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Market Information System
FLEX Connection Specifications
TCP Transmission

Ver.DS.17.3
Applicable from April 1, 2021.

Tokyo Stock Exchange

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FLEX Connection Specifications (TCP Transmission)

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FLEX Connection Specifications (TCP Transmission)

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FLEX Connection Specifications (TCP Transmission)

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1. OUTLINE

1.1. Purpose

This document contains information on TCP transmission methods and procedures for Retransmission, Backup Information, Refreshment Information, All-Day Information, Issue Basic Information (Base Price Information, Issue Information and Multicast Group Number Information) and Index Information by user request.

In this document, Retransmission, Backup Information, Refreshment Information, All-Day Information, Issue Basic Information and Index Information are collectively referred to as "TCP Transmission".

2. TCP

2.1. Specification

2.1.1. Method of Request

The Market Information System provides a method of requesting transmission (Retransmission, Backup Information, Refreshment Information, All-Day Information, Issue Basic Information, Index) by TCP Control Message.

2.1.2. Available Information

Table 2.1.2 indicates the information provided by the Market Information System. "*" indicates information that can be obtained.
When requesting for transmission, user needs to set the type of request. For Retransmission requests, the range of Message Serial Numbers is also required.
For Backup Information, Refreshment Information, All-Day Information, Issue Basic Information and Index, the latest information at the time of the request is transmitted.

Table 2.1.2 Available Information

No.	Type of Information		Type of Request					
			Retransmission	Backup Information	Refreshment Information	All-Day Information	Issue Basic Information	Index Information
1	Realtime Information	Standard	*	*		*		
		Full	*		*			
2	Index		*					*
3	Statistics		*					
4	ToSTNeT		*					
5	High-Speed Index							
6	Issue Basic Information		*				*	

2.1.3. Number of Messages

Maximum number of Messages per request: 250,000

2.1.4. Number of Connections

Maximum number of TCP Connections is 1 connection per user IP address.

2.1.5. Period for Accepting Requests

Refer to "2.1 Time Schedule for Output on Weekdays (4)" in System Operation specifications.

2.2. Request by TCP Control Message

2.2.1. Procedure

In the case of the request by TCP Control Message, procedure of request is shown in (a) to (d) below, and the outline is shown in Fig.2.2.1

(a) TCP Connection Establishment

    User establishes TCP connection with the Market Information System from the IP address specified in advance by TSE.

(b) User Authentication

    User sends Authentication Message using the TCP connection established in (a). If Market Information System doesn't receive any Authentication Message within a certain period of time after it detects Connection Establishment, Market Information System will determine the situation as authentication failure and release the connection.

    If authentication is successful, Market Information System transmits the Authentication Message with the flag of "authentication success". If Mains User Code is not set or is incorrect, Market Information System cannot authenticate, and will transmit authentication result message with error code and disconnect.

(c) Request Message and Response

    After authentication, user transmits TCP Control Message (with TC tag) for request of TCP transmission. If Market Information System doesn't receive request of TCP transmission within a certain period of time, Market Information System will reject the request and disconnect.

    When Market Information System receives the request, Market Information System checks the contents. If the contents are correct, Market Information System transmit the message according to the request. If incorrect, Market Information System transmits TCP Control Message with error code. User must disconnect from the Market Information System after it receives the error response message. If disconnection isn't done within a certain period of time, the Market Information System will release the connection.

    When transmission of requested messages is completed, Market Information System transmits the Control Message (with TC tag) with "TCP Transmission Completion".

(d) Disconnection

    After receiving the TCP Control Message (with TC tag), user must release the connection within a certain period of time.

Note1: For requests by TCP Control Message, please adhere to procedures in this document, and before starting use, please confirm your connection and the procedures during holiday test in Production Environment or weekday test in Test Environment.

Note2: Since establishing a TCP connection without transmitting Authentication Message and Request Message, and establishing continuous request messages with error will cause increased load on TSE servers, please avoid such use. And you need to report a test staff by Taget and arrange test staffs who get in contact with the Market Information System staffs without delay.

Note3: A user can perform only one request per connection. If a user sends another request while the Market Information System responds to a current request, it will not respond to the second request.

Note4: TCP transmission is for recovering specific messages that were not received. Please refrain from using this function repeatedly to obtain a large number of messages, since it may cause excessive burden on the system.

Note5: If you need to obtain more than the maximum number of Request Messages, please apply using the "Request Form for Provision of Message Data File" to get the data offline.

User	Market Information System

(a) Establish TCP Connection (2.2.2) ●──────────────────────────►

(b) User Authentication (2.2.3) ●──────────────────────────►

(c) Send Message Request (2.2.4) ●──────────────────────────►

Response: Send Requested Information ◄──────────────────────────●

(d) Release TCP Connection (2.2.2) ●──────────────────────────►
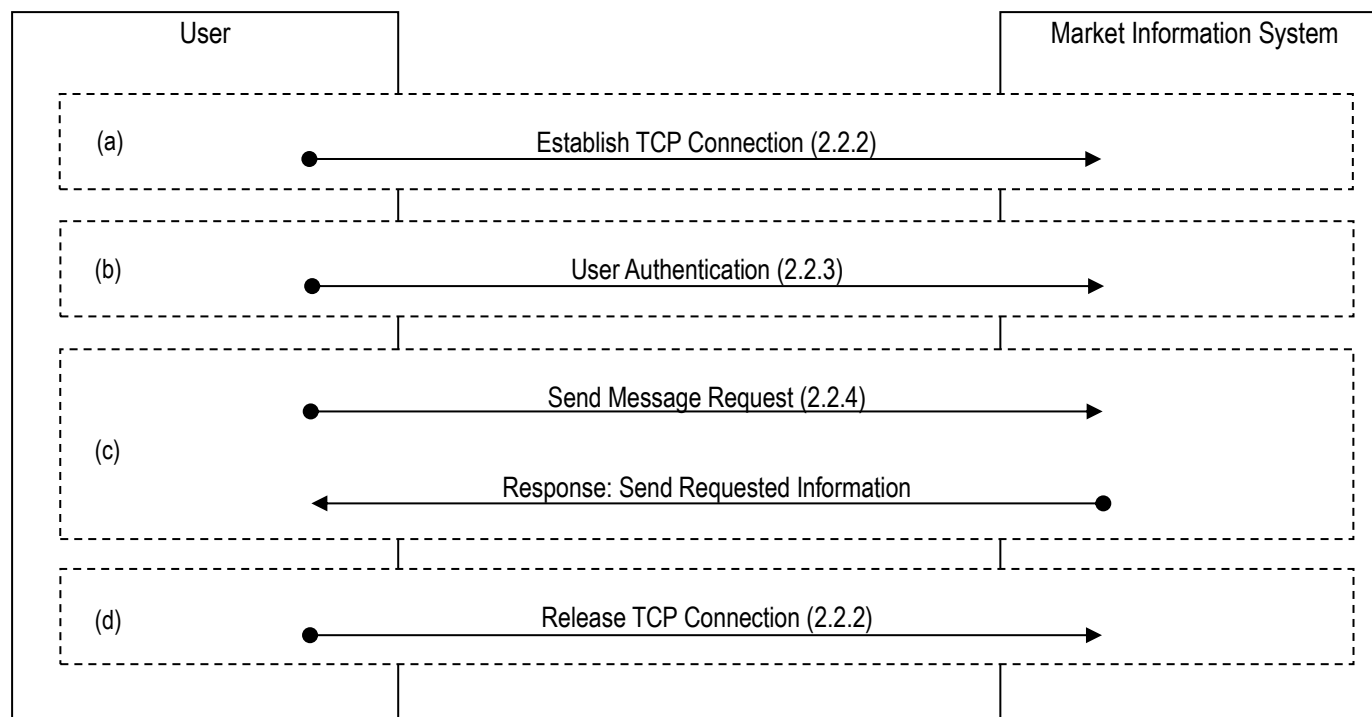
Fig. 2.2.1 Procedure of Request by TCP Control Message

2.2.2. Establish/Release TCP Connection

Request for TCP Connection Establishment is made from user side.

User can establish TCP connection with the IP address which belongs to the network address of the Mains User Code assigned by TSE.

Disconnection is usually done by the user but the connection may be released by Market Information System at the end of operations.

Also, in the case of failure or unexpected incidents, TCP Connection might be disconnected by Market Information System.

When user releases connection, user must not use "RST" but use "FIN".

Fig. 2.2.2 below shows the sequence for request of TCP Connection Establishment/Release.
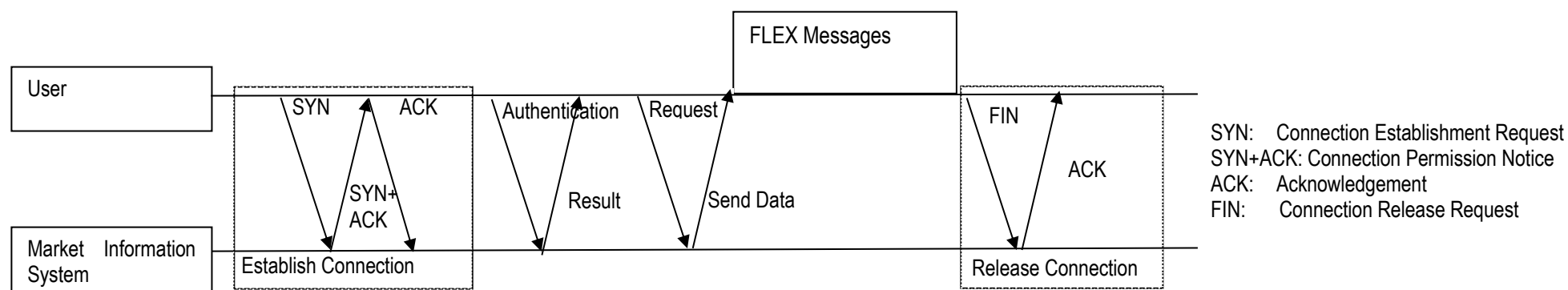
Fig. 2.2.2 TCP Connection Establishment/Release by Request Message

SYN: Connection Establishment Request
SYN+ACK: Connection Permission Notice
ACK: Acknowledgement
FIN: Connection Release Request

Market Information System responds only to the first request received after the establishment of the connection.

If a user sends another request while the Market Information System responds to the current request, it will not respond to the second request.

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2.2.3. User Authentication

If the Market Information System receives a request message, it will conduct the User Authentication process.

For the authentication process, the same Mains User Code can be used by multiple IP addresses.

Also, the same Mains User Code can obtain authentication permissions for different IP addresses at the same time.

(1)   Authentication Sequence

User Authentication is done by checking whether the message contains a Mains User Code assigned by TSE.
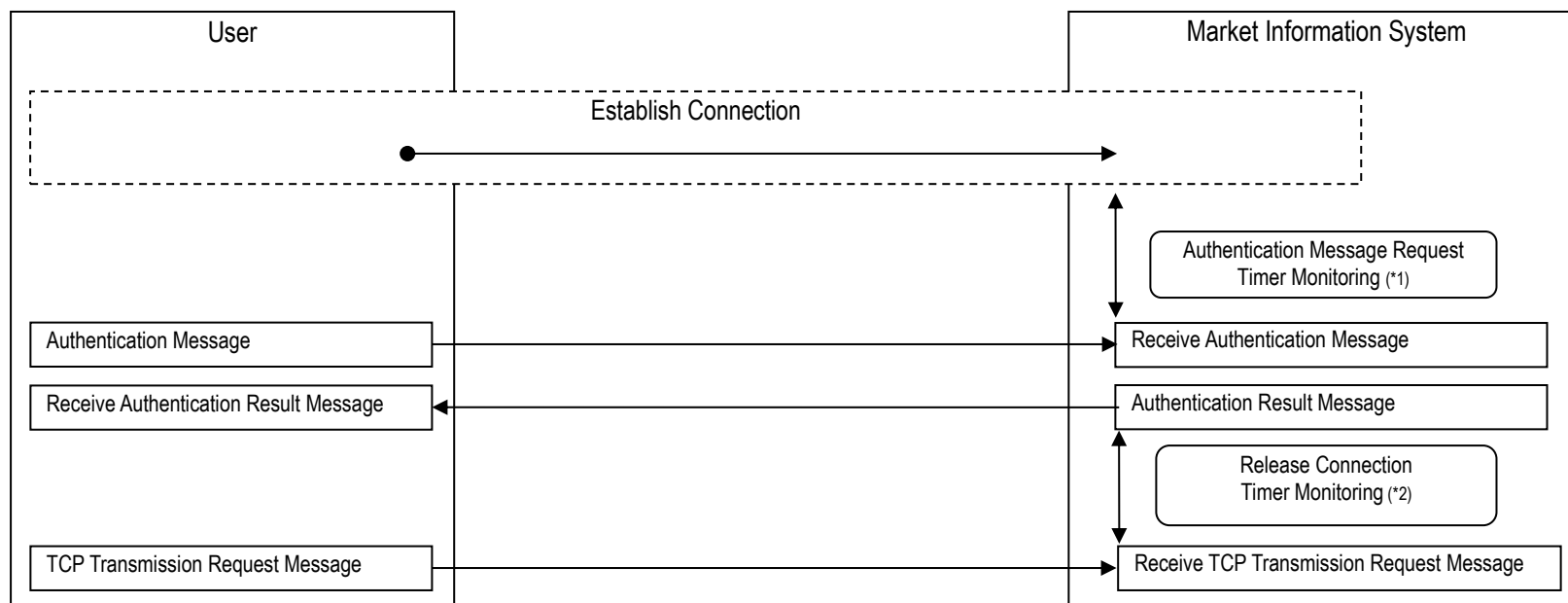
(*1) After establishing the connection, user transmits Authentication Message to the Market Information System within 30 seconds.

(*2) After receiving Authentication Result Message, user transmits a TCP transmission request message to the Market Information System within 30 seconds.

Fig. 2.2.3 Sequence of User Authentication

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(2) Authentication Format

・Service Header : Unnecessary
・User Data Section : The format below is used. (Message Length: 44bytes)

Item No.	Name	Location	Byte Count	Type	Description	Setting	
						Authentication Message User Setting	**Authentication Result Message Market Information System Setting**
1	Message Length	0	2	C	Set message length	44	Same as on the left
2	Message Type	2	3	C	Set message type	999 : Authentication Message	Same as on the left
3	Mains User Code	5	18	C	Set Mains User Code provided by TSE	(3) Refer to Mains User Code	Same as on the left
4	Optional Field *1	23	2	C	Not used by the Market Information System. User set any value.	Set space or alphanumeric	Same as on the left
5	Transmission Time	25	9	C	Set time of transmission	HHMMSSttt	Same as on the left
6	Reserved	34	1	C		Set space	Same as on the left
7	Authentication Code	35	1	C	Set authentication success or failure	Set space	0 : Authentication Success 1 : Authentication Failure
8	Authentication Result Detail Code	36	2	C	Set detailed code for authentication success or failure	Set space	00 : Authentication Success 01 : Incorrect Message 02 : Incorrect Mains User Code 03 : Off-hours Request
9	Reserved	38	6	C		Set space	Same as on the left

*1 User set any value in the Optional Field like an identification code or request number.

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(3) Mains User Code and Optional Field
   The code assigned by TSE is set in Mains User Code section of an Authentication Message.
   The code on "Optional Field" can be set any value. Users can be free to use.
   Method of setting in message item follows the form below.

Optional Field (Fixed Length: Maximum 2 digits)

Mains User Code (Fixed Length: Maximum 18 digits)
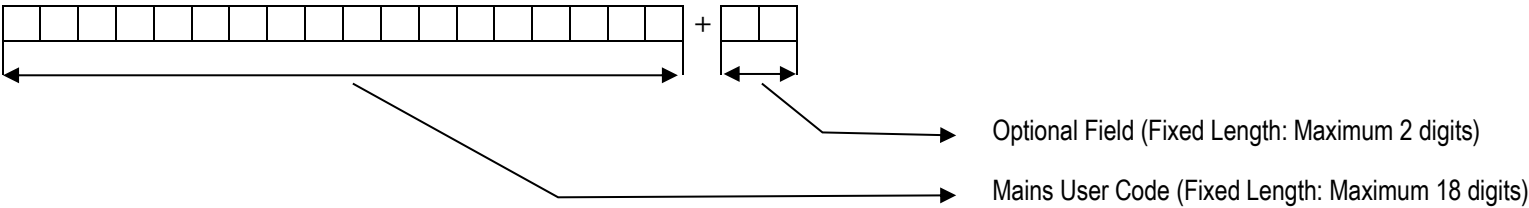
   User sets Mains User Code provided by TSE after agreement is concluded with TSE.
   Optional Field (2 digits) is set separately from Mains User Code (18 digits).

Setting Instance

Mains User Code																		Optional Field	
1	0	0	0	0	0	s	0	1	△	△	△	△	△	△	△	△	△	T	S

If Mains User Code is less than eighteen digits, remainder will be set to spaces, and after spaces, set Optional Field

2.2.4. TCP Control Message

 For TCP Transmission, user needs to send TCP Control Message (with TC tag) after User Authentication.

(a) Message Type
   The Message Type Code to set in the Service Header of a TCP Control Message (with TC tag) is "990".

(b) Tag Format
   Details of TCP Control tag (TC tag) are shown below.

The table below indicates the main references for output condition or format, etc.

Item No.	Name	Reference document	Reference item
1	Time	Common Items 5.3.5. General Rules for Data Sets	(5) Time
2	Start Sequence Number, End Sequence Number, Multicast Group Number	2.2.4 TCP Control Message	(c) Setting Table

TC: TCP Control

1. Format (40 bytes)

Tag ID	Reserved	Request Code / Response Code	Start Sequence Number	End Sequence Number	Multicast Group Number	Time
(2)	(2)	(2)	(11)	(11)	(3)	(9)

2. Content and output condition

Content and output condition	Remarks
1. Content 　　This tag contains the TCP Control for TCP transmission. 2. Output condition 　(1)　Transmissions by users: 　　　・ When request for TCP transmission Message is made by user 　(2)　Transmissions by the Market Information System: 　　　・ When completion of the TCP transmission is notified from the Market Information System to user. 　　　・ When request for TCP transmission is invalid, Error Response Message is sent.	

3. Detailed format

Item No.	Name	Location	Byte count	Format	Description	Setting condition
1	Tag ID	0	2	C	Indicates the TCP control tag.	"TC" is set.
2	Reserved	2	2	C	This item is reserved.	
3	Request Code/ Response Code	4	2	C	User must set a "Request Code" when requesting transmission and the TSE Market Information System sets the "Response Code" when responding.	Request Code 　01:Retransmission Request 　02:Backup Information Request 　03: Refreshment Information Request 　04:All-Day Information Request 　05:Base Price Information Request 　06: Issue Information Request 　07:Multicast Group Number Information Request （FLEX Standard） 　08:Multicast Group Number Information Request （FLEX Full） 　09:Index Information Request Response Code 　11: Request for Sequence Number that does not exist. 　12: Sequence Number inverted 　13: Multicast Group that is not available 　14: Exceeded number of messages per request 　17: Incorrect Message (incorrect message format) 　18: Incorrect Code (incorrect setting value) 　20: TCP Transmission Completion 　99: System Error
4	Start Sequence Number	6	11	C	Start Sequence Number for range of Retransmission Request.	・ Both Multicast Group Number (in the first 3 bytes) and Sequence Number (in the next 8 bytes) is set. (total 11bytes) ・ Space is set for other than retransmission request.
5	End Sequence Number	17	11	C	End Sequence Number for range of Retransmission Request.	・ Both Multicast group number (in the first 3 bytes) and Sequence Number (in the next 8 bytes) is set. (total 11bytes) ・ Space is set for other than retransmission request.
6	Multicast Group Number	28	3	C	Sets the Multicast Group for requesting TCP transmission.	Except the case of Backup Information, Refreshment Information, and All-Day Information by specifying multicast group, space is set.
7	Time	31	9	C	Output time of this message	HH (24-hour notation) MMSSttt

TC:　TCP Control

(c) Setting Table

The following table shows how each item of service header and TC tag of each Message Type will be set for a request for TCP transmission and response.

If no value is set in the items indicated as instruction fields, the Market Information System will recognize it as an error.

Grayed out items are not used as search conditions even if set.

Group	Instruction	To TSE	To User	Message Length	Message Serial No	Message Type Code	Exchange Code	Session Distinction	Issue Classification Code	Issue Code	Request / Response code	Beginning Sequence Number	End Sequence Number	MCG	Time	Remarks
Retransmission	Message Sequence No	*		Fixed[82]	Space	990	Space	Space	Space	Space	01	Sequence Number to be requested *4	Sequence Number to be requested *4	Space	Space*9	Not to straddle MCGs
	Retransmission		*	Variable	Number set in the Message Corresponding to Request	Code Set in the Message Corresponding to Request	Code Set in the Message Corresponding to Request	Distinction set in the Message Corresponding to Request	Code Set in the Message Corresponding to Request	Code Set in the Message Corresponding to Request	Refer to Tag Explanations					All messages (requested Sequence No.) are transmitted
	Retransmission Complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing retransmission of messages
	Error Response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
Backup Information	MCG	*		Fixed[82]	Fixed[82]	990	Space	01*2 02*2	Space	Space	02	Space	Space	MCG Requested	Space	
	Backup Information		*	Variable	MCG + Space	101	Code of Issue Corresponding to Request	01 02	Code of Issue Corresponding to Request	Issue code corresponding to request	Refer to Tag Explanations					All messages (requested MCG) are transmitted
	Backup Complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Backup Information messages
	Error Response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	Exchange Code	*		Fixed[82]	Fixed[82]	990	1/3/6/8	01*2 02*2	Space	Space	02	Space	Space	Space	Space	
	Backup Information		*	Variable	MCG + Space	101	Code of Issue Corresponding to Request	01 02	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					All messages (requested Exchange Code) are transmitted
	Backup Complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after transmission of Backup Information messages
	Error Response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	Issue Code	*		Fixed[82]	Fixed[82]	990	1/3/6/8	01*2 02*2	Space	Issue code corresponding to request *3	02	Space	Space	Space	Space	
	Backup Information		*	Variable	MCG + Space	101	Code of Issue Corresponding to Request	01 02	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					Only messages for requested Issue Code is transmitted
	Backup Complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Backup Information messages
	Error Response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	MCG	*		Fixed[82]	Space	990	Space	Space	Space	Space	03	Space	Space	MCG to be Requested	Space	

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Instruction			Direction To TSE	Direction To User	Service Header Message Length	Message Serial No	Message Type Code	Exchange Code	Session Distinction	Issue Classification Code	Issue Code	User Data Request / Response code	Beginning Sequence Number	End Sequence Number	MCG	Time	Remarks
		Refreshment		∗	Variable	MCG + Space	103	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag explanations					All messages (requested MCG) are transmitted
		Refreshment complete		∗	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Refreshment Information messages
		Error response		∗	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	Exchange code		∗		Fixed[82]	Space	990	1/3/6/8	Space	Space	Space	03	Space	Space	Space	Space	
		Refreshment		∗	Variable	MCG*1 + Space	103	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					All messages (requested Exchange Code) are transmitted
		Refreshment complete		∗	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Refreshment Information messages
		Error response		∗	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	Issue code		∗		Fixed[82]	Space	990	1/3/6/8	Space	Space	Issue Code Corresponding to Request	03	Space	Space	Space	Space	
		Refreshment		∗	Variable	MCG*1 + Space	103	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					Only messages for requested Issue Code is transmitted
		Refreshment complete		∗	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Refreshment Information messages
		Error response		∗	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
All-day information	MCG*1		∗		Fixed[82]	Space	990	Space	Space	Space	Space	04	Space	Space	MCG*1 to be Requested	Space	
		All-day information		∗	Variable	MCG*1 + Space	102	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					All messages (requested MCG*1) are transmitted
		All-day information complete		∗	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of All-Day Information messages
		Error response		∗	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	Exchange code		∗		Fixed[82]	Space	990	1/3/6/8	Space	Space	Space	04	Space	Space	Space	Space	
		All-day information		∗	Variable	MCG*1 + Space	102	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					All messages (requested Exchange Code) are transmitted
		All-day information complete		∗	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of All-Day Information messages
		Error response		∗	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
	Issue code		∗		Fixed[82]	Space	990	1/3/6/8	Space	Space	Issue Code Corresponding to	04	Space	Space	Space	Space	

TCP Transmission

Instruction	To TSE	To User	Message Length	Message Serial No	Message Type Code	Exchange Code	Session Distinction	Issue Classification Code	Issue Code	Request / Response code	Beginning Sequence Number	End Sequence Number	MCG	Time	Remarks
									Request *3						
All-day information		*	Variable	MCG*1 + Space	102	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					Only messages for requested Issue Code is transmitted
All-day information complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of All-Day Information messages
Error response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
Exchange code	*		Fixed[82]	Space	990	1/3/6/8	Space	Space	Space	05/06/07/08	Space	Space	Space	Space*10	
Issue basic information		*	Variable	MCG*1 + Space	400	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					All messages (requested Exchange Code) are transmitted
Issue basic information complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Issue Basic Information messages
Error response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	
Issue code*7	*		Fixed[82]	Space	990	1/3/6/8	Space	Space	Issue Code Corresponding to Request *3	05/06/07/08	Space	Space	Space	Space	
Issue basic information		*	Variable	MCG*1 + Space	400	Code of Issue Corresponding to Request	Space	Code of Issue Corresponding to Request	Issue Code Corresponding to Request	Refer to Tag Explanations					Only messages for requested Issue Code is transmitted
Issue basic information complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Issue Basic Information messages
Error response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error code *5	Space	Space	Space	Output time of this message	
Exchange code/ Session Distinction Code	*		Fixed[82]	Space	990	1*6	01/02*8	Space	Space	09	Space	Space	Space	Transmission Time	
Index information		*	Fixed[179]	MCG*1 + Space	300	1	Distinction set in the Message Corresponding to Request	Space	Space	Refer to Tag Explanations					All messages are transmitted
Index information complete		*	Fixed[82]	Space	990	Space	Space	Space	Space	20	Space	Space	Space	Output time of this message	Transmitted after completing transmission of Index information messages
Error response		*	Fixed[82]	Space	990	Space	Space	Space	Space	Error Code *5	Space	Space	Space	Output time of this message	

Row groups (left vertical labels): "Issue basic information" (Exchange code through Error response), "Index information" (Exchange code/ Session Distinction Code through Error response).

Space means all set to spaces.
*1 MCG stands for "Multicast Group".
*2 Session Distinction Code of FLEX is different from that of trading system. Refer to "5.3.3 Service Header (5) Session Distinction Code" of Common Items.
*3 Issue Code of FLEX is different from that of trading system. Refer to "5.3.3 Service Header (7) Issue Code" of Common Items.
*4 Set Multicast Group Number (Multicast Group Number in the message which users receive with a request for Retransmission) on the first 3bytes of Message Sequence No. same as Service

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Header's one. Refer to "5.3.3 Service Header (2) Message Serial Number" of Common Items.

*5 For error codes, refer to "3 Request Code/Response Code of TC tag".

*6 Only "1"(Tokyo Stock Exchange) is available to set.

*7 Issue Code is not available when requesting for Issue Information.

*8 Set Session Difinition Code at the time of the request is transmitted. In case 01 is set at afternoon session, afternonn session information as the latest information is transmitted.

*9 Set the Transimission Time for the requesting retransmission for MCG032-035, 041 and 042.

*10 Set the Transimission Time for the requesting Backup for Issue Information.

2.2.5. Processing Sequence for Message Request

The normal processing sequence is shown in Fig. 2.2.5-a, and abnormal ones are shown in Fig. 2.2.5-b to f.
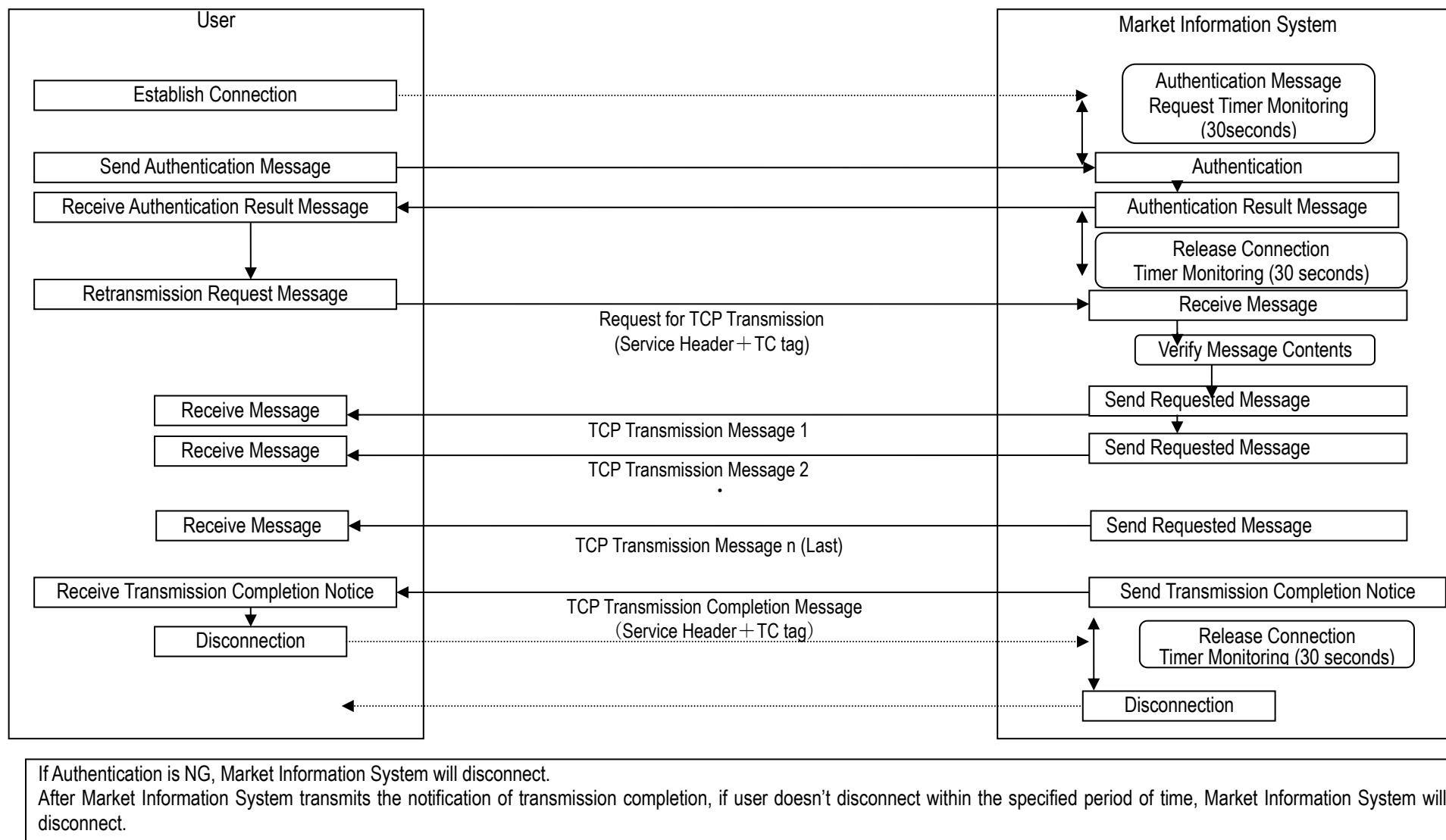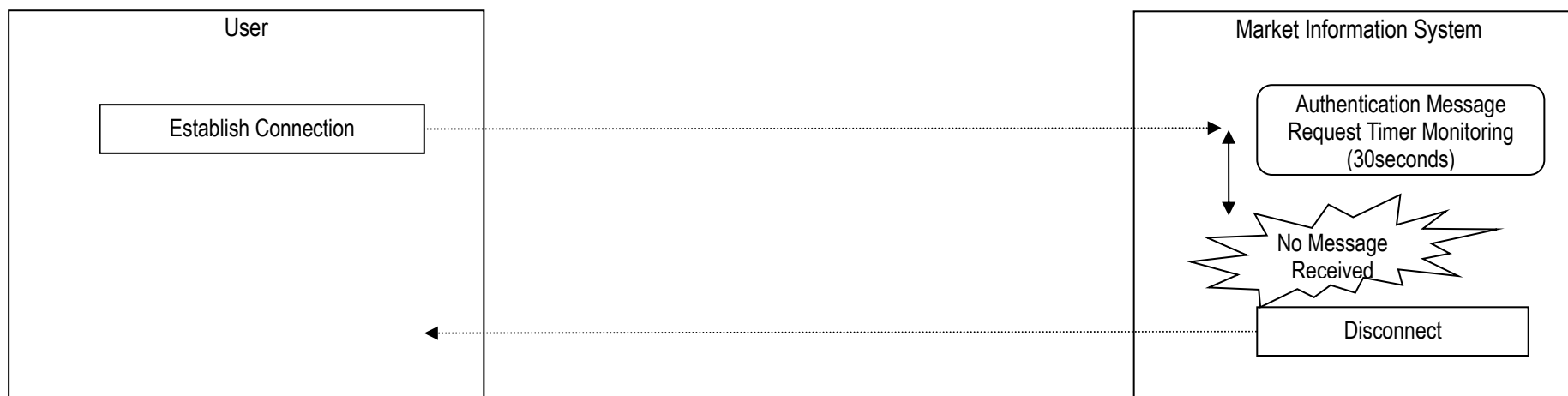
Fig. 2.2.5-a Processing Sequence for Message Request (normal)

User	Market Information System
Establish Connection	Authentication Message Request Timer Monitoring (30seconds)
	No Message Received
	Disconnect

After Connection Establishment, user has to transmit an Authentication Message to the Market Information System at once.
If Market Information System cannot detect message reception after 30 seconds, it will disconnect.
User should resolve the issue and reestablish connection.

Fig. 2.2.5-b Processing Sequence for Message Request (Abnormal: No Message Reception)
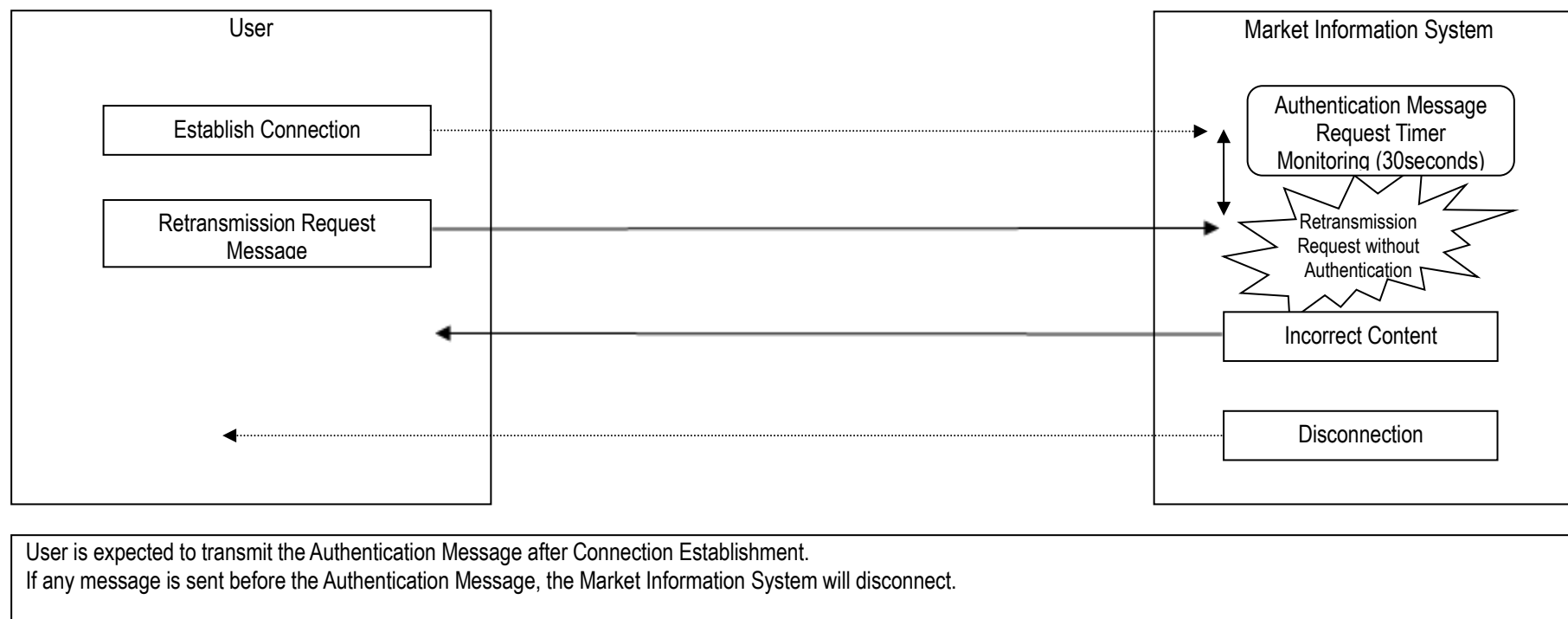
User

Establish Connection

Retransmission Request
Message

Market Information System

Authentication Message
Request Timer
Monitoring (30seconds)

Retransmission
Request without
Authentication

Incorrect Content

Disconnection

User is expected to transmit the Authentication Message after Connection Establishment.
If any message is sent before the Authentication Message, the Market Information System will disconnect.

Fig. 2.2.5-c Processing Sequence for Message Request (Abnormal: Unauthenticated)

User	Market Information System
Establish Connection	Authentication Message Request Timer Monitoring (30seconds)
Send Authentication Message	Authentication
Receive Authentication Result Message	Send Authentication Result message
	Release Connection Timer Monitoring (30 seconds)
	No Message Reception
	Disconnection

After 30 seconds elapse from sending the Authentication Result Message, if the Market Information System does not receive a request message, it will disconnect.
User should resolve the issue and reestablish connection.

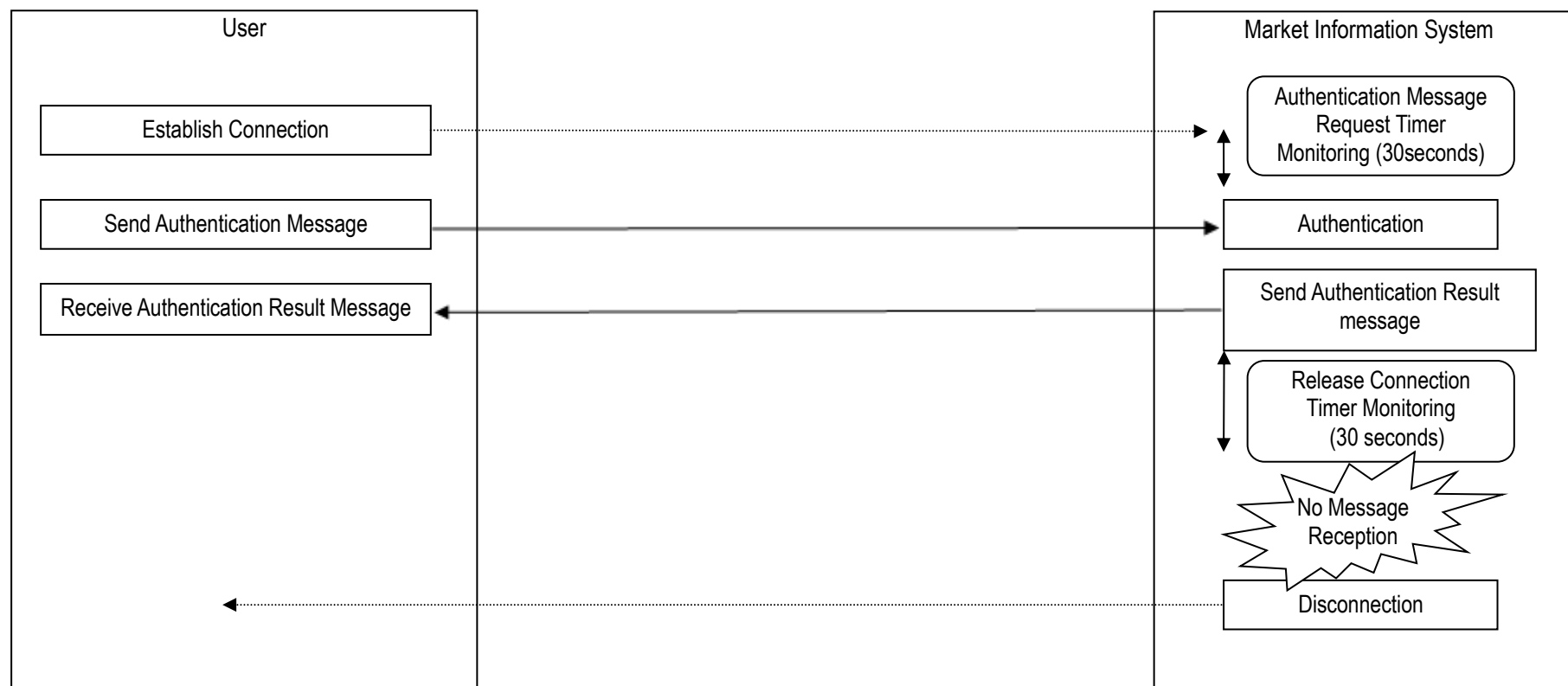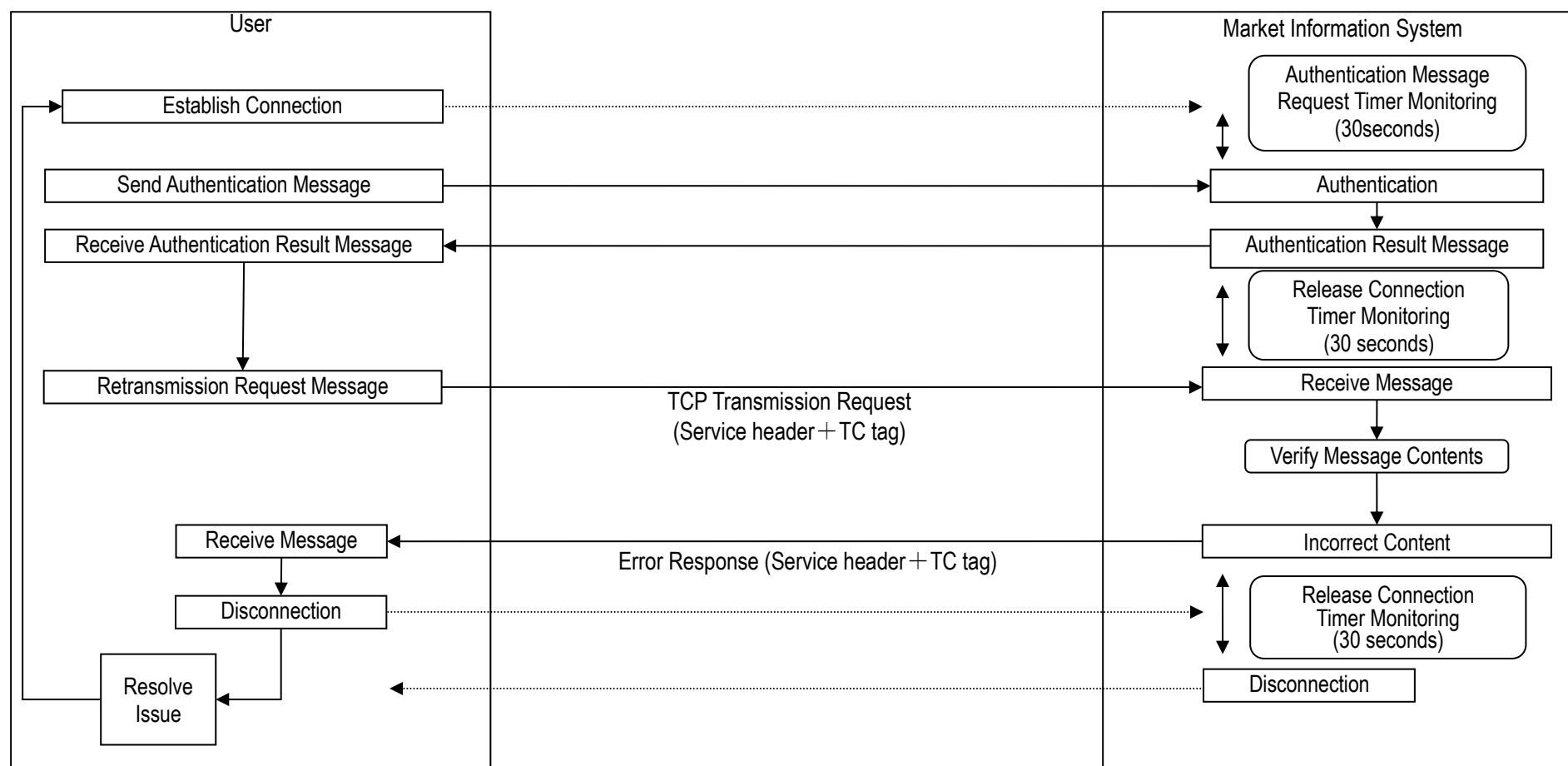Fig. 2.2.5-d Processing Sequence for Message Request (Abnormal: No Request after Authentication)

Fig. 2.2.5-e   Processing Sequence for Message Request (Abnormal: Service error)

User	Market Information System
Establish Connection	Authentication Message Request Timer Monitoring (30seconds)
Send Authentication Message	Authentication
Receive Authentication Result Message	Authentication Result Message
	Release Connection Timer Monitoring (30 seconds)
Retransmission Request Message	Receive Message

TCP Transmission Request
(Service Header＋TC tag)

Verify Message Contents

Receive Message	Send Requested Message

TCP Transmission Message 1

Receive Message	Send Requested Message

TCP Transmission Message 2

Send Requested Message

Network Failure

Person in Charge

Person in Charge

User can try to establish another connection using Stand-By Network and sending a message request.

In case of network failure, Market Information System will not be able to identify the last message that was sent. As such, persons in charge should contact each other to communicate the situation. User should not have a system to automatically switch to a standby network due to network failure detection.
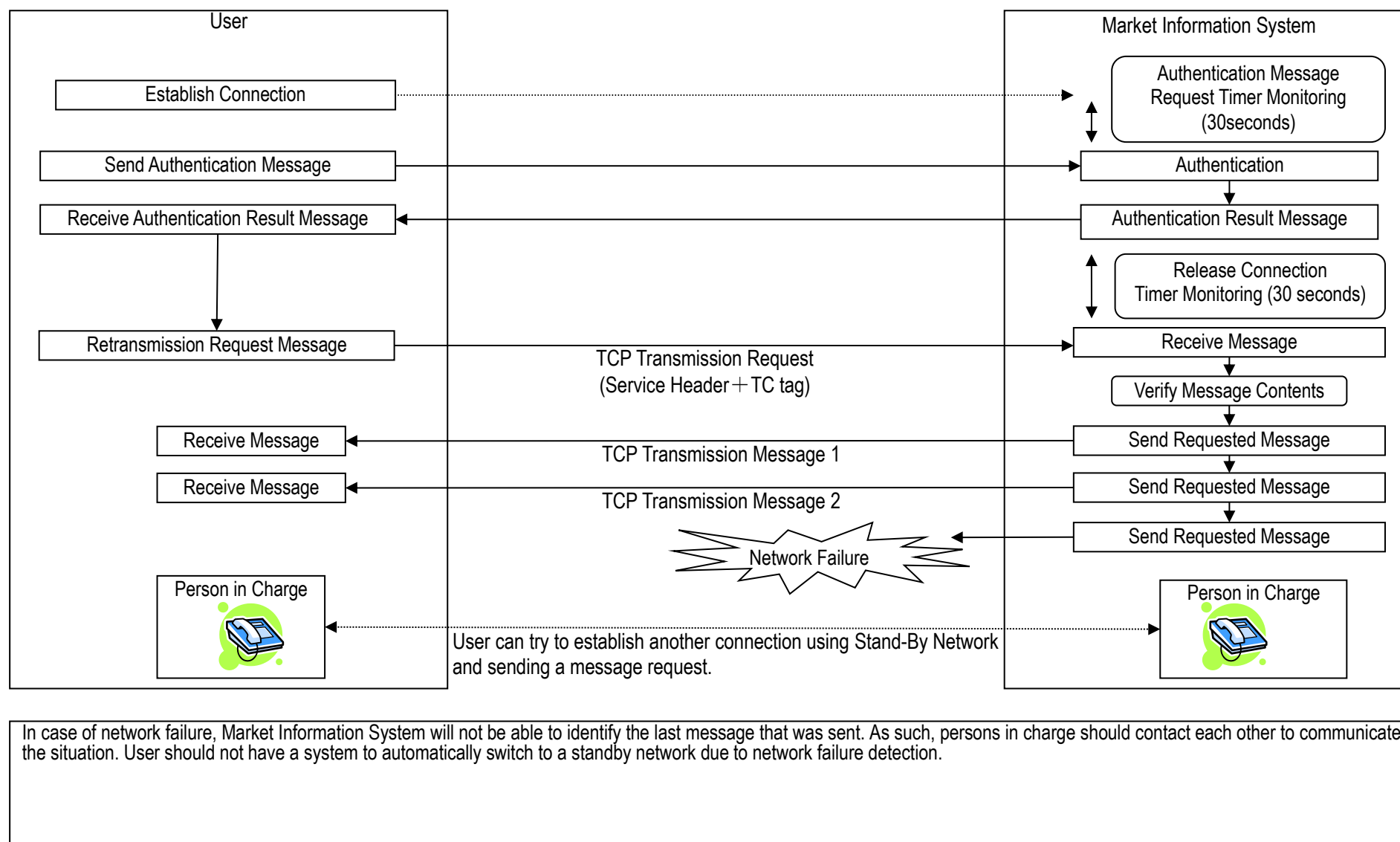
Fig. 2.2.5-f.   Processing Sequence for Message Request (Abnormal: Network Failure)