the number of cards that may be drawn by Player and/or Dealer are to be explained including winners declared (if any) when the limit is reached (e.g. Five Under wins).

4.5.22 Surrender Rules are to be explained, if any exist.

4.5.23 If the player loses on "Dealer Push" this is to be clearly explained.

4.5.24 "London Deal" rules are to be clearly explained, if they exist.

4.5.25 Winning hands must be clearly labelled as to the win category, e.g. "Blackjack", "Six Under" or "Push".

4.5.26 If Pair Splits have occurred, the results for each hand are to be shown (total points, resultant win or loss category, amount won, amount bet).

4.5.27 Special rules, if any, must be clearly explained.

4.5.28 All player options which are available at any point in time are to be shown on the artwork.

4.6 Other Games

4.6.1 This section is to address games that do not fall into any of the above categories. It is not possible to address all such games but the following specifications apply to those which have been in use in Australia and New Zealand. Other games will be considered on a case by case basis.

General

4.6.2 Initial player selection options are to be described (e.g. selection of a runner in a horse race should identify name, number and expected payout).

4.6.3 Player selection options once the game has commenced must be displayed.

4.6.4 The winning amount for each separate wager and total winning amount must be displayed

Roulette

4.6.5 If standard Roulette is simulated, the following rules apply:

a) Each "Zero" used must be uniquely labelled (e.g. "0", "00", "000").

b) The simulated Roulette wheel must be in the identical format as a standard casino wheel (including colours of landing locations and position of numbers) with the exception that the position of "Zeroes" if more than one exist, in which case the "Zeroes" may be placed arbitrarily.

c) A scorecard or description of all available wagers and their payouts must be accessible by the player while not in game play.

d) The method of selecting individual wagers is to be explained by the artwork.

e) The wager(s) already selected by the Player are to be displayed on the screen.

f) The simulated ball spin must result in a location that unambiguously determines the winning number.

4.6.6 Variations from standard Roulette will be considered on a case by case basis.

Dice Games

4.6.7 This section refers to standard Dice games. Variations will be considered on a case by case basis.

a) Each face must clearly show the number of spots.

b) Simulated die must be of the same layout as standard die (e.g. the 1 and 6, 2 and 5, and 3 and 4 respectively must be on opposite faces).

c) It must be clear which is the up face on each die after the dice are thrown.

d) The result of each die must be clearly visible or displayed.

e) There must be a description of each bet option available on the artwork. For example, the Craps wagers "Field" and "Hardway" must be clearly explained.

f) All possible bet options available and obtainable at any point in time must be displayed on the artwork.

Simulated Races

4.6.8 This section refers to games with simulated races with animals (e.g. horses), vehicles (e.g. motor bikes), humans (e.g. 100 metre dash), etc.:

a) All participants in the race must have characteristics that make it unique in appearance (e.g. number, jockey colours).

b) The result of the race must be clear and not open to misinterpretation.

c) If prizes are to be paid for combinations involving runners other than just the first place finisher, the order of the place getters that can be involved with these prizes must be clearly shown on the screen (e.g. Result 8-4-7).

d) Each meaningful result position must be available for display in all last game replays.

e) The rules for alternative bet options, e.g. quinella, and the expected payouts are to be clearly explained on the artwork.

Scratch Ticket

4.6.9 This section refers to games which simulate a lottery scratch ticket or similar:

a) An explanation of which player options must be selected to complete the game must be shown on the artwork.

b) Details of how prizes are won and prize amounts must be shown on the artwork, e.g. three matching scratched symbols win that prize.

c) All rules for symbols that may substitute in winning patterns must be displayed on the artwork.

4.7 Gamble

4.7.1 The following clauses apply to all games which provide a gamble option. The most common use is "Double-up" where a multiplier of two (2) is sought, but also may apply to other multipliers (e.g. Triple-up) or a selection of multipliers.

Limits

4.7.2 The gamble prize limit (if applicable) for a particular game and the maximum number of gambles available must be stated on the artwork. If wording indicating the maximum prize that can be won exists, then it must be possible to win this prize.

Automatic Exit

4.7.3 When the gamble option is exited automatically before reaching the maximum number of gambles available, the reason must be displayed.

References

4.7.4 All references to gamble must use words (e.g. "gamble" or "double up") which cannot be misinterpreted to indicate some other feature.

Conditions

4.7.5 Unusual conditions in which the gamble option will not be available must be specified, i.e. those conditions not listed in the "Software" chapter.

Choices of Multipliers

4.7.6 If a gamble game offers a choice of multipliers, the range of multiplier choices and the associated payout with each of the multiplier choices, must be stated on the artwork. This is usally accomplished on screen.

4.7.7 Once the player has selected a multiplier, it must be clearly stated on the screen which multiplier was selected.

5 Banknote Acceptance Specifications

> This chapter sets out the core banknote acceptance device requirements for each Australian and New Zealand jurisdiction's gaming machine technical standard.

5.1 Banknote Acceptance Devices - Functional Requirements

General

5.1.1 All acceptance devices must be able to detect the entry of valid banknotes and provide a method to enable the gaming machine software to interpret and act appropriately upon a valid or invalid input.

5.1.2 The acceptance device(s) must be electronically based and be configured to ensure that it only accepts valid banknotes of legal tender for that Jurisdiction (e.g. Australian or New Zealand) and rejects all others.

5.1.3 All accepted banknotes are to be deposited into the secure banknote storage area.

5.1.4 All invalid or disabled banknotes are to be rejected and returned to the player.

5.1.5 An acceptance device must include a mechanism which prohibits the input of any banknotes, or alternatively, rejects all banknotes entered, during periods when the gaming machine is inoperable or deactivated for any reason.

5.1.5a Acceptance of banknotes for crediting to the credit meter must only be possible when the gaming machine is enabled for play. Other states such as fault conditions and audit mode must cause the disabling of the banknote acceptor system.

<u>Disabling Banknote Values</u>

5.1.6 A banknote acceptor device must be implemented with a means to enable or disable particular value banknotes. The procedure for setting acceptable banknote values must be via a command from the CMCS or access to a secure area of the gaming machine. If permanent artwork is used to display the acceptable denominations, the latter method which requires attending each gaming machine is preferred.

5.1.7 The banknote acceptor device must have a banknote storage area (e.g. receptacle) full sensor. An error message must be either displayed on the gaming machine or to the venue operator in the event that this sensor is activated. The banknote acceptor must disable itself but game play may continue.

5.1.8 All banknote handling devices must provide a means through which the gaming machine software may detect and/or logically deduce when potential cheating is in process. For example, identification of counterfeit banknotes, (if possible) or banknote yo yo if a banknote yo yo is physically possible.

5.1.9 The gaming machine must be able to detect that a banknote jam has occurred.

5.1.10 If the banknote acceptor only accepts banknotes in a particular direction, orientation or with a particular side facing up, there must be sufficient instructions on the gaming machine artwork to clearly indicate this to the patrons. A label with a graphical picture of the banknote orientation attached near the banknote entry point is considered to be the best method of meeting this requirement.

5.1.11 Under no circumstances may credits be lost if banknotes are input during game play.

5.1.12   A gaming machine must not register credits as the result of banknote input until the banknote has passed the point where it is possible to be rejected by the acceptor or be withdrawn.

Discrimination

5.1.13   Banknote acceptors are to be factory set only; it must not be possible to access or conduct maintenance or adjustments in the field, other than:

   a)   the selection of banknotes and limits as defined in requirement "Disabling Banknote Values"; or

   b)   changing of approved PSDs or downloading of approved software.

5.1.14   The adjustment of the tolerance level for accepting banknotes of varying quality, or the alteration of any of the possible checking procedures is prohibited in the field. If a reader has multiple tolerance levels then the ability to switch to lower levels is to be disabled.

5.1.15   It must not be possible to successfully disable any validation feature and thus register any counterfeit banknote as a valid banknote.

5.1.16   It must not be possible from a single banknote or banknotes to create a larger number of banknotes such that any of the additional banknotes are accepted as valid banknotes.

5.1.17   Only polymer banknotes will be accepted for use in banknote acceptors unless there is no plastic note equivalent at a particular denomination, e.g. New Zealand currency. If a banknote acceptor is capable of accepting paper banknotes with plastic equivalents this ability must be permanently disabled.

5.1.18   Note that acceptor devices must incorporate sophisticated detection methods to validate banknotes by multiple evaluation methods (e.g. magnetic, ink colour and density). Tests for counterfeits should include a combination of these tests using a variety of magnetic and light sources for spectral properties.

Physical Access

5.1.19   Venues are not to have access to the banknote acceptors for any purpose other than the clearing of banknote jams or other approved purposes.

5.1.20   Any access required to clear a banknote jam is not to give access to the banknote storage area except if the jam occurs inside the banknote storage area.

5.1.21   Access to banknote acceptor components and banknote storage areas is to be secured via key lock. Both are to be fitted with 'door open/close' sensors.

5.1.22   Access to the banknote storage area is to be through two levels of locks - the relevant outer door plus one other door or lock before the receptacle or banknotes can be removed. This lock must securely hold into place a cover over the banknote storage area which must not be easily removed via physical force.

5.1.23   The keys which open the locks on the banknote storage door must be different from the standard Outer Door or Banknote Outer door. They may be the same as the Cash Box door keys.

5.1.24   Access to the banknote acceptor components is to disable the gaming machine from game play until such time as the access is cleared. For the remedial action when access to banknote acceptor components has occurred, see Section 5.3.1 Banknote Acceptor Fault Conditions.

5.1.25   The gaming machine, if configured for a banknote acceptor device, must not activate the Banknote Acceptor if any part of the Banknote Acceptor is missing that relates to the validation process or delivery of the banknote to the storage area.

5.1.26   The banknote acceptor should be easily removed for inspection by service personnel.

5.1.27   All points in the banknote path should be easily accessible to allow inspection and clearance by service personnel once valid access is gained to the area in which the banknote acceptor is housed. Actions intended to be carried out by persons other than licensed technicians must not require the use of tools.

Gaming Machines With Both Coin and Banknote Acceptors

Requirements

5.1.28 Any gaming machine that has both a coin and a banknote acceptor is required to include a number of security features as follows:

a) access to the coin drop box is not to give access to the banknote storage area;

b) access to the banknote storage area is not to give access to the coin drop box;

c) cash-in statistics are to detail, or allow the calculation of, separate figures for coin and banknote input; and

d) the gaming machine must be able to cater for simultaneous input of banknotes and coins.

Configuration Option

5.1.29 It is permissible for the gaming machine to have a facility where the banknote acceptor operation can be disabled/enabled via an action not available to the player. For example, Audit Mode or gaming machine cabinet access. In the instance of the banknote acceptor being disabled the gaming machine can still be played using coin input.

5.2   Hardware Requirements

Banknote Input System

5.2.1 The banknote input system must be constructed in a manner that protects against vandalism, abuse or fraudulent activity. As a guide the following should be addressed:

a) ability to prevent manipulation by the insertion of foreign objects into the banknote input system;

b) ability to prevent easy alteration to the banknote path from the exterior of the gaming machine without leaving evidence of physical modification of the device; and

c) ability to deliver a banknote to the banknote storage area (e.g. receptacle).

5.2.2 The designated path which banknotes traverse and associated handling devices shall be of solid construction.

5.2.3 The designated path which banknotes traverse and associated handling devices must be designed so that they resist jams and do not impair travel during insertion, acceptance, depositing or expulsion of banknotes.

5.2.4 Gaming machines are not to have banknote dispensers.

5.2.5 The banknote storage area (e.g. receptacle) is to be attached to the gaming machine in such a manner so that it cannot be easily removed by physical force. It must be internally located within the gaming machine (i.e. not attached to the outside). The relevant Jurisdiction may grant dispensation to this requirement if it can be demonstrated that an externally attached banknote acceptor demonstrates at least the same degree of security as one located inside the gaming machine. Areas of security that will be examined when considering such a dispensation are:

a) physical strength of the attached banknote acceptor device;

b) position of screws, nuts and bolts; and

c) ability to withstand exposure to burning materials such as lighters, matches, ash etc.

Hardware Test Compliance

5.2.6 A gaming machine with a banknote reader installed must meet all of the hardware oriented requirements of the National Standard. Gaming machines which have been previously approved to which Banknote Readers are to be added must be retested for compliance to these requirements. Where external certificates have been supplied, new certification is to be obtained with a gaming machine submitted for test installed with the Banknote Reader and all other modifications. Specific tests that may require additional external certificates are:

a) electrostatic discharge;

b) power surges;

c) radio frequency interference;

    d)   electromagnetic interference; and

    e)   environmental extremes;

Interconnecting Cables

5.2.7   Interconnecting cables from the banknote acceptor device to the gaming machine must not be exposed external to the gaming machine or readily accessible to unauthorised staff.

5.2.8   -

5.2.9   If the interconnecting cable is disconnected, the banknote acceptor must be disabled.

5.2.10 Any interconnecting cable and/or plug relative to the banknote acceptor must have some form of strain relief.

Liquid Spills

5.2.11 If liquids are spilled into a banknote acceptor, the only degradation permitted is for the acceptor to reject all banknotes. Entering a state where incorrect banknotes are accepted or correct banknotes are accepted but not credited to the customer is not acceptable.

Burning Materials

5.2.12 The banknote acceptor must inhibit entry of burning materials such as cigarette ash. Vertical entry of banknotes is unlikely to meet this requirement.

5.3   Software Requirements

Banknote Acceptor Fault Conditions

5.3.1   The gaming machine must observe and act upon the following banknote acceptor faults and error conditions:

Table 5-1 : Banknote Faults and remedial Actions

Fault	Cleared by:
Banknote access or storage area door opened/closed	Cleared by attendant
Banknote receptacle removed/replaced, if the banknote storage area uses a receptacle	Cleared by attendant
Banknote jams	Cleared by attendant
Banknote YoYo, if a YoYo is physically possible	Cleared by attendant
Excessive banknote rejects (indicating that perhaps an attack is happening on the gaming machine). Excessive is defined to be ten (10) consecutive rejects. (count may be reset on power-up)	Cleared by attendant
Banknote acceptor cable disconnected	Cleared by technician
Banknote acceptor receptacle full	Cleared by attendant

Action When Banknote Faults Occur

5.3.2   All banknote acceptor fault conditions, as described above are to lead to the following actions:

a)   if the fault is security related the gaming machine is to deactivate game play and the ability to cash out (cashout may occur on a banknote jam);

b)   other faults such as banknote acceptor receptacle full need not disable the gaming machine but must disable banknote input;

c)   an appropriate message or indication of the fault must be given (e.g.: shown on the display or screen or other means such as coloured lights);

d)   the gaming machine may only re-activate itself if the following conditions are met:

i   the fault condition is rectified and positive intervention is taken by a venue employee to indicate that the fault has been cleared e.g. activation of a key-switch, closing of the receptacle door, replacement of the banknote receptacle; or

ii   if provided on a gaming machine which accepts both banknote and coin input, a venue employee or licensed technician takes an approved action to disable only the operation of the banknote acceptor (i.e. place the gaming machine in a coin only mode).

Signature Requirements on Distributed Processing

5.3.3   There must be some means whereby software associated with the banknote acceptor is able to be verified by a secure signature checking method.

Banknote Acceptor Self Test

5.3.4   If the signature requirement is to be met by the self checking method, evidence is to be provided by the banknote acceptor supplier that the self check is performed and details of checks performed.

5.3.5   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 (i.e. enter banknote reject state) until the error state has been cleared.

Audible Alarm

5.3.6   An audible alarm is to be raised for any of the following banknote acceptor specific conditions (note for the duration of the audible alarm, see Section 2.4.45 Audible Alarm):

a)   excessive banknote rejects (as defined in the *Section 5.3.1 Banknote Acceptor Fault Conditions*);

b)   Yo Yo, if a banknote Yo Yo is physically possible;

c)   unauthorised opening of the banknote outer door if separate from the gaming machine main door;

d)   unauthorised opening of the banknote storage area door; or

e)   banknote interconnecting cable disconnect.

Tokenisation

5.3.7   For gaming machines which support banknote acceptors that implicitly implement tokenisation of the gaming machine, the following requirements apply to this tokenisation aspect:

a)   each valid banknote inserted must register the actual dollar value or the correct number of credits for the current game. If registered directly as credits, the conversion rate must be clearly stated on the gaming machine; and

b)   the gaming machines must ensure that all banknotes accepted will correctly increment the player's balance (gaming machine or account as the case may be) and relevant meters in all circumstances. This includes but is not limited to cases of power failure, door open, coin tilt, Audit Mode entry or any other form of deactivation of the gaming machine.

Communication with Banknote Acceptors

5.3.8 The banknote acceptor device must employ a reliable means of transmitting credit values to the gaming machine. Pulse stream interface or serial communication without error detection and correction are not considered to be reliable communication methods.

Note Acceptor Disabled on High Credit Balance

5.3.9 The gaming machine software must incorporate a facility which will automatically disable the banknote acceptor once the credit balance of the gaming machine or account, if appropriate, exceeds [BKNTLIM] expressed in dollars.

5.3.10 This level is to be displayed to the patron in the following form or similar:

"Notes not accepted if Credits over $x are registered".

5.3.11 The maximum value of the range available is to be approved:

a) it must not be possible to exceed this limit; and

b) it must not be possible to disable this limit.

5.3.12 This dollar level may only be set, or changed, by either a down-loadable parameter from the CMCS or by accessing the logic area of the gaming machine.

Metering

Master Meters

5.3.13 A gaming 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).

Note : That these meters are Master Meters, i.e. to be cleared only on Master Reset of the gaming machine.

Banknote Clearances

5.3.14 To provide adequate information to assist in the reconciliation of actual currency cleared from a banknote acceptor, the gaming machine must maintain the following data and report via an Audit screen and/or appropriate Banknote Clearance ticket to the Venue Operator each time a banknote clearance operation is performed :-

a) total monetary value of banknotes expected to be removed from the banknote storage area, i.e. held in the removed receptacle; and

b) total monetary value of banknotes by denomination expected to be removed from the banknote storage area.

5.3.15 These meters are only able to be reset when a banknote clearance occurs. The method of notification to the gaming machine that a banknote clearance has occurred must be approved.

Storage of Banknote Acceptor Data

5.3.16 If banknote input messages received from the banknote acceptor are to be maintained in the gaming machine's memory for a period of time without being added to the player's credit balance, the storage of these messages must be maintained in, and meet the critical memory requirements. The gaming machine must be able to recover these messages whenever it restarts, especially after power failure, or observation of a partial memory corruption.

Gaming Machine Audit Mode Banknote Information

5.3.17 A gaming machine with a banknote acceptor must be capable of displaying the following banknote specific information in Audit / Employee mode:

a) the Banknote specific Master Meter information specified in the section *Section 5.3.13* Master Meters;

b) the Banknote clearance Meter information specified in the section *Section* 5.3.14 Banknote Clearances;

c) details of which denomination banknotes are enabled for acceptance;

d) the banknote acceptor disable limit as specified in the section *Section* 5.3.9 Note Acceptor Disabled on High Credit Balance; and

e) last game replay records must show the total of money or the number of credits added, by insertion of banknotes between the completion of the previous game and the completion of the game being displayed. This total must be displayed separately to the total 'money in'.

Note : Total 'money in' must include credits added via banknotes and coins.

6   Submissions

This chapter sets out the core submission requirements for each Australian and New Zealand jurisdiction's gaming machine technical standard.

6.1   General

Introduction

6.1.1   The Submission requirements specifies the type of information that may be required to be supplied by manufacturers when making submissions of electronic gaming machines or games to Australian or New Zealand Jurisdictions.

Note :   This Section does not address submission requirements information for other gaming components such as central monitoring systems and their components or linked jackpot controllers.

Submissions

6.1.2   With each submission, the manufacturer must provide the following:

a)   an application form which describes the submission; and

b)   a Certification and Indemnity Form signed by a person of an acceptable level to the CEO (see Appendix I).

6.1.3   When this information is received, the Jurisdiction or its licensed testing agency may request some or all of the information detailed in this specification. Under this circumstance, the manufacturer is obliged to supply this information.

6.1.4   Gaming equipment submissions (other than source code- however translation is highly recommended) must be in English.

6.2   Full Hardware Submission

6.2.1   For a full hardware submission, e.g. a new gaming machine type, the following information may be required to process the submission.

General

6.2.2   Supply a complete new machine for evaluation.

6.2.3   Supply machine model name.

6.2.4   Supply machine model number.

6.2.5   Supply year and month of first manufacture of submitted model.

6.2.6   List all jurisdictions where this machine type has operated.

6.2.7   To minimise testing time and costs, where the hardware submitted is a variation of a previously approved model, the following information should be provided:

    a)   jurisdiction in which it is approved.

    b)   model number;

    c)   version number;

    d)   copy of approval notice; and

    e)   significant differences; and

    f)   date of approval.

6.2.8   Provide appropriate test equipment to assist in the evaluation process. Supply a means by which to place credits on the gaming machine for the purposes of testing. An emulator may also be required. Provide appropriate operation manuals.

6.2.9   Provisional manuals (i.e. manuals for similar machines) highlighting significant differences should be supplied with the submission machine.

6.2.10   Where available, supply current operational, installation and service manuals which are relevant (refer to the requirements on manuals). These may be supplied once the hardware is acceptable.

Cabinet

6.2.11   Provide the cabinet style name.

6.2.12   Provide technical drawings of the machine and console (if applicable).

6.2.13   Provide an identification plate as would be mounted on the side of the gaming machine, if not already affixed.

6.2.14   Extension cables for door photo-optic detectors and any other hardware should be provided so that the machine may be tested with doors opened.

6.2.15   Where a processor board is oriented in a machine, such that it would be difficult to install a plug and cable from an emulator, extension cables should be provided to allow the board to be re-located. It is expected that the extensions will not be of significant length and may be shielded (noise and capacitive coupling should be considerations).

6.2.16   Provide notes, cautions and warnings with respect to potential shock hazards of which testing authority staff should be aware.

6.2.17   Provide details of the minimum spacing required spacing from other machines and walls.

6.2.18   Provide a template of the machine base indicating where to drill holes in base.

Cabinet Sensors

6.2.19   Supply details and diagrams for mounting door sensors within a console.

Coin Validation

6.2.20   Indicate the manufacturer, supplier, and model number of the coin validator components.

6.2.21   Detail any modifications made to the coin validator.

6.2.22   Supply all data sheets and manuals associated with all validator components.

6.2.23   Where validator components differ in material from one denomination to the next, details of variations must be provided.

6.2.24   For all coin validator components give the following details:

    a)   the part number for each component for all permissible denominations;

    b)   permissible Australian or New Zealand coin denominations;

    c)   method of adjustment to accept different coin denominations; and

    d)   software version or identification.

6.2.25 Provide the following information on multi-denomination coin comparators:
a) denominations;
b) are denominations separately diverted;
c) communication methods to CPU;
d) supplier and manufacturer;
e) part number;
f) information sheets,
g) ability to be programmed - (who by? is it adjustable? etc.); and
h) ability to lockout certain programmed denominations.

Coin Chutes And Diverters

6.2.26 Indicate the manufacturer, source of supply and part number of the coin chutes, diverter and diverter solenoid.

6.2.27 List details (including part numbers) and provide any hardware (coin paths, etc.) required for different denominations and details of any adjustments necessary (including jams).

Hopper

6.2.28 For the hopper, give the following details:
a) supplier and manufacturer;
b) part number;
c) any associated data sheets and manuals;
d) capacity for various Australian or New Zealand denominations;
e) detail hardware sensors for hopper full, and adjustment methods;
f) detail hardware sensors or any other method of preventing hopper overflows;
g) how coins are detected and counted from the hopper;
h) how extra coins paid are detected;
i) how hopper runaways are detected;
j) how hopper jams are detected;
k) how hopper empty conditions are detected;
l) how disconnection/malfunction of the coin-out or other sensors are detected; and
m) method of adjustment to accept different coins.

6.2.29 List details (including part numbers) and provide any hardware required to convert hoppers to another denomination and details of adjustments required, if possible.

Banknote Acceptor

6.2.30 Indicate the manufacturer and supplier of the banknote acceptor and stacker.

6.2.31 Supply all data sheets and manuals associated with the validator and receptacle.

6.2.32 Detail any modifications made to the banknote validator.

6.2.33 Where validator components differ between denominations, details of the variations must be provided.

6.2.34 Provide details of all denominations and banknote styles readable by the banknote acceptor.

6.2.35 Provide details of the method of adjustment or programming (if required) to accept different banknote denominations.

6.2.36 Provide details of the limitations to the insertion of banknotes, if any, in direction, orientation or particular side facing up.

6.2.37 If such limitations exist, provide a copy of any static artwork that describes the limitations to the patrons.

6.2.38 Describe the method of detection of Yo-Yo operation, if a banknote Yo-Yo is physically possible. If a Yo-Yo is not possible, explain why.

6.2.39 Describe the method of detecting banknote stuck events.

6.2.40 Describe the methods of discrimination between valid and invalid banknotes.

6.2.41 Provide details of all sensors and other security features of the banknote acceptor and note storage area, e.g. receptacle.

6.2.42 Provide details of the self test facility of the banknote acceptor including functions tested and occasions when the self test is initiated.

6.2.43 If there are DIP switches or jumpers whose setting can alter the performance of the banknote acceptor, provide details of the effects of each setting and the expected normal setting.

6.2.44 Provide a description of stacker's communication.

Reels and Other Physical Displays

6.2.45 Give the following details:
   a)   the supplier and manufacturer;
   b)   part number;
   c)   any manuals/data sheets;
   d)   number of reels, or the display (such as horses, etc.);
   e)   number of symbols per reel, etc.;
   f)   method of drive (e.g., stepper motor);
   g)   method of adjustment;
   h)   how individual reels are activated and stopped;
   i)   method of verifying the final resting position of each reel (e.g. shaft encoders);
   j)   how the inertia of spinning reels is counteracted to ensure reel symbols line up with pay lines;
   k)   method of preventing reel bounce;
   l)   reel jammed detection; and
   m)   reel sticking (not freely spinning) detection.

6.2.46 Provide details on how reel strip changes and adjustments are to be performed.

6.2.47 Describe how reel strips are prevented from being misaligned when installed on the reel, e.g. use of a locating tab.

Electronic Components

6.2.48 Provide hardware block diagram(s) of the system as a whole and all sub-systems.

6.2.49 Provide complete schematic diagrams of all sub-systems.

6.2.50 Provide wiring loom/harness connection diagram(s).

6.2.51 Describe the function and use of any laboratory test equipment provided to facilitate evaluation of the machine.

6.2.52 Describe the components, function and use of any in-house test kits. A test kit shall be provided for machine testing.

6.2.53 Detail the nature and use of any test, control or other external communication ports, (including monitoring systems ports), providing:
   a)   communication method;
   b)   data sheets on control ICs;
   c)   line isolation methodology; and
   d)   protocol used (if the port is for connection to a monitoring system, detail the system and version).

6.2.54 For the game program storage media used in the machine list provide the following:
   a) model;
   b) type;
   c) size; and
   d) spare (blanks) PSDs.

6.2.55 For all components with backup power give the following details:
   a) the type and designation of component backed-up;
   b) type of battery or other back-up;
   c) expected operational life time of the power storage device (i.e. normal power up/down cycles);
   d) expected retention period for machine without power; and
   e) presence or not of low voltage indication capabilities.

Monitors - General

6.2.56 Indicate the manufacturer and supplier.

6.2.57 Provide part number.

6.2.58 Provide data sheets and manuals.

Monitors - Touch Screen

6.2.59 Indicate the manufacturer, supplier and part number of the touch screen, if different to the monitor.

6.2.60 Provide any data sheets.

6.2.61 Describe the method of calibration.

6.2.62 Detail how often calibration is required.

6.2.63 Describe how the screen detects touch, e.g. resistive film, pressure, etc.

6.2.64 Provide details of the touch screen, and how it is interfaced to the machine.

6.2.65 Provide details on the method used to seal the touch screen to protect the internals of the machine from liquid spills on the face of the monitor.

Other Hardware Devices

6.2.66 Provide the following details on any printers used in the machine:
   a) supplier and manufacturer;
   b) part number;
   c) any data sheets and manuals;
   d) the paper type (provide a roll);
   e) connection methods (e.g. protocols);
   f) flow control;
   g) paper low and paper out sensors;
   h) description of all ticket formats that are to be printed;
   i) description of barcodes printed on cash receipt tickets, if any; and
   j) security methods used to prevent forgery of cash receipt tickets;

6.2.67 Provide the following details on any card/key readers and the cards/keys, if fitted:
   a) supplier and manufacturer;
   b) part number;
   c) any data sheets and manuals;
   d) the information supplied on the device;
   e) the connection methods (i.e. protocols);

   f)   error checking;

   g)   details for writeable cards (e.g. smart cards);

   h)   categories of cards used; and

   i)   functions of cards used (e.g. bonus points, account wagering, employee ID).

6.2.68   Provide the following details on any other special purpose hardware device fitted:

   a)   the purpose of the device;

   b)   supplier and manufacturer;

   c)   part number;

   d)   any data sheets and manuals;

   e)   the connection methods (i.e. protocols); and

   f)   error checking.

Stand Alone Progressive Controllers And Displays

6.2.69   Provide a complete set of schematics for the progressive controller.

6.2.70   Provide operational and/or service manuals for the progressive controller.

6.2.71   State whether the controller is a stand-alone component, or whether more than one machine can be incorporated on a link.

6.2.72   Detail how the display and display drivers are interfaced to the controller and how the controller is interfaced to a gaming machine. If the controller is provided for multi-tier jackpots, indicate the operation in this respect.

6.2.73   Describe how the controller board communicates with the processor board and provide the communications protocol.

6.2.74   Describe the location of the progressive controller.

6.2.75   Provide source code, etc. for microprocessor controlled controllers.

6.2.76   Describe how the jackpot value is displayed.

6.2.77   State the number of displays which the controller can handle.

6.2.78   Describe the events which occur when a jackpot is won.

6.3   Full Software Submission

6.3.1   For a full software submission, e.g. a new gaming machine base, the following information may be required to process the submission.

Source Code

6.3.2   Supply a general overview of the system, describing how software and hardware are integrated.

6.3.3   Supply program block diagrams and flow charts for the game program.

6.3.4   Provide the value of all unused bits in PSDs.

Software Compilation

6.3.5   For all microprocessors involved in control of gaming functions:

   a)   provide an assembler, linker, formatter or other computing utilities as is necessary to generate the installed gaming software from the source code supplied;

   b)   user/programmer guides and/or manuals for the utility software requested above; and

   c)   do not provide illegal copies of software/manuals.

6.3.6   List sources of all software tools used in the software development process.

6.3.7   It is the responsibility of the Supplier to provide the necessary development environment, or access to that environment where software development facilities differ from those available to the evaluation laboratory.

6.3.8 If a non-IBM DOS compatible development system is supplied to the evaluation laboratory for software compilation, the ability to easily convert to DOS format must be available or a computer system on which the software can be compiled is to be provided.

6.3.9 If the supplier is to make dial-up facilities available to the evaluation laboratory, the following should be provided:

a) a work area on the development system;

b) a phone number, password and entry procedures;

c) operating system manuals;

d) any relevant manuals for utility software;

e) access to compilers, assemblers, linkers, formatters (if applicable) and file transfer capabilities;

f) information on any electronic mailing facilities; and

g) detail procedures to compile code from source.

6.3.10 Any software supplied on IBM DOS compatible diskettes from a non-DOS environment must contain the following:

a) all source files;

b) any make or batch files;

c) game image files as compiled; and

d) game map file.

6.3.11 For all software included in the submission:

a) provide all software source code files, make or batch files, map files and PSD image files;

b) provide a complete set of PSDs, holding the program submitted, and their related hashing algorithm signatures;

c) ensure that the software is tested to ensure that it will compile correctly and produce code identical to that supplied;

d) do not provide printed listings of the code; and

e) there is not to be, in any manner or form, software present on media that is not gaming machine related. Particular reference is made to viruses or other nefarious software.

6.3.12 Supply detailed, step-by-step information on how to generate PSD files and PSDs from the source code provided.

Program Storage Devices

6.3.13 The manufacturer must provide the designated testing body with written instructions for the creation of a Program Storage Device Image File for each program storage device.

6.3.13a The manufacturer must provide the designated testing body with any hardware devices or software required for the extraction of the contents of program storage devices.

Once extracted from a program storage device, the contents must be stored in a format which will allow a direct comparison against a master or reference Program Storage Device Image File.

Miscellaneous Functions

6.3.14 Indicate how test mode is entered.

6.3.15 Describe all tests provided by the game for testing specific functions and/or event sequences.

6.3.16 Detail if there is maximum number of credits that the machine can hold before an attendant pay is required.

6.3.17 State the procedures that must be undertaken to clear the RAM.

Fault Conditions

6.3.18   For each fault condition (including those specified for communications) provide the following details:
   a)   the condition name and how it is displayed;
   b)   type of machine alarm (e.g. bell, message on screen, tower light);
   c)   how software "defines" the alarm;
   d)   whether or not the machine locks up on the alarm temporarily or indefinitely;
   e)   how the machine is reset from alarm conditions; and
   f)   the event code transmitted to the monitoring system (where applicable).

6.3.19   For each condition indicated by the tower light describe:
   a)   condition name;
   b)   how the condition is indicated (i.e. which colours are utilised); and
   c)   whether the light flashes or not.

Random Number Generator

6.3.20   Provide full details in technical terms of random number and symbol selection/mapping.

6.3.21   List all text and journal references where applicable used in the design of the RNG. Provision of this information may assist in reducing testing costs and the evaluation time.

6.3.22   List all points in game play and the gaming program operation where the RNG is activated, updated, or numbers are obtained, including details of background RNG activity.

6.3.23   Explain the seeding process of the RNG.

6.3.24   Provide a detailed flow chart and software listing of the RNG process.

6.3.25   Provide results for any empirical and/or theoretical tests conducted on the RNG.

System Security/Integrity

6.3.26   Describe the use and function of all DIP switch settings, jumpers, wire wrap selectable options or other external mechanisms by which the functioning of the device, or game may be affected, and state the settings for normal game operation.

6.3.27   For device and game protection from nefarious activities, identify the game program storage media and/or other sensitive items which should be "sealed" in the machine by the regulatory authority.

6.3.28   Provide details of all program checks and when they are performed.

Data Retention

6.3.29   Describe the gaming machine's program state retention and recovery capabilities and procedures in the event of a mains power outage or RAM corruption.

6.3.30   Provide details of power down procedures.

6.3.31   Describe fully the functions and tests performed on initial startup of the machine, including the method of detection of corrupted (BBU) backup memory.

6.3.32   List information stored in (BBU) back-up memory.

Metering Systems

6.3.33   State the following for all main electronic soft meters (e.g. turnover, total wins, etc.):
   a)   label;
   b)   size (bytes in memory);
   c)   binary or BCD; and

d)   how to view the meter.

6.3.34   State when it is possible to access meters and last game information.

6.3.35   State the size of all meters on screen, and whether any meters can be over written.

6.3.36   State how meters are protected from corruption and when checked.

6.3.37   State what happens when meters roll-over.

6.3.38   State how meters are reset, partial or complete and provide any equipment required.

6.3.39   State the information stored for last and previous games.

6.3.40   State how the RNG, error states, critical memory pointers, etc. are protected, if different to the main meters.

Coin And Banknote Validation

6.3.41   Provide information regarding the communication from all parts of the coin validation circuitry to the main processor, i.e. the sequence of events to detect:

a)   a valid coin;

b)   a coin jam;

c)   a coin Yo-Yo;

d)   a diverter fault/coin to cash box tilt; and

e)   any other coin-in condition.

6.3.42   Provide the communication protocol and flow charts between the CPU and the bill acceptor.

6.3.43   Provide details of all banknote specific meters maintained by the gaming machine.

6.3.44   Provide details of storage of all critical data relative to banknote input.

6.3.45   Provide details of banknote specific information available while in audit mode.

6.3.46   Provide details of how specific banknote denominations are enabled or disabled in the gaming machine.

6.3.47   Provide details of how the banknote disable credit limit parameter is set within the gaming machine and the range of values that this parameter may be set.

6.3.48   Provide details of methods used to detect yo-yos and stuck coins.

6.3.49   Provide details of method of tuning the validator (if possible).

6.3.50   Provide details of note acceptor disabling conditions.

Hopper

6.3.51   Provide details on how the software differentiates between a hopper jam and hopper empty (providing flow charts, if necessary), and what messages are displayed.

6.3.52   Provide details on how the software prevents hopper overflows.

Power Save Mode

6.3.53   Provide details on power save activation/deactivation and the components disabled.

6.4   Game Specific

6.4.1   For a game specific submission e.g. a new game, the following information may be required to process the submission.

General

6.4.2   Supply game name.

6.4.3   Supply machine type for which the game is suitable for (e.g. Stepper, Video).

6.4.4   Supply game development and version number.

6.4.5   Supply any additional hardware and installation instructions required in addition to that already supplied with the hardware platform. This includes:
   a)   button panel;
   b)   animation lights; and
   c)   wiring looms.

6.4.6   If the game is an exact clone (i.e. rules, reels and paytable) of another game previously submitted, supply the following details:
   a)   original game name;
   b)   current version number of original game;
   c)   symbol conversion table;
   d)   listing of the clone game's reel-strips; and
   e)   photocopy of the clone game's artwork.

Game Details

6.4.7   Provide a completed Game Profile sheet, as provided in Appendix II.

6.4.8   Provide a description of each game in simple terms.

6.4.9   Supply the following information:

Reel Games
   a)   number of reels;
   b)   number of lines and description of each line;
   c)   maximum credits per line; and
   d)   rules for:
      i)   free games / re-spin features, including;
            - how the feature is triggered
            - how many free games / re-spins (fixed or variable)
            - pays for losing games
            - multiplication of winning combinations
            - re-triggering
      ii)   pay directions (left to right, right to left, any, etc.);
      iii)   scatter rules;
            - scatter symbols
            - scatter directions
      iv)   substitute rules, including;
            - substitute symbols
            - substituted symbols
            - multiplication factors / bonus amounts
      v)   second screen feature / bonus payouts, other special feature rules; and
      vi)   concurrent winner payout rules (highest prize only, all winners paid, etc.).

Blackjack Games
   a)   dealer rules;
   b)   double down rules;
   c)   pair splitting;
   d)   insurance;
   e)   five and under; and
   f)   game play advice.

Poker Games
   a)   poker style (e.g. Draw, Stud, etc.);
   b)   special rules (e.g. Wild Cards, etc.);

c) auto holding; and

d) game play advice.

Keno/Bingo Games

a) number of balls/spots that can be selected;

b) number of balls drawn; and

c) special rules (e.g. Wild Cards, etc.).

Double-Up Features

a) number of double-ups available;

b) maximum double-up wager or win amount;

c) partial double-ups;

d) double-up method;

e) metering of interim double-up winners; and

f) multipliers available.

Progressive Jackpot Features

a) number of levels of progressive jackpots;

b) stand alone, linked, random, etc.;

c) rules for winning each progressive jackpot;

d) reset values;

e) maximum values;

f) increment rates;

g) overflow sizes;

h) expected trigger values;

i) secondary/diversion rates; and

j) clearing methods.

Mathematics

6.4.10 For each game, provide:

a) a schedule of all prizes' payout amounts;

b) a listing of the logical reel strips in tabular form, indicating the exact symbols' sequence;

c) a listing of the physical reel strips in tabular form, and the method of implementation used to obtain the virtual reel strips, if applicable;

d) a summary of the symbols' frequency;

e) a summary of the total hits for each prize type; and

f) a legend to cross reference each symbol type against the abbreviation, if abbreviations are used.

6.4.11 For each game submitted, give a formal mathematical treatise of the derivation of the theoretical return to the player (including standard deviation, double-up options, free games, features, etc.).

6.4.12 Where different player options (e.g. number of credits bet) varies the paytable, a separate calculation for each option is required.

6.4.13 Where a game requires or allows use of a player strategy that can affect the outcome of the game and the continuing actual player return, list the assumed player strategy used in the theoretical derivation of the player return and the source of said strategy.

6.4.14 Provide for games with elements of player strategy (if available) actual game return statistics from development laboratories or field trials of the game in other jurisdictions.

6.4.15 For all mathematical calculations and submissions, rounding must not be applied during calculations but only take place upon return of the final result. [MINRTP] must not be achieved solely due to rounding.

Artwork

6.4.16　This section applies to all forms of artwork including interchangeable artwork, such as reel strips, belly panels, top panel:

 a) provide a legible A4 photocopy of the artwork;

 b) list the game rules verbatim as displayed on the video or other dynamic display, if applicable;

 c) for each game submitted, provide life-sized full colour copies of all artwork associated with the game, and indicate version numbers:

  - top-box

  - belly panel

  - reel strips

  - buttons

  - artwork surrounding the display, where applicable

Note : Artwork may be initially submitted as colour or black-and-white A4 copies until deemed acceptable to the regulatory authority. Electronic submission of art, including appropriate viewing software, may also be accepted for the initial submission. Final full size colour artwork must be received by the testing body to confirm the artwork is correct before the game may be used.

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 a) Supply the reel strip layout as the reels physically appear. If virtual mapping is utilised, list the symbols as they appear on the virtual reel; and

 b) If the artwork (e.g. rules of the game, paytable) is only displayed on a video screen, then an exact print out or photograph of such displays must be included. Text manuscripts or the equivalent may be accepted provided they are an exact replica of the information displayed on the video screen.

6.4.17　For each game submitted, provide full colour graphics images of all artwork associated with the game. For instance, top box, belly panel, on screen paytable artwork, and on screen rules (where applicable). The image(s) must be in an industry standard format, and the resolution must be sufficient to easily read all the text (and symbols) displayed.

6.4.18　For each game submitted, the manufacturer must provide a separate disclosure of all messages, images or sounds presented to the player which do not provide instructions rules or payscale information or do not provide part of the display of the game.

This disclosure must include the events which trigger each such message, image or sound.

6.5　Update Submissions

6.5.1　For any update submission, e.g. a revision to an existing gaming machine or game, the following information may be required to process the submission.

Hardware Submission

6.5.2　Identify the individual items being submitted (including part number).

6.5.3　State the date of the submission.

6.5.4　Supply a complete response to all applicable sections of the standard for the update, including schematics, diagrams, data sheets, etc.

6.5.5　Provide the updated or new device, a description, the method of connection, and details of reasons for the update.

Software Submission

6.5.6　Each program version should be submitted individually for evaluation.

6.5.7　Supply software name.

6.5.8   Supply game development and version numbers.

6.5.9   Supply machine type/model number for which the software is suitable for (e.g. Stepper, Video), specifying individual hardware requirements (i.e. internal progressive hardware, button panels, light panels).

6.5.10   Supply date of submission.

6.5.11   For all software included in the submission:

   a)   provide all software source code files, make or batch files, map files and PSD image files;

   b)   provide a complete set of PSDs, holding the program submitted, and their related hashing algorithm signatures;

   c)   ensure that the software is tested to ensure that it will compile correctly and produce code identical to that supplied;

   d)   Do not provide printed listings of the code; and

   e)   There is not to be, in any manner or form, software present on media that is not gaming machine related. Particular reference is made to viruses or other nefarious software.

6.5.12   Provide a memory map of all external and internal RAM (the MAP file created by the compiler/linker is sufficient).

6.5.13   If the SW is a re-submission of previously supplied software, describe any changes between the two versions. The modified software must also be assigned a unique version identification.

6.5.14   Provide a Certification and Indemnity Form (Appendix I, or the local appendix) for this game.

Appendix I - Certification And Indemnity Form

CERTIFICATION AND INDEMNITY FORM

I _____ (Full Name)

being _____ (Position Held)

for and on behalf of _____

_____ (Supplier)

hereby certify that:

1. the statements contained in the attached documents are to the best of my knowledge and belief true and correct in every detail and are a complete disclosure of the information requested,

2. the Chief Executive Officer,
   (jurisdiction), and all other officers and officially appointed agents of the above mentioned body, acting within the scope of their duties and responsibilities, shall be indemnified and held harmless from and against all claims, suits, demands, damages and costs, expense, losses and/or actions of any kind in consequence of any official action taken in respect to this application and any patent, trademark or copyright claim relating thereto, and

3. the items submitted are complete and operational.

Name/Description of Equipment _____

signed at _____

This _____ day of _____ 19 _____

_____

(signature of Deponent)

in the presence of   _____

(signature of Witness)

Name and Address

of Witness   _____

_____

_____

Appendix II - Game Profile

Manufacturer	
Game Name	
Video / Stepper	
Game Theme	
Approved Machine Types Suitable	
Game Development Numbers	
Graphic PSD Numbers	
Game Type	
Pay Direction	
Game Clone (Name)	
Game Returns	
Standard Deviations	
Hit Rates	
Top Prize (Credits)	
Double Up Type	
Free Games / Features	
Feature Game Return(s) / Hit Rate(s)	
Trigger	
Other Features	
Substitute Symbol(s) & Rules	
Scatter Symbol(s) & Rules	
Denominations Available	
Tokenisation Available	
Number of Pay Lines	
Credits per Payline	
Recommended Denomination	
Other	

Appendix III - Progressive Summary

		Minor	Major	Other
Denom	Start-up			
	Ave. Trigger			
	Ceiling			
Base Value				
Ceiling Value				
Percent Increment(s)				
Hidden				
Overall Progressive Component				
Linked / standalone				
Random				
Trigger Symbol(s)				
Min. Bet To Trigger				
Hit Rate				
Percentage Increment				

7 Glossary of Terms and Abbreviations

This chapter lists the terms and abbreviations used within the National Standard.

7.1 Glossary

Term or Abbreviation	Description
Adjacent	Next to, consecutive.
Any	A pattern of symbols in reel positions and not dependent on the order or sequence of the reels.
Approval	The legal act of approving gaming equipment.
Attract/Idle Mode	The period of time between a play finishing and the next play commencing, or another mode being entered.
Audit Mode	The mode where it is possible to view gaming machine meters, statistics, etc. and perform non-player related functions.
Authority	The state body responsible for the enforcement of the gaming laws of that jurisdiction.
Autoplay	A feature whereby the player can nominate to play games without manually initiating each game play by a distinct and separate activation of the player interface. Any continuous play caused by the holding down or physical jamming of player interfaces is also considered autoplay.
Auto Gamble	A feature whereby a win will automatically trigger entry to a Gamble feature.
Base Game	The fundamental part of a game which provides the majority of game play and winnings. The Base Game may also offer access to other game features such as Gamble, free game features, metamorphic features etc.
BBU	Battery Backed Up, usually relating to RAM or other forms of memory, enabling the retention of its contents even if power is lost.
Bonus/Feature Game	An additional function not part of the base game which allows extra credits to be won. They may take the form of free games and/or second screen features.
Brownout	A condition where the mains power source drops below its minimum specified level for a relatively short period of time.
Cancel Credit Mode	The mode where the gaming machine has locked up after the patron has pressed collect to redeem credits over a certain value or for odd credit values less than the coin denomination.
Cancelled Credits	Credits which are paid by manual cancellation at the gaming machine or by ticket payment to the player.
Cash Transfer Mode	The mode where a gaming machine transfers Cash to or from external Cash Control Equipment.

CCITT-CRC16	16 bit Cyclic Redundancy Check of a message utilising the standard polynomial, X^16 +X^12 +X^5 +1.
Circuit Board	See PCB.
Clone	A game which is identical to another in every respect except name and graphics.
CMCS	Central Monitoring and Control System.
Coins	Standard Australian or New Zealand (as appropriate to the particular jurisdiction) Coins or approved tokens.
Coin Validator	The term "coin validator" refers to coin comparator, photo-optic sensors (internal or external to the comparator) and any additional devices used to validate a coin.
Coinciding Wins	Coinciding wins occur when two or more winning patterns of a distinct kind are displayed.
Collect Mode	The mode where the gaming machine dispenses coins from the hopper after the patron has pressed collect to redeem credits under a certain value.
Configuration Mode	The mode accessible after a full RAM reset which upon completion transitions the gaming machine into active gaming. This occurs either host controlled or manually via a RAM Reset, and is used to input the configuration data and default values (such as machine address, serial number, denomination, SAP base amounts etc.).
Console	The gaming machine base - including the drop bucket. (In some jurisdictions the console is considered to be not part of the gaming machine.)
CPU	Central Processing Unit.
Critical Memory	Memory locations storing information that is considered vital for the continued proper operation of the gaming machine.
Critical Processor	CPUs dedicated to game control, progressives, communications, audit, etc. Does not include CPUs dedicated to video or sound.
Demonstration Mode	A gaming machine in demonstration mode is in a non-configured state, i.e. the configuration a gaming machine is in when it is delivered in from the factory, or reset to a state via a RAM Reset.
Disruption	Any form of disoperation, component failure, or interference to the equipment.
Electrostatic Interference	The physical property of being able to create electronic interference to a device by either discharging static electricity onto the surface of the unit (such as from a user), or via a mains power or communication cable (from lightning for example).
EMI	Electromagnetic Interference - the physical characteristic of an electronic device to emit electronic noise either into free air, onto the mains power lines, or communication cables.
EPROM	Electrically Programmable Read Only Memory – a storage area which may be filled with data and information, which once written is not modifiable, and which is retained even if there is no power applied to the machine. Modification (erasure) is only possible by the application of an Ultra Violet (UV) light source.
ESD	Electrostatic Discharge (see Electrostatic Interference).
Fault Condition	A lock-up state activated by the gaming machine detecting an event which it is programmed to cause a discontinuance of game play.
Fault Mode	A mode where the gaming machine has disabled itself, preventing game play, as a result of a fault condition occurring on the gaming machine.

Feature	Any additional free game, free spin of certain reels, metamorphosis of the basic game rules or secondary choice necessary to complete a game (except gamble) is considered a feature.
Feature Token	A symbol, character or metered value which is collected or accumulated by the occurrence of certain events during play. When the collected or accumulated amount reaches a defined value, a feature is triggered.
FIPS PUB	United States Federal Information Processing Standards Publication.
Firmware	The embedded program memory of a computer.
Gamble	A game option, such as Double-Up, that may be selected following a win. This refers to player options where some or all of the winnings may be wagered at a 100% player return - includes multipliers other than evens, e.g. "pick a suit" where four outcomes are offered at 0.25 probability.
Game Cycle	The total number of possible outcomes of a game.
Game Detail Sheet	A manufacturer supplied information sheet detailing the game details and parameters that can be configured on a gaming machine via a monitoring system.
Game Disabled Mode	A mode where the gaming machine has locked up, preventing further game play, as a result of a command from a SC, communications timeout, or other communications related item. Refer to the relevant communications requirement document.
Game Element	Game Element - A separately identifiable component of a play where a player may be awarded one or more coinciding prizes, e.g. base game element, free game element, feature game element, gamble game element etc.

Game Symbols	The variable information that is displayed to the player which determines the winning or losing of a play and the amount won. Examples are spinning reel symbols, cards, balls, dice etc.
Game	A game is a set of rules that a gaming machine follows. Major constituents of a game are rules, artwork (virtual or static and inclusive of game symbols and paytable), winning combinations and game symbol distribution.
Hard Meter	An electromechanical meter.
Hardware	All physical components (electrical and mechanical) making up the computing device, which in this case is an electronic gaming machine.
Hashing Algorithm	Generally, a function which accepts a variable length data message and produces a fixed length message digest (i.e. hashing algorithm signature). In this Standard, the term 'hashing algorithm' refers to the HMAC-SHA1 algorithm.
HMAC	'Keyed-Hash Message Authentication Code'. Calculated using a cryptographic Hash Algorithm in combination with an input key. (refer: FIPS PUB 198).

HMAC-SHA1	'Keyed-Hash Message Authentication Code' utilising an input key, the contents of a Program Storage Device, and the SHA-1 Hash Algorithm.
Hopper	A device used to store and dispense coins.
I/O	Input/Output.
IEC 61000-4-2	International Electrotechnical Commission (IEC) standard:- Electromagnetic compatibility (EMC): Testing and measurement techniques - Electrostatic discharge immunity tests. (http://www.iec.ch)
IEC 61000-4-3	International Electrotechnical Commission (IEC) standard:- Electromagnetic compatibility (EMC): Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test. (http://www.iec.ch)
Jurisdiction	The area in which a gaming authority has legal control over gaming machines.
Last Play	The Last play is the most recently completed play.
Left to Right	A pattern of symbols on adjacent reels beginning at the leftmost side.
Lockup Mode	A mode where game play and money input/output is no longer available to the player that is not a fault condition. The method of clearing is dependent on the reason for the lockup (e.g. Cancel Credit, SAP award etc.).
LS	Least significant
LSB	Least significant byte
Magnetic Interference	A magnetic field which has the potential to affect the operation of an electronic device.
Master Meter	A meter whose value is reset only when a memory reset is performed. This meter represents the total of all updates since the last memory reset.
Metamorphic Game	A game where free games, feature games or prizes (other than jackpots) are triggered by the cumulative result of a series of plays. (i.e. tokens are awarded during plays and are accumulated by players).
Meter	A non-volatile variable, storing gaming machine audit and other information.
Mil-Std-461 / 462	(US) Department of Defense Interface Standard :- Requirements for the control of electromagnetic interference characteristics of subsystems and equipment. (http://www.assistdocs.com/search)
Mixed	A combination of two or more different symbols that can form a winning pattern.
MSB	Most significant byte
Multi-Game Select Mode	This mode allows the player to select a particular game of those currently installed on the gaming machine.
Multi-Game	Gaming software which offers more than one game on a single gaming device.
Noise	Radiated electromagnetic energy from a source that can induce stray electronic currents in nearby wiring or components.
Non Functional Spec's	Existing standard or specifications (for example RS232).
Note Acceptor	The term "note acceptor" refers to bill validator, photo-optic, electromagnetic or magnetic sensors (internal or external to the gaming machine) and any additional devices used to validate a note.
NVRAM	Non-volatile RAM.

Payline	A selected lit line in a spinning reel game on which a winning pattern has occurred.
Paytable	A set of rules, descriptions or graphical instructions relating to the prize(s) payable for winning combinations.
PCB	Printed Circuit Board - the piece of board used to connect together electronic components in a certain manner using tracks and holes to route the signals.
Period Meter	A meter whose value is reset after a memory reset or after a planned external event e.g. cash clearance. This meter represents the total of all updates since the last instance of the external event.
Play	A sequence of actions and states in the gaming machine initiated by a player through a wagering of credits and terminated when all credits wagered have been lost or all winnings have been transferred to the gaming machine's total wins meter and the player's credit meter. A game that triggers a feature (e.g. free games) and any subsequent features (including Gamble) are considered to be part of one play unless all winning credits are transferred to the credit meter before the feature is commenced.
PLD	Programmable Logic Device - an electronically configurable IC usually used for hardware control purposes.
Possible Lines	A term used to describe a line of symbols in a reel game that it is possible to bet on. See Payline and Selected Lit Lines as well.
Power Cycling	To switch electrical equipment off and on via the mains power.
Power Save Mode	The mode in which the gaming machine software turns off all non-essential components (e.g. monitors, cabinet lighting, button lamps, indicator lights, etc.) to conserve power.
Processor Board	The circuit board which contains a CPU.
Program Image File	This is a copy of a gaming machine's software which may be resident on a monitoring system.
Progressive Hit	A progressive jackpot win.
Progressive Jackpot	A progressive jackpot is an incremental prize that increases by the accumulation of contributions from the turnover of the specified game, from a preset base value. It is reset to a different value (generally a base value plus possible secondary or overflow amounts) when the progressive prize is won.
PSD	Program Storage Device.
QA	Quality Assurance - The methods an organisation puts in place to ensure reliable quality control.
RAM	Random Access Memory.
RAM Clear	The process a service technician goes through to reset the memory of a gaming machine, which configures the gaming machine into the 'as new' state.
RAM Clear Device	An electronic storage device containing the means to completely initialise each and every bit in RAM.
Reel	A series of symbols forming an ordered loop. (Reels can be implemented either physically or virtually via an electronic display device.)
Reel Position	The location of a symbol on a reel, in its resting position, which participates in a possible line or is included in the evaluation of winning patterns.
Residual Credit Removal Play	A function of the residual credit removal, in which the player has a chance of rounding up the remaining residual credits to the token value.

Residual Credit Removal	A method for the player to remove any residual credits from the gaming machine.
Residual Credits	Credits remaining which are less than the value of one coin or token.
Re-trigger	To trigger a feature during a feature of the same type.
Return to Player (RTP)	The ratio of total wins (including progressives and other features) to the total turnover in a game cycle (note gamble bets do not affect turnover and total wins is only affected by the final gamble outcome).
Revision Number	A term used in Configuration Management Control. A revision number defines a baseline configuration of a system.
RFI	A radio frequency interference which affects the operation of an electronic device.
Right to Left	A pattern of symbols on adjacent reels beginning at the rightmost side.
RNG	Random Number Generator.
ROM	Read Only Memory.
SAP	Stand Alone Progressive Jackpot.
SC	Site Controller. The communication monitoring device that transmits gaming machine events and meters to a central computer and may, in some implementations, also issue commands to the gaming machine.
Scatter	A symbol which pays when occurring 'scattered'.
Scattered	A pattern of symbols which are located in reel positions but may or may not be on a selected lit line.
Scatter Win	Prize awarded as a result of a winning pattern comprised of scatter symbols.
Screen	The device which displays variable information to the player, e.g. the Video Display Unit (VDU) for video EGMs or LCD/LED display for stepper motor gaming machines.
Selected Lit Lines	A term used to indicate that a player has put a bet on a line of symbols in a spinning reel game. See Possible Lines and Payline as well.
Setup Mode	The initial stage of configuration mode where a technician can enter gaming machine related data.
SHA-1	Secure Hash Algorithm (refer: FIPS PUB 180-2).
Short Pay	An administrative procedure to make up any short fall between the player's entitlement and actual amount paid or credited to the player.
Signature	The result from a mathematical algorithm, including the keyed HMAC-SHA1 algorithm, applied to the entire contents of a Program Storage Device or software file. Also known as a Hash Message Authentication Code.
Signature Key	An input parameter used in conjunction with a signature algorithm.
Software Shell	The base software of which the majority is common to a number of games.
SRAM	Static Random Access Memory – a volatile IC RAM type of memory that loses its contents if its power source is disconnected.
Static Artwork	That artwork which is physically printed on glass, plastic, etc., and displayed on the gaming machine.
Substantial Win	A prize amount greater than or equal to [LARGEWIN].
Substitute	A symbol which can be taken to also represent one or more other symbols as specified in the game rules. (see also Vertical Substitute)
Symbol	Any pictorial representation of an object, letter or number.

Tabulated Prizes	A display of a matrix of prize amounts for one or more prizes on one axis and a range of unit bet multipliers on another axis with the intersecting cell representing the pay out for that prize / unit bet combination.
Test/Diagnostics Mode	Whilst in this mode, various tests may be performed on the hardware and software of the gaming machine, such as switch and light tests.
Testing Authority	An authorised gaming machine test centre.
Ticket Collect Mode	The mode where a gaming machine prints a cash ticket as a receipt for the player before zeroing the credit meter.
Tokenisation	Acceptance by a gaming machine of coins or banknotes which cannot be directly counted as credits; e.g. they must be converted into credits to match the value of the game denomination(s).
Touch Screen	A video monitor with a special surface screen that can activate the gaming machine by the touching of the screen's surface.
Trigger	1. *verb,* To initiate a feature; 2. *noun,* The pattern of symbols or event required to initiate a feature.
Vertical Substitute	A symbol which can be taken to also represent one or more other symbols in all reel positions on the same reel as specified in the game rules.
Video Monitor	A type of television screen display.
Virtual Artwork	The variable artwork which is displayed on the gaming machine's screen.
Win	The amount of credits (or money if applicable) that is awarded for a winning pattern, according to the game rules.

Winning Combination	A result in which one or more -
	    a) winning patterns; and/or
	    b) prize-winning events
	occurs.

Winning Pattern	A pattern of symbols which results in the award of a prize, feature trigger or other object or opportunity of value.

8   Supplementary Standard Document

> This chapter contains requirements that have not yet been standardised between jurisdictions, and it contains the matrix for the parameter terms used within the National Standard.

8.1   Introduction

8.1.1   This chapter details the requirements in the Gaming Machine National Standard which do not yet have continuity between the participating jurisdictions.

8.1.2   Each requirement listed here is identified in the National Standard by the text "See Chapter 8" and the requirements below have the identical requirement number as listed in the National Standard document. A table follows the requirement listing each jurisdiction's position.

8.2   General

Credit Collect

(See also, *Section 3.7.1 Credit Redemption Conditions.*)

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

f)   while disabled by CMCS (see below)

VIC	Credit redemption must be available when the gaming machine is disabled by the CMCS.
NT	Same as VIC.
NZ (Class4/Casino)	Same as VIC.
QLD	Same as VIC.
TAS	Same as VIC.
WA	Same as VIC.
SA	Same as VIC
NSW	Credit redemption is permitted while a gaming machine is in "idle, subsidiary equipment play suspended" condition. Any credit redemption while a gaming machine is in a lockup state due to internal error, must require attendant intervention.
ACT	Same as NSW.

8.2.2   -

8.2.3   -

Logic Area Access

See also, *Table 3-7 : Gaming Machine Door Open/Close Event Definitions*

8.2.4 The following lists each jurisdiction's requirements for the enabling of a gaming machine after the logic door has been closed.

NSW	When a valid closure of all logic doors is detected, and prior to continuing or enabling any game play, the machine must validate the entire contents of all PSDs containing sensitive components.
ACT	Same as NSW.
NT- COM	Acknowledgement of the event by the monitoring system.
NT- CAS	Valid closure of all monitored secure areas.
NZ (Class4/Casino)	Same as WA.
QLD	Send event to monitoring system if sensor fitted. (mandatory on all new EGMs). Casino: Government Inspector to supervise.
SA	While a logic area access is detected, the gaming machine must move to a disabled state. (The gaming machine must follow the procedures detailed in the Gaming Machine Communications Protocol.)
TAS	Send event to monitoring system. Casino : Government Inspector to supervise.
VIC	The gaming machine must pass a signature check and must be only enabled via an operator's manual poll command from the host.
WA	Doors closed and locked.

8.3   Parameter/Limit Values

(refer Section 3.20 Parameter/Limit Definitions)

NAME	NSW	ACT	SA Clubs & Hotels	SA Casino
BKNTLIM	$10,000	Not Specified	Note acceptors prohibited	Note acceptors prohibited
CRECANLIM	Set by Operator	Operator Set	Entered via Setup Mode or CMCS parameter	Set by Operator
GAMBWIN	$10,000	Not specified	$10,000	$10,000
LARGEWIN	Not specified	Not specified	Set by CMCS parameter (currently $1,000)	Set by Operator
MAXHOPPER	Set by Operator	Operator Set	Set by CMCS parameter	Set by Operator
MAXNPWIN	$10,000 $500,000 MTGM	Not specified	$10,000	$10,000
MAXPWIN	$10,000 standalone $100,000 linked	Not specified	$10,000 standalone	$10,000 standalone
MAXRTP	Not specified	Not specified	Not specified	Not specified
MAXWAGER	$10 $100 MTGM	$10	Base and feature games $10	Base and feature games $10
MINRTP	85.00%	87.00%	87.50%	87.50%
PSAVACT	Not required	Not required	Required - 15 minutes	Not required
TIMEDISP	Yes	No	No	No

Name	NT Clubs & Hotels	NT Casinos	TAS	WA Casino
BKNTLIM	Not applicable	Not specified	Hotels and Clubs : Not Applicable Casinos : $9,899	$100
CRECANLIM	Controlled by QCOM, set by Director	No Limit	Operator Set	Entered via Setup Mode or CMCS parameter
GAMBWIN	Set by Licensed Monitoring Provider	No Limit		$10,000
LARGEWIN	Set by Licensed Monitoring Provider	No Limit	Hotels and Clubs : Set by CMCS Casinos : Operator Set	$10,000
MAXHOPPER	Controlled by QCOM, set by Director	Operator Set	Set by CMCS	Entered via Setup Mode or CMCS parameter
MAXNPWIN	Same as Qld Clubs & Hotels	No Limit	Hotels and Clubs : Not Specified Casinos : Not Specified	Not specified
MAXPWIN	Same as Qld Clubs & Hotels	No Limit	Not specified	Entered via Setup Mode or CMCS parameter
MAXRTP	Less than 100% (refer NT Appendix)	Less than 100%	Not specified	100%
MAXWAGER	$5	No Limit	Hotel & Clubs : $10 Casino : Not specified	Not specified
MINRTP	85.00%	88.00%	85.00%	90.00%
PSAVACT	Same as Qld Clubs & Hotels	Not required	Not required	Not required
TIMEDISP	Yes	Yes	Yes	No

NAME	QLD Clubs & Hotels	QLD Casinos	VIC Clubs & Hotels	VIC Casino
BKNTLIM	$100	Set by Casino	$1,000	$9,949
CRECANLIM	Controlled by QCOM, set by QOGR	Controlled by QCOM, set by QOGR	Entered via Setup Mode or CMCS parameter	Entered via Setup Mode or CMCS parameter
GAMBWIN	Set by Licensed Operator	Set by Casino	$10,000	Not specified
LARGEWIN	Set by Licensed Operator	Not specified	$10,000	$10,000
MAXHOPPER	Controlled by QCOM, set by QOGR	Controlled by QCOM, set by QOGR	Entered via Setup Mode or CMCS parameter	Entered via Setup Mode or CMCS parameter
MAXNPWIN	$10,000	Not specified	Not specified	Not specified
MAXPWIN	$25,000	Not specified	Not specified	Not specified
MAXRTP	92.00%	Not specified	99.99%	99.99%
MAXWAGER	$5	Not specified	$5 unless the game is operating in unrestricted mode in a specified area.	$10 unless the game is operating in unrestricted mode in a specified area.
MINRTP	85.00%	90.00%	87.00%	87.00%
PSAVACT	Required - 15 minutes	Not required	Not required	Not required
TIMEDISP	Yes	Yes	Yes	Yes

NAME	NZ Class 4	NZ Casino
BKNTLIM	Not specified	$9,899
CRECANLIM	Not specified	Entered via Setup Mode or CMCS parameter
GAMBWIN	All total $500	Not specified
LARGEWIN	Not specified	Not specified
MAXHOPPER	Not specified	Entered via Setup Mode or CMCS parameter
MAXNPWIN	$500 for a single play	Not specified
MAXPWIN	$1,000 for a single play of the gaming machine that is linked to other gaming machines	Not specified
MAXRTP	92.00%	Not specified
MAXWAGER	$2.50 for a single play	Not specified
MINRTP	78.00%	87.00%
PSAVACT	Not specified	Not required
TIMEDISP	Yes	Yes