Office of Liquor and Gaming Regulation

Ticket-In Ticket-Out (TITO) Minimum Technical Requirements
Version v1.1.6

Queensland Government

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2   Introduction

Policy

All Ticket-In and/or Ticket-Out (TITO) Systems for Electronic Gaming Machines (EGMs) and other TITO equipment must be submitted for evaluation and approval under the following legislation:

- Casino Control Act 1982
- Gaming Machine Act 1991

Purpose

- Advise the industry of OLGR's minimum technical requirements for Ticket-In and/or Ticket-Out systems.
- Ensure requirements are consistently applied.
- Achieve a high standard of integrity, security and fairness of Ticket-In and/or Ticket-Out systems used for gaming in Queensland.

Scope

This document is applicable to all gaming providers in Queensland. These requirements apply to the technical evaluation of TITO systems, submitted for evaluation after the date of publication of this document by OLGR for use in gambling in Queensland.

Scope includes:
- TITO systems that are EGM based or "In Machine Systems" and communicate with the EGM to update appropriate meters such as Ticket-In and Ticket-Out in Audit mode.
- TITO systems which do not directly communicate with EGMs to print tickets.
- A system that only implements Ticket-In.
- A system that only implements Ticket-Out.
- Fully Automated Table Games with Ticket Printers.

Scope does not include:
- Trade Promotional TITO systems (as defined in this document)
- Voucher Systems (as defined in this document)
- The back-end accounting system that is to be used with TITO systems.

This document may be updated to reflect other TITO systems at a later date.

3   Definitions / Abbreviations

Electronic Gaming Machine (EGM)
For the definition of an EGM, refer to the Gaming Machine Act.

EGM Based TITO system
An EGM based TITO system is where an EGM communicates with the TITO hardware directly.

OLGR
Queensland Office of Liquor and Gaming Regulation

TI
Ticket-In: in this document TI systems refer to any system that accepts and verifies tickets with a ticket-in reader. Banknote readers frequently double as ticket readers.

TO
Ticket-Out: in this document TO systems refer to any system that prints tickets in the appropriate format as specified in this document for credits that can be redeemed at cashiers or be inserted back into a TI system.

TITO
Ticket-In and/or Ticket-Out

TITO System
In this document TITO systems refer to any of the Ticket systems defined in the scope of this document. TITO systems consist of the combination of TI devices and TO devices.

Trade Promotional
A form of Voucher System, specifically promotional and therefore covered under the Charitable and Non-Profit Gaming Act 1999, e.g. any voucher system that draws tickets from a barrel is promotional and is outside the scope of this document.

Premium Gaming Areas (PGA)
For the definition of a PGA, refer to the *Queensland Tobacco and Other Smoking Products Act 1998.*

Voucher Systems
A form of Ticket-Out system, which is outside the scope of this document, Voucher Systems dispenses tickets with monetary values to be claimed as cash. This includes Lucky Envelope Machines and Casino Voucher systems (e.g. for hand pays with wireless attendant terminals).

4 Submissions

4.1 General

4.1.1　Submit a letter that formally requests OLGR to perform an evaluation of the product being submitted. This letter must contain at least the following elements:
- The date of the submission.
- All letters must be addressed to the Executive Director, OLGR and marked ATTN: Technical Unit.
- A description of the product being submitted and the intent of the submission.
- The market(s) which the product will be used e.g. Casinos, Clubs and Hotels.
- The name and signature of the person/s responsible for the submission and contact details of where technical enquires regarding the submission may be directed.

4.1.2　Submit a "Certification and Indemnity Form" which is signed by a person of an acceptable level to the OLGR Executive Director.

4.1.3　Except where a document requires a signature (such as the formal submission letter or indemnity form), all submission documents and software must be submitted in an IBM PC compatible electronic format.

4.1.4　All submission documentation and electronic media must be labelled with the company name, the product name, the product version and the submission date. Resubmissions must also include the resubmission number e.g. version 2. Note: version numbers are to be unique and any change to an already approved submission should require this unique version number to change.

4.1.5　Submit a fully functional TITO system.

4.1.6　To assist in the evaluation of the TITO submission, a report of any testing conducted on the product (prior to the submission) should be submitted. This report must contain the testing body's name, the name of the individual who conducted the testing, a description of what was tested, how it was tested (photos may be required), and the test results.

4.2 Software Submissions

4.2.1　All submissions including comments in source code must be in English.

4.2.2　TITO submissions must include a list of all known unresolved issues, bugs and incidents. This list must be comprehensive and include any issues identified with previous versions which have not been resolved with the current version, even if these issues have been previously notified to OLGR.

4.2.3　Source code submissions must comply with the Section 7 - Source Code Submissions, in the OLGR Submission Requirements document.

4.3 Hardware Submissions

4.3.1 Submit technical details, specifications and datasheets pertaining to all components of the TITO system (card readers, printers, system backend, etc).

4.3.2 Ticket Printers and Ticket Readers used by the TITO system must contain a Part / Model Name, Part / Model Number and unique identifier of the item itself.

4.3.3 Samples of Tickets printed on all printers to be used by the TITO system.

5 General

5.1 General Requirements

The methods provided here may be utilised as only a Ticket-Out (TO) system, or both a Ticket-In and Ticket-Out (TITO) system. Ticket-In may be facilitated by the EGM by either a dedicated Ticket-In device or a banknote acceptor that can read tickets, or an external device that sends Ticket-In amounts to the EGM via a protocol or other means.

5.1.1 TITO systems interfacing directly to an EGM must use an approved communication protocol to prevent incompatibility with other protocols used by the venue.

5.1.2 Ticket Printers must be installed safely and securely to prevent injuries to patrons or attendants using the TITO devices.

5.1.3 TITO systems must automatically restart after a loss of power without manual intervention.

5.1.4 TITO systems must implement the thresholds set in the TITO Limits by the TITO system. It must also not undermine the current established limits (technical or operational). Refer to Appendix A for Queensland specific TITO limits.

5.1.5 TO systems must use tickets that are durable for their expected lifespan and provide clear legibility of text when the ticket is printed.

5.1.6 The installation of the TITO system must not void the compliance of the equipment into which it is installed, to any applicable standards and requirements the equipment was originally approved under and all other original product certifications.

5.1.7 Where Pre-commitment and/or Card Based Gaming Systems solutions exist for the operator, the tickets must be treated as cash.

5.1.8 In a Pre-commitment and/or Card Based Gaming systems the treatment of tickets must be adequately explained.

5.1.9 There must be some form of redundancy (to allow gaming to continue) in the event of a TITO system failure.

5.1.10 The TITO system database that holds the records of the tickets used by the system must be secure, fault tolerant and must have a mirrored storage as a minimum.

5.1.11 TITO must not be used for promotions, "Free-play", bet reimbursement or similar products.

5.1.12   TITO systems must provide for accountable, transparent and auditable recording and reporting of transactions so as to enable the accurate calculation and reporting of gaming revenue, player payments, taxation and any other TITO related financial information required for a venue to comply with it's regulatory obligations (e.g. remittance of unredeemed payments to government and, for Clubs, machine gaming banking requirements).

5.1.13   Where EGM-based TITO systems are implemented, they must comply with the applicable Technical Requirements defined under the current Australian/New Zealand Gaming Machine National Standard.

5.1.14   Access to authentication codes pertaining to unredeemed tickets in a production TITO system must be kept a secret to all e.g. encrypting the ticket database or codes, suitable access controls etc.

5.1.14.1   If access is possible, then the access must require a specific action (e.g. a password or key) on the part of two specifically privileged system users of the system operator.

5.1.14.2   Authentication codes pertaining to unredeemed tickets must not appear in any reports or logs anywhere. The system should display ticket serial numbers instead in these reports / logs.

5.1.14.3   The only time the system may acknowledge an authentication code of an unredeemed ticket is when the authentication code is supplied by an external source.

5.1.15   Reverse engineering or brute force attacks on unredeemed ticket authentication codes must not be feasible.

6   Manuals

6.1.1   Copies of all TITO manuals must be supplied to OLGR, Users Manuals are to be supplied to the venue and the Service/Installation Manuals supplied to the licensed repairer and operator.

6.1.2   User Manual must include detailed information regarding how to use the TITO system including:
- Diagrams indicating major components of the system
- Instructions on how to use TI and/or TO (including clearing faults)
- Instructions on how to print tickets manually from the system
- Instructions on how to access ticket logs from the system
- Additional instructions on how to access specific features of the TITO system e.g. reporting features.

6.1.3   The Service/Installation Manual should include all the above information in the User Manual as well as the following:
- Safety Notices
- Installation guides
- Preventative Maintenance (cleaning of Ticket Readers and Printers)
- Troubleshooting guides
- Parts list.

6.1.4   The manuals must be submitted for evaluation and must be clear and concise explaining the details, relevant information and procedures regarding the TITO system.

7   Ticket-Out Process

The functionality of Ticket-Out in Queensland is equivalent to a player pressing collect and collecting credits from the EGM. The ticket will include an identifier that the system will send for verification purposes, additional information including value of the ticket and responsible gambling messages will be sent to the ticket printer through the system. Tickets printed from a ticket printer can be redeemed for cash by presenting it to attendants at a cashier's desk or self service terminals.

7.1   General

7.1.1   Tickets printed must encode a machine readable authentication code, which in the TITO system uniquely identifies the ticket. Validations of the tickets will be through the use of this unique identifier – the Authentication Code.

7.1.2   A ticket can be redeemed for cash or inserted into a TI device to transfer the monetary value of the ticket.

7.1.3   A ticket is printed by a ticket printer when a player presses Collect on the EGM or for a win payout.

7.1.4   The TO system must include features that prevents unclaimed tickets from being left at the EGM e.g. the display of a message "Processing Ticket-Out Request… Please Wait" when a "Cash Out ticket" has been instigated.

7.1.5   The TO system must be able to verify the Ticket-Out request and approve or otherwise reject the Ticket-Out Request.

7.1.6   The EGM must always remain in a known state condition by the TO system during any Ticket-Out requests until it receives an acknowledgement from the TO system which approves or denies the request.

7.1.7   A ticket must only be printed out when the TO system approves the request.

7.1.8   It must be possible to log a fault when the TO system is interrupted during ticket printing.

7.1.9   The TO system must resume and recover upon any interruption; there must be no possibility of the creation of orphaned tickets* and the system must reconcile after any interruption. *An orphaned ticket is a ticket that has been printed with an Authentication Code but does not exist in the TO system.

7.2   Cash Ticket-Out Log

7.2.1   The TO system must have a provision to log all attempted Ticket-Out requests instigated on the host system. This is known as the Cash Ticket-Out Log. This log must include every new entry that has been verified by the TO system including the following details as a minimum:
- Time & Date
- Amount
- Authentication Code
- Ticket type, (e.g. Paper, Mag-strip, etc)

- Machine ID
- Status (Refer section 7.2.2)

7.2.2   The Cash Ticket-Out Log must indicate a status for each transaction including whether the ticket-out is awaiting approval, denied, approved & printing, approved & successfully printed approved & print failure or any other relevant transaction status.

Related: Section 5.1.14

8   Ticket-In Process

8.1.1   Credits must only be registered for valid tickets.

8.1.2   If the ticket-in device is enabled then a ticket maybe inserted at any time while the ticket-in device is enabled to accept credit.

8.1.3   The TI system must verify the machine readable authentication code printed on the ticket and log the "Ticket-In Request" to instigate authorisation for the amount on the ticket. The Ticket-In Request is the condition when the TI system has verified the ticket as valid.

8.1.4   The TI device must only credit valid authenticated tickets. If the EGM is not currently enabled to receive credit, or the ticket is invalid then the ticket must be ejected back to the player.

8.1.5   The TI device must reject all other ticket insertions until the current ticket has been either approved or rejected.

8.1.6   The TI device must log an event to the TI system should an error occur during the TI validation process e.g. a validation timeout, ticket jam, etc.

8.1.7   If the ticket is approved, the TI system must retain the ticket and add the ticket amount to the credit meter and update and queue the applicable meters.

8.1.8   To provide audio feedback for credit input, the TI system must make a short sound upon adding any Ticket-In amount to the credit meter.

8.1.9   The TI system must have a method to prominently display a message with the reason for a rejected ticket. Refer table below for examples of text. This message must be displayed for a reasonable period of time and must be legible. Acceptance of the overall legibility of the text message displayed is at the discretion of the CEO.

Example
"Ticket System Unavailable"
"Ticket Expired"
"Ticket Amount Too Large"
"Ticket-Invalid"
"Ticket Not Found"
"Ticket Already Redeemed"

8.1.10 If the TI system has verified the machine readable authentication code printed on the ticket and is interrupted during the TI process, then the TI system must resume and recover upon interruption; still complete the TI procedure, even if the TI system is not able to retain the Ticket-In escrow because of the nature of interruption.

8.1.11 If the TI system is not able to verify the machine readable authentication code on the ticket prior to being interrupted, the TI system must simply eject the ticket back to the patron.

8.1.12 The TI system must ensure that tickets must only be redeemed once.

8.2 Cash Ticket-In Log

8.2.1 The TI system must have a provision to log all attempted Ticket-In Requests instigated on the system. This is known as the Cash Ticket-In Log. This log must include every new entry that has been verified by the TI system including the following details as a minimum:
- Time & date
- Amount
- Authentication Code
- Ticket Type (e.g. Paper, Mag-strip, etc)
- Machine ID
- Status (Refer section 8.2.2)

8.2.2 The Cash Ticket-In Log must indicate a status for each transaction whether the Ticket-In Request is/was awaiting approval, denied, or approved.

9   Ticket Details

Tickets must include at least the following information:

9.1.1 The ticket must be printed with a heading that uniquely identifies the ticket for TITO purposes e.g. the words "CASH OUT TICKET"

9.1.2 The ticket must include information regarding where the ticket was printed e.g. "Venue: Venue Name details". If the device printing the ticket is not also the gaming machine, then the ticket must ID the gaming machine as well.

9.1.3 The ticket must include the unique identifier of the TO device that was used to print the ticket e.g. 2 digit EGM Manufacturer ID & 6 digit Serial Number.

9.1.4 The ticket must prominently display the date and time-stamp at the time of printing e.g. "Printed: dd/mm/yyyy hh:mm:ss AM/PM".

9.1.5 The ticket must be labelled with its value in dollars and cents and in a font larger than other text e.g. "Amount: $1,234.56".

9.1.6 The ticket must also have a second method printed on the ticket to verify the value of the ticket e.g. the amount of the ticket in words.

9.1.7 The ticket must be printed with the Authentication Code sent by the TO system as part of the approval of the Ticket-Out Process.

9.1.8   The ticket must be encoded with a machine readable authentication code that must be secure enough that an attacker cannot guess or forge duplications of tickets already in the system.

9.1.9   If the ticket is vulnerable to environmental conditions, the ticket must include short storage and handling messages as applicable e.g. "Do not store with plastic – print may fade" or "Do not store in direct sunlight", etc.

9.1.10   The ticket must include a dynamic Responsible Gambling message field on the front of the ticket that is configurable by the operator and capable of displaying at least 80 characters long e.g. "***Keep gambling enjoyable, gamble responsibly***"

9.1.11   The ticket must also include the following static gambling helpline information text:
 "Gambling too much?
For free and confidential advice 24/7 call the Gambling Helpline on 1800 858 858 or visit gamblinghelponline.org.au".

9.1.12   The ticket must not contain any other promotional or advertising information.

9.1.13   Acceptance of the overall legibility and layout of the Cash Out Ticket is at the discretion of the CEO

Figure 1. Example of a Cash Ticket
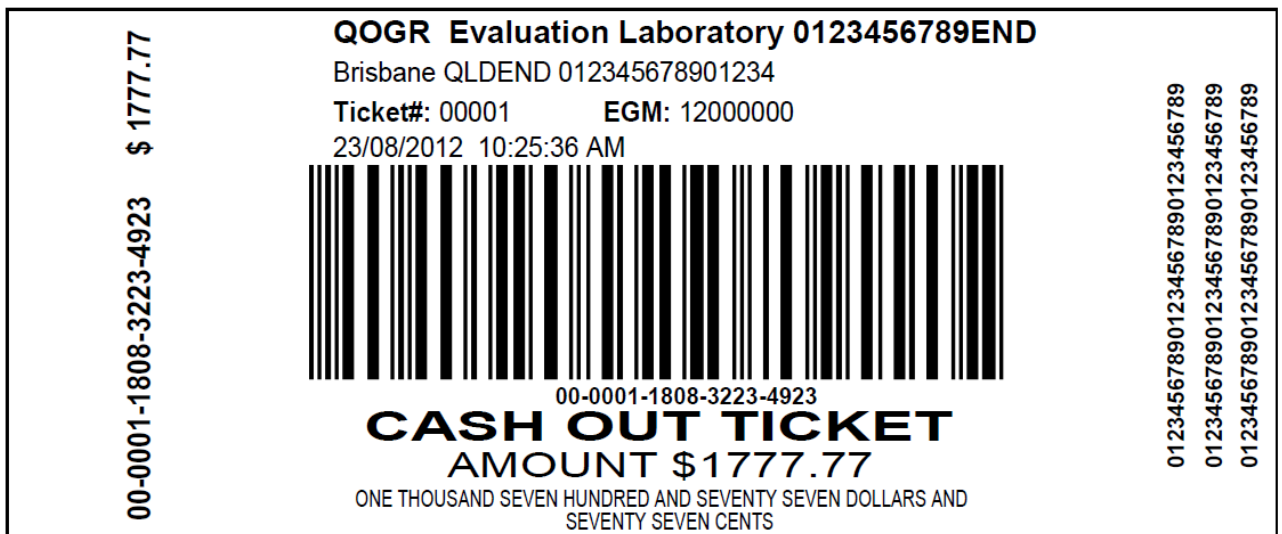
10 Appendix A – Queensland specific TITO limits

QLD TITO Limits	Queensland Clubs and Hotels	Queensland Casinos
Prepaid Tickets	Not allowed	Premium Gaming Areas only (Max value: $9999.99)
Maximum ticket value that is redeemable for cash at the cashier. (MAXTCASHIER)	In accordance with the Rules Ancillary to Gaming.*	MAXCR
The TITO system must not redeem the value of a ticket to a gaming machine which would cause the machine's credit meter to exceed this value (MAXCR)	$199.99	$9999.99
Minimum Ticket Value to be accepted by a Ticket-In device. (MINTI)	$0.01	
Maximum Value of a Printed Ticket by a TO device. (MAXTO)	$5000.00#	Unlimited
Minimum time a Ticket is redeemable for use in a TI device attached to a Gaming Machine (MINTRTIME)	2 Days	
Minimum Time a Ticket is redeemable at the cashier (MINTRCASHIERTIME)	12 Months	
Ticket Scope	Originating Venue only	

* For example, in Queensland clubs and hotels the balance of the ticket value after maximum cash payment of MAXTCASHIER must be in the form of a cheque.
The value of MAXTCASHIER is in accordance with the Rules Ancillary to Gaming, the venue can request for an increase from the default amount of $5000.
The venue should be able to set their own limits up to MAXTO

11 References

Australian / New Zealand Gaming Machine National Standards

12 Revision History

Version	Changes	QIR	Who	Release Date
1.0	Initial Release	829	JA	DRAFT
1.1	Update to Initial Release Expanded requirements, now applicable to Clubs & Hotels. Addition of TITO Market Limits	-	JA	23/7/2012
1.1.1	References to Rules Ancillary to Gaming for the MAXTCASHIER value Changes suggested by GTA (Gaming Technologies Association) Includes requirements for Cash Redemption Terminals	-	JA, BR	22/10/2012
1.1.2	Change to Ticket Format Sample provided by GTA, minor changes and clarifications.	-	JA	7/1/2013
1.1.3	Changed to DJAG template, changed definition for MAXTI, now called MAXCR, add new requirements for Ticket Log Changed MAXCR to $199.99 Changed CRT approved locations MAXTCASHIER default changed to $5000 MAXTO changed to $5000	-	JA	14/3/2014
1.1.4	Allow prepaid tickets in Casino – PGA's only. Deleted requirement: "*Cash Redemption Terminals (CRTs) must not be used for converting cash to tickets or generating prepaid tickets*" & "CRTs must not have any TO functionality" Removed MAXTO limit for Casinos	-	JA	19/6/2014
1.1.5	Clarified section 5.1.14 in regards to authentication code security. Update Template		RL JA	6/5/2016
1.1.6 eDocs# 1651326	Removed CRT Requirements Clarified Intellectual Property statement. Updated to v1.1.6 Reference updates and clarified security level for access		JA	9/5/2018