NATIONAL BANK OF CAMBODIA

CAMBODIAN SHARED SWITCH

RULES AND PROCEDURES

Preamble:

The Rules and Procedures of Cambodian Shared Switch are organized to provide for the operation of clearing and settlement and for the smooth operation and management of the Cambodian Shared Switch system. The Rules and Procedures play a very critical role in enabling the members to understand the operations functionalities and role of the member and the National Clearing House (NCH). The members of the Cambodian Shared Switch system shall implement and comply with these Rules and Procedures.

The purposes of this document are to provide the implementation details of the Cambodian Shared Switch Operations and guidance regarding the rights and obligations of each member. Therefore, this document outlines the roles of the members and management of the NCH. In particular, this document provides for the formal agreements between the NCH and each member in respect of i) the **"Rules and Procedures"** ii) Appointment of the NCH as Settlement Agent, and iii) the NCH **"Service Level Agreement"**.

Each member of the Cambodian Shared Switch system shall be legally bound by these Rules and Procedures.

Contents

1. INTRODUCTION

1.1 Purposes

The Cambodian Shared Switch Rules and Procedures shall govern the operations of the Cambodian Shared Switch system and fee structure and other terms and conditions. The Rules and Procedures are for the smooth operation and management of the NCH and shall be legally binding on all members.

a. The Cambodian Shared Switch System which is managed by the NCH is hereby called **"CSS"** system.
b. The Cambodian Shared Switch Rules and Procedures of the NCH hereby called **"Rules and Procedures"**
c. The members of the Cambodian Shared Switch System hereby called **"Member"**
d. The National Bank of Cambodia hereby called **"NBC"**
e. Issuer hereby called **"ISS"**
f. Acquirer hereby called **"ACQ"**

1.2 Objectives

The CSS is designed to:
a. Provide interconnectivity and interoperability amongst members.
b. Provide a nationwide integrated infrastructure for debit card payment operated by ATM and POS.
c. Provide a network as an international gateway for payment system integration within a region.

1.3 Governing Law

These Rules and Procedures are prepared in compliance with the national laws and relevant Prakas on payment and international best practices.

All the provisions of the **"Rules and Procedures"** and all subsequent updates, amendments and changes shall be subjected to the laws of the Kingdom of Cambodia and all other published regulations of the NBC.

1.4 Appointment of the NCH as Settlement Agent

"Appointment of the NCH as Settlement Agent" is an official agreement between the NCH and each member. The NCH shall be authorized by each member as the settlement agent playing the roles in preparing and accepting input messages, sending output messages to members, and advising binding multilateral net settlement obligation for each member to NBC's Account Management Division hereby referred to as **"Account Management Division"** for posting settlement entries automatically. The appointment and authorization of agent is the members' obligation to be implemented by entering a separate agreement on **"Appointment of the NCH as Settlement Agent"** between the NCH and each member. This agreement is attached as Appendix 3 – **"Appointment of the NCH as Settlement Agent form"**.

1.5 NCH Service Level Agreement

"NCH service level agreement" is an agreement between NCH and members, which sets performance targets to be achieved and provides a framework for measuring performance as a common management tool for the system. This agreement form is attached as Appendix 4 – **"Service Level Agreement form"**.

1.6 NCH Services

a.   Electronic Message Exchanges

Electronic message exchanges including clearing processes of card transactions are centralized and conducted by the NCH.

b.   Help Desk

The NCH will provide any technical assistance service concerning with system, operation and related policy inquiries. Member would post into the Help Desk system or make a call to the NCH via hotline as provided in Appendix 8 - **"Address for Notices"**.

1.7 Currencies

All card transactions can be operated in both KHR and USD. For cash withdrawal transaction, member shall enable cardholder to withdraw cash in KHR from all their ATMs.

The NCH will provide the clearing and calculation of multilateral net settlement obligations for payment instruments denominated in United States Dollars (USD) or Khmer Riel (KHR) separately.

The NCH will perform the clearing and prepare relevant settlement reports on a **"per currency"** basis with no automated or implied conversion of value or credit from one currency to another. Every member shall meet all settlement obligations in the relevant currency comply with the terms and conditions for settlement account qualification, operation and management as set out by NBC and as currently set out in Prakas (B9.06.240PK) on the Operation of Settlement Accounts (December 13, 2006).

1.8 Type of card

NCH will issue notification on using Chip Card Standard.

2. MEMBERSHIP

2.1 Qualifications as Member

Banking institutions, microfinance deposit-taking institutions (head office and branches), payment service providers, payment system operators, and other shared switch system who have the intention to be members of the CSS shall have adequate qualification in issuing and/or acquiring cards may submit applications for membership, as provided in the Appendix 5 -**"NCH Membership Application"** to the NCH.

2.2 Admission of a Member

There are two categories of Membership; Direct Member and Indirect Member.

a. Direct Member

Direct member refers to banking institution, microfinance deposit-taking institution, payment service provider, payment system operator, or other shared switch system, which operate interbank card payments and meet their settlement obligations through the NCH using their settlement account held at the NBC.

Each direct member is required to insist:

- Settlement account at the NBC
- Overdraft facility agreement from the NBC
- Adequate infrastructure ready compliant to all operational and technical standards determined by the NCH for connecting to the CSS system.

- Meet all obligations stated in the Law and other regulations related to the use of the NCH services.

b. Indirect Member

Indirect Member refers to a banking institution, microfinance deposit-taking institution, payment service provider, payment system operator or other shared switch system which may connect and settle its payment via its selected direct members with prior written approval from the NCH. Indirect member shall sign an agreement with direct member who will settle obligation on its behalf, and it is not required to maintain a settlement account at NBC and infrastructure to access CSS system.

Direct Member shall obtain a written approval to be responsible for the settlement obligation on behalf of Indirect Member from NCH regarding to the alliance with indirect member. The clearing and settlement process of indirect member shall be conducted in the same behaviour as any branch of the Direct Member.

c. Changing Membership

Member may request to change its status of membership from Direct to Indirect Member and vice versa at least one month prior to the written approval from the NCH (National Clearing House).

2.3 Direct Member Set-Up and Readiness

a. Technical and Operational Compliance Requirements

Each direct member shall develop their own system interface which complies with the mandatory functional and security features and functions on the standard CSS message ISO 8583. In addition to these technical and functional specifications, each member must prove that the message they have implemented is:

- Accurately set up and implemented
- Able to send and receive messages successfully
- Able to import and export data for transaction reconciliation
- Able to integrate with other members and NCH back-up facilities
- Able to complete testing and certification NCH (Sign-off Letter).

To participate in CSS, member must have automated switch interface that is able to transmit and accept messages and reconciliation files automatically.

b. Technical and Operational Compliance Testing

A standard set of tests and an associated joint CSS system and members schedule for testing are mandated by the NCH to ensure that each member's operational site has:

- The ISO 8583 format message in compliance with all CSS functional and technical requirements
- Undertaken sufficient training and participation in testing to ensure that the designated member operators can operate the system competently and reliably
- Demonstrated the ability to operate the system competently in the NCH test environment.

c. Member Certification and Operational Readiness

After successful completion of testing, the NCH will issue a Certification Letter in respect of the members and operational readiness in using ISO 8583 standard. After the

issuance of this letter, relevant data will be loaded into CSS and made available to the members for active use.

The NCH will issue Certification Letter in respect of:

- **Set-Up** - the member has installed all relevant technical components of the CSS system,
- **Testing** - the full testing of this infrastructure and ISO 8583 format message has been satisfactorily completed, and
- **Acceptance** - the member has received and agreed to observe all of the **"Rules and Procedures"**.

In the event, failure to meet above requirements, member would result in suspension or expulsion of the relevant member's participation in the CSS operations until the competency and compliance has been satisfactorily demonstrated.

2.4 Member Registration and Support by the NCH

Members shall complete all requirements as the following:

a. Registration

Add member as a full member and authority to submit input to and receive output from the NCH.

b. Codes and Keys

Exchange security codes and keys to enable the members to participate fully in the CSS system.

c. Settlement Agent

Require the member to accept and sign the **"Appointment of the NCH as Settlement Agent"**.

d. Rules and Procedures

Require the member to accept and sign the **"Rules and Procedures"** as a contractual obligation with the NCH.

e. Service Level Agreement

Require the member to accept and sign the **"Service Level Agreement"**.

2.5 Notification of New Member

When a new member participates in the CSS system, the NCH shall notify the entrance of the new member to all members one month before new member starts to operate the initiative business.

2.6 Termination of Membership

a. A member may voluntarily withdraw from the CSS by advising in written form at least one month with the approval from the NCH. Member shall notify their cardholder in advance at least 3 months.

b. A membership may be suspend/ terminated under the following conditions:
- A member whose license is withdrawn by the NBC
- When the NCH perceives the member does not implement its obligations or does not to comply with any related legal documents without appropriate reason, the NCH may require the member to send a detailed notice of the breaches and overcoming requirement. After reviewing the notice, the NCH sends written warning to the member. In case of severe impact on CSS or other members, or the existence of repeated breaches for the second time, the NCH will terminate its membership. If the NCH does not receive a

reasonable response within fifteen working days (15) since the day of the first notification was sent, the NCH may send an additional notification to the member. The NCH may suspend the operation of the member during this period. If the NCH still does not receive a reasonable response within ten working days (10) since the day of the second notification was sent, the NCH may send notification of termination to the member.

- When member's system impose security problem to CSS system or other member systems.

In the event of CSS membership suspend/termination/withdrawal, the member shall settle all outstanding transactions and resolve all complaint verification related to operations and services.

3. CAMBODIAN SHARED SWITCH OPERATIONS

3.1 The CSS Transactions

Below are transactions provided by CSS:

a. **ATM Transaction Types**
- Cash withdrawal
- Fast cash withdrawal
- Balance inquiry
- Mini statement
- FAST payment and
- PIN change.

b. **POS Transaction Types**
- Purchase
- Balance inquiry
- Cash withdrawal
- Refund and
- Purchase reversal (void).

3.2 Off-line Services

The CSS will not provide off-line authentication or authorization of transactions instead of ISS. All authorizations shall come from the ISS.

3.3 Hours of Operation

The NCH is operated from 7:30 am to 16:30 pm on each defined business day.

CSS system is operated every day (24/7), including weekends and public holidays.

3.4 Input / Output Validation

Input/output technical format and security standards and data validation of card payment are agreed between the NCH and all members. To ensure the accuracy of its operation, validation principles are applied by the NCH with respect to transaction amount and volume contained in members' transaction messages which is delivered in each day.

The input and output validation is a parallel process. The CSS performs the following steps in order to validate and route transaction messages between members.

a. Step 1: Verify ISO 8583 format

b. Step 2: Determine ISS/ACQ

c. Step 3: Verify ISO 8583 data element

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d. Step 4: Convert the message from external message format (XMF – ISO 8583 format) to internal message format (IMF – IST/Switch format)

e. Step 5: Validate IMF and logging (EPP decryption, PIN translation, validation on transaction amount limit, transaction duplication check)

f. Step 6: Convert the message from IMF to XMF

g. Step 7: Send XMF to ISS.

3.5 Non-Compliant Input

The CSS system will not accept any non-compliant input either in part or in whole. The technical non-compliance of any part of the messages delivered by any member will result in the whole message being rejected. The NCH has no legal right or justification for alteration of the member's input.

Each member shall monitor the status of their input messages delivered and confirm acceptance of their output messages from the CSS and to take appropriate action according to the reported status of the input/output. Failure to monitor an automatic notification from the CSS regarding rejected non-compliant input is not a sufficient justification for any claim that the NCH has failed to meet its operational commitment.

3.6 Messages

Transaction messages being processed in the CSS follow the ISO 8583 Message Standard published by the NCH.

3.7 Emergency Conditions

The conduct of daily clearing operations may be delayed within a business day or deferred and/or combined with a later business day in the event that the CSS system is unable to operate and/or members are unable to complete their clearing operation as may be attributable to the following reasons:

a. Force major
b. Power cut
c. Communication disruption
d. Other emergency conditions which reasonably preclude or prevent the reasonable undertaking of the relevant Clearing Operation.

In such cases, the NCH will provide explicit instructions to all members regarding the procedures to be followed. Each member is expected to provide for adequate back-up to ensure that they are capable of meeting their normal clearing operations responsibilities in all circumstances.

4. ROLES AND RESPONSIBILITIES

4.1 Roles of NCH

The NCH is the operator of the CSS system.

4.2 NCH Responsibilities

The NCH undertakes responsibilities as following:

a. Operating the CSS system.

b. Coordinating with members to offer solutions, connecting standards and set up interface to connect successfully card payment system between the NCH and members.

c. Coordinating with members to set up transmission channels and connect systems.

d. Being a central handler of card payment transactions between members.

e. Building up the domestic and international card payment process among members involved in CSS in accordance with the laws and other related regulations of the NBC.

f. Providing Information and Communication facilities to accept and deliver electronic data in respect of payment instruments, and other information including the liquidity schedule.

g. Preparing and delivering electronic output in the NCH electronic standard formats to the members.

h. Conducting settlement of card transactions between members through settlement account of member which is opened at NBC.

i. Transmitting to members and Account Management Division of calculated settlement position.

j. Coordinating with member to solve verification cases and complaint of cardholders.

k. Coordinating with members to fix arising problems (if any) after the system operated.

l. Establishing, maintaining and updating the standard message ISO 8583 as well as all associated functionalities as provided for in Appendix 7 - "**Infrastructure and Security of CSS System**".

4.3 Direct Members Obligations

Each direct member has the following obligations:

a. Agreement

Each member is required to sign all agreements with the NCH in respect of the following:

– Rules and Procedures of Cambodian Shared Switch (detail is contained in Appendix 2- Acceptance and Observance of the **"Cambodian Shared Switch Rules and Procedures"**Agreement form)

– Appointment of the National Clearing House as Settlement Agent (detail is contained in Appendix 3)

– National Clearing House Service Level Agreement (detail is contained in Appendix 4).

b. Members Connectivity and Readiness

Each members commit to build technical support systems, exchange information and implement service delivery. Member shall take the responsibility for investing software, hardware equipment at each member's site to implement cooperation services.

Members shall coordinate with NCH to build a connection interface between two systems and ensure technical field under the regulation of the NBC in order that the connection system is operated well, uninterrupted.

Each member shall complete all related Set-Up, testing and acceptance.

Each member will incur additional infrastructural and operational costs outside the scope and responsibility of the NCH as following:

- Computer Hardware for connecting the CSS system
- Interbank connectivity with the NCH and
- Other expenses on infrastructural and operational enhancement.

c. Technical Requirements

In order to connect to CSS system all members shall comply with term and condition as follow:

- **Interface Specification**

The interface specifications will be provided to all members as part of the CSS Interconnectivity requirements. The interface specifications will conform to the international ISO 8583 standards. All members will have to develop ISS and/or ACQ Interfaces that comply with the CSS Interface Specification.

- **Communication and Message Protocol**

The CSS ISO 8583 Host External Message is based on the standard message developed by the International Standards Organization (ISO). The CSS ISO Host Interface component creates and interprets external messages according to the specification document of ISO 8385. ISO 8583 Host External Message functionality allows incoming and outgoing messages to be configured individually by a host, depending on the information the host chooses to send and receive.

- **Connection to CSS by members**

The CSS requires a secure connectivity to all existing Switches of members.

- **Security**

Members to Switching Services involved in card-operated devices, must be capable of providing secure hardware encryption/decryption of cardholder PINs and messages for onward transmission to the CSS network.

PINs and messages of transactions must be hardware encrypted using keys provided by NCH.

- **BIN (Bank Identification Number)**

Each member must have a unique BIN issued by the NCH. Card BIN numbering system complies with ISO 7812 and ISO 3166.

Structure of card number: When being issued, each card has defined number (or **"card number"**). The structure of card number is recommended in the CSS ISO 8583 Specification document. When joining in CSS, the digits after BIN are defined by each member.

BIN or IIN (ISS Identification Number) for card issuing institution has format as follows:

9	1	1	6	X	X	X

- o The first digit is 9 to indicate local cards
- o The next 3 digits are 116 to indicate country code of Cambodia.

- The last 3 digits (xxx) are defined and assigned by the NCH for each member.

- When joining CSS system, members can temporarily keep their existing card number structure until the notification from NCH is in place. Members shall void the existing cards number in case such card number structure is repeated to others. However, for new cards to be issued, banks shall follow the card number structure, CSS logo, and other relevant regulations.

4.4 Direct Member Responsibilities

Each direct member shall take responsibilities as following:

a. Develop CSS system integration with the NCH and other members in CSS
b. Ensure personnel, financial and other resources to implement the project
c. Take the responsibility for investing software and hardware equipment to implement cooperation services
d. Coordinate with the NCH to build a connection interface between two systems and ensure technical field under the CSS standard specification and the Rules and Procedures in order that the connection system is operated well and uninterrupted
e. Ensure that card transactions process system of member offers service 24/7 to cardholder of other members
f. Agree to implement and abide by the CSS Rules and Procedures of the NCH
g. Open settlement account at NBC and comply with regulations of the NBC about opening and using settlement account to ensure liquidity of members
h. Shall authorize the NCH to debit or credit its settlement account based on net settlement obligations
i. Authorize the NCH to debit or credit its current account for fee settlement
j. Shall maintain adequate liquidities in their settlement accounts to meet both their own settlement obligations and its sponsoring Indirect Members
k. Take the responsibility for developing and managing ATM/POS system, cardholders, and merchants
l. Fees and Charge based on the Notification on Fees, Charges and Penalties for the CSS
m. Clearly disclose fee and be user friendly
n. Commit to take all risks related to its card payment operation based on the risk management principles of international card organization.
o. Manage payment card: i) An ISS, instead of an ACQ, shall be in charge of the validity process of a cardholder password and a validation code of the card and ii) An ACQ may change only validation code of card among information of a cardholder's card which is issued by other member.
p. Guarantee of secrecy of cardholder's information: an ACQ shall keep the secret for password and transaction information which the ACQ has obtained through the process of such transactions and shall not provide or reveal to others without the written consent of the cardholder except when allowed by laws.
q. Display of ATM screen: when a disorder occurs on its own, other members or the CSS, an ACQ shall display the fact on ATM screen and show the code of transaction disorder in the statement of transaction.
r. Coordinate with the NCH to fix arising problems (if any) after the system has operated

s. For audit and investigation purposes, the copies of all input and output records shall be kept for a period of 10 (ten) years from the date of input delivered or output received.

t. Contents of ATM transaction screen: a member (ACQ) shall show the following data on the ATM screen: i) transaction related data (date and time of transaction, type of transaction, transaction amount, balance of account, and full transaction fee); ii) cardholder related data (ISS code, account number, last four digits of cardholder number); iii) ACQ related data (code number of ACQ, branch code, treatment result of the ACQ, ATM number, ATM sequential treatment number, transaction identification number).

u. In the event that cardholder uses co-branded debit cards, ACQ shall provide options for cardholder to rout the transaction via CSS or via co-branded payment card network by transparently showing the fee on ATM screen (by CSS or co-branded payment card network), in KHR or USD.

v. Issuance of receipt of transaction

w. In case of ATM cash withdrawal or interbank fund transfer, a member shall issue a receipt of transaction which contains the data mentioned below:
   - Transaction related data: date and time of transaction, type of transaction, and transaction amount
   - Cardholder related data: ISS code, account number, last four digits of cardholder number, information of payee
   - ACQ related data: code number of ACQ, branch code, ATM number, ATM sequential treatment number, transaction identification number
   - Others: inability to handle code, full transaction fees, available number of ATM transactions, explanation of important inability to handle codes.

x. CSS logo shall be applied on member's ATM and POS for customer convenience.

4.5 Accounting Management Division

The account management division is not a member of the NCH but it is a collaborator of NCH. This division opens settlement account for the members and has obligation to trace and automatically post entries from the NCH to (i) the settlement obligation in settlement account of members and (ii) the relevant transaction fee of members in current accounts. Members shall engage separate agreement with NBC subjected to the Settlement Account Opening and operating terms and conditions.

4.6 Limitations of NCH Liability

The NCH is responsible for the payment instruments clearing process only, but it is not liable for any of the underlying value embedded in the payment instruments being cleared. However, the NCH will assist with the issues related to the operation of the systems.

5. SETTLEMENT

5.1 Settlement Accounts and Settlement Posting

The Settlement Account is the only account of each member which can be debited or credited with respect to the net settlement obligation of transactions of member according to the Agreement on the Use of Settlement Account.

Based on the transaction messages processed in the business day, the CSS will deliver multilateral net settlement position of each member to the NBC Account Management Division for automatically posting accounting entry on the designated time.

5.2 Transaction Settlement Procedure

Settlement shall be computed among members via the NCH by summing up all the transactions through CSS. Electronic transaction messages successfully delivered to CSS are used to calculate net settlement positions in each settlement day. A multilateral net settlement position of each member will be calculated by CSS and sent to Account Management Division of NBC for automatically posting accounting entry.

The CSS processing cycle will commence at 00:00:00 until 23:59:59 of each business day. The CSS will be operated 24 hours per day.

Member will be able to request settlement report from NCH.

Daily settlement processing schedule of CSS system conducts the settlement of net position (net settlement obligation) on the next working day:

- Cut-off Time: 23.59.59
- Settlement time: 13:30 of next working day.

5.3 Settlement of Refund Claim

The amount of refunds shall be added to net settlement within refunding day regardless within or after original transaction day.

5.4 Fee and Charge Settlement Procedure

a. **Settlement of card payment related fees and charges**
- Fees and charges including interchange fee are calculated using the data of the CSS. CSS shall calculate fees and charges for card payment transactions which have been processed successfully in the system.
- NCH will issue separate notification of fees, charges and penalties.
- ACQ shall calculate fees and charges for each transaction in order to disclose cardholder and send to the CSS.
- CSS does not obligate to settle fees and charges which is not CSS transaction.

b. **Treatment of fees in case of reversal and refund**
- When a card payment transaction has been reversed, both transaction amount and fees of the original transaction shall be repaid to the ISS. The ISS shall return the amount and transaction fee to the cardholder.
- In case, when a card payment transaction has been refunded, the full refunded amount shall be made from ACQ to ISS. The cardholder shall receive the full amount of the original transaction. ACQ shall be responsible for spending fees and charges of the original transaction.

5.5 Holidays

Transaction settlement will be done every day except on public holidays. However, transaction in weekends and/or public holiday will be accumulated and settled on the next working day.

Each member has an obligation to monitor balance in settlement account at NBC in order to complete net settlement obligation.

Each member must ensure sufficient liquidity in their settlement accounts to meet net settlement obligations before settlement schedule.

5.6 Settlement and Reconciliation Flow

The CSS system has settlement and reconciliation flow as below:

a. CSS Reconciliation (CR) export the Reconciliation File (RF) for each member with each roles (ACQ and ISS)
b. Members receive RF from CSS
c. After reconciliation, members export RF and send to CSS
d. CR receives RF from members and imports to CR Database
e. CR calculates net position of the transactions which have been reconciled and exports 3 files: i) settlement amount net files, ii) settlement fee net files and iii) dispute transaction files
f. CSS exports net settlement amount files and settlement fee net files to accounting management division for posting settlement automatically
g. ISSs receive dispute transaction file and resolve with other members (ACQ and Beneficiary)
h. After resolution, ISSs export dispute transaction result and send to CSS
i. CR receives dispute transaction result and imports to CR database
j. All of dispute transactions which have been successfully resolved will be settled at next settlement day.

5.7 Dispute Settlement

a. Dispute settlement between members
- When a dispute between members occurs relevant to payment transaction accidentally, the relevant members shall try to solve the dispute with fairness and sincerity.
- When the settlement of dispute is not possible between the members, the members may request to the Clearing House Division. Relevant parties shall attach a report on progress or outcome of resolution.
- When the Clearing House Division is unable to solve, member may request to the Committee of Operational National Clearing House.

b. Dispute settlement between cardholder and member

- When a dispute between a cardholder and a member occurs, the member shall treat the dispute in accordance with NCH's treatment of CSS transactions which are contained in Appendix 9 and Appendix 10.

- When a settlement of dispute could not be solved, the cardholder may request to the Clearing House Division. Relevant parties shall attach a report on progress or outcome of resolution.

- When the Clearing House Division is unable to solve, member may request to the Committee of Operational National Clearing House.

c. Transaction Data Reconciliation Settlement

CSS reconciles transaction data based on data in CSS and data from Reconciliation File of members. In case of the mismatched transaction status between members and CSS, CSS will treat it as dispute transaction and send the dispute transaction file to ISS for treatment. The investigation process normally involves checking on transaction log table, reports and traces files in the system, depends on the reason of reported dispute. ISS is prioritized to determine the

transaction status and send dispute transaction settlement result file to CSS system for final settlement.

5.8 Failure to Settle

If a Direct Member does not have sufficient funds for its multilateral net settlement obligation, NBC may implement the procedure of NCH.

6. REPORTING AND HISTORICAL RECORDS

In addition to holding all relevant message data for the members, the CSS will provide a set of core standard reports such as operational report, operational performance report, and historical record as below:

6.1 Operational Reports

The operational reports are for use at the NCH. Name list of the daily Operational Reports are contained in Appendix 6 - **"Daily Operational Reports"**.

The following reports are to be generated and circulated via secured online mode:

a. CSS system-report of detail transaction of CSS
b. CSS system-report of detail transaction of member
c. CSS system-settlement transaction amount report for member
d. CSS system-settlement transaction fee report for members
e. CSS system-report of inconsistent transaction between CSS and member
f. CSS system-report of inconsistent transaction between CSS and one of all ISS
g. CSS system-report of inconsistent transaction between CSS and ACQ
h. CSS system-report of unsuccessful transaction by CSS
i. CSS system-report of amount, fee for ISS
j. CSS system-report of amount, fee for ACQ
k. CSS system-report of summary fee amount - one operation
l. CSS system-all members summary settlement report
m. CSS system-summary member settlement report

6.2 Operational Performance Report of CSS

The smooth and efficient operations of the CSS are dependent on the operational performance of all parties in compliance with all relevant security, format, validation and input/output provisions and procedures.

The NCH will measure its operational performance as specified in Appendix 4 - **"Service Level Agreement Form"**.

6.3 Historical Records

ACQ shall record payment transactions determined by the system specification as a proof of payment.

Member shall keep the records of card transactions as a proof of payment for 10 (ten) years.

NCH shall keep computerized data of daily, monthly transactions by each member for 10 (ten) years.

NCH and members shall take necessary measures to prevent forgery and to prove that the data are original.

Consistent with the effective Law, the NCH will retain a full set of historical records for 10 (ten) years. Payment records up to 3 (three) month old will be retained in the CSS. Payment records older than 3 (three) month will be archived and made available to the enquiring member by request to the NCH.

Payment records older than 3 (three) month may be retained in the CSS at the discretion of the NCH. Archived records will be stored on reliable removable media for secure storage and may be recovered at any time through standardised restore procedures and facilities.

The historical records shall be, and remain, the property of the NCH and shall remain secure and confidential at all times during the 10 (ten) years retention period. The copies of message data sent and received through the system shall be and remain the property of the relevant member.

7. FEES, CHARGES AND PENALTIES

7.1 Membership Fees

Members must pay membership fees for the use of all facilities and services provided by the NCH. Membership fees are paid periodically within the first month of the year.

Membership fees for a new member is applied as follows:

a. 100%: for any member which is approved as a member of the CSS within the first semester

b. 50%: for any member which is approved as a member of the CSS within the second semester.

7.2 Processing Fees

All fees and charges shall be based on a "per transaction" according to the types of card transaction and without regard to the nominal value of the payment message being processed. The operational fees are specified in separated notification issued by NCH.

7.3 Network Expansion Fee

The NBC shall enhance or expand current payment network infrastructure by establishing connection with domestic and foreign card payment organizations. The NCH shall issue the cost and fee to members.

7.4 Fee calculation, payment, and receipt regulations

a) Fee calculation

For cash withdrawal, fast cash withdrawal, balance inquiry, mini statement and IBFT transactions processed on CSS system: ISS shall pay ACQ an applicable fee for transactions that were successfully settled. ACQ shall pay NCH the processing fee.

For any reason the transactions is confirmed unsuccessful, reversal transaction shall be done once both parties agreed on transactions status. The full amount of the original transaction and fee shall be reversed.

For Purchasing Transactions at POS: each purchase transaction made at merchant's POS, ACQ shall pay NCH the processing fee.

For refund transaction at POS: the cardholder will receive a full refunded amount of the original transaction. The ACQ shall bare the processing fee previously charged on the original transaction.

b) Fee Settlement

Any applicable fee shall be recorded by CSS as to pay related member. NCH shall consolidate all types of fee at the end of business day.

Payable/Receivable fee amount consists of: Fee of successful transaction of current business day and transaction fee of previous business day will be settled at current account of members, which held at NBC, on the next business day.

7.5 Penalties

Non-compliant to the Rule and Procedure will affect system, other members and confidence on system. In order to avoid such disruptions, the penalties are applied for:

At the scheduled time of settlement day, in the event that the liquidity of any member is insufficient to meet the settlement obligation, the NBC will subsequently transfer funds from their i) Current Account, ii) Overdraft, iii) Negotiable Certificate of Deposit that have not been used as collateral to obtain overdraft, and iv) Reserve Requirement Account or Capital Guarantee Account at the NBC Head Office to their settlement account. The member must be penalized for such liquidity transfer with reference to separate notification issued by NCH..

Member shall be penalized for the extension of the cut-off time to 30 minutes or over 30 minutes after settlement schedule with regard to separate notification issued by NCH.

In the case that any member undertakes Reserve Requirement or Capital Guarantee Account to meet settlement obligation, the member shall be penalized separately by the NBC if the balance in their Reserve Requirement account is not sufficient as required by particular regulations.

NCH shall be entitled to terminate the agreements of this Rules and Procedures if member commits a breach of any obligation in this Rules and Procedures.

Payment Methods: The penalties fee will be debited from member current account opened at NBC.

Regulation on penalty above will be stated in separate notification on fees, charges and penalties issued by NCH.

8. ASSOCIATED LEGAL FRAMEWORK

The existing Parkas related to the Clearing Services and settlement shall remain in force as an extra legal framework supporting the core functions and operation of the NCH.

All other previous arrangements and agreements are superseded from the date of adoption of the "**Rules and Procedures**".

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APPENDIXES

APPENDIX 1 - TECHNICAL TERMS AND DEFINITIONS

Technical terms used in these Rules and Procedures are defined as the following:

1.1 **ACQ (Acquirer)** refers to a member who owns an ATM/POS.

1.2 **Anti-card-skimming** refers a device that can protect and prevent against fraudulent attempts at ATMs.

1.3 **Anti-Card-Trapping** refers to a device or application for protecting Card Trapping Device.

1.4 **ATM (Automated Teller Machine)** refers to the equipment that cardholder can use to deposit, withdraw cash, transfer, balance inquiry, mini statement and/or other services.

1.5 **Bank identification number (BIN)** refers to the unique seven digits issued by NCH for identifying a bank when joining CSS system.

1.6 **Card or Bank Card** (here in after called Card) refers to card-based instrument issued to its customers by a bank or card ISS to perform card transaction under the terms and conditions agreed by both parties.

1.7 **Card transaction** refers to transaction that is conducted via card to deposit, withdraw cash, pay for products, and other services that are provided by the card ISS or payment association.

1.8 **Card-Trapping Device** refers to a device mounted over or within card entry slot to resist the card and hold it at the point of ejection.

1.9 **Cardholder** refers to a person or organization who owns card, including main cardholder and supplementary cardholder.

1.10 **Co-branded card or International card** refers to payment a card that is issued by domestic banks and labeled of international card schemes.

1.11 **CSS transaction** refers to a transaction which is processed through the CSS system.

1.12 **Disorder** refers to the condition such that CSS, member's systems and/or some or all of the ATMs of the ACQ lose their original functions and, because of these, online transactions are not processed.

1.13 **Domestic card** refers to card issued by a bank or card ISS in Cambodia.

1.14 **EPP Shield** refers to the shield covered PIN pad that protects viewing of password entered by cardholder and prevents shoulder surfing and spy.

1.15 **Fail transaction** refers to a transaction which CSS or an ACQ is has not able to be completed all steps of the process. Processes when the CSS system terminates in a situation where the recovery of any disorder of the CSS system, network of CSS or members did not finish.

1.16 **ISS** refers to a member which holds a cardholder's account and issues cards to the cardholder.

1.17 **Member** refers to bank and financial institutions authorized to connect to CSS and entitled to use the brand and the service of NCH through signing the contract with both parties.

1.18 **Payment reversal** refers to the situation when an ISS has processed a transaction according to the ACQ's message of "payment request", but the transaction has not finished due to the disorder of the ACQ's ATM/POS, ACQ's system or CSS, the

ISS shall reverse the transaction with the request of the ACQ or CSS.

1.19 **Personal identification number (PIN)** refers to secret number chosen by the cardholder and/or set by the member for each cardholder to conduct some types of card transaction.

1.20 **Point of Sale (POS)** refers to electronic device that is used for authorizing and processing electronic payment transactions at point of service delivery.

1.21 **Refund claim** refers a process for requesting and returning funds of a transaction to the cardholder's account.

1.22 **Settlement Account** refers to account of member held at the NBC to settle its its net settlement obligation of payment instruments transactions.

1.23 **Valid transaction** refers to a transaction which the ACQ has not completed because of the disorder of ACQ's ATM or the disorder of the ACQ although the ACQ already knows the treatment result. **ACQ disorder transaction** but still valid is transaction that ACQ send to CSS, then CSS forward it to ISS to reconcile, and then return it to CSS, CSS forward the transaction to ACQ, but ACQ is unable to be completed the process because of the disorder of ACQ's ATM or the disorder of the ACQ

APPENDIX 2 - ACCEPTANCE AND OBSERVANCE OF THE "CAMBODIAN SHARED SWITCH RULES AND PROCEDURES" AGREEMENT FORM

AGREEMENT ON ACCEPTANCE AND OBSERVANCE

OF THE "CAMBODIAN SHARED SWITCH RULES AND PROCEDURES"

This agreement is for **"National Clearing House" (NCH)** which is located at 22-24 Preah Norodom Blvd., Phnom Penh, represented by...............................and......................... (Bank/Financial institution) which hereafter called **"Member"**, is located at.. represented by...............

Both parties agree on the following terms and conditions:

Article 1: Purpose

The approved signature to accept all the provisions contained in this Rules and Procedures is the complete agreement between the NCH and members for the use of services provided by the NCH and observance of this Rule and Procedures in order to facilitate the conduct of clearing and settlement through the Cambodian Shared Switch system.

Article 2: Arrangement of the operation

The member has to operate the system by ....
(No longer than 12 months after the membership date)

Article 3: Modification or updating

This Cambodian Shared Switch Rules and Procedures may be modified or updated as needed. The NCH will give a written advice to all members in respect of any update to the Rules and Procedures or the technical standard of the system and the member can also notify the NCH of such issues through Association of Banks or Cambodia Microfinance Association.

Both parties agree to implement the above mentioned provisions of the agreement.

Article 4: Efficiency

This agreement is effective from signing date.

Phnom Penh, ..., 20......

National Bank of Cambodia

Member Institution....................

Director General Central Banking

....

THE AGREEMENT TO APPOINT THE NCH AS SETTLEMENT AGENT

This agreement is for **"National Clearing House" (NCH)** which is located at 22-24 Preah Norodom Blvd., Phnom Penh, represented by................and.......... (Bank/Financial Institution) which hereafter called **"Member"** is located at...............represented by..........

Both parties agree on the following terms and conditions:

Article 1: Purposes

The appointment of the NCH as settlement agent is for facilitating the operations associated with clearing and settlement of all card transactions including accepting input messages and delivering output messages to members, multilateral net settlement position, and multilateral net fee settlement information of each member to Account Management Division to automatically post accounting entry.

Each member is required to agree and implement this appointment and authorization of the NCH as Settlement Agent.

Article 2: Responsibilities of Settlement Agent

Settlement agent shall take the following responsibilities:

a. Accepting input from members
b. Delivering output to members for the reconciliation of payment instrument exchange
c. Advising the Account Management Division regarding the multilateral net settlement obligation of member for every clearing session.

Article 3: Responsibilities of member

In order to complete its responsibilities effectively and efficiently as Settlement Agent, each member is obliged to obey Cambodian Shared Switch Rules and Procedures and maintain the sufficient liquidity in its settlement and current accounts.

Both parties agree to implement the above-mentioned provisions.

Article 4: Efficiency

This agreement is effective from signing date.

Phnom Penh, ..., 20......

National Bank of Cambodia   **Member Institution**...............................

Director General Central Banking

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APPENDIX 4 – SERVICE LEVEL AGREEMENT FORM

NATIONAL CLEARING HOUSE SERVICE LEVEL AGREEMENT

This agreement is for **"National Clearing House"** which is located at 22-24 Preah Norodom Blvd., Phnom Penh, represented by...................and..................... (Bank/Financial Institution) which hereafter called **"Member"** is located at............represented by............

In order to conduct the National Clearing House's operations smoothly, both parties agree on the following terms and conditions:

Article 1: Purposes

The Service Level Agreement between the National Clearing House and members is a target measure to be achieved and a framework for measuring performance which is a management tool for all parties. This Clearing House Service Level Agreement is for performance reporting in respect of all the Clearing House services, facilities and processing as listed in the "Cambodian Shared Switch Rules and Procedures".

Article 2: Performance Measurement

The NCH and all members will implement and maintain the standards of the National Clearing House to achieve a performance measure of 95% (ninety-five per cent) of the target performance measure of 100% (one hundred per cent). The daily performance shall be measured against the Daily Processing Schedule as follows:

- The actual clearing and settlement time: 80%
- The actual start-of day time: 5%
- The cut-off time: 5%
- The actual settlement time: 5%
- The actual operational problems caused by software changes and updates: 5%

Article 3: Terms and Conditions

This "National Clearing House Service Level Agreement" is a legally binding contract of both parties but without any specification for penalties or other financial remedies if these intended performance levels are not achieved. Associated parties may discuss the changes to this Service Level Agreement under the approval of the National Clearing House.

Both parties agree to implement the above mentioned provisions.

Article 4: Efficiency

This agreement is effective from signing date.

Phnom Penh,........................, 20......

National Bank of Cambodia

Member Institution...............................

Director General Central Banking

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Kingdom of Cambodia
Nation Religion King
National Clearing House Membership Application Form
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Bank/Institution's Name:...…........

Applicant's Name   : ....

Title   : ....

Institution's Address   : ....

Postal Address   : ....

Phone   : ....

To
Her Excellency Director General and the Chairman of
National Clearing House Operation Committee

After reviewing

- Prakas on Khmer Riel Denominated Check Clearing House N^0 B 5.00-170 Prokor dated December 27, 2000
- Prakas on US Dollar Denominated Check Clearing House N^0 B 5.00-150 Prokor dated November 14, 2000,
- Prakas on Membership of FAST and Central Shared Switch System N^0 B14-016-147 Prokor dated May 19, 2016 ,
- Prakas on Introduce National Clearing House Rules and Procedures N^0 B14-016-135 Prokor dated May 12, 2016,
- Prakas on Introduce Cambodian Shared Switch Rules and Procedures N^0 B14-017-307 Prokor dated October 04, 2017,

I, on behalf of ………………….., request for Her Excellency's approving my institution to be a member of the NCH for the clearing and settlement of checks, cards and/or electronic payment instruments among my institution and other members. I may request to participate in the system as the following:

☐ National Clearing System   ☐ FAST System   ☐ CSS System
☐ Stand-alone Client Module   ☐ Shared Client Module

We hereby agree to strictly comply with the payment and settlement-associated Prakas and the NCH Rules and Procedures and in force regulation of National Bank of Cambodia.

Sincerely Yours
Date …………………………
Sign and Seal

Please attach the following documents:

- Copy of banking license	1 copy
- Nomination Letter and sample of signature as representative in the clearing	1 copy
- Agreement on the Overdraft Facility	1 copy
- Request letter for opening Settlement Account at the NBC	1copy

Kingdom of Cambodia

Nation Religion King

Cambodian Shared Switch System

Indirect Membership Acceptance

Application Form

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Bank/Institution's Name:..

Applicant's Name   : ....

Title   : ....

Institution's Address   : ....

Postal Address   : ....

Phone   : ....

To

Her Excellency Director General and the Chairman of

National Clearing House Operation Committee

Subject   : Request on accepting bank/institution......... as an indirect member of the Cambodian Shared Switch

     I, on behalf of ...., request for Her Excellency's approving bank/or institution......... to be an indirect member of the Cambodian Shared Switch System for facilitating payment card settlement. Bank/institution......... and our bank/institution have agreed the agreement on acceptance bank/institution......... as an indirect member, and our bank/institution guarantee on the daily clearing obligation and service fees payment associated with clearing transactions on behalf of bank/institution......... .

     We hereby agree to strictly comply with all agreements, Prakas, and regulations associated with the NCH.

     We attach the following documents for your reference:

- Copy of bank/institution license   1 copy

- Agreement between our bank/institution and bank/institution............

    as an indirect member   1 copy

     Given above request, please, Her Excellency Director General permits our bank/institution to accept....................bank as indirect member of CSS.

     Please kindly accept, Her Excellency Director General, my sincere respect.

Sincerely Yours

Date ....

Sign and Seal

APPENDIX 6 – REPORTS

List of daily operation report for the Clearing House contains in the following table.

No	Code	REPORT NAME	DESCRIPTION
1	CSSR-001	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF DETAIL TRANSACTION OF CSS	Contain details of all transactions which perform by CSS.
2	CSSR-002	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF DETAIL TRANSACTION OF <BANK MEMBER>	Contain details of all transactions of <Bank Member>
3	CSSR-003	CAMBODIAN SHARED SWITCH SYSTEM-SETTLEMENT TRANSACTION AMOUNT REPORT FOR <MEMBER BANKS>	Contain details of Settlement Transactions (only transaction amount)
4	CSSR-004	CAMBODIAN SHARED SWITCH SYSTEM-SETTLEMENT TRANSACTION FEE REPORT FOR <BANK MEMBER>	Contain details of Settlement Transactions (only fee)
5	CSSR-005	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF INCONSISTENT TRANSACTION BETWEEN CSS AND MEMBER	Contain details of inconsistent transaction between CSS and Member
6	CSSR-006	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF INCONSISTENT TRANSACTION BETWEEN CSS AND EACH ISS	Contain details of inconsistent transaction between CSS and each ISS
7	CSSR-007	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF INCONSISTENT TRANSACTION BETWEEN CSS AND ACQ	Contain details of inconsistent transaction between CSS and ACQ
8	CSSR-008	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF UNSUCCESSFUL TRANSACTION BY CSS	Contain details of all unsuccessful transactions when processing at CSS
9	CSSR-009	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF AMOUNT, FEE FOR ISS	Contain details of total amount of total transaction and total fee for ISS
10	CSSR-010	CAMBODIAN SHARED SWITCH SYSTEM-REPORT OF AMOUNT, FEE FOR ACQ	Contain details of total amount of total transaction and total fee for ACQ
11	CSSR-011	REPORT OF SUMMARY FEE AMOUNT BY CAMBODIAN SHARED SWITCH SYSTEM-ONE OPERATION	Contain details of fee amount of total transaction for ISS/ACQ
12	CSSR-012	CAMBODIAN SHARED SWITCH SYSTEM- ALL MEMBERS SUMMARY SETTLEMENT REPORT	Contain details of amount settled for all members
13	CSSR-013	CAMBODIAN SHARED SWITCH SYSTEM-SUMMARY MEMBER SETTLEMENT REPORT	Contain details of amount settled for each member

APPENDIX 7- INFRASTRUCTURE AND SECURITY OF THE CAMBODIAN SHARED SWITCH SYSTEM

The CSS system provides the business and technical specifications as follows:

1. Communications Protocol (TCP/IP)

Communication protocol manages ports and protocols based on TCP/IP. It is logically connected to a network formatter or device server.

2. Formatter (ISO 8583)

Formatter is used to translate incoming messages (i.e. format adopted by the external interface such as member hosts and terminals) into a standard internal message format for the CSS kernel (Shared Cash) to process. Shared Cash (SHC) sends outbound messages to the formatter for translation into a standard external format, ISO 8583, used by networks and members. The common ISO interface is designed based on "CSS ISO 8583 Message Format and Flow" document. The common ISO Interface supports transaction sets, network management message sets, ATM transaction sets, and POS transaction sets.

3. Shared Cash (SHC)

The SHC subsystem is the message switching and processing core for financial transactions in the CSS. It manages the authentication, authorization, routing, and logging of transaction messages received by CSS, and generates responses to the issuing members. SHC can coordinate message sequences for a transaction, acting as an intermediary for members in situations where a cardholder initiates a transaction on the POS/ATM of one member with the card of another.

4. Security Subsystem

Hardware Security Module (HSM) is an independent and secure device that is impenetrable to wiretapping, program modification, and physical machine break-ins. It provides cryptographic functions that support network and point-to-point data security. An HSM provides safe environment for installing and generating security keys. This device can generate, verify, translate, and encrypt keys.

5. Store-and-Forward Subsystem

CSS has "store and forward" capabilities. Transactions that are required to be "store and forward" such as reversals and transactions authorized during stand-in are stored in a SAF file. The SAF relay is provided by the CSS relay task, which relays transactions stored in a member's Store and Forward (SAF) file. The SAF file contains transactions (01xx, 02xx, 04xx, 05xx and internal 0270) authorized by SHC and written to the institution's SAF file during SAF processing. These transactions remain in the SAF file until CSS relay is invoked and the messages are sent to the member host for force posting.

6. CSS/Monitor

CSS/Monitor is a powerful and comprehensive application that allows an operator to monitor the entire CSS network from one node. The new interface facilitates configuration of the CSS monitor and addresses the following functions:

- Communication Status
- Member Status
- Message/Error Distribution Statistics
- Mailbox Status
- System Messages
- General Information

7. CSS Database

CSS Database subsystem provides an access mechanism for reading and updating the database without the need for in-depth knowledge of the type of database in use.

8. Updates and Maintenance

The NCH will provide the following updates and standard maintenance services:

- Updates to add or delete registered member, member's information or member's users
- Updates the CSS Engine and related equipment as needed.

APPENDIX 8 - ADDRESSES FOR NOTICES

For any inquiry associated with the NCH such as application for admission of a member, notice, and any other information, member may directly contact the NCH or through sending a written letter to:

1. **Address**

   Director General Central Banking

   National Bank of Cambodia

   22 – 24, Preah Norodom Boulevard

   Phnom Penh, Cambodia

2. **E-mail address**

   Electronic copies should be sent to:

   E-mail: nch@nbc.org.kh

   National Clearing House

   National Bank of Cambodia

3. **Contact number**

   Contact number of Clearing House Division, National Bank of Cambodia

   023 722 563

   Hotline Numbers:

   016 70 44 11

   012 76 75 11

   097 777 83 11

APPENDIX 9 - TREATMENT OF CSS TRANSACTIONS

1. Treatment of payment acceptance through ATM
1.1. Limit of ATM transaction amount

ACQ should set the debit limit amount per transaction for cardholders. The limitation shall not exceed 4 million KHR or equivalent per transaction.

1.2. Acceptance treatment of ACQ

An ACQ shall make its ATMs to be directly operated by any cardholder who holds a payment card issued by other members. The ACQ shall complete the transaction after receiving the message of **"payment acceptance"** from the ISS via CSS, and give the cardholder a statement of transaction on which details of transaction are written.

1.3. Acceptance treatment of ISS

An ISS shall verify the message of "payment request" which the ISS received from an ACQ via CSS in a predetermined way. When the payment is possible, the ISS shall notify the message of **"payment acceptance"** to the ACQ via CSS.

1.4. Treatment of payment refusal
1.4.1. Refusal treatment of ACQ

An ACQ may refuse to pay in case of the following cases and the notice of the reasons for refusal to a cardholder and notice method depend on the way set by the ACQ :

    a. When the cardholder operates an ATM in a way not set by the ACQ.

    b. When the ACQ refuses to pay after verifying the contents which the cardholder operates are not in accordance with the rules and procedures.

    c. When the ACQ receives a message of "notice of payment refusal" from the ISS in accordance with the rules and procedures.

    d. When the ACQ receives a response of transaction error from CSS.

    e. When the transaction is not completed or the ACQ is unable to confirm the completion of transaction on account of the ACQ's system disorder, the disorder of CSS or the ISS.

    f. When it is not possible to operate the ATM because of the disorder mentioned in case "e".

In the event of ISS refuses to settle via ATM, ACQ shall not settle to cardholder and inform the cardholder to contact directly with the ISS. However, when the ACQ receives a message as **"payment acceptance"** from ISS, the ACQ shall not refuse the payment of the cardholder.

When an ACQ refuses ATM payment from cardholder, the ACQ shall print a declined receipt to the cardholder. However, when the ACQ cannot confirm the reason of payment refusal, the ACQ shall guide the cardholder to contact the ISS directly.

1.4.2. Refusal treatment of ISS

When an ISS checks the **"payment request"** message from an ACQ via CSS and finds that it does not coincide with the rules and procedures for payment acceptance of the ISS, the ISS shall notify **"payment refusal"** message to the ACQ via CSS with attaching the reason for payment refusal in a way determined by CSS.

1.4.3. Information sharing process about suspicious transaction

Members shall share the information of suspicious transactions as below:

a. Sharing suspicious information: When a member which holds a debit account judges whether the funds transfer transaction causes fraudulent loss, and if the member determines that it is a suspicious transaction, the ISS shall include that information in the sending message. Member shall report these suspicious transactions to competent authorities.

b. Sharing information of temporary withdrawal suspension: When a member takes measures of temporary withdrawal suspension because the member judges the cardholder's account as a doubtful account which may cause fraudulent loss to others, the member shall immediately send that message to relevant member.

1.5. Treatment of disorder

1.5.1. Principle of disorder treatment

Disorder refers to the condition such that CSS, member's systems and/or some or all of the ATMs of the ACQ lose their original functions and, because of these, online transactions are not processed.

When a disorder occurs, members shall not, in principle, handle transactions through ATM. However, the disorder occurs only within the ACQ, the member shall treat the transactions in accordance with the treatment result from NCH.

1.5.2. Guidance of disorder to cardholder

When a disorder occurs in an ACQ, the ACQ shall guide the cardholder to transact from another member's ATM.

When a disorder occurs in CSS or an ISS, the ACQ guides the cardholder to transact from the ISS directly.

1.5.3. Responsibilities for disorder recovery

When a disorder occurs in CSS, members or communication line, the responsibility for disorder recovery process shall be conducted by relevant parties.

1.5.4. Notice of disorder occurrence

When a disorder occurs, a member shall immediately notify to NCH the details and reasons of disorder, expected recovery time, and then follow the procedures of the system specification and take relevant actions for recovery.

NCH shall notify the information of disorder to other members after the member in disorder asks for via e-mail.

When a disorder occurs in CSS system, NCH will notify the information of disorder to all members.

1.5.5. Notice of disorder recovery

A member shall inform NCH of the recovery when the disorder is restored.

NCH shall notify the information of recovery on progress or completion to other members after the restored member asks for via e-mail.

When the disorder in CSS system has been completely restored, NCH shall notify the information of recovery to all members.

1.5.6. Treatment of ACQ valid transaction

An **"ACQ valid transaction"** means a transaction which the ACQ has not completed because of the disorder of ACQ's ATM or the disorder of the ACQ although the ACQ already knows the treatment result.

When **"ACQ valid transaction"** occurs, the ACQ, in principle, shall not request the treatment result from CSS or the ISS. Instead, the ACQ shall confirm the treatment result for itself by any means.

When the treatment result is "payment acceptance", the ACQ shall pay to the cardholder and print a document which proves the payment. In such a case, the ACQ shall be more careful not to double treatment of the transaction because there is possibility that the ACQ will pay to the cardholder and at the same time will send **"payment reversal"** message to the ISS.

In case the treatment result is **"payment refusal"**, the ACQ shall return the card to the cardholder and notify the reason of payment refusal to the cardholder.

When an ACQ is unable to confirm the treatment result, the ACQ shall then withhold the payment until it is possible to confirm.

The transaction of which the treatment result is **"payment acceptance"** shall be included in the transactions of that day and settled.

1.5.7. Special treatment of the ACQ valid transaction

Among **"ACQ valid transactions"**, when the transaction which is confirmed as **"payment acceptance"** may not be paid because the cardholder left the ATM, the ACQ shall reverses the transaction in accordance with the treatment of payment reversal.

When a cardholder left ATM with his payment card inserted in the ATM because of the disorder of the ACQ's ATM or the ACQ's disorder, the ACQ shall determine the treatment way in consultation with the ISS.

1.6. Treatment of Swallowed Card

Member should ensure that their system will not give a command to swallow the card in case of the wrong PIN.

In case the card is swallowed, when customer contact with ACQ, ACQ should guide cardholder to contact with ISS. Within 10 (ten) working days since the card was swallowed, ACQ will give a decision which keep send/return the card based on the request from ISS. In excess of 10 (ten) working days, if there is not any request from ISS, ACQ will destroy the card by punching at the magnetic tape of the card, and ACQ will sum up the number of the destroyed card monthly to send to ISS.

1.7. Treatment of payment reversal

Payment reversal refers to the situation when an ISS has processed a transaction according to the ACQ's message of **"payment request"**, but the transaction has not finished due to the disorder of the ACQ's ATM, ACQ's system or CSS, the ISS shall reverse the transaction with the request of the ACQ or CSS.

1.7.1. Payment reversal of ISS

When an ISS has processed a transaction according to the ACQ's message of **"payment request"**, but the transaction has not finished due to the disorder of the ACQ's ATM, ACQ's system or CSS. In such case, the ISS shall reverse the transaction with the request of the ACQ or CSS.

The payment reversal shall be processed within the same settlement day (before the CSS's cut-off time) and the transaction shall not be reversed after the cut-off time.

1.7.2. Payment reversal of ACQ

When an ACQ is unable to process payment due to the disorder of the ACQ's ATM, ACQ's system or the network between ATM and the ACQ even after receiving the message of "payment acceptance" from CSS, the ACQ shall send the message of **"request for payment reversal"** to CSS. In case that the ACQ sends the message of **"request for payment reversal"**, the ISS shall process the reversal of the transaction.

When receiving the message of **"notice of payment acceptance"**, but the ACQ is unable to send the message of **"request for payment reversal"** to CSS due to any reasons of the ACQ, the ACQ shall pay the money to the cardholder. In this case, the transaction is regarded as a normally processed transaction.

1.7.3. Payment reversal of CSS

When CSS receives message of **"request for payment reversal"** from an ACQ, CSS shall send the message of **"receipt notice of request for payment reversal"** to the ACQ and send the message of **"direction of payment reversal"** to the ISS. The CSS shall process the relevant reversal.

When CSS does not receive a message of **"notice of payment acceptance"** from an ISS, CSS shall process the relevant reversal.

When CSS is unable to send the message of **"notice of payment acceptance"** to the ACQ due to the ACQ's disorder or network disorder, the ACQ shall send the message of **"request for payment reversal"** to CSS.

1.8. Treatment of fail transaction

Fail transaction refers to a transaction which CSS or an ACQ has not completed all processes.

1.8.1. Types of fail transactions

Fail transactions of an ACQ is when the transaction of which the message of **"request for payment reversal"** is unable to send to CSS

Types of fail transactions of CSS are as follow:

a. Transaction of which the message of **"direction of payment reversal"** is unable to send to an ISS after receiving the message of "request for payment reversal" from an ACQ

b. The fail transaction from ISS with some reasons: insufficient fund, dormant account, system under maintenance, etc.

c. Reversal transaction.

d. A transaction of which an ISS does not send the message of **"payment acceptance"** on account of time out.

e. A transaction of which CSS sends the message of **"payment acceptance"** to an ACQ but the ACQ does not receive the message on account of time out.

1.8.2. CSS's treatment of fail transaction

CSS shall send the message of **"completion statement of request for transaction reversal"** when there needs a request for reversal among fail transactions. CSS shall send the message of **"notice of fail transaction"** to all relevant members.

1.8.3. ISS's treatment of fail transaction

An ISS shall immediately check the treatment result of the transaction after receiving the transaction reversal request from CSS.

An ISS shall immediately perform transaction reversal in their system and respond completion of reversal transaction to CSS of the full amount of fund including fees into the card holder account.

1.8.4. Settlement of fail transaction

The CSS will not include fail transaction into settlement.

1.9. Treatment of transaction result

When a cardholder wants to confirm the result of card transaction, ACQ shall respond to the cardholder of the result with the confirmation message which includes the transaction identification number, transaction amount, transaction date and transaction result displayed on the receipt.

1.10. Responsibility for loss

- When a loss occurs because an ACQ violates this sub-rules and procedures, or when a loss occurs because of ACQ's system disorder or any other reasons attributable to the ACQ, the ACQ shall be responsible for the loss at the expense of the ACQ.

- When a loss occurs because an ISS violates this sub-rules and procedures, or when a loss occurs because of ISS's system disorder or any other reasons attributable to the ISS, the ISS shall be responsible for the loss at the expense.

- When a loss occurs because both an ACQ and an ISS violate this sub-rules and procedures, or when a loss occurs because of ACQ's and ISS's system disorders or any other reasons attributable to them, the ACQ and the ISS shall be responsible for the loss at the expense of the ACQ and the ISS, depending on the severity of the loss liability.

- When it is difficult to distinguish which member is responsible for the loss, the relevant ACQ and ISS shall cooperate to solve the loss.

1.11. Liability Shift

If the transaction is a counterfeit, the liability falls on:
- ISS when magnetic stripe only card is used at a magnetic stripe terminal
- ISS when magnetic stripe only card is used at a chip terminal
- ACQ when chip card is used at a magnetic stripe terminal

- ISS when chip card is used at chip terminal.

1.12. Treatment of member in emergency

The member shall ask for the designation as a member in emergency to NCH.

When NCH receives the information about the emergency from any member or NCH recognizes the fact even though the member does not ask for the designation, NCH regards that member asks for the designation.

The emergency conditions include:

a. Force major
b. Power cut
c. Communication disruption
d. Other major disruption in City or Country which reasonably precludes or prevents the reasonable undertaking of the relevant Clearing Operation.

2. Treatment of POS transaction

2.1. Limit of POS transaction amount

ACQ or merchant shall not set debit limit amount per purchase transaction on cardholder.

2.2. Treatment process of payment card

When information of card payment transaction such as the amount of transaction and authorization message are transmitted to CSS, CSS shall instruct the ISS to debit the amount necessary to conduct the card payment transaction. When the ISS receives an instruction message from the CSS and finds that the information is correct, the ISS shall debit the amount from the cardholder's account and send the debit result to the CSS.

CSS shall send the debit result to merchant's POS terminal, and then the merchant's POS terminal shall print out a receipt containing the transaction information. If the payment failed, fail transaction information shall be shown on the screen.

2.3. Restriction of payment card transaction

A member may restrict payment of card transaction under any of the following cases:

a. insufficient balance
b. excess number of inputs of wrong passwords (including PIN) set by ISS
c. excess of amount limit
d. other reasons of restriction which the member sets

2.4. Treatment of refund claim

Refund claim refers a process for requesting and returning funds of an original transaction to the cardholder's account.

2.4.1. Cooperative treatment

The member which receives a refund claim shall cooperate with the cardholder or other relevant members and shall reflect the detailed procedures on its own internal rules and procedures.

2.4.2. Types of refund claim transactions

An ISS can request refund of the transactions mentioned below to the ACQ, and the ACQ shall return the fund to the ISS as the following transactions:

a. Among **"ACQ valid transactions"**, a transaction which is confirmed as **"payment acceptance"** but the cardholder and merchant agree to refund the transaction

b. Incorrectly sent transaction: for example, incorrect transaction amount input because of merchant's fault.

c. Refund on deposit of cardholder, for example, deposit of hotel booking.

d. Transactions occur after the cardholder's request for termination in case of fraud.

e. Other transactions which refund claims are needed.

2.4.3. Confirmation of refund claim transactions

A member shall confirm the transactions which need refund claim after checking the CSS's aggregate statement of transactions, the member's aggregate statement of transactions.

2.4.4. ACQ's treatment of refund

An ACQ shall send the refund claiming request which includes details and reasons of refund claim to CSS no later than 30 working days from the original transaction date.

2.4.5. CSS's treatment of refund claim transaction

When CSS receives the refund claiming request which includes details and reasons of refund claim from an ACQ, CSS shall forward the claim to relevant ISS.

The CSS shall confirm the result of treatment and send the result to relevant members.

2.4.6. ISS's Treatment of refund

When receiving the refund claim from the CSS, ISS shall execute refunding to the cardholder account and confirm the result to CSS. Then, CSS will send the result to ACQ.

When a refunding member recognizes that refunding is necessary, the refunding member shall inform the refund claiming member of the result.

When a refunding member treats refund process according to the incorrectly sent transaction, the refunding member shall in advance get an approval of the receiver of that fund.

2.4.7. Settlement of refund claim

The amount of refund claims shall be added into the CSS's settlement of the current business day.

2.5. Treatment of transaction result confirmation and balance inquiry

2.5.1. Confirmation of card transaction result

When a cardholder wants to confirm the result of card transaction from a merchant, ACQ shall inform the cardholder of the result which includes the transaction identification number, transaction amount, and transaction date displayed on the receipt.

2.5.2. Inquiry of the account's balance

When a cardholder requests for the inquiry of the account's balance for payment card using a merchant's POS terminal, the ACQ and ISS shall make it possible.

When a balance inquiry message is sent from a merchant's POS terminal to CSS, CSS shall instruct the ISS to respond to the balance inquiry, and the ISS shall send the result of balance inquiry to CSS in case the account number and password are correct.

CSS shall forward the result of balance inquiry to ACQ and then ACQ shall display on the POS terminal.

2.6. Others

2.6.1. Notice of payment card usage

An ISS shall record the payment method, name of a merchant, transaction date, and transaction amount on the cardholder's deposit account related to payment card issuance whenever every transaction occurs. The ISS may display the notice to cardholder with this record.

2.6.2. Issuance of a payment card transaction receipt

When a transaction has been completed, an ACQ shall make the merchant issue a receipt including the following information to the cardholder:

a. Transaction related data : date and time of transaction, transaction amount, currency type, VAT, total amount, transaction identification number, transaction type, the original transaction date (in case of reversal or refund), and name of ACQ.
b. Cardholder related data: Name of ISS, and last 4 digit card number.
c. Merchant related data: Merchant management number, name of merchant, name of representative, address, and telephone number.

When a transaction has not been completed, the merchant may display and/or explain the reason to a cardholder, and skip the issuance of a receipt.

2.6.3. Confirmation of payment card transaction details

When a cardholder asks an ISS for the transaction identification number of a transaction on account of loss of receipt, the ISS shall inform the cardholder of it after checking whether the person is the right cardholder.

2.7. Treatment of disorder

2.7.1. Principle of disorder treatment

When a disorder occurs, NCH and members shall inform cardholders of the fact and guide them to use other instruments until the disorder is recovered. However, when the recovery of the disorder is delayed for a long time, NCH and members shall cooperate with each other in order to minimize the inconvenience of a cardholder.

When a disorder occurs in a POS terminal, the ACQ who is in charge of that POS terminal shall take relevant measures.

2.7.2. Notice of disorder occurrence

When a disorder occurs, a member or ACQ shall immediately notify to NCH the details and reasons of disorder, expected recovery time, and then follow the procedures of the system specification and take relevant actions for recovery.

When a disorder occurs in CSS system, NCH shall notify the information of disorder to all members.

2.8. Treatment of lost cards

When a member (ACQ) receives a request for treating such cards from other members' cardholder, the ACQ shall not accept the request and, instead, inform the cardholder to request directly to the ISS.

ISS shall indicate the lost cards in its own system immediately after receiving the notice of cardholders in order to prevent cards using by others. Transactions occurring after the notice on lost cards of cardholders shall be regarded as fraud transactions, and ISS is liable.

APPENDIX 10- CARDHOLDER'S COMPLAINT PROCESSING STEPS

1. Cardholder's Complaint Regulations

- Cardholder shall file the complaint within 30 working days from the original transaction date.
- Cardholder shall present all relevant information as requested by ISS, and follows ISS's card transaction complaint regulations.
- ISS shall process each individual complaint to ensure complaint amount is consistent and should be equal to or less than original transaction amount, and that such individual complaint shall not repeat itself.
- Involving parties shall adhere to the regulations of processing time limit and regulations related to documentation supply.
  - In the event that ACQ/BEN fails to response to complaint request, NCH shall debit ACQ/BEN to reimburse ISS in the next working day.
  - ACQ/BEN shall reserve the right to reject complaint request in the event that other parties violate the processing time limit.
  - ISS shall reserve the right to reject complaint request in the event that other parties violate the processing time limit.
- Complaint request/response send/receive methods
  - Methods: Via email: email address shall be determined and informed during the process.
- Complaint request/response verification methods and regulations:
  - Complaint request and complaint response submitted after 16:30:00 during working day shall be filed in following working day.
  - Involving members shall send list of complaint cases which are filed within a working day before 17:00:00 of corresponding working day.
  - Methods:
    - Via email: email address shall be determined and informed during the process.

2. Documentation/Information Regulations

- Documentation/Information attached to complaint request or response shall follow complaint regulations
- Documentation shall be clear and readable
- ATM logs shall present sufficient information such as PAN, transaction amount transaction date, transaction code, terminal ID and evidence indicates transaction status
- Copy of transaction receipts shall present sufficient information such as transaction amount, transaction date, approval code, Acquirer terminal ID, cardholder's signature.

3. Reason Code of Complaint

1. Cash not dispense
2. Receive amount less than account debited for
3. Duplicate billing
4. Goods/services not received
5. Goods received but not as described/defective
6. Refund/Credit not processed
7. Incorrect amount/currency
8. Unauthorized transaction
9. Cancelled recurring membership/subscription
10. Paid by other means
11. Others

4. The Processing Time Limit of Cardholder's Complaint

Stage 1:

Cardholder requests ISS for a verification and claim. The ISS receives and processes the verification requirement and claim within 1 working day. The ISS checks the verification and claim records and compares with the data which is stored on the ISS system to be able to make a decision. If the verification requirement is invalid, the ISS rejects the request with reasonable information. If the verification requirement is valid, the ISS submits complaint to ACQ.

ACQ receives the verification requirement of ISS and compares with the data in the system based on the processing regulations of verification and claim to make a decision. If the verification requirement is invalid, ACQ rejects the verification within 9 working days. If the verification requirement is valid, ACQ responds the result of verification and claims to ISS within 10 working days (including 1 day for sending result to ISS).

ISS receives the verification and claims result from ACQ and informs the result to cardholder.

Stage 2:

Within 12 working days, if the cardholder/ISS does not satisfy with the result, the cardholder may request for a verification and claim to ISS again. ISS resubmits complaint to ACQ within 1 working day. The ACQ checks the resubmitted complaint within 9 working days and then sends the respond result to ISS within 1 working day. The ISS receives the respond result from ACQ then inform the result to the cardholder.

Stage 3:

Within 12 working days, if the cardholder/ISS still does not satisfy with the second result, the ISS on behalf of cardholder may request for arbitration from NCH. The ISS sends the request for arbitration to NCH within 1 working day. After receiving the request, NCH will ask ACQ and ISS to explain the problem and provide the related records within 2 working days. Based on the records and the explanation, NCH will give the judgment

within 10 working days since ISS submitted the request for arbitration and send the judgment result to related members (ISS and ACQ) within 1 working day.

5. Processing Time –Flow of Complaint
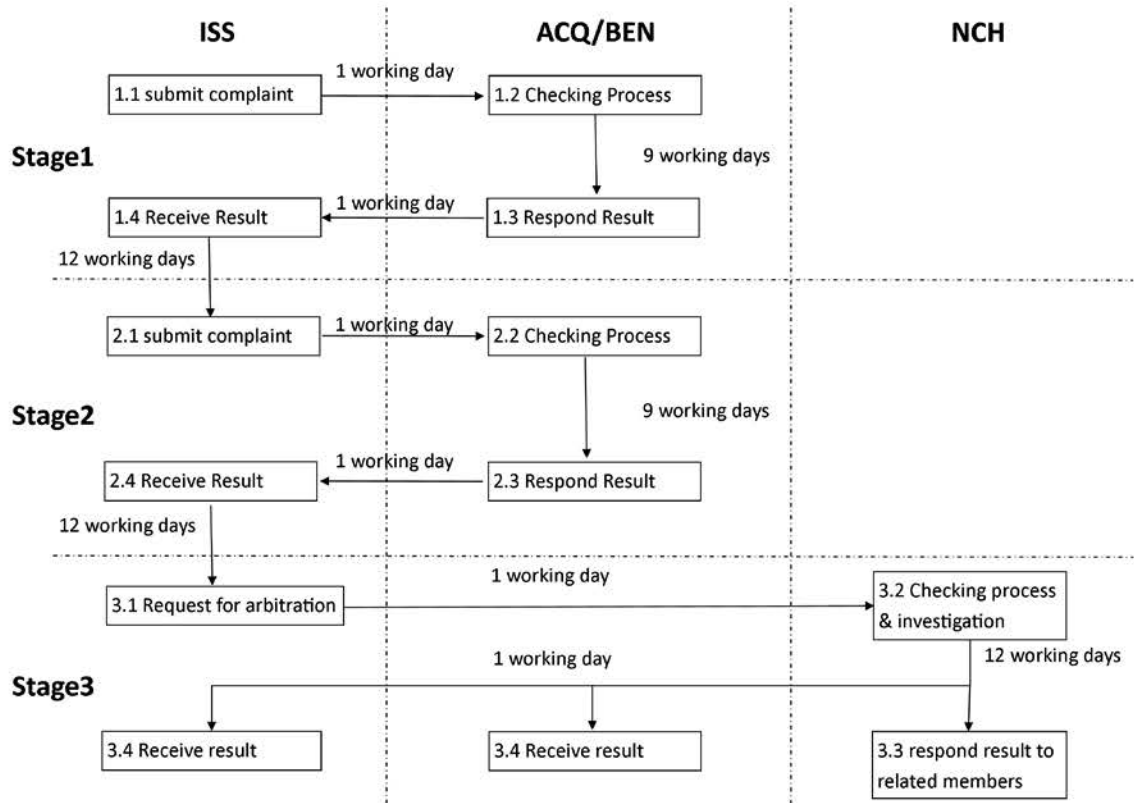
6 . Complaint by ACQ, BEN, or cardholder

In an event that ACQ, BEN, or cardholder requests for verification or claim, the processing time and flow of complaint shall comply with the above regulations.

APPENDIX 11: GUIDELINE ON PIN AND PAYMENT CARD SECURITY

1. **Introduction**

   In purpose of allowing customer to execute transaction safely, protecting and preventing card fraud and customer's PIN and protecting and mitigating risks associated with transaction fraud, thus, ATM and POS shall be equipped with devices that comply with the requirements of Payment Card Industry Data Security Standard (PCI-DSS compliance) as described in the following guideline.

2. **Guideline**

   Member shall equip security device data and customer's PIN on its ATMs/POS which comply with requirement of PCI DSS as following:
   - EPP shield and/ or Anti-PIN pad Overlay
   - Anti-card Skimming
   - Anti-card Trapping
   - PCI-DSS Compliance

   All ATMs / POS of each member shall be gradually equipped with above mentioned security devices and it should be completed with the date to be notified by the NCH.

3. **Final provision**

   The NCH reserves the right to amend the operational guidelines on PIN and Payment card security as it deems necessary.