STANDARD SERIES

GLI-12:

Progressive Gaming Devices in Casinos

Version: 2.0

Release Date: April 20, 2007

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ABOUT THIS STANDARD

This Standard has been produced by **Gaming Laboratories International, Inc.** for the purpose of providing independent certifications to suppliers under this Standard and complies with the requirements set forth herein.

A supplier should submit equipment with a request that it be certified in accordance with this Standard. Upon certification, Gaming Laboratories International, Inc. will provide a certificate evidencing the certification to this Standard.

Progressive Gaming Devices In Casinos

GLI-12 Revision 2.0

Date Released: April 20, 2007 V2.0 *Final*
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REVISION HISTORY

Rev 2.0

Rev 1.2 *Final* was renamed to **Rev2.0** *Final* for document control purpose.

Rev 1.2

1.4.1 added the reference to other GLI Standards that may apply, if the subject technology is being used.

3.3.1 removed the requirement for Electro-Magnetic Interference, Radio Frequency Interference, and Magnetic Interference testing to be conducted by GLI since it is disclosed that it is the sole responsibility of the manufacturer to comply with any regulations related to the aforementioned. GLI claims no liability and makes no representation with respect to such non-gaming testing.

3.3.1(a) changed the rule for Electro-Static Interference to be more easily understood.

3.4.3 removed the statement regarding the regulator setting the shut down time for a progressive as this is a jurisdictional policy.

3.5.5 Added Section for Internal Link Progressive Controller requirements for all games on the link.

3.5.12 changed the title of the section to refer to '**Base** Progressive Jackpot Amount' to accurately reflect the topic of the rule.

3.8.2 changed the example within the Linked Gaming Device Odds requirement to correctly reference the 2 coin example as having a probability of 1 in 5,000 as opposed to the incorrect reference to 20,000.

3.9 added a new note requiring the ability to authenticate any critical control program that is used with a progressive system.

4.2.4 changed the Data Collection Requirement for Multi-Site games to require the security information and the amounts wagered information be communicated at lease once every 60 seconds for dedicated phone lines, from the previous requirement of 15 seconds.

Rev 1.1

1.5.1 changed the definition of a progressive to reference the 'credits' bet, not 'coins' because some games may not accept coins.

1.5.1.b clarified multiple linked games are one or more, not more than one.

2.2.2 noted that the testing of the system may take place in the laboratory, at the site of the submitter, or both, as determined by the test laboratory for prototype submissions.

2.2.3 added a NOTE that states 'This section shall not apply to wiring changes or component level changes where wiring and components that are substituted equate exactly to the previous approved configuration' for the section on "Presentation of Equipment to the Test Laboratory."

2.2.4(a) added a statement to the UL or equivalent certification section that allows this information to be sent to the laboratory at a later date for those companies who are obtaining UL or equivalent certification, at the same time as GLI approval.

2.2.4(b) added a NOTE that would allow for on-site testing of the system.

2.2.7(b) changed to supply the overview of the system, only if required.

2.2.7(c) added 'if required' to the requirement of program block diagrams for submissions.

2.2.7(j) removed 'because residual credits are described' in 3.6.4.c.

2.2.8 changed the source code requirements to 'appear in all source code or related modules.'

2.2.8(b) removed the version number requirement for all source code or related modules.

2.2.8(f) regarding source code, it is the manufacturer's responsibility to provide the test laboratory with a method to compensate for or resolve the date and time stamp differences for source comparisons. Also, clarified a 'hashing' algorithm instead of authentication for medium other than EPROM.

2.2.8(g) removed the requirement to describe and define the use of variables for all declared variables.

2.2.10 clarified the fact that all modifications require re-testing, examination, and re-certification by the test laboratory.

3.3.1(c) waived the RF rule where the mode of communication of the part being tested is via RF transmission.

3.4.1 clarified that the progressive meter is not for mystery jackpot games and there shall be an indication on the game that advises the player it is set up for mystery jackpots. Also, clarified that 'one or more' gaming devices can be connected to the progressive meter and the game video screen may act as the progressive display, if applicable.

3.4.2 excluded mystery jackpots from the progressive display requirement.

3.4.2(a) added the use of credits for the display amounts on a progressive meter.

3.4.3 removed the twenty-four (24) hours shut-down requirement for loss of communications and changed the rule so the regulator determines the amount of time before shut-down.

3.4.4 corrected grammatical errors in the Progressive Display Digital Limitations section.

3.4.6 removed the progressive meter reset requirement since outlined in 3.6.3.

3.5.2 removed the reference to 'stand alone' games may be internally controlled, since some gaming devices may be linked to a master terminal.

3.5.3 clarified that the display requirements for the progressive information can be on the gaming device or any approved progressive system component.

3.5.3(d) clarified the jackpot parameter value 'WINS' can also be a history of the last twenty-five (25) progressive hits.

3.5.5 removed, since the rule addressed restoring power during an error condition and error conditions are addressed in another section.

3.5.6(b) changed the control program test to allow for checksum, although the CRC is preferable. Also, allowed for other test methodologies that are acceptable if at comparable level of integrity.

3.5.7 clarified 'the progressive system (instead of controller) shall be able to' in the 'Communications for Signaling of a Jackpot' Section.

3.5.7(a) removed the requirement for the controller to continue to send the amount to the gaming device upon the jackpot signal until the gaming device acknowledges the progressive amount since the game would lock up anyway, if there was a loss of communication.

3.5.8 changed to reflect the credits bet, not necessarily 'coins' inserted, since some games don't accept coins.

3.5.10 clarified that the required progressive controller meters shall be kept by the progressive controller or other approved progressive system component.

3.5.10(f) removed, since GLI-11 requires the handpay meter to record the progressive amounts.

3.5.12 corrected grammatical error.

3.5.13 clarified that the progressive controller error conditions shall be displayed on the progressive meter or other approved progressive system component. Also, clarified that the game using the progressive shall be disabled, not the entire gaming device. This was done to allow for multi-games that only have specific games tied to the progressive to continue running with exception of the progressive games.

3.5.13(g) changed to reference the credits bet instead of coins in, since some games don't accept coins.

3.5.14 clarified that the progressive controller, or other approved progressive system component, shall have a secure means of transferring a progressive jackpot. Also, the transferring of progressives must now meet the local internal control procedures.

3.6.1 clarified by giving an example of a 'non-winning' progressive to be mystery jackpots.

3.6.2 clarified the example since the equal sign is confusing. Reworded that a straight flush is a 'form of' a royal flush, etc.

3.6.3 clarified the gaming device, or other approved progressive system component, requirements for when a progressive is hit.

3.6.3(c) reworded to See: GLI-11 accounting meters for progressive meter updating.

3.6.3 NOTE changed to indicate that the gaming device does not necessarily have to illuminate the light or sound an alarm.

3.6.4(a) changed to allow for the meter to display coin value and not limit to cash value.

3.6.5 removed the rule about changing the progressive probability, since this is an internal control.

3.7.1 changed to allow for notice of payments over time to comply with the display and sign requirements or internal control requirements, since some jurisdictions may have their own annuitized rules. Also, reworded so the notice be clear and conspicuous.
3.7.1(b) reworded to clarify the period of time covering the payments.

3.8.2 clarified by giving an example of the progressive probability rule to better define the 'based on denomination' wording.

4.2.2 clarified that the surveillance camera procedures must meet the Internal Controls.

4.2.3 added 'or equivalent' to the method of communication shall be a non-shared, dedicated line rule. Also clarified the requirements of a 'shared line'

4.2.4 changed the data collection requirement to allow for information to be communicated in a reasonable amount of time for RF as opposed to the fifteen (15) seconds for dedicated phone lines. Also, clarified the information that is to be communicated.

4.2.8 changed the requirement for the gaming device to continue to play, following communication loss between the hub and central computer, to not be required that it continue. Therefore, the game 'may' continue.

4.2.9(c) removed the requirement for detail report since it is only required that the credits bet be monitored for progressives.

4.2.9 added a NOTE stating, 'if applicable' to the rule, to clarify that it should be added to the next jackpot 'if one exists.'

4.2.10 removed the requirement for sending the information within a reasonable amount of time. Also, removed the length of time requirements to calculate and print reports and method of obtaining meter-reading values. Added a statement that requires the meter information to be identical to the gaming device(s) accounting meters.

4.2.10(a) changed the reference to 'coins in' to 'credits bet,' since some games do not accept coins.

4.2.11 removed the requirement to report the logic door opens to the system immediately, since it is not required to monitor the logic door. Also, removed the requirement that the door open message be sent within one polling cycle since the rule requires that it be sent immediately.

4.4 removed the multi-site games with printers since games with printers are referenced in GLI-11 and the rule was not specific to multi-site progressives.

4.5.1 renamed to multiple jackpots during the polling cycle and changed the rule to reflect 'multiple', not necessarily two. Also, removed the requirement to pay all players involved in multiple jackpot occurrences and request that the regulator design procedures.

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CHAPTER 1

1.0 OVERVIEW – PROGRESSIVE GAMING DEVICES IN CASINOS

1.1 Introduction

1.1.1 General Statement. **Gaming Laboratories International, Inc. (GLI)** has been testing gaming devices since 1989. Over the years, we have developed numerous standards for jurisdictions all over the world. In recent years, many jurisdictions have opted to ask for standards tests without creating their own standards documents. In addition, with technology changing almost monthly, new technology is not being incorporated quickly enough into existing standards due to the long process of administrative rulemaking. This document is the second of several that will put forth GLI's Standard for Gaming Equipment. This document, GLI Standard 12, will set forth the technical standards for Progressive Gaming Devices in Casinos. A "Gaming Device" does NOT include, for purposes of this Standard, electronic equipment used in the conduct of TABLE GAMES.

1.1.2 Document History. This document is an essay from many standards' documents from around the world. Some GLI has written, and some, such as the Australian and New Zealand National Standard, were written by Industry Regulators with input from test laboratories and device manufacturers. We have taken each of the standards' documents, merged each of the unique rules together, eliminated some rules, and updated others to reflect both the change in technology and the purpose of maintaining an objective, factual standard. We have listed below, and give credit to, agencies whose documents we reviewed prior to writing this Standard. It is the policy of **Gaming Laboratories International, Inc.** to update this document as often as possible, in order to reflect changes in technology, testing procedures, or cheating methods. This document will be distributed FREE OF CHARGE to all those who request it. It may be obtained by downloading it from our website at www.gaminglabs.com or by writing to us at:

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1.2 Acknowledgment of Other Standards Reviewed

1.2.1 ***General Statement***. This Standard has been developed by reviewing and using portions of the documents from the organizations listed below. We acknowledge the regulators who have assembled these documents and thank them:

a) The ACT Office of Financial Management;
b) The New South Wales Department of Gaming and Racing;
c) The New Zealand Casino Control Authority;
d) The New Zealand Department of Internal Affairs, Gaming Racing & Censorship Division;
e) The Northern Territory Racing and Gaming Authority;
f) The Queensland Office of Gaming Regulation;
g) The South Australian Office of the Liquor and Gaming Commissioner;
h) The Tasmanian Department of Treasury and Finance, Revenue and Gaming Division;
i) The Victorian Casino and Gaming Authority;
j) The Western Australian Office of Racing Gaming and Liquor;
k) US Tribal Compacts from Tribal Governments and State Governments which included:
    i. Arizona;
    ii. Connecticut;
    iii. Iowa;
    iv. Kansas;
    v. Louisiana;
    vi. Michigan;
    vii. Minnesota;

viii. Mississippi;

ix. North Carolina;

x. North Dakota;

xi. Oregon; and

xii. Wisconsin.

l) Colorado Division on Gaming – Limited Gaming Regulations;

m) Illinois Gaming Board – Adopted Rules;

n) Indiana Gaming Commission;

o) Iowa Racing and Gaming Commission;

p) Louisiana State Police – Riverboat Gaming Division – Electronic Gaming Device;

q) Missouri Gaming Commission – Department of Public Safety;

r) Nevada Gaming Commission and State Gaming Control Board;

s) New Jersey – Regulations on Accounting and Internal Controls; and

t) South Dakota Commission on Gaming – Rules and Regulations for Limited Gaming.

1.3 Purpose of Technical Standards

1.3.1 ***Purpose***. The purpose of this Technical Standard is as follows:

a) To eliminate subjective criteria in analyzing and certifying gaming device operation;

b) To only test those criteria that impact the credibility and integrity of gaming device gaming from both the Revenue Collection and Player's play point of view;

c) To create a standard that will insure that Progressive Gaming Devices in Casinos are fair, secure, able to be audited, and will operate correctly;

d) To distinguish between local public policy and laboratory criteria. At GLI, we believe that it is up to each local jurisdiction to set their own public policy with respect to gaming;

e) To recognize that non-gaming testing (such as Electrical Testing) should not be incorporated into this standard, but left to appropriate test laboratories that specialize in that type of testing. Except where specifically identified in the standard, testing is not directed at health

or safety matters. These matters are the responsibility of the manufacturer, purchaser, and operator of the equipment;

f) To construct a standard that can be easily changed or modified to allow for new technology; and

g) To construct a standard that does not specify any particular method or algorithm. The intent is to allow a wide range of methods to be used to conform to the standards, while at the same time, to encourage new methods to be developed.

1.3.2 No Limitation of Technology. One should be cautioned that this document should not be read in such a way that limits the use of future technology. The document should not be interpreted that if the technology is not mentioned, then it is not allowed. Quite to the contrary, as new technology is developed, we will review this standard, make changes, and incorporate new minimum standards for the new technology.

1.4 Other Documents That May Apply

1.4.1 Other Standards. These standards cover the actual requirements for various types of progressive gaming devices in casinos. Please refer to our website at www.gaminglabs.com for a complete list of other GLI Standards available, which may apply.

NOTE: Any progressive system shall not affect, supercede, replace or in any way alter the other language provisions of the GLI-11 Standards (Gaming Devices in Casinos) governing casino licensees and the conduct of gaming.

1.5 Progressives Defined and Sections Applied

1.5.1 General Statement. A Progressive Gaming Device means, "A gaming device that has an increasing jackpot, based on a function of credits that are bet. This includes games that award progressive jackpots or a 'pool' based on criteria other than obtaining winning symbols on the machine, such as 'Mystery Jackpot.' However, this does not include games that incorporate a bonus feature as part of the game theme, which offers awards that increase as the game is played and, as well, is not configurable." Chapters 1, 2, and 3 of this document shall set forth the technical requirements for the following types of progressives. Chapter 4 only applies to multi-site progressive games:

a) Stand-Alone Progressive Gaming Devices. A stand-alone progressive gaming device is a single progressive game that is not a part of a link;
b) Multiple Gaming Device (Linked) Progressives. A 'linked progressive' is one (1) or more gaming device(s) that offer common progressive jackpot(s) which are linked to a progressive controller within a single casino location; and
c) Multi-Site Progressive Gaming Devices. Multi-site progressive gaming devices are interconnected in more than one (1) casino. The purpose of a multi-site progressive system is to offer common progressive jackpot(s) (system jackpot) at all participating locations.

CHAPTER 2
2.0 SUBMISSION REQUIREMENTS

2.1 Introduction

2.1.1 General Statement. This chapter shall govern the types of information that are, or may be required to be submitted by the submitting party, in order to have equipment tested to this Standard. Where the information has not been submitted, or is not otherwise in the possession of the test laboratory, the submitting party shall be asked to supply additional information. Failure to supply the information can result in denial, in whole or in part, of the submission and/or lead to testing delays. This Standard does not address submission requirement information for gaming devices or other gaming components, such as central monitoring systems.

2.2 Progressive Submission Requirements

2.2.1 General Statement. The submission requirements throughout this section apply to all Progressive type submissions.

2.2.2 Prototype Submissions. A Prototype (full submission) submission is an initial submission of a particular piece of hardware or software that has not previously been reviewed by the test laboratory. For modifications of previous submissions, including required changes to previously submitted Prototype (full submission) certification, whether certified or pending certification, see also Documentation needed for Submissions of Modifications, Section 2.2.10.
NOTE: The testing of the system may take place in the laboratory, or at the site of the submitter, or both, as determined by the test laboratory.

2.2.3 Presentation of Equipment to the Test Laboratory; Identical Equipment. Each item of gaming equipment, supplied by a manufacturer to the field, shall be functionally identical to the specimen tested and certified. For example, a progressive system supplied as certified associated

equipment shall not have different internal wiring, components, firmware, circuit boards, circuit board track cuts, or circuit board patch wires from the certified specimen, unless that change is also certified, see also Documentation needed for Submissions of Modifications, Section 2.2.10. NOTE: This section shall not apply to wiring changes or component level changes, where wiring and components that are substituted, equate exactly to the previous approved configuration.

2.2.4 Accompanying Documentation. All accompanying technical documents, manuals, and schematics shall be submitted. In addition, the following items shall be provided:

a) If applicable, all UL, CSA, EC, AS3100, etc. or equivalent certification, see also Hardware and Player Safety, Section 3.2. This certification information may be supplied at a later date;
b) Any other equipment that may be used in the field in conjunction with the submission. NOTE: The testing of the system may take place in the laboratory, or at the site of the submitter, or both, as determined by the test laboratory;
c) Accompanying software, see also Progressive Software, section 2.2.7; and
d) If the submitting party has specialized equipment that is needed by the test laboratory to test the submitted device, then the specialized equipment and all appropriate operation manuals for the equipment shall be included with the submission.

2.2.5 Submission Letter. Each submission shall include a request letter, on company letterhead, dated within one week of the date the submission is received by the test laboratory. The letter should include the following:

a) The jurisdiction(s) for which you are requesting certification;
b) The items requested for certification. In the case of software, the submitting party shall include ID numbers and revision levels, if applicable. In the case of hardware, the submitting party shall indicate the raw board, assembled board, and assembled unit number for the hardware;
c) A list of all gaming devices compatible with the system and any other components; and

d) A contact person who will serve as the main point of contact for engineering questions raised during evaluation of the submission. This may be either the person who signed the letter or another specified contact.

2.2.6 Progressive Hardware. Each submission shall include and identify the individual items (including part number) being submitted and be accompanied by schematics, operational and/or service manuals for each component along with the following:

a) The Progressive Controller. The documentation accompanying the controller shall include the following:
   i. The type of Progressive it controls (Stand-Alone, Linked, Multi-Site) and how to configure for each type;
   ii. A description of how the controller board communicates with the game and provide the communications protocol;
   iii. A description of the location of the controller and the housing unit;
   iv. A description of how the jackpot value is displayed;
   v. A listing of error conditions and tilts the controller supports;
   vi. The number of displays which the controller can support; and
   vii. A description of the events which occur when a jackpot is won.
b) The Progressive Display and all accompanying schematics, operational, and/or service manuals. The documentation accompanying the display shall explain how the display drivers are interfaced to the controller and how the controller is interfaced to a gaming device. If the controller is provided for multi-tier jackpots, indicate the operation in this respect.

2.2.7 Progressive Software. Each submission shall include all software that controls each component of the Progressive system. In addition, all accompanying schematics, operational, and/or service manuals shall be submitted. The documentation accompanying the software shall include and describe the programming procedures for:

a) Two copies of all software needed to run the system and the source code, a link map, and symbol table for each program;

   NOTE: The source code may be reviewed, compiled and studied, either at the laboratory or at the supplier's place of business, as determined by the laboratory.

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

c) Program block diagrams and flow charts for the progressive system, if requested;

d) All progressive jackpot features;

e) The number of levels of progressive jackpots;

f) The types of systems it is capable of handling (Stand-Alone, Linked, Multi-site, Random, etc.);

g) The rules for winning each progressive jackpot;

h) Each progressive parameter and description (max values, increment rates, etc.);

i) The RAM clearing methods; and

j) RESERVED.

NOTE: In some cases, the test laboratory may have the wording on the Progressive display translated to the English language or have the manufacturer supply an independent translator.

2.2.8 Software Programming Requirements and Compilation. The following items shall appear in all source code or related modules:

a) Module Name;

b) RESERVED;

c) Brief description of module function;

d) Edit History, including who modified it, when, and why;

e) Source code comments in an informative and useful manner;

f) All source code submitted shall be correct, complete, and able to be compiled. The result of the compiled object code shall be identical to that in the storage media submitted for evaluation.

NOTE: The addition of 'Date' and 'Time' stamps may cause additional differences in a compiled version. It is the manufacturer's responsibility to provide the test laboratory with a method to compensate for, or resolve these differences; and the source code may be reviewed, compiled and studied either at the laboratory, or at the supplier's place of business as determined by the laboratory.

g) RESERVED.

2.2.9 Program Storage Medium Identification. On the program medium that is submitted and subsequently placed in the field, each program shall be uniquely identified, where applicable, by the following:

a) Program ID Number;
b) Manufacturer;
c) Version number;
d) Type and size of media (unless located on the media as purchased unused from the supplier);
e) Location of installation in the associated hardware, if potentially confusing; and
f) A unique signature. For medium other than EPROM, a hashing algorithm shall be used.

2.2.10 Documentation needed for Submissions of Modifications. For any updated submission (e.g. a revision to an existing hardware or software that is currently under review, certified, or has been reviewed and not certified), the following information shall be required to process the submission, see also Submission Letter, section 2.2.5. This process is intended to speed the administrative burden of modification submissions. All modifications require re-testing, examination and re-certification by the test laboratory:

a) Modification of Hardware. Each hardware submission shall:
   i. Identify the individual items being submitted (including part number);
   ii. Identify the previously approved hardware version;
   iii. Explain what component it is modifying and how it was modified;

iv. Supply a complete set of schematics, diagrams, data sheets, etc. describing the modification along with the reason for the change(s); and
v. Provide the updated or new device, a description and the method of connection to the original Progressive System.

b) Modification of Software Functions or To Correct Software Error. The submitter should use the same requirements as in the Progressive Software section listed above, except where the documentation has not changed. In that case, a resubmission of identical documents is not required. In addition, the submission shall include:

i. A description of the software change;
ii. Identification of the previously approved version;
iii. The modules affected; and
iv. The new source code for the entire program. Source code is required for the entire program to check compile and source code integrity.

NOTE: The source code may be reviewed, compiled and studied either at the laboratory, or at the supplier's place of business as determined by the laboratory.

NOTE: Where the testing laboratory has been previously supplied with the information on a previous submission, submission of duplicate documentation is NOT required, provided that the previous information is referred to by the submitting party and those documents are easily located at the testing laboratory. Every effort shall be made to reduce the redundancy of submission information.

CHAPTER 3

3.0 PROGRESSIVE COMPONENT REQUIREMENTS

3.1 Introduction

3.1.1 General Statement. This chapter shall govern the requirements for all progressive components submitted for review.

3.2 Hardware and Player Safety

3.2.1 General Statement. Electrical and mechanical parts and design principals of the electronic associated progressive hardware may not subject a player to any physical hazards. The test laboratory shall NOT make any finding with regard to Safety and EMC testing as that is the responsibility of the manufacturer of the goods or those that purchase the goods. Such Safety and EMC testing may be required under separate statute, regulation, law or Act and should be researched, accordingly, by those parties who manufacture or purchase said hardware. The test laboratory shall not test for, be liable for, nor make a finding relating to these matters.

3.3 Environmental Effects on Progressive Integrity

3.3.1 Progressive Integrity Standard. The Laboratory will perform certain tests to determine whether or not outside influences affect game fairness to the player or create cheating opportunities. This certification applies exclusively to tests conducted using current and retrospective methodology developed by Gaming Laboratories International, Inc. During the course of testing, Gaming Laboratories International, Inc. inspects for marks or symbols indicating that a device has undergone product safety compliance testing. Gaming Laboratories International, Inc. also performs, where possible, a cursory review of submissions and information contained therein related to Electromagnetic Interference (EMI), Radio Frequency Interference (RFI), Magnetic Interference, Liquid Spills, Power Fluctuations and Environmental conditions. Electrostatic Discharge Testing is intended only to simulate techniques observed in

the field being used to attempt to disrupt the integrity of Progressive Devices. Compliance to any such regulations related to the aforementioned testing is the sole responsibility of the device manufacturer. Gaming Laboratories International, Inc. claims no liability and makes no representations with respect to such non-gaming testing. The actual data showing the tests performed and the excluded tests are available upon written request. A progressive system shall be able to withstand the following tests, resuming their function without operator intervention:

a) Electro-Static Interference. Protection against static discharges requires that the progressive components 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 progressive system. Progressive system components may exhibit temporary disruption when subjected to a significant electro-static discharge greater than human body discharge, but they shall exhibit a capacity to recover and complete any interrupted function without loss or corruption of any control or data information associated with the progressive system. The tests will be conducted with a severity level of a minimum of 27KV air discharge.

3.4 Progressive Meter/Display Requirements

3.4.1 ***General Statement***. One or more progressive gaming device(s) shall be linked, directly or indirectly, to a mechanical, electrical, or electronic device, including the video display, if applicable, that shows the payoff which increments at a set rate of progression as credits are wagered. This device is the Progressive Meter. For games that have progressives such as 'Mystery Jackpot', the payoff does not have to be displayed to the player although, there should be an indication as to this type of feature on the game.

3.4.2 ***Progressive Displays***. A Progressive Meter shall be visible to all players who are playing a device, which may potentially win the progressive amount if the progressive jackpot combination appears, except for 'mystery jackpots.' A player shall know that he is playing a progressive game and not have to play the max bet amount to find out. The above are parameters

that are verified on-site prior to implementation. The following rules apply to all Progressive Meter displays:

a) The progressive meter shall display the current total of the progressive jackpot in the monetary value or credits (the monetary value may vary for Multi-Site Progressive Displays.) Because the polling cycle does cause a delay, the jackpot meter need not precisely show the actual monies in the progressive pool at each instance, see also Types of Updating Displays, section 3.4.3. This rule does not apply to 'Mystery Jackpots.'

NOTE: Any device that has a feature that doubles, or triples, etc. any win shall have a sign that states the progressive award will not be doubled or tripled if won during the feature, if this is the intention.

3.4.3 Types of Updating Displays. The use of odometer and other "paced" updating displays are allowed. The progressive meter shall display the winning value within 30 seconds of the jackpot being recognized by the central system. In the case of the use of paced updating displays, the system jackpot meter shall display the winning value after the jackpot broadcast is received from the central system.

3.4.4 Progressive Display Digital Limitations. If the progressive meter(s) progresses to its maximum display amount, the meter shall freeze and remain at the maximum value until awarded to a player. This can be avoided by setting the jackpot limit in accordance with the digital limitations of the sign.

3.4.5 Alternating Displays. If this rule prescribes multiple items of information to be displayed on a gaming device or progressive meter, it is sufficient to have the information displayed in an alternating fashion.

3.4.6 RESERVED.

3.5 Progressive Controller Requirements

3.5.1 General Statement. Any progressive system shall meet the game standards set forth in this document and the GLI-11 Standards for Gaming Devices in Casinos. The requirements of this Section are intended to apply equally to one progressive gaming device linked to a progressive controller or is internally controlled, as well as several progressive gaming devices linked to one progressive controller within one casino or multiple casinos.

3.5.2 Progressive Controller Description. A progressive controller is all of the hardware and software that controls all communications among the devices. The controller shall calculate the values of the progressives and display the information within a progressive gaming device link and the associated progressive meter (if applicable, progressive controllers may be internally controlled by the game's control program). A progressive controller may consist of more than one discrete component and includes but is not limited to PC-based computers, wiring, interface boards and collection nodes, etc.

3.5.3 Setting the Jackpot Amounts. The method by which system jackpot parameter values are modified or entered is to be secure. All progressive gaming devices or any approved progressive system component shall display, upon request, the following information for each progressive prize offered (if applicable):

a) CURRENT VALUE: current prize amount;
b) OVERFLOW: amount exceeding limit;
c) HITS: number of times this progressive was won;
d) WINS: total value of wins for this progressive or a history of the last 25 progressive hits;
e) BASE: starting value;
f) LIMIT: jackpot limit value (if the Jackpot is capped at a maximum limit, this standard does not require to add the overflow amounts to the next starting value and will be determined on a casino-by-casino basis);
g) INCREMENT: percentage increment rate;
h) SECONDARY INCREMENT: percentage increment rate after limit is reached;

i) HIDDEN INCREMENT: percentage increment rate for the reserve pool

j) RESET VALUE: the amount the progressive resets to after the progressive is won; and

k) The participating gaming devices.

NOTE: Any change to the jackpot amount must conform to the local Internal Control procedures.

3.5.4 Progressive Controller Program Interruption. After a program interruption (e.g. power down), the software shall be able to recover to the state it was in immediately prior to the interruption occurring.

3.5.5 Internal Link Progressive Controller For link progressives where the progressive controller is part of the game software (internal link), all games on the link shall conform to the following criteria:

a) Require a secure method for configuring each game on the link.

b) Changes to progressive settings may not be made, unless it involves a secure method.

c) Each game on the link shall be uniquely identified.

d) Only one (1) game on the link shall function as the master progressive controller.

e) If the game configured as the master controller becomes inoperative, all games on the link must tilt.

f) If any game on the link loses communication with the master controller, that game must tilt.

g) The progressive link shall be capable of displaying all progressive parameters (i.e. contribution, reset amount, levels, etc.).

3.5.6 Progressive Resumption. On program resumption, the following procedures shall be performed as a minimum requirement:

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

b) Progressive System control programs shall test themselves for possible corruption due to failure of the program storage media. The authentication may use the checksum; however, it is preferred that the Cyclic Redundancy Check (CRC) calculations are used as a minimum (at least 16 bit). Other test methodologies shall be acceptable if at a comparable level of integrity; and
c) The integrity of all critical memory shall be checked.

3.5.7 Communications for Signaling of a Jackpot. There shall be a secure, two-way communication protocol between the main game processor board and progressive. In addition, the progressive system shall be able to:

a) Send to the electronic gaming device the amount that was won for metering purposes; and
b) Constantly update the progressive display as play on the link is continued.

3.5.8 Monitoring of Credits Bet. During the 'Normal Mode' of progressive gaming devices, the progressive controller shall continuously monitor each device on the link for credits bet and shall multiply the same by the rate of progression and denomination in order to determine the correct amounts to apply to the progressive jackpot. This shall be 99.99% accurate.

3.5.9 Access to the Progressive Controller. Each progressive controller used with a progressive gaming devices shall be housed in a secure environment allowing only authorized accessibility. Access to the controller must conform to the local Internal Control procedures.

3.5.10 Progressive Controller Required Meters. The progressive controller or other approved progressive system component shall keep the following information in non-volatile memory, which shall be displayed on demand. Additionally, meters shall be 99.99% accurate:

a) The number of progressive jackpots won on each progressive level if the progressive display has more than one (1) winning amount;

b) The cumulative amounts paid on each progressive level if the progressive display has more than one (1) winning amount;
c) The maximum amount of the progressive payout for each level displayed;
d) The minimum amount of the progressive payout for each level displayed;
e) The rate of progression for each level displayed; and
f) RESERVED.

3.5.11 Controller and Display Functions During Progressive Jackpot Win. When a progressive jackpot is recorded on an electronic gaming device, which is attached to the progressive controller, the progressive controller shall allow for the following to occur on the device and/or progressive display:

a) Display of the winning amount;
b) Display of the electronic gaming device identification that caused the progressive meter to activate if more than one (1) electronic gaming device is attached to the controller;
c) The progressive controller shall automatically reset to the reset amount and continue normal play; and
d) The new progressive values that are current on the link.

3.5.12 Base Progressive Jackpot Amount. The initial amount of a progressive jackpot shall begin at or above an award for that particular gaming device that makes the entire meter payout greater than the minimum percentage requirement, see also "Percentage Requirements" in GLI-11 Gaming Devices in Casinos.

3.5.13 Progressive Controller Error Conditions. When a controller error occurs, it is preferred that it alternates the displays, or equivalent, between the current amount and an appropriate error message that is visible to all players, or can alert the casino to the error condition. If the following events occur, the progressive controller must convey the appropriate signal to disable the games using the progressive, and an error shall be displayed on the progressive meter, other approved progressive system component or gaming device:

a) During a 'communication failure' between the game and the controller or anywhere within the progressive controller system: (see also Communication Failure, section 4.2.8)
b) When there have been multiple communication errors;
c) When a controller checksum or signature has failure;
d) When a controller's RAM or PSD (program storage device) mismatch or failure occurs;
e) RESERVED;
f) When the jackpot configuration is lost or is not set;
g) If there has been an unreasonable amount of credits bet (an unreasonable amount of credits bet is defined by the progressive set up which is based on the number of bets and number of machine(s)); or
h) If the game meters are validated against the controller's meters (via communications between the game board and controller) and they do not reconcile.

3.5.14 Transferring of Progressive Jackpot. The progressive controller shall have a secure means of transferring a progressive jackpot and/or prizes to another progressive controller or other approved progressive system component. Transferring of progressive jackpots must meet the local Internal Control procedures.

3.5.15 Jackpot Limits. The controller may be configured with a limit on the jackpot of a progressive gaming device, if the limit imposed is greater than the jackpot payout on the gaming device at the time the limit is imposed. This limit shall be posted on or near the device or devices to which the limit applies.

3.5.16 Time Limits. Progressive controller may have the ability to set time limits that limit the time the progressive is available.

3.6 Progressive Jackpots

3.6.1 General Statement. A Progressive Jackpot is an award for a winning or non-winning (e.g. mystery jackpot) play of the game, as defined in Progressives Defined and Sections Applied, section 1.5.1, of this document. A bonus game where certain circumstances are required to be satisfied, prior to awarding a fixed bonus prize, is not a progressive gaming device and is not subject to these procedures.

3.6.2 Swapping Progressive Levels. For progressives offering multiple levels of awards, the player must always be paid the higher progressive amount, if a particular combination is won that should trigger the higher paying award. This may occur when a winning combination may be evaluated as more than one of the available paytable combinations (i.e., a Flush is a form of a Straight Flush and a Straight Flush is a form of a Royal Flush). Therefore, there may be situations where the progressive levels shall be swapped to ensure the player is being awarded the highest possible progressive value based on all combinations the outcome may be defined as.

3.6.3 Gaming Device Requirements when any Progressive is Awarded. When a progressive prize has been awarded, the gaming device or other approved progressive component shall perform the following:

a) An appropriate message shall be displayed;
b) Unless the prize is transferred to the player's credit meter the software and game shall lock-up until the award has been paid by the attendant; and
c) All progressive related meters must be updated, see also "GLI-11 Gaming Devices in Casinos," Section 4.10.9 'Electronic Accounting Meters.'

NOTE: In the case of a player winning a 'Mystery Jackpot', there must be a light or an alarm so the player doesn't abandon the machine, not knowing they've won an award.

3.6.4 Progressive Gaming Device Metering Requirements. The electronic gaming device is required to update its electronic meters to reflect the winning progressive jackpot amount consistent with these procedures and the electronic accounting meter requirements in section four

of GLI-11, Technical Standards for Gaming Devices in Casinos. Progressive wins may be added to the credit meter if either:

a) The credit meter is maintained in monetary value or credits;
b) The progressive meter is incremented to whole credit amounts; or
c) The prize, in monetary value, is converted to credits on transfer to the player's credit meter in a manner that does not mislead the player. The conversion from monetary value to credits must always round up.

NOTE: Progressives exceeding the local income tax limit, if one exists, shall require payment by an attendant.

3.6.5 RESERVED.

3.7 Progressive Awards Paid by Over Time

3.7.1 Notice of Payment Over Time. Any casino licensee or group of casino licensees which offers an award paid over time shall comply with the display and sign requirements or internal control requirements, except that the display or sign need not include the cash equivalent value. In addition, clear and conspicuous notice of the following shall be provided to all players:

a) That the displayed jackpot will be paid over time and not in one lump sum; and
b) The period of time covering the payments.

3.8 Progressive Percentage Requirements and Odds

3.8.1 General Statement. The rules within this section shall not supercede the Percentage and Odds rules outlined in the GLI-11 Standards for Gaming Devices in Casinos.

3.8.2 Linked Gaming Device Odds. Each device on the link shall have the same probability of winning the progressive, adjusted for the denomination played. For instance, the probability shall remain the same for multiple denomination games based, on the monetary value of the

wager (e.g.1. A two (2) coin $1 game has the probability of one (1) in 10,000 and a two (2) coin, $2 game on the same link has the probability one (1) in 5,000.)

3.9 Software Verification

3.9.1 General Statement. The controller software and any associated critical software used within a progressive system must have the ability to allow for an independent integrity check of the control program from an outside source. This must be accomplished by being authenticated by a third-party device, which may be embedded within the control program (see NOTE) or having an interface port for a third-party device to authenticate the media. This integrity check will provide a means for field testing the software to identify and validate the program. The test laboratory, prior to approval, shall approve the integrity check method.

***NOTE**: If the authentication program is contained within the control program, the manufacturer must receive written approval from the test laboratory prior to submission.*

CHAPTER 4

4.0 MULTIPLE SITE PROGRESSIVE REQUIREMENTS

4.1 Introduction

4.1.1 ***General Statement***. In addition to Chapters 1, 2 and 3 of this document, this Section shall set forth the technical requirements for "Multi-Site Progressive Gaming Devices." Multi-site progressive gaming devices are interconnected in more than one casino. The purpose of a Multi-site progressive system is to offer a common progressive jackpot (system jackpot) at all participating locations.

4.1.2 ***Phases of Approval***. The approval of a "Multi-Site" system shall be certified in two phases:

a) Initial laboratory testing, where the laboratory will test the integrity of the gaming device(s) in conjunction with a progressive system in the laboratory setting with the equipment assembled; and
b) On-site certification where the progressive communications and set up are tested on the casino floor prior to implementation.

4.2 Multi-Site Central Computer Requirements

4.2.1 ***General Statement***. Any casino licensee seeking approval to participate in a Multi-site progressive slot system shall submit for approval a system of accounting and internal controls, specifying the manner in which participating casino licensees will satisfy the requirements of the GLI-11 Standards (Gaming Devices in Casinos) concerning the operation of gaming devices.

4.2.2 Location of Central Monitoring System. The office containing the central computer shall be equipped with a surveillance system that must meet the Internal Control procedures.

4.2.3 Method of Communication for Multi-Site Gaming Devices. It is recommended that the method of communication be a non-shared, dedicated line or equivalent. Dial-tone systems may used as long as devices at the local site would not be able to be disabled from another outside line or manipulated by any other means. When the method of communication is a shared line, appropriate encryption and security must be in place to avoid corruption or compromise of data.

4.2.4 Data Collection Requirement. Multi-site systems shall ensure that security information and the amounts wagered information is communicated, at least once every 60 seconds for terrestrial lines (dedicated phone lines), and a reasonable amount of time for Radio Frequency, from each participating device to the central computer system.

4.2.5 Multi-Site Encryption Method. All Multi-Site property systems shall utilize an encryption method that has been approved by the Laboratory. Such encryption method shall include the use of different encryption "keys" or "seeds" so that encryption can be changed in a real-time fashion.

4.2.6 Multi-Site Monitoring and Other On-Line System Requirements. The on-line provision is to be able to monitor the meter readings and error events of each device regardless of any outside monitoring system. Therefore, the on-line security system requirement when gaming devices are in play is not altered in any way.

4.2.7 Central Monitoring System Power Supply. The central computer site shall be equipped with non-interruptible power supply that will allow the central computer to conduct an orderly shut down if the power is lost. Should the system utilize hard disk peripherals, the central computer shall be capable of on-line data redundancy.

4.2.8 Communication Failure. A gaming device shall immediately disable it self and suspend play if communication is lost to the local collection unit hub. The gaming device may resume play only when communication to the local hub is restored. If the communication is lost between the local hub and the central computer, the gaming device may continue to play provided the progressive information from all games connected to the local hub is buffered. Once the local hub's buffer is full, the hub must disable games that are connected to it. Upon reestablishing communication with the central computer, the hub must accurately relay all buffered progressive information to the central system and the system wide totals are to be updated; not withstanding this rule if the communication is lost for more than 24 hours and the site must be shut down.

4.2.9 Central Monitoring System Required Reports. Any "Multi-Site" system shall supply, as requested, the following reports:

a) PROGRESSIVE SUMMARY: A report indicating the amount of, and basis for, the current jackpot amount (the amount currently in play);
b) AGGREGATE REPORT: A report indicating the balancing of the system with regard to system wide totals;
c) RESERVED; and
d) PAYOFF REPORT: A report that will clearly demonstrate the method of arriving at the payoff amount. This will include the credits contributed beginning at the polling cycle, immediately following the previous jackpot and will include all credits contributed up to and including the polling cycle which includes the jackpot signal.

NOTE: Credits contributed to the system after the jackpot occurs in real-time, but during the same polling cycle, shall be deemed to have been contributed to the progressive amount prior to the jackpot. Credits contributed to the system subsequent to the jackpot message being received, as well as credits contributed to the system before the jackpot message is received by the system, but registered after the jackpot message is received at the system, will be deemed to have been contributed to the progressive amount of the next jackpot, if applicable.

4.2.10 Multi-Site System Meter Readings. All meter reading data shall be obtained in real time in an on-line, automated fashion. When requested to do so, the system shall return meter readings on all gaming devices attached to the system. The meter readings shall be identical to the meter information retained in the gaming device(s) accounting meters. Manual reading of meter values may not be substituted for these requirements. The meter, in either credit or monetary value, required is as follows:

a) Credits Bet shall be defined as all amounts wagered.

NOTE: The purpose of the above credits bet meter reading is to verify and compare the progressive amount(s) in conjunction with the rate of progression.

4.2.11 Multi-Site System Door Monitoring. The Multi-Site Progressive system shall have the ability to monitor entry into the front door of the gaming device and report it to the central system IMMEDIATELY.

4.2.12 Jackpot Win During Poll Cycle. If a jackpot is recognized in the middle of a System-Wide Poll Cycle, the overhead display may contain a value less than the aggregated jackpot amount calculated by the central system. The credit values from the remaining portion of the poll cycle will be received by the central system but not the local site, in which case the jackpot amount paid will always be the higher of the two reporting amounts.

4.3 Multi-Site Progressive Procedures

4.3.1 General Statement. Procedures shall be developed, implemented and documented for the following. These reports shall adequately document the procedures, be generated and retained:

a) Reconciliation of meters and jackpot payouts;
b) Collection drop of gaming device funds;

c) Jackpot verification and payment procedures that include a Commission Agent be present for independent prize verification and payment.
d) System maintenance;
e) System accuracy;
f) System security;
g) System failures including:
    i. The local hub;
    ii. The central site;
    iii. Failures in communications; and
    iv. Backup and recovery.

4.4 RESERVED

4.5 Multi-Site Jackpots

4.5.1 ***Multiple Jackpots During the Same Polling Cycle***. When multiple jackpots occur, where there is no definitive way of knowing which jackpot occurred first, they will be deemed to have occurred simultaneously; and therefore, the gaming regulator shall adopt procedures for payment of such jackpot occurrences. In addition, if there is a communication failure as described in Communication Failure, section 4.2.8, a winning player wagering at a non-updated site may also be eligible to a jackpot amount.