OLYMPUS

DIAGNOSTIC SYSTEMS GROUP

AU2700 & AU5400
ON-LINE SPECIFICATIONS

AU2700/5400

Online Specifications

Issued: 2000.3.16
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Olympus Optical Co., Ltd.

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1. Outline

1) The following data is exchanged between the AU2700/5400 and the host computer system.

    (1) Test Requisition Information (T.R.I.)
    (2) Test Results

2) The data transmission is conducted in either of the following mode:

    (1) Class A Transmission is without synchronizing with analysis. This mode does not utilize the ACK/NAK protocol.
    (2) Class B Transmission is synchronizing with analysis. This mode does utilize the ACK/NAK protocol.

3) The Following format and protocol can be selected by [PARAMETER] [ONLINE] menu.

    (1) Setup
    (2) Communication protocol
        A. T.R.I. Inquiry Text Format
        B. Test Result Text Format
    (3) Test Number Assignment

2. Basic Specification

(2.1) Format of Transmission

Item	Contents
Transmission line	RS-232C
Synchronization	Synchronization
Data transmission mode	Half-Duplex
Bit/sec	4800bps, 9600bps
Configuration	start bit: 1 bit data bit: 7 or 8 bit parity bit: none, odd or even stop bit: 1 or 2 bit total: 9-12 bit These can be selected by [PARAMETER] [ONLINE] [PROTOCOL] **menu.**
Form of Transmission	Class A Transmission are conducted from the sender to the receiver in a certain time of interval.
	Class B Transmission are conducted by confirming with ACK (receipt acknowledged)or NAK (not acknowledged) between the sender and the receiver.
Use channel	1 channel
Retry	Class A: None Class B: 0-3 **This can be selected by [PARAMETER] [ONLINE] [PROTOCOL]menu.**

(2.2) Transmission code

Item	Contents	Limit of value
Data code **These can be selected by [PARAMETER] [ONLINE] [PROTOCOL] menu.**	7 bit code ASCII CODE	20H-7EH
	8 bit code	
	1 byte code	20H-7EH A1H-DFH
Control code	Start code/terminate code	01H-1FH
	ACK	06H
	NAK	15H
	BCC	00H-FFH

(2.3) Text format

(1) Basic configuration as follows:

1)	2)	3)	4)	5)	6)

Name	Digit	Contents		Remarks
1) Text start code	1,2	01h-1Fh	Data start code	Normally 02h
2) Text Classification	2	R#	T.R.I. inquiry	AU2700/5400 → Host
		RB	Start of T.R.I. inquiry	
		R_ *	T.R.I. inquiry of normal sample	
		RH	T.R.I. inquiry of rerun sample	
		RE	End of T.R.I. inquiry	
		S#	T.R.I.	Host → AU2700/5400
		S_ *	T.R.I. of normal sample	
		SH	T.R.I. of rerun sample	
		SE	Stop of T.R.I. inquiry	
		D#	Test result	AU2700/5400 → Host
		DB	Start of transfer result	
		D_ *	Normal sample result	
		DH	Rerun sample result	
		DR	Reagent blank sample Result	
		DA	Calibration result	
		d_ *	Stat fast result(AU2700 Only) Emergency fast result (AU5400 Only)	
		dH	Stat fast rerun result (AU2700 Only) Emergency fast rerun result (AU5400 Only)	
		DQ	QC sample result	
		DE	End of result transfer	
3) Unit No. (***Optional)***	0,2			**[PARAMETER] [ONLINE] [PROTOCOL] menu.**
4) Text code			Contents of Text	**[PARAMETER] [ONLINE] [PROTOCOL] menu.**
			Data No. is added behind text of Header parts.	
5) text end code	1,2	01h-1Fh	End of text code	**[PARAMETER] [ONLINE] [PROTOCOL] menu.**
6) BCC (Block Check Character) ***(Optional)***	1	00h-FFh	The sum with the Exclusive or logic between 2-5 and including 5.	**[PARAMETER] [ONLINE] [PROTOCOL] menu.**

remarks * _ is space.

(2) Blocking

A. Definition of Term

1)	2)	3)	4)	5)	6)

Term	Definition
Text length **[PARAMETER] [ONLINE] [PROTOCOL] menu.**	Is the total number of bytes from 1) to 6).
Max block length **[PARAMETER] [ONLINE] [PROTOCOL] menu.**	It is the Max length of text in one record. The length of block can be selected in online parameter menu. (256, 512, 1024)

B. Kind of text and blocking

<table>
<tr><th>Kind</th><th>Kind of text</th><th colspan="2">Method of Blocking</th></tr>
<tr><td>Fixed length Text</td><td>• Start of T.R.I. inquiry
• T.R.I. inquiry text
• End of T.R.I. transmission text.
• Stop of T.R.I. inquiry
• Start of transfer result transmission text.
• End of result transfer transmission text.</td><td colspan="2">Non-blocking</td></tr>
<tr><td rowspan="4">Variable length text</td><td rowspan="4">• T.R.I. text
• Rerun T.R.I. text
• Test result text
• Rerun result text
• QC result text
• Acal result text
• Reagent blank result text
• STAT(fast) result text (AU2700 only)
• Emergency(fast) result text (AU5400 only)</td><td>Using blocking</td><td>Max block length < text length</td></tr>
<tr><td>Block Identification No. (0-9,E)

(see page 9)</td><td>first block → Block Identification No. =0
second block →

Block Identification No. =1
•
•

last block → Block Identification No. =E</td></tr>
<tr><td rowspan="2">Text end code</td><td>Text end code = ETX(03H) and using ETB = yes *1
→End of block = ETB
End of text = ETX</td></tr>
<tr><td>Text end code <>ETX(03H) or ETB(17h)is no-use *1
→ End of block is designated in menu.
End of text is designated in menu.</td></tr>
<tr><td colspan="2"></td><td>Using ETB can be selected in online parameters.</td></tr>
</table>

Remark *1:When Block Identification No. is numeric(0,1,....), Only “End of Block” is used.
When Block Identification No. is “E”, Only “End of Text” is used.

3. Transmission Text Format

(3.1) Common and changeable item

The following can be selected by [PARAMETER] [ONLINE] [PROTOCOL] menu.

Text start code	1)
Unit No.	3)
Text end code	5)
BCC	6)

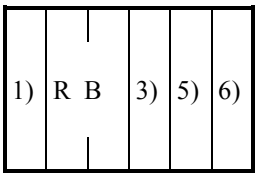
Common Item

Sample Type
Dummy(in Test Result transmission Text)
Block Identification No.
Rack No./Cup Position
Unit No. on the T.R.I. text (with out Rerun)
ANL unit No. and Cuvette side on Test Result transmission Text (without RB,ACAL,QC)
Space Code before the Text Classification (S,R,D text)
Reagent Lot No. and bottle No.

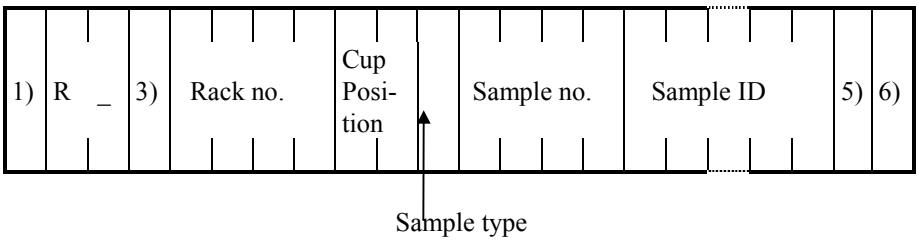
The order of the Sample number and Sample ID on the text can be changed, the sample type, the Dummy spaces and the Block Identification Number can be changed in the [PARAMETER] [ONLINE] [PROTOCOL] menu. There is a function at the bottom of the page called "Special". These features may be altered under the "Special" menu. Making changes in the "Special" menu only affects the T.R.I. Text and Test Result Transmission Text.

(3.2) T.R.I. inquiry text

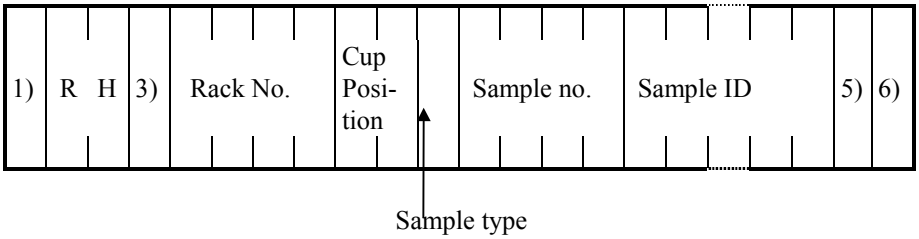
(1) Start text to inquiry test requisition.



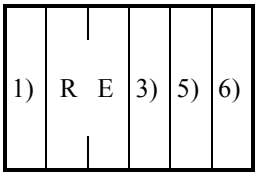
(2) Normal run inquiry test requisition.



(3) Repeat run inquiry test requisition.

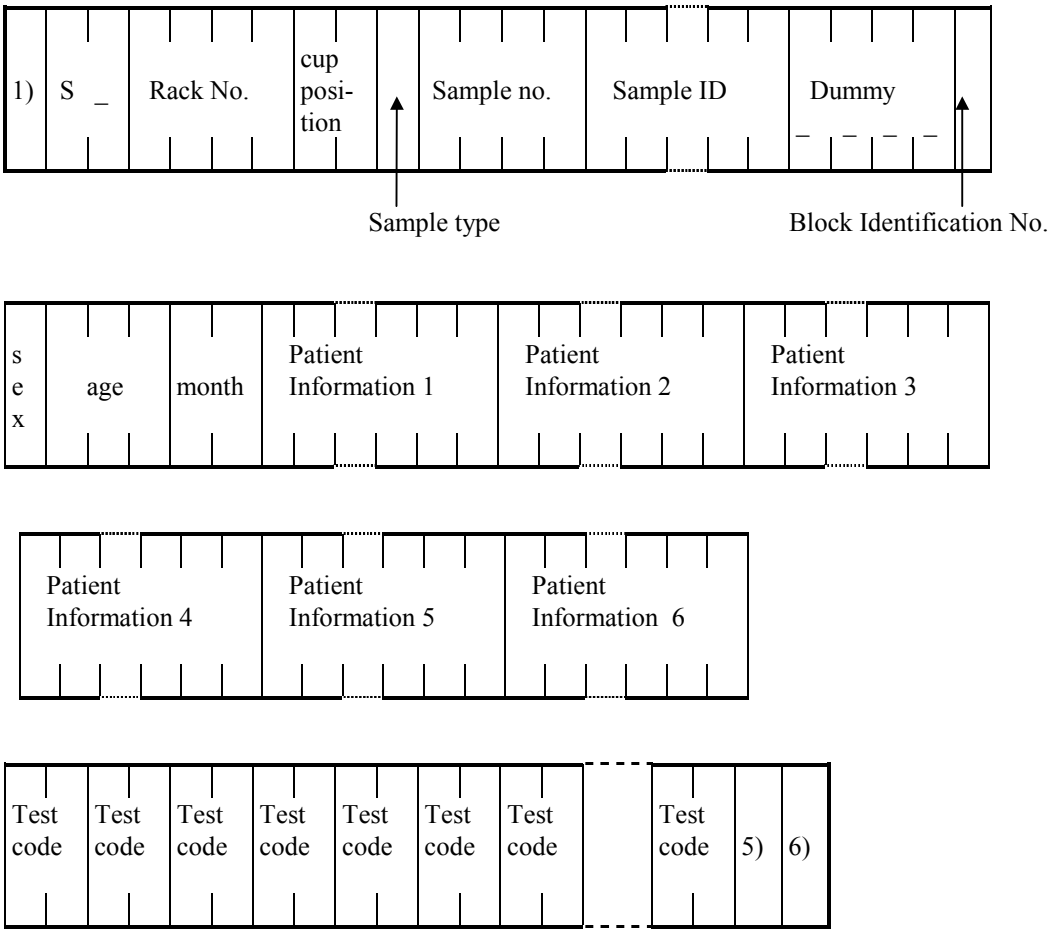


(4) End text to inquiry test requisition.

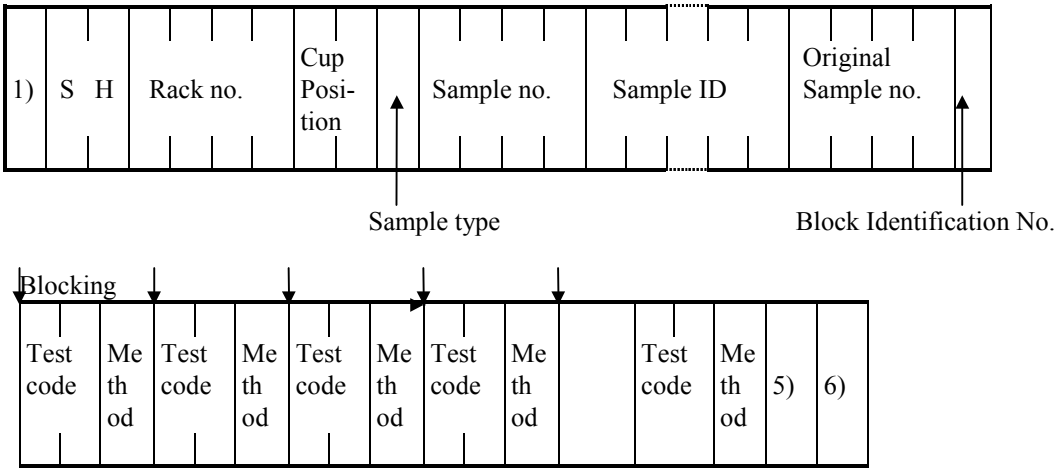


(3.3) T.R.I. text

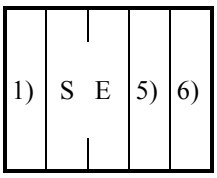
(1) Normal sample test requisition information text.



(2) Repeat run sample test requisition information text.

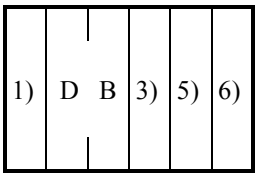


(3) End of T.R.I. Text transmission.

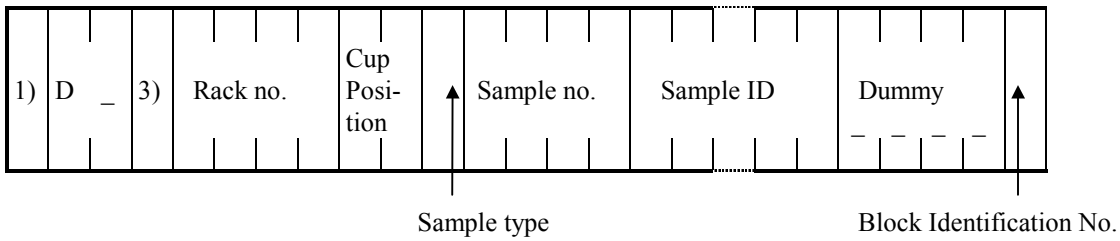


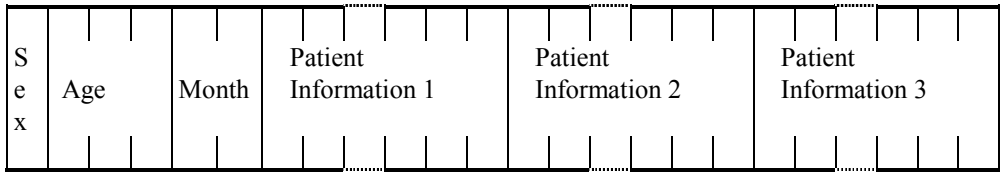
(3.4) Test result transmission text

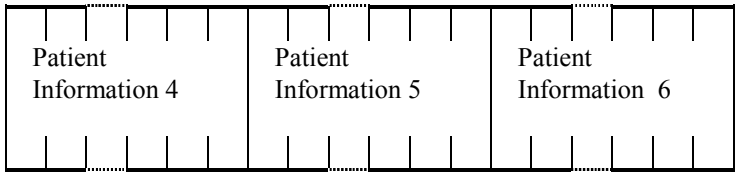
(1) Start of test result transmission text.

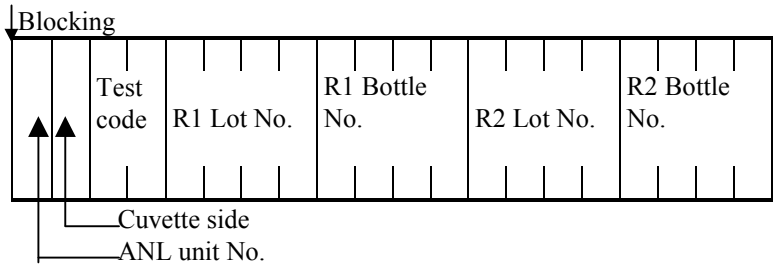


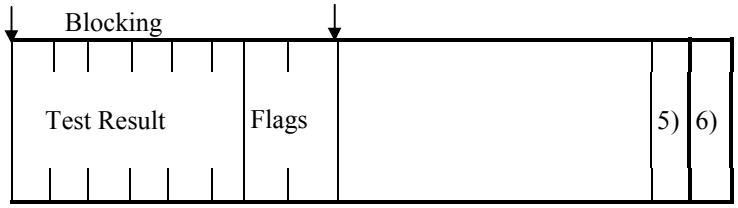
(2) Normal sample test result text.



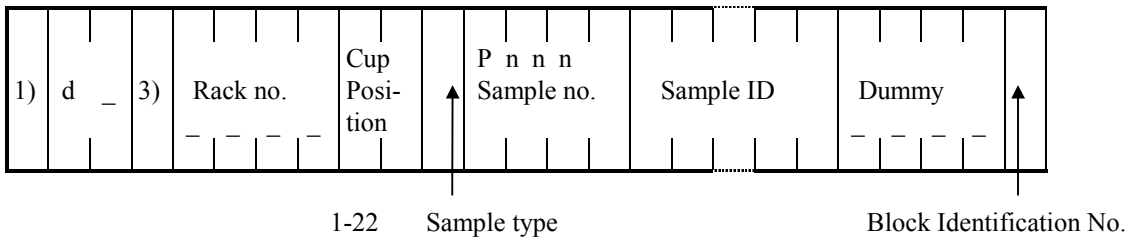


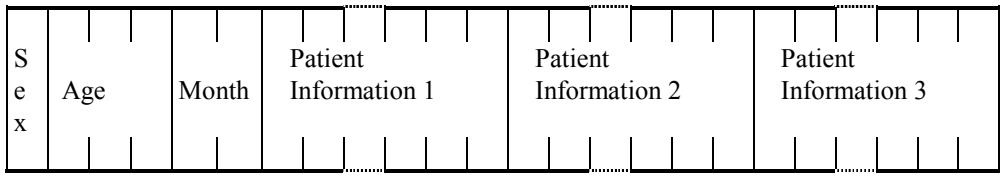


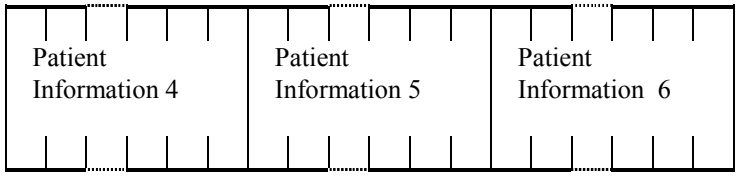


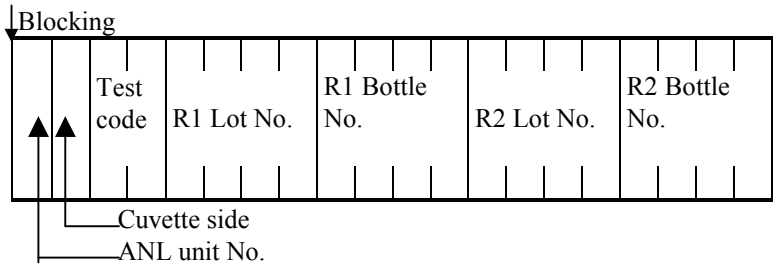


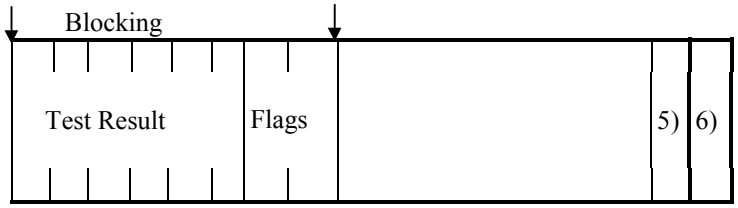
(3) Stat(fast) test result text (AU2700 only).



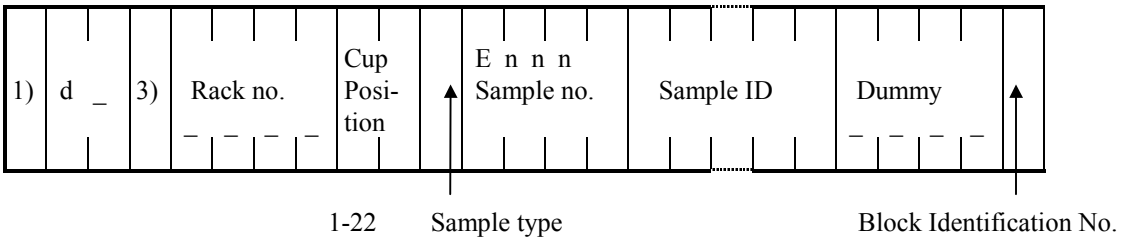


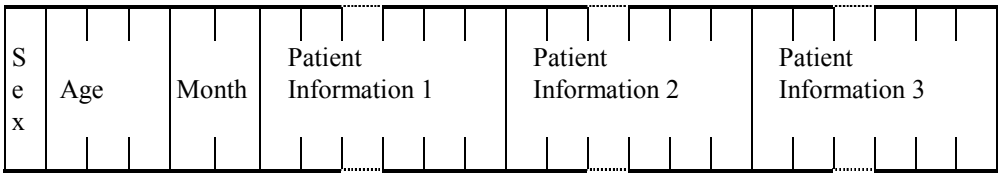


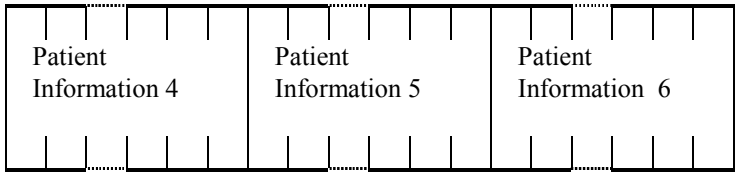


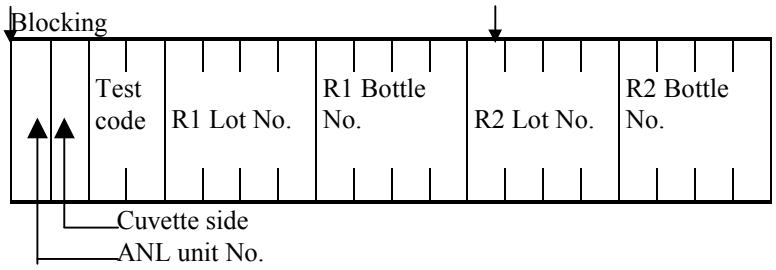


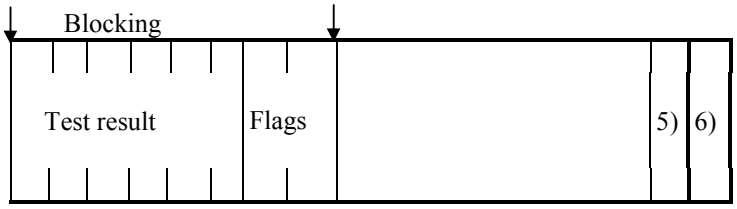
(4) Emergency(fast) test result text (AU2700 only).



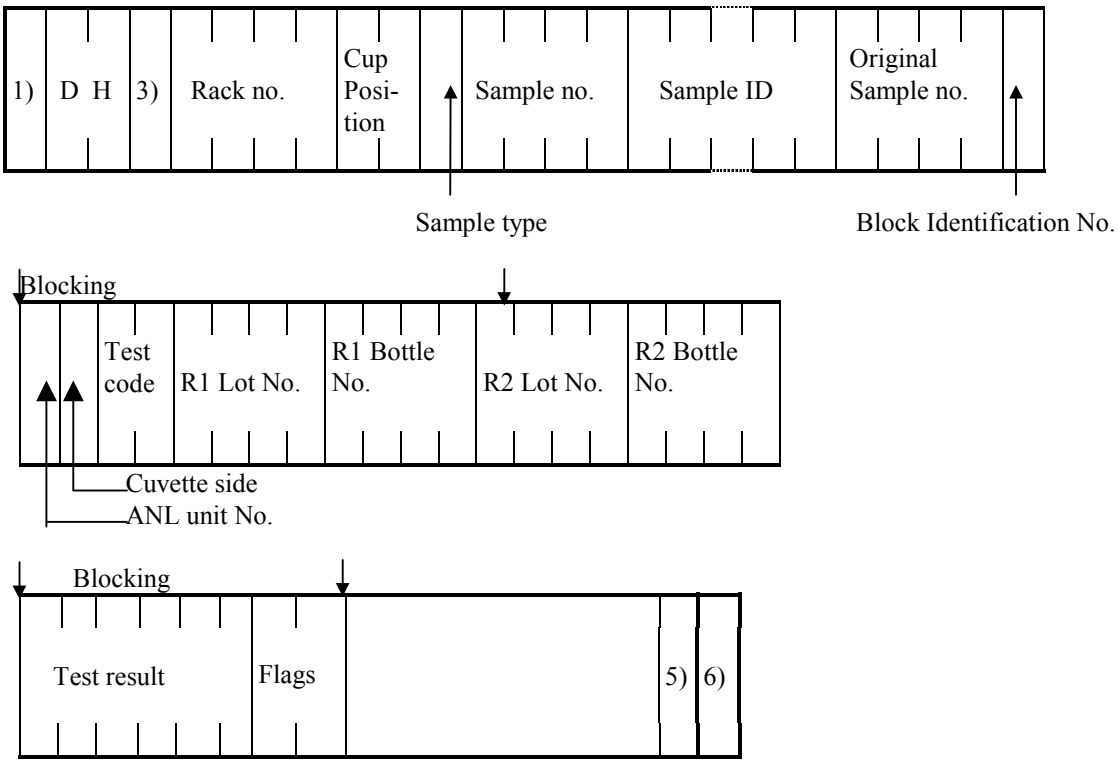




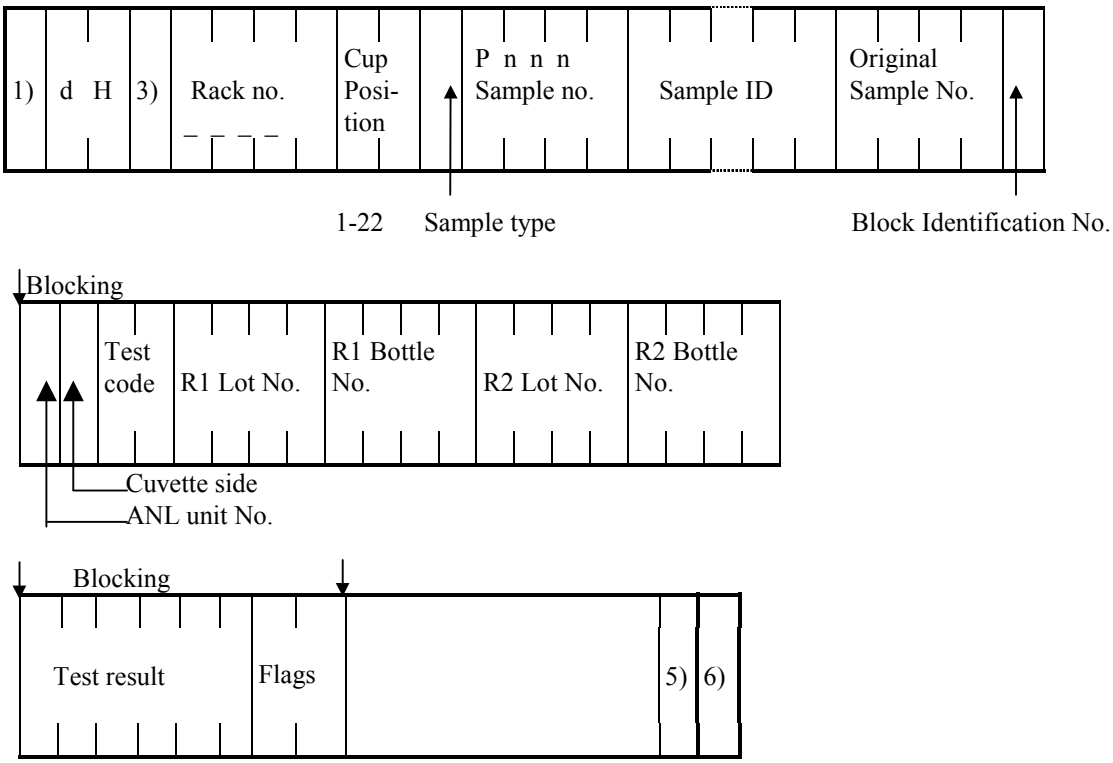




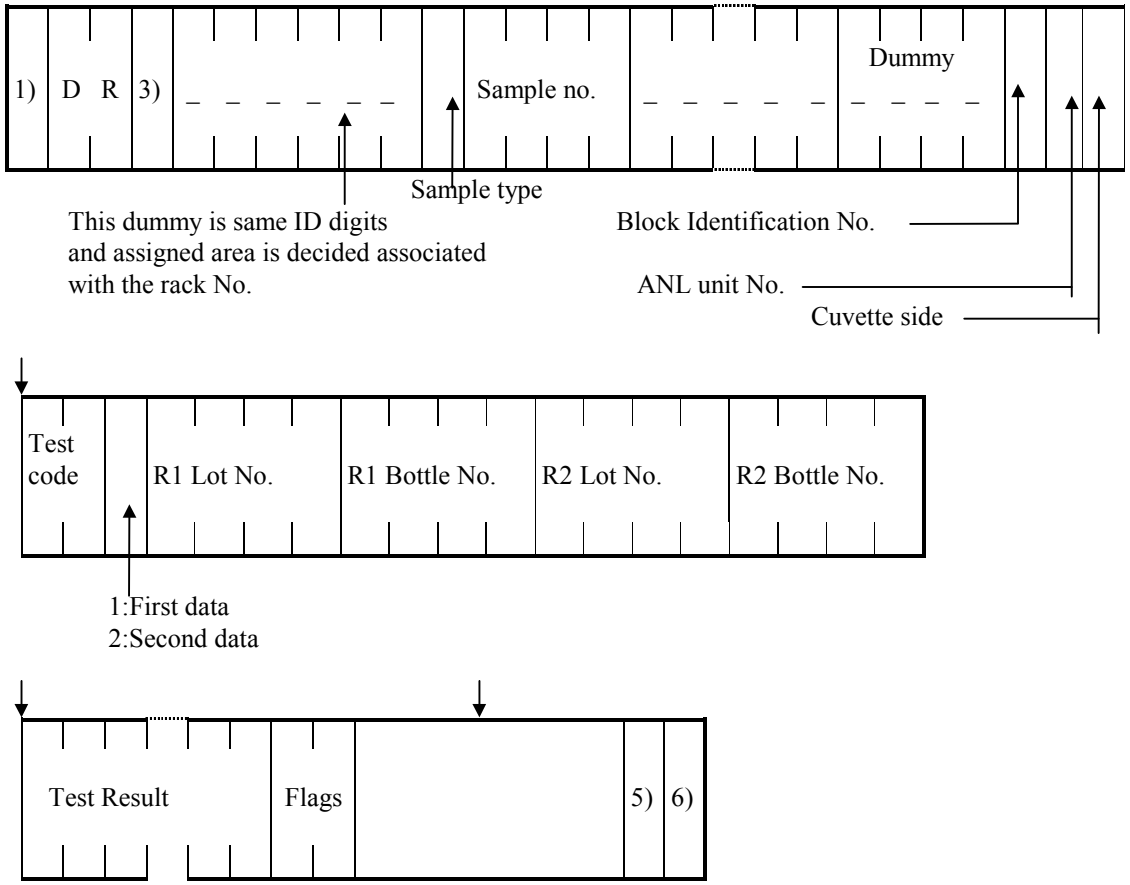
(5) Repeat run result text -1 .



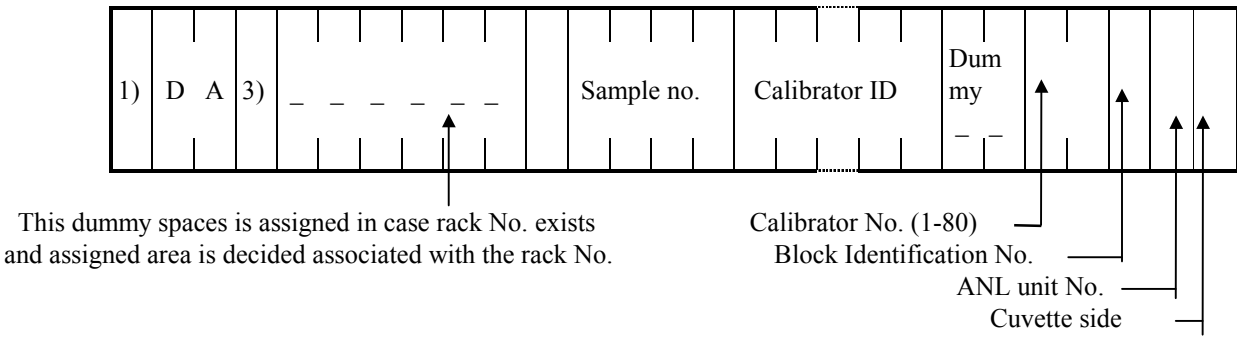
(6) Repeat run result text -2 Stat fast sample (AU2700 Only) .

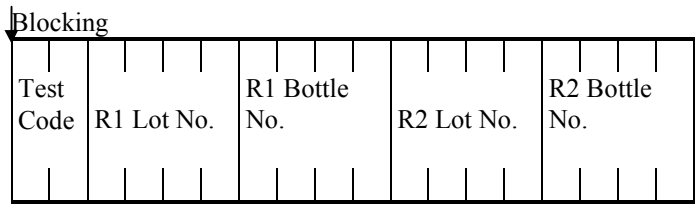


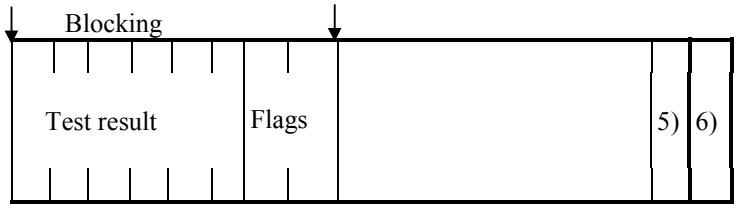
(7) Reagent blank result text.



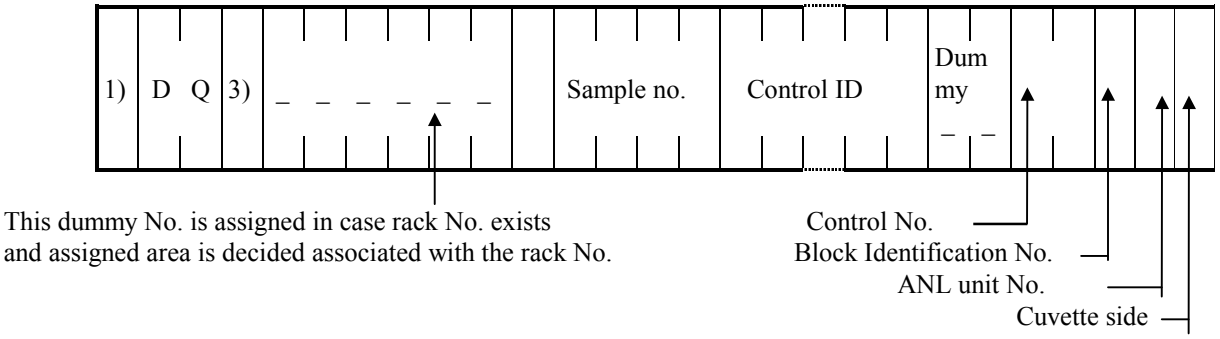
(8) Acal (Calibration) result text.

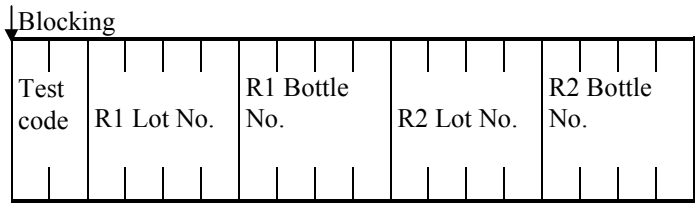


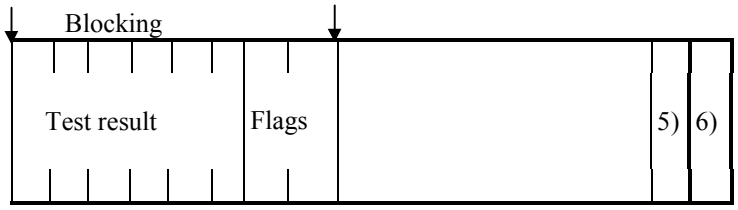




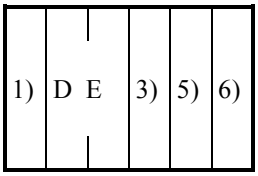
(9) QC (Quality Control) result text.







(10) End of test result transfer text.



(3.5) Relation between real-time/batch and Transmission text

- T.R.I. inquiry of Routine, Emergency, Stat and Repeat run can be selected as real-time or batch.
- Test results of all samples can be selected as real-time or batch.

(3.6) Others

(1) Contents and formats of text.

Item	Digit	Contents	Remarks
1. Rack No. ***(Optional)***	4 or 5	'0001'-'9999' or '00001'-'99999' STAT sample is space When Rack no. is no setting, Rack No. is '00000'.	• The digit of rack no. and cup pos. and these using is changeable in **[PARAMETER] [ONLINE] [PROTOCOL] menu**. • In case ,receive T.R.I. in batch.
2. Cup position ***(Optional)***	2	rack : '01'-'10' STAT : '01'-'22'	• This is automatically assigned when rack No. is in use.
3. Sample type	1	space : serum U : urine X : other	
4. Sample No.	4	'0001'-'9999' : Routine sample 'E001'-'E999' : Emergency sample 'P001'-'P999' : Stat sample 'R001'-'R999' : Reagent blank 'A001'-'A999' : Calibration sample 'Q001'-'Q999' : QC sample	
5. Sample ID	4-26	Number or character	• Number of digits can be changed in the **[PARAMETER] [FORMAT] [FORMAT REQUISITION] menu.**
6. Original Sample No.	4	'0001'-'9999' : normal sample 'E001'-'E999' : emergency sample 'P001'-'P999' : stat sample	For Repeat Run Results.
7. Reserved	4	Space	
8. Block Identification No.	1	'0'-'9' Last text is 'E'	

9.ANL unit No. ***(Optional)***	1	‘1’: AU5400 ISE ‘1’: AU5400 unit 1 ‘2’: AU5400 unit 2 ‘3’: AU5400 unit 3 ‘1’: AU2700	ANL unit No. is added to the header portion of RB, ACAL, and QC result data. Normal sample and rerun sample, it is added to each item. However, in the case of an calculate item, a space is added. In a normal sample and repeat run, it can be prevented from adding a unit number by the setup of an on-line condition menu. This option can be selected in the **[PARAMETER][ONLINE] [PROTOCOL][SPECIAL] menu.**
10.Cuvette side ***(Optional)***	1	AU5400 ‘0’ : inner cuvette (ISE Cell 1) ‘1’ : outer cuvette (ISE Cell 2) AU2700 ‘0’ : inner cuvette(ISE) ‘1’ : outer cuvette	Cuvette side is added to the header portion of RB, ACAL, and QC result data. Normal sample and rerun sample, it is added to each item. However, in the case of an calculate item, a space is added. In a normal sample and rerun, it can be prevented from adding a unit number by the setup of an on-line condition menu. This option can be selected in the **[PARAMETER][ONLINE] [PROTOCOL][SPECIAL] menu.**
11. Sex ***(Optional)***	1	M : male F : female SP : none sex 0 : no-set	• These items can be selected/canceled in the **[PARAMETER] [FORMAT] [FORMAT REQUISITION] menu.**
12. Age ***(Optional)***	3	'000'-'150' space : no-set *1	
13. Month ***(Optional)***	2	'00'-'11' space : no-set *1	
14. Patient Information ***(Optional)***	20	number or character	
15. Online Test No.	2	'01'-'99'	• This number can be changed in the **[PARAMETER] [ONLINE] [TEST NO.]**
16. Method	1	'0':normal '1':dilution ‘2’:condense	For Repeat Run Results.

17. Test result	8 or 11	Test Result digits can be 6 or 9. Flags digits is 2. Refer to Appendix 1 (Flags List)	• 0 suppress can be selected/canceled in online parameter menu • Number of digits can be changed to 6 or 9 in online parameter menu.
18. Lot No. and Bottle No. ***(Optional)***	4*4	Number or character	• This option can be selected in the **[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.**

Remark *1: If only age is the space in the text from a host, AU2700/AU5400 will output an error. The combination of Age and Month is as follows.

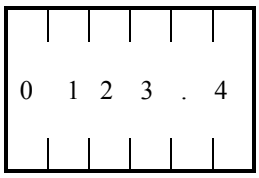
Host -> AU2700/5400

Pattern	Age	Month	Result
1	Spaces	Spaces	OK
2	XXX	Spaces	OK
3	Spaces	XX	Error
4	XXX	XX	OK

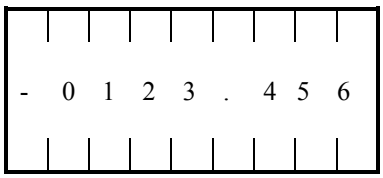
(2) Test result format.

A. Test result

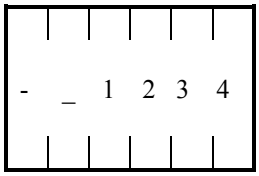
- Data digit is 6 and 0 suppress is not used.



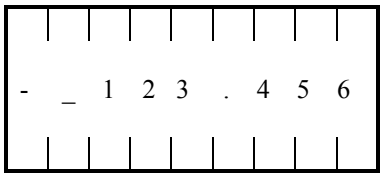
- Data digit is 9 and 0 suppress is not used.



- Data digit is 6 and 0 suppress is used.

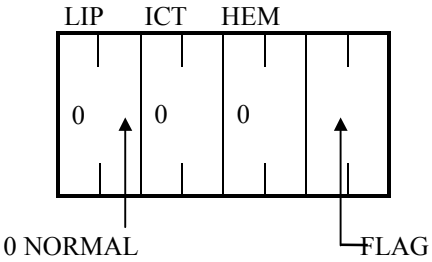


- Data digit is 9 and 0 suppress is used.



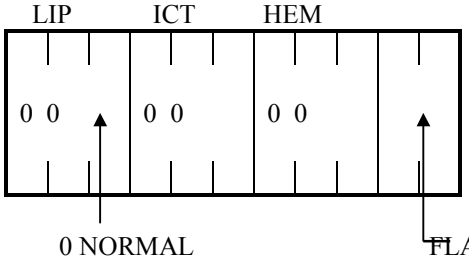
B. LIH result

- Data digit is 6 and 0 suppress is not used.



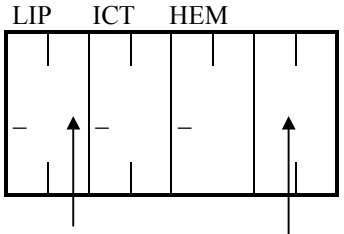
0 NORMAL
1 +
2 ++
3 +++
4 ++++
5 +++++
6 ABN
9 Test not performed.

- Data digit is 9 and 0 suppress is not used.



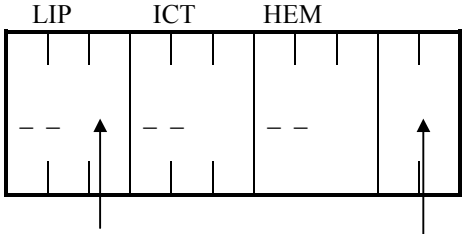
0 NORMAL
1 +
2 ++
3 +++
4 ++++
5 +++++
6 ABN
9 Test not performed.

- Data digit is 6 and 0 suppress is used.



0 NORMAL
FLAG
1 +
2 ++
3 +++
4 ++++
5 +++++
6 ABN
9 Test not performed.

- Data digit is 6 and 0 suppress is used.



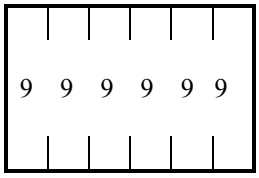
0 NORMAL
FLAG
1 +
2 ++
3 +++
4 ++++
5 +++++
6 ABN
9 Test not performed.

(3) T.R.I. of calculated tests.

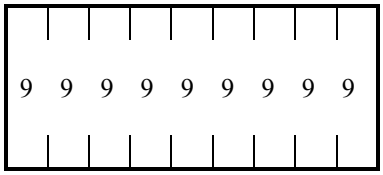
Note: Calculated Test No. in T.R.I. from Host is ignored. The tests that create the calculated tests can only be ordered from the Host.

(4) Data format that Test result data is digit over.

a. Data digit is 6.

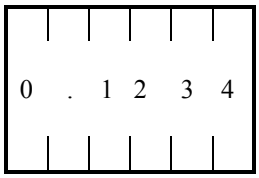


- Data digit is 9.



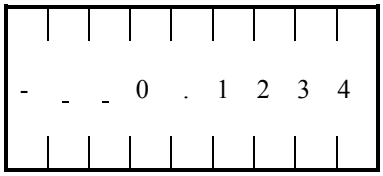
(5) Data format that Test result data is OD-value.

- Data digit is 6.



When the data is negative OD-value, it is same as digit over.

- Data digit is 9.



(6) T.R.I of LIH.

In any case, LIH test no. in T.R.I from Host is necessary for LIH analysis.

LIH Reagent Test Name	LIH Measure	
LIH	All	Even if AU2700/AU5400 does not have the request from a host, it performs LIH analysis.
	Select	AU2700/AU5400 performs LIH analysis according to the request from a host.
Other	All	Even if AU2700/AU5400 does not have the request from a host, it performs LIH analysis.
	No	LIH analysis is not performed even if AU2700/AU5400 has the request from a host.

Note 1) These can be selected by the following menus.

LIH Reagent Test Name : [PARAMETER] – [COMMON TEST PARAMETERS] – [TEST NAME]

LIH Measure : [PARAMETER] – [COMMON TEST PARAMETERS] – [ROUND]

4. Transmission Protocols

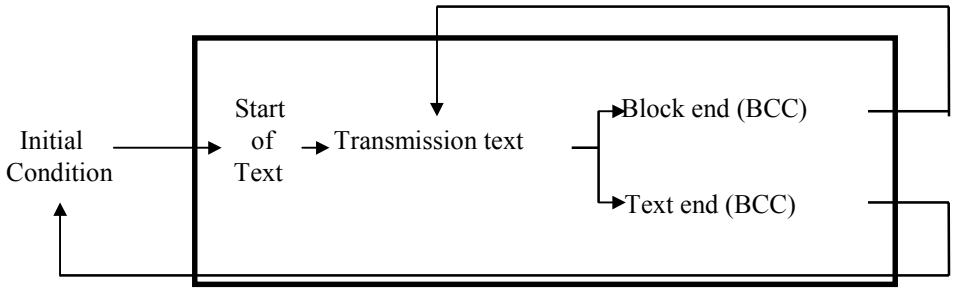
(4.1) Protocols at AU2700/5400

(1) Class A: without ACK/NAK exchange.

A. Sending

Text to be sent:

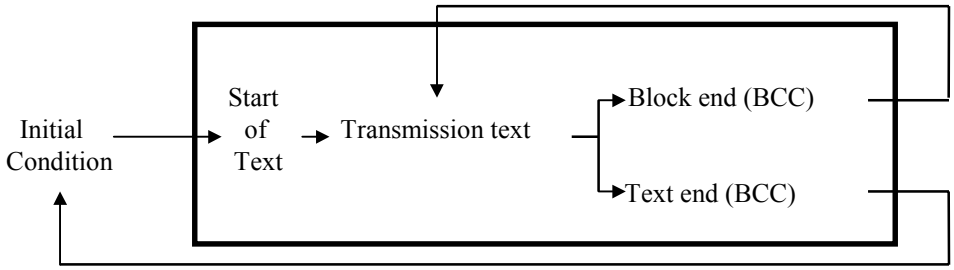
T.R.I. Inquiry text
Repeat Run T.R.I. Inquiry text
Start of Test Result Transmission text
Test Result text
Repeat Run Result text
End of Test Result Transmission text



B. Receiving

Text to be received:

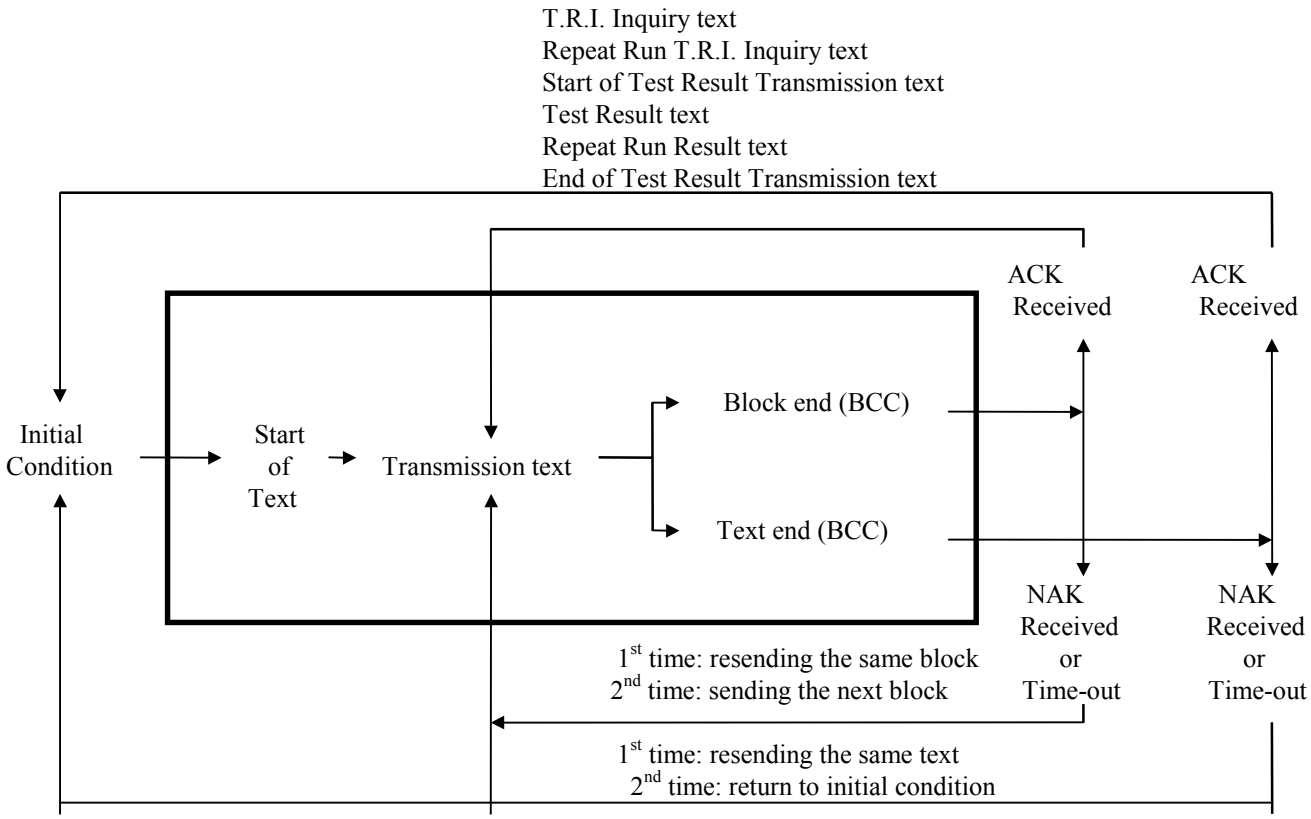
T.R.I. text
Repeat Run T.R.I. text
End of T.R.I. Transmission text



(2) Class B: with ACK/NAK protocol.

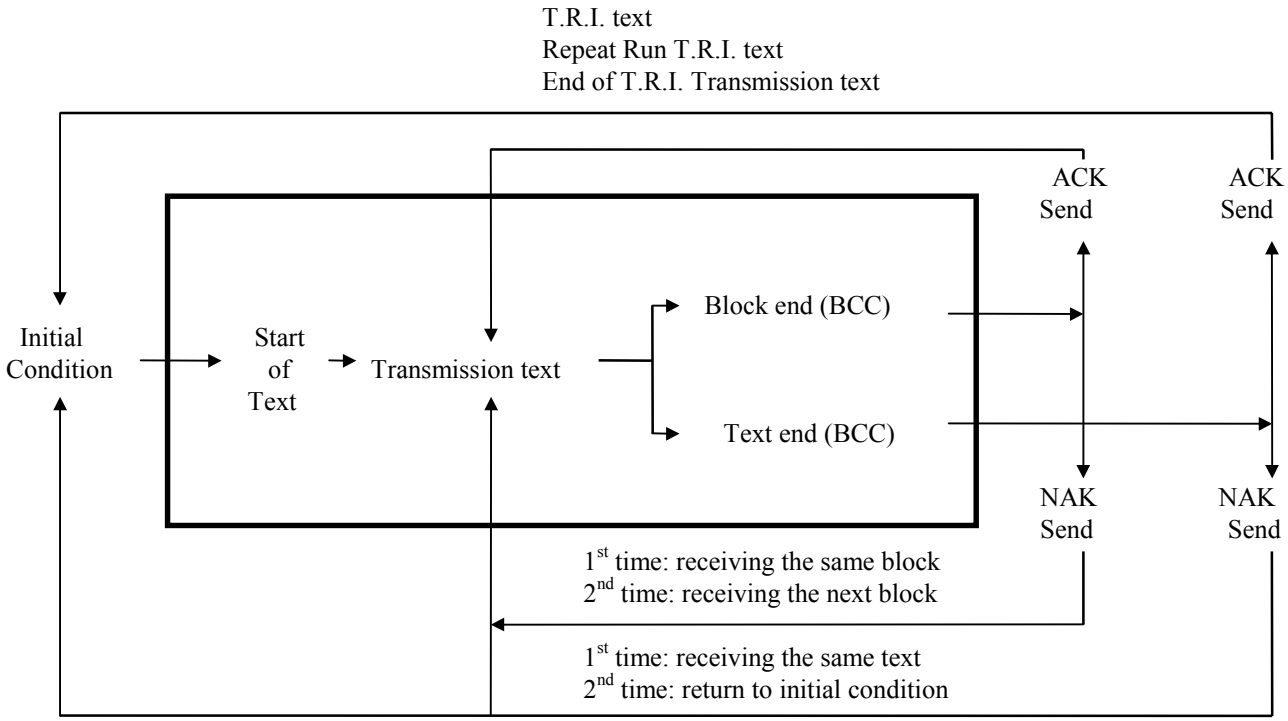
A. Sending

Text to be sent:



B. Receiving

Test to be sent:



(4.2) Timing/time-out

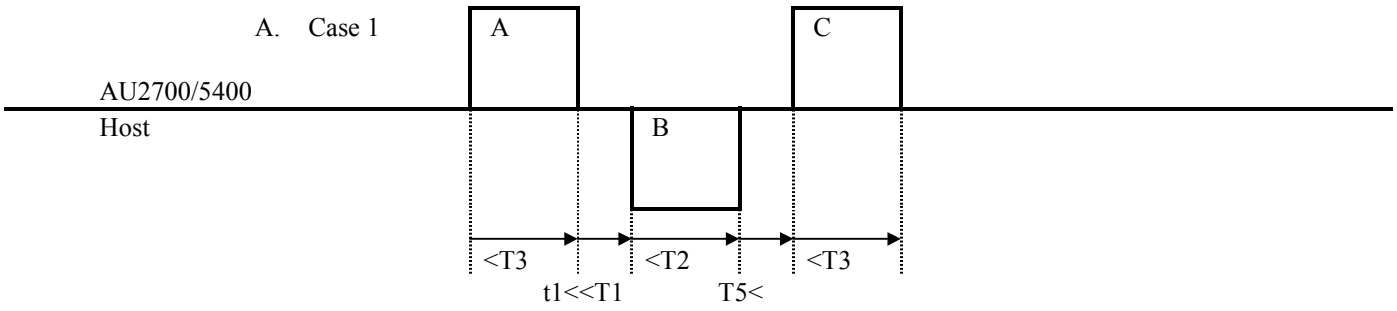
(1) Time-out/timing list .

Kind	Description	Default	Remarks
T1	Limit time from end of transfer/receive to start of text receive.	2 s	0.1 x n sec
T2	Limit time from start of text receive to end of text receive.	(Note 1)	(Note 2)
T3	Limit time from start of text transfer to end of text transfer.		n=1-99
T4	Limit time from end of text transfer to response of receive.	2 s	
T5	Interval time of transmission	2 s	
T6	Min. time from receive	1 s	
T7	Limit time from NAK response to start receive of retry text.	2 s	
t1	Min. time from end of transfer text to receivable text.	0.5 s	Not Changeable
t2	Min. time from end of transfer text to next receivable text.	0.5 s	
t3	Min. time from end of transfer text to receivable Response.	0.5 s	
t4	Min. time from end of receiving text to transfer Response.	0.5 s	

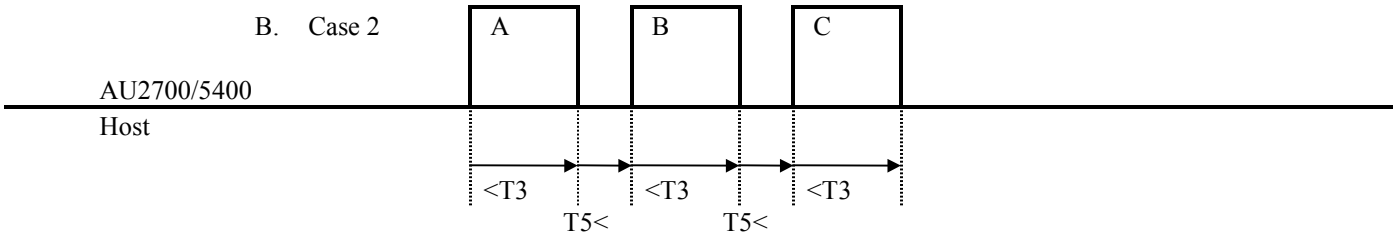
note 1) ((Max text length x Character length)/Bit/sec)+ 0.5 s
note 2) These time-outs can be changed in the online parameters menu.

(2) Rule of class A

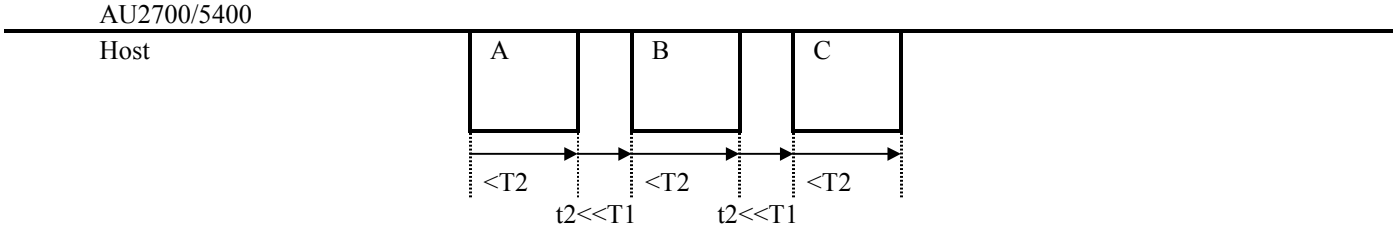
A. Case 1



B. Case 2

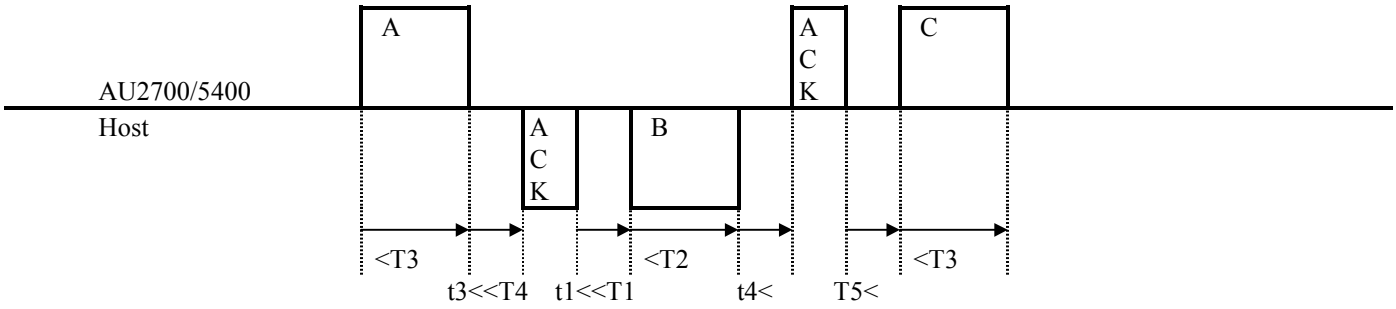


C. Case 3

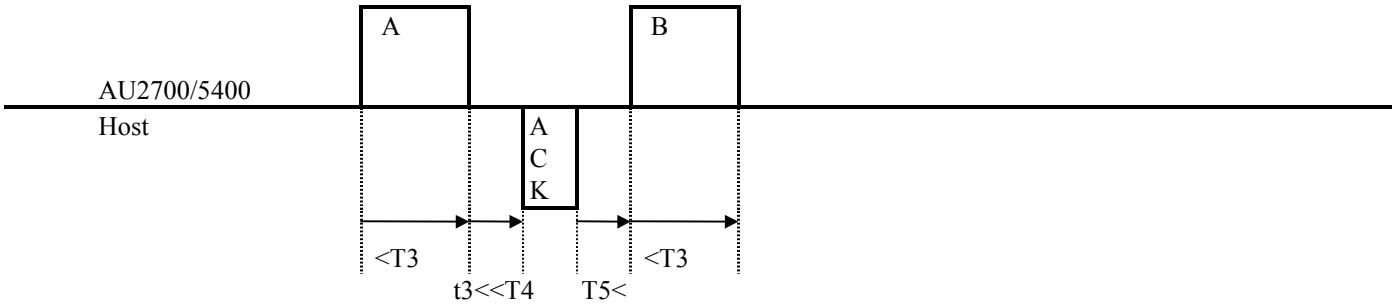


(4.3) Rule of class B

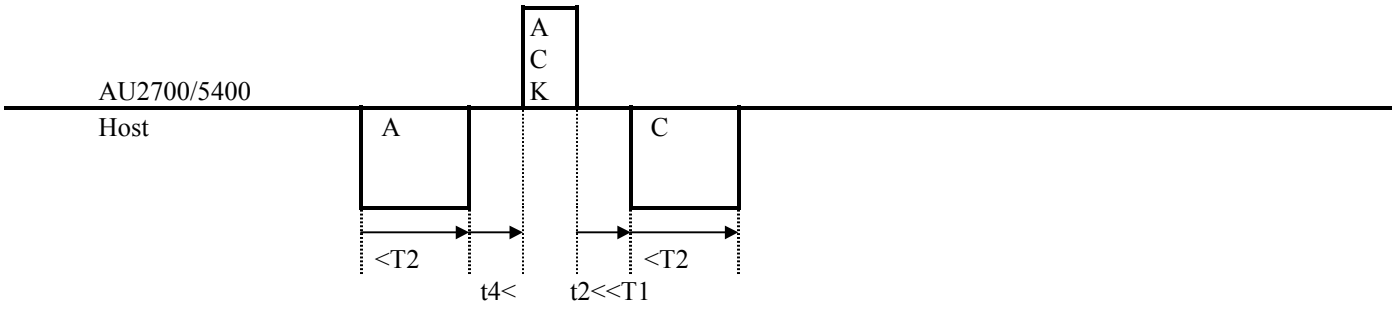
(1) Case 1



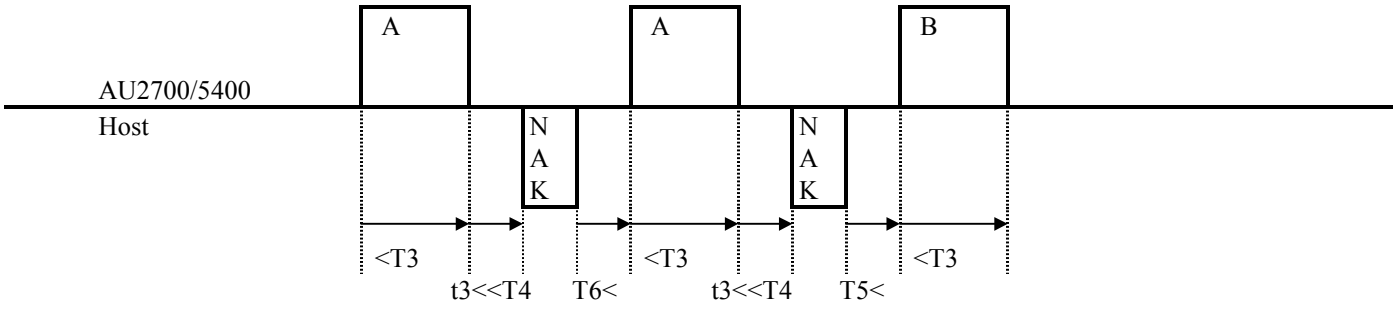
(2) Case 2



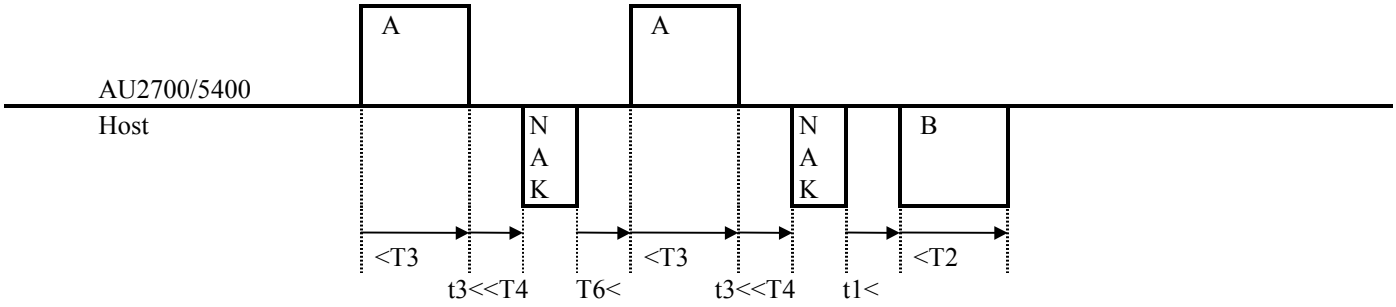
(3) Case 3



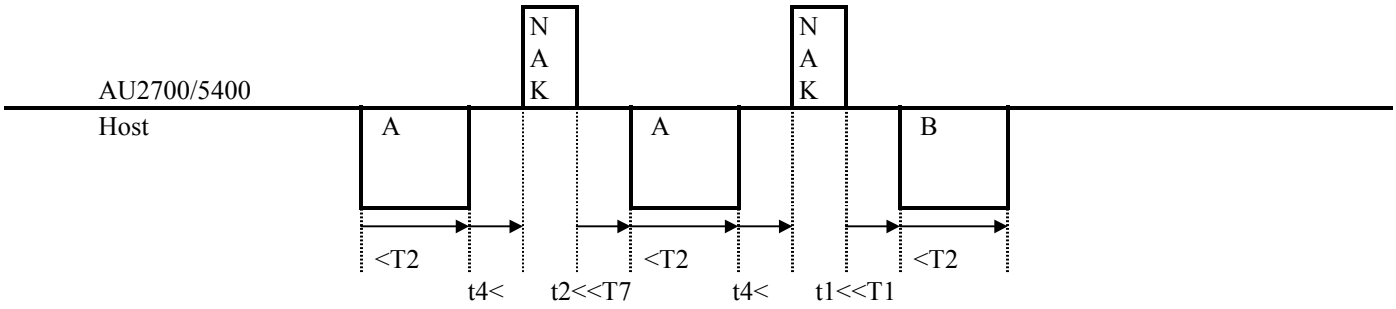
(4) Case 4 (Abnormal Case 1)



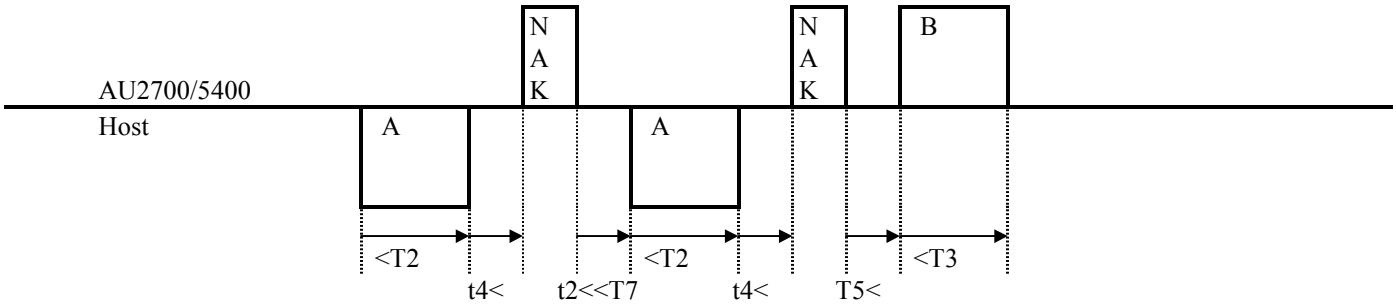
(5) Case 5 (Abnormal Case 2)



(6) Case 6 (Abnormal Case 3)



(7) Case 7 (Abnormal Case 4)



5. Application Protocol

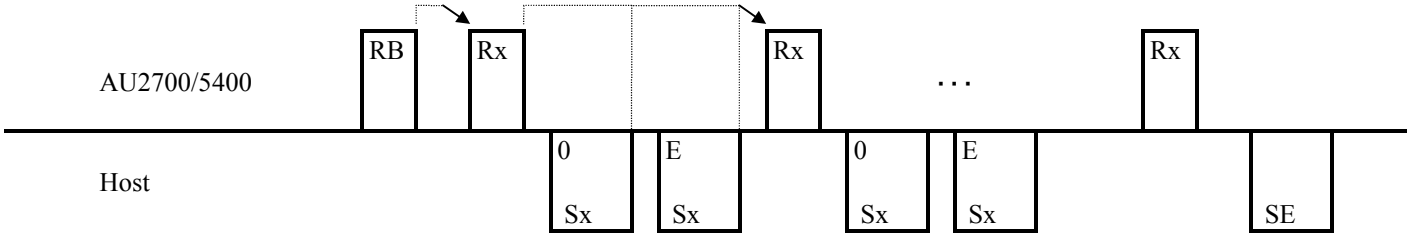
(5.1) Receiving T.R.I.

(1) Trans./receive sequence in one session.

General sequence :

A. Example 1

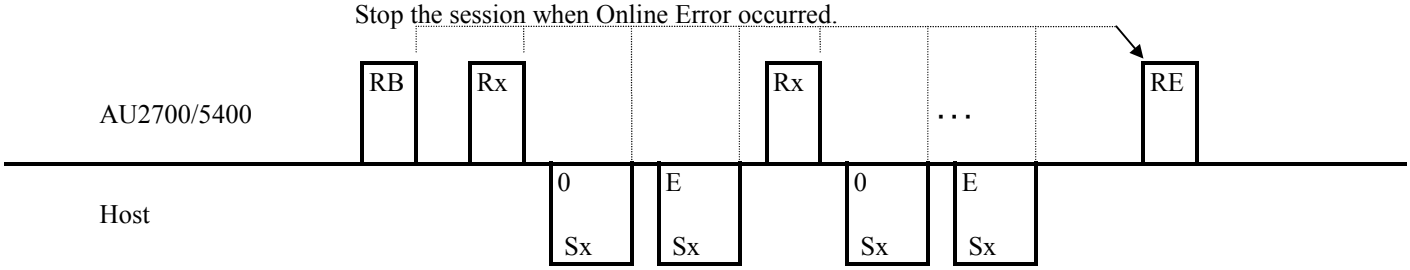
Shift next Rx-transfer when Online Error occurred.



In case 2 blocks

B. Example 2

Stop the session when Online Error occurred.



(2) Detail

T.R.I. Receive	Kind of text	Timing/condition
Real-time	RB(request Start)	This text is transferred when it is shifted from stand-by mode to start measure and then the first Rx is transmitted.
	R_ * (request normal)	(Note 2)
	Request of sample no.	When detecting cup, this Sample No. is transferred if this sample has not T.R.I..
	Request of sample id	When reading ID is normally, this Sample ID is transferred if this sample has not T.R.I..
	RH (request rerun)	(Note 2)
	Request of sample no.	When detecting cup, this Sample No. is always transmitted
	Request of sample ID	When reading ID is normally, this Sample ID is always transmitted.

remarks * _ is space.

Note 1) The number of times a T.R.I. inquiry can be sent when an online error is generated can be selected in [PARAMETER] [ONLINE] [PROTOCOL].

Note 2) It is possible that the R_-text and RH-text are mixed in one session.

Receive	Kind of text	Timing/condition
Real-time	Sx	This text can be received after end of Rx-transfer within the designated time.
	SE	
	RE (request end)	This text is transferred when shifting to the modes below. 1) measure mode to standby mode 2) measure mode to stop mode
		This text is transmitted when the communication is canceled by the online alarm.
Batch	RB (request start)	This text is transmitted when receiving T.R.I. is sent in the test requisition.
	R_ * (request Normal)	(Note 3)
	Request of sample no.	This text is transmitted at the designated time intervals. The texts are the samples that are selected in the test requisition menu.
	RH (request rerun)	(Note 3)
	Request of sample no.	This text is transmitted at the designated time intervals. The texts are the samples that are selected in the test requisition menu.
	Sx	This text can be received after end of Rx-transfer within the designated time.
	SE	
	RE (request end)	This text is transmitted when it was receiving the last sample No. in test requisition menu and SE text isn't received.
		This text is transmitted when the communication is canceled in the test requisition menu.
		This text is transmitted when the communication is canceled by the online alarm.

remarks * _ is space.
Note 3) R_-text and RH-text is transferred in separate sessions.

(3) Kind of T.R.I. transfer/receive.

A. T.R.I. of normal sample

Setting of parameters		Kind of T.R.I.	Method of T.R.I. inquiry & T.R.I.	
Receive T.R.I.. inquiry	Method of T.R.I. inquiry		T.R.I. inquiry	T.R.I.
Real-time	Sequential Rack no.	Request of sample no	Sample no	Sample no *1
			Sample no (Calculated rack No. and cup pos. No.)	
	Sample ID	Request of sample ID	Sample ID Sample no *1	Sample ID *1 Sample no *1
Batch	Sequential Rack no.	Request of sample no	Sample no.	Sample no *1
	Sample ID			Sample ID *1 Sample no *1

- Selectable setting of receiving T.R.I. in online parameter menu and requisition format menu.
- Selectable method of T.R.I. in system menu.

Remark *1: Sample no. and Sample ID of T.R.I. must be same to the Sample no. and Sample ID of T.R.I inquiry.

(4) T.R.I. of Repeat sample

Setting of parameters			Kind of T.R.I.	Method of T.R.I. inquiry & T.R.I.	
Repeat sample Receive of T.R.I.	Repeat rack	Method of T.R.I. inquiry		T.R.I. inquiry	T.R.I.
Real-time	Using	Sequential rack no.	Request of Sample no.	Repeat sample no.	Original sample no. *1 Repeat sample no.*1
		Sample ID	Request of sample ID	Sample ID Repeat sample no. *1	Sample ID *1 Repeat sample no.*1
Batch	-	Sequential rack no.	Request of sample no.	Repeat sample no.	Original sample no. *1
		Sample ID			Sample ID *1

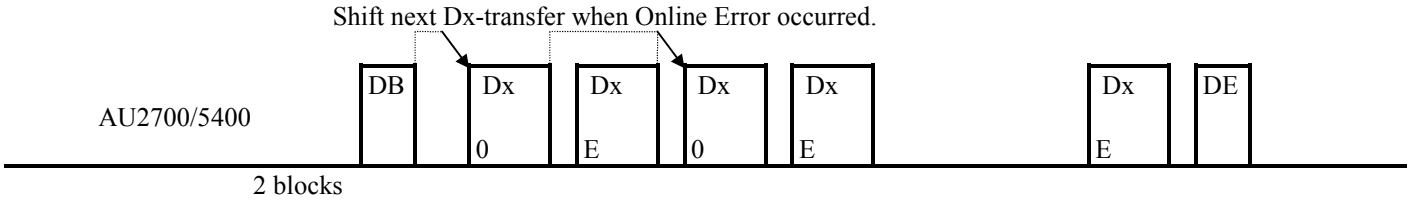
Remark *1: Repeat sample no. and sample ID of T.R.I. must be same as the Repeat sample no. and sample ID of T.R.I inquiry.

(5.2) Sending test result protocol

(1) Transfer sequence for one session.

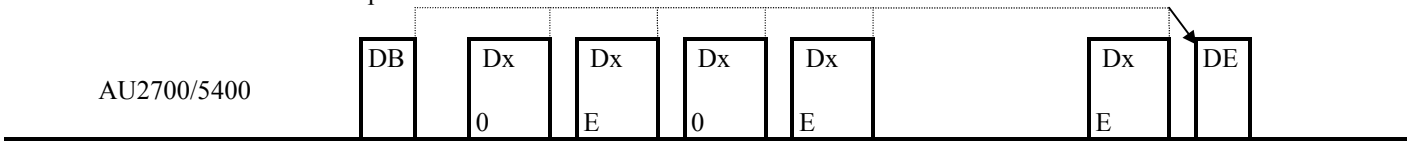
General sequence :

A. Example 1



B. Example 2

Stop session when Online Error occurred.



(2) Detail

Data Trans.	Kind of text	Timing/condition	Normal end	Online error
Real -time	DB (START)	This text is transmitted when it is shifted from stand-by mode to measure mode and just behind the first Dx is transmitted.	It is shifting the transfer of the test results.	It is output the alarm and it is executed the below • Error protocol is stop. ⟶ It is canceled the transfer of Dx/DE • Error protocol is continue ⟶ It is shifting next the transfer of Dx/DE.
	Dx (result data)	It is transmitted one by one the samples that are finished measuring.	It is shifting next The transfer of Dx/DE.	
	DE (end)	This text is transmitted after the last transfer of Dx text and the below shifting mode. 1) measure mode to standby 2) measure mode to stop	It is ended the session of transfer of The text of test results.	It is output the alarm and ended the session of the transfer of the text of test results.
		This text is transmitted when the communication is canceled by the online alarm.		

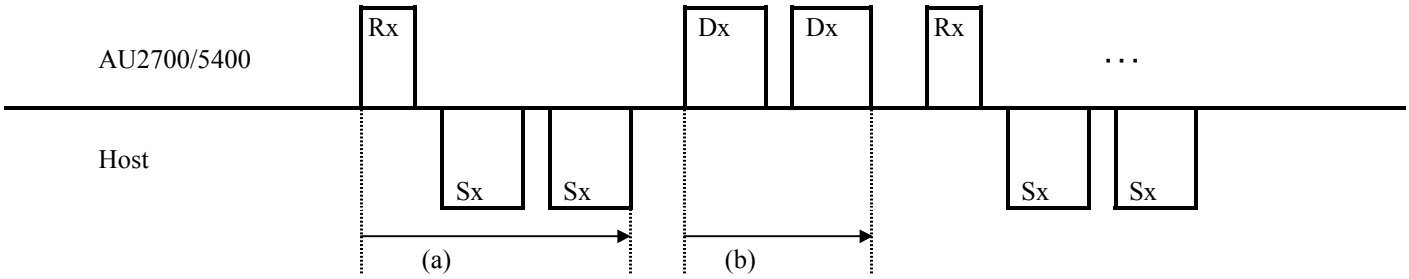
Data Trans.	Kind of text	Timing/condition	Normal end	Online error
Batch	DB (start)	This text is transmitted when it selected the start of transmission in the online menu.	It is shifting the transfer of the test Results.	It is output the alarm and it is executed the below • Error protocol is stop. ⟶ It is canceled the transfer of Dx/DE • Error protocol is continue. ⟶ It is shifting next the transfer of Dx/DE.
	Dx (result data)	This text is transmitted at the designate time intervals. The text are the samples that is selected in the online menu	It is shifting next The transfer of Dx/DE.	
	DE (end)	This text is transmitted when it was transmitting the sample No. that is selected in online menu and it was after the designated time.	It is ended the session of transfer of the text of test results.	It is output the alarm and ended The session of the transfer of the text of test results.
		This text is transmitted when the communication is canceled in the online menu.		
		This text is transmitted when the communication is canceled by the online alarm.		

Note 1) The number of times a TRI Inquiry can be sent when an online error is generated can be selected in the [PARAMETER] [ONLINE] [PROTOCOL] menu.

(5.3) Others

(1) Mixing the session of the TRT inquiry and the session of the test results.

A. General sequence



(2) Detail

Section	Definition of section	Limitation
(a)	The start of the transmission of the text of T.R.I. inquiry -- The end of the receiving of all T.R.I. for one samples	Don't transmit the Test result text.
(b)	The start of the transmission of the text of the test results -- The end of the receiving of all result for one samples	Don't transmit the T.R.I. text.

6. Specification of Connection

(6.1) In/Output signals and Terminals

Signal Name	Abbrv.	PC Terminal at AU2700/5400	Direction	Terminal at host computer (25 Pin Configuration)
Ground	FG	-	⟷	1
Data sent	TxDATA	3	→	3 (Rx DATA)
Data receive	RxDATA	2	←	2 (Tx DATA)
Signal Ground	SG	5	⟷	7 (SG)
Request to send	RTS	7	⇄	
Clear to send	CTS	8		

Caution: RTS and CTS must be connected directly.

(6.2) Signal Level

Signal/Signal Format	Signal Level
SPACE (ON)	+3V and higher ("H")
MARK (OFF)	-3V and lower ("L")

Note: "H" stands for "HIGH LEVEL" and "L" for "LOW LEVEL".

(6.3) Applicable Connector

Style of connector : Confirm the standard of IBM PC (RS232 DB9 Male)
Provide a RS232 DB9 Female connector.
Style of connector Cover : ditto

(6.4) Others

A. **When powering ON or OFF the host computer system, ensure that the AU2700/5400 is in Standy mode. Powering ON or OFF the host computer system while the AU2700/5400 is being operated may result in abnormality function of the AU2700/5400.**

B. **The cable for host communication is not included in the AU2700/5400 standard accessories. A shielded cable must be used for host connection.**

C. **Do not use the terminals on the AU2700/5400 other than No. 2,3,5,7, or 8 for any purpose.**

A. Appendix

(1) Flags list

Flag	Contents
(	Failed to evade the contamination since the detergent for evading the contamination is not enough.
%	The sample probe is clogged with sample.
?	Calculation unable due to abnormal photometric data
#	Sample level detection error
R	Reagent level detection error
!	Calculation unable due to abnormal data
U	Reagent absorbance value at P-START of Reagent Blank run, is smaller than the Lower limit of the Parameter.
u	Reagent absorbance value at P-START is lower than the lower limit specified In the Parameters in routine run.
Y	Reagent absorbance value at P-END of Reagent Blank run, is greater than the Upper limit of the Parameter.
y	Reagent absorbance value at P-END is higher than the upper limit specified In the Parameters in routine run.
@	Abnormally high result; absorbance of every wavelength is more than 2.5.
$	No linearity validation conducted because less than 3 data obtained in the Kinetics.
D	Too quick reaction slope in increasing kinetics, absorbance at P-START is Higher than MAX. OD in increasing FIXED assay, or too slow reaction slope In decreasing kinetics (= no reaction observed)
B	Too quick reaction slope in increasing kinetics, or absorbance at P-END is Lower than MIN. OD in increasing FIXED assay. Linearity error in kinetics.
*	Linearity error in kinetics.
&	Prozone data error (prozone check point data error)
Z	Prozone error
F	Result higher than the dynamic range specified in the Parameters
G	Result lower than the dynamic range specified in the Parameters
x	Other QC data error
1	QC result beyond the QC value range specified in the Parameters
2	Multi-rule QC data error
3	Multi-rule QC data error
4	Multi-rule QC data error
5	Multi-rule QC data error
6	Multi-rule QC data error
7	Multi-rule QC data error
p	Result beyond the panic value specified in the Parameters
T	Abnormality found in the Inter-Item Check
P	Result higher than DECIDE RANGE designated in parameters.
N	Result lower than DECIDE RANGE designated in parameters.
H	Higher than the result value range specified in the Parameters
L	Lower than the result value range specified in the Parameters
J	Result higher than the repeat run range specified in the Parameters
K	Result lower than the repeat run range specified in the Parameters
S	Result extracted for repeat run

/	Test not performed: test has been requisitioned but not performed due To any reason.
r	transferred data to host
e	edited data
c	correct data by manual correction
a	On-board stability over
b	Calibration stability over or Calibration does not exist.
)	Current reagent lot number was different from reagent lot No. when ACAL analysis

(2) Online parameters list

Transmission information		Contents	menu
T.R.I. receive			
	Normal sample	Real-time/batch/none	[PARAMETER] [ONLINE] [SETUP] menu.
	Emergency sample	Real-time/batch/none	
	Stat sample	Real-time/batch/none	
	Normal Repeat sample	Real-time/batch/none	
	Emergency Repeat sample	Real-time/batch/none	
	Stat Repeat sample	Real-time/batch/none	
Test result transfer			
	Normal sample	Real-time/batch/none	
	Emergency sample	Real-time/batch/none	
	Stat sample	Real-time/batch/none	
	Stat Fast sample	Real-time/none	
	Normal Repeat sample	Real-time/batch/none	
	Emergency Repeat sample	Real-time/batch/none	
	Stat Repeat sample	Real-time/batch/none	
	QC sample	Real-time/batch/none	
	Calibration sample	Real-time/batch/none	
	Reagent blank sample	Real-time/batch/none	

Protocol 2		Contents	menu
Error control			
	Receive	Continue/stop	[PARAMETER] [ONLINE] [PROTOCOL] menu.
	Transfer	Continue/stop	

Protocol –1		Contents	menu
Data format			
	character length	7/8	[PARAMETER] [ONLINE] [PROTOCOL] menu.
	parity bit	ODD/EVEN/none	
	stop bit	1/2	
Basic text format			
	start code 1	00H-FFH	[PARAMETER] [ONLINE] [PROTOCOL] menu.
	start code 2	00H-FFH	
	end code 1	00H-FFH	
	end code 2	00H-FFH	
	Max text length	256/512/1024	
	unit no.	00-99 space	
	use ETB	use/none	
Sequence control			
	bit/sec	4800/9600	
	protocol	class A/class B	
	BCC check	use/none	
	retry times	(0-3)	
	time out T1	nn	
	T2	nn	
	T3	nn	
	T4	nn	
	T5	nn	
	T6	nn	
	T7	nn	

Text Format

Text information	Contents	menu
rack no. /cup position rack no. digit	use/none 4/5	[PARAMETER] [ONLINE] [PROTOCOL] menu.
Sex age/month	use/none use/none	[PARAMETER] [FORMAT] [REQUISITION FORMAT] menu.
patient information 1 patient information 2 patient information 3 patient information 4 patient information 5 patient information 6	use/none digits use/none digits use/none digits use/none digits use/none digits use/none digits	[PARAMETER] [FORMAT] [REQUISITION FORMAT] menu.
sample ID digits	4-26 digits	[PARAMETER] [FORMAT] [REQUISITION FORMAT] menu.
data format	6 /9 digits	[PARAMETER] [ONLINE] [PROTOCOL] menu.
data zero suppress	used/none	[PARAMETER] [ONLINE] [PROTOCOL] menu.
Sample Type	used/none	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
Dummy (Test Result Transmission Text)	used/none	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
Block Identification No.	used/none	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
ANL Unit No.	used/none Note 3	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
Cuvette Side	used/none Note 3	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
Sequence of S.No. and S.ID in T.R.I text	S.No. / S.ID	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
Sequence of S.No. and S.ID in Test result text	S.No. / S.ID	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.
Lot No. and Bottle No.	used/none	[PARAMETER] [ONLINE] [PROTOCOL] [SPECIAL] menu.

Note 1)When you send the “Block Identification No.” field as none, the program will change the parameters automatically as following. End Code = ETX
ETB Control = used

Note 3) Only a Normal sample and repeat sample can be changed.

Each of the following parameters are influenced as shown below.

	RB	R_	RH	RE	S_	SH	SE	DB	D_	d_	DH	dH	DR	DA	DQ	DE
Sample Type	-	○	×	-	○	×	-	-	○	○	×	×	×	×	×	-
Dummy (Test Result Transmission Text)	-	-	×	-	○	×	-	-	○	○	×	×	×	×	×	-
Block Identification No.	-	○	×	-	×	×	-	-	○	○	×	×	×	×	×	-
Sequence of S.No. and S.ID in T.R.I text	-	-	×	-	-	×	-	-	-	-	×	×	×	×	×	-
Sequence of S.No. and S.ID in Test result text	-	-	-	-	-	-	-	-	○	○	×	×	×	×	×	-
ANL Unit No.	-	-	-	-	-	-	-	-	○	○	○	○	×	×	×	-
Cuvette Side	-	-	-	-	-	-	-	-	○	○	○	○	×	×	×	-
Lot No. and Bottle No.	-	-	-	-	-	-	-	-	○	○	○	○	○	○	○	-

○ : influenced
× : not influenced
- : not apply

(3) Character Table

HIGH LOW	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		DE	SP	0	@	P		p								
1	SH	D1	!	1	A	Q	a	q								
2	SX	D2	"	2	B	R	b	r								
3	EX	D3	#	3	C	S	c	s								
4	ET	D4	$	4	D	T	d	t								
5	EQ	NK	%	5	E	U	e	u								
6	AK	SN	&	6	F	V	f	v								
7	BL	EB	'	7	G	W	g	w								
8	BS	CN	(	8	H	X	h	x								
9	HT	EM	)	9	I	Y	i	y								
A	LF	SB	*	:	J	Z	j	z								
B	H M	EC	+	;	K	[	k	{								
C	CL	FS	,	<	L	\	l	|							
D	CR	GS	-	=	M	]	m	}								
E	SO	RS	.	>	N	^	n	~								
F	SI	US	/	?	O	_	o	DL								

From 20H to 7EH: These characters can be used for the Sample ID code.
From 30H to 39H: These characters can be used for Test numbers.
A1 - DC is Japanese character set.

(4) AU2700/5400 Online Parameter Sheet

Set up		Setting
T.R.I. Receive		
	Routine Normal	☐ real time ☐ batch ☐ none
	Routine Emergency	☐ real time ☐ batch ☐ none
	Routine Repeat	☐ real time ☐ batch ☐ none
	Emergency Repeat	☐ real time ☐ batch ☐ none
	Stat Normal	☐ real time ☐ batch ☐ none
	Stat Repeat	☐ real time ☐ batch ☐ none
Results Transfer		
	Routine Normal	☐ real time ☐ batch ☐ none
	Routine Emergency	☐ real time ☐ batch ☐ none
	Routine Repeat	☐ real time ☐ batch ☐ none
	Emergency Repeat	☐ real time ☐ batch ☐ none
	Stat Normal	☐ real time ☐ batch ☐ none
	Stat Repeat	☐ real time ☐ batch ☐ none
	Stat Fast	☐ real time ☐ none
	QC	☐ real time ☐ batch ☐ none
	Calibration	☐ real time ☐ batch ☐ none
	Reagent blank	☐ real time ☐ batch ☐ none
Upper protocol		Setting
Error control		
	T.R.I. Receive	☐continue ☐ stop
	Results Transfer	☐continue ☐ stop
Lower protocol		Setting
Character format		
	Character length.	☐ 7 ☐ 8
	Parity bit	☐ odd ☐ even ☐ none
	Stop bit	☐ 1 ☐ 2
Data format		
	Start code 1	[ ] (01-1F)
	Start code 2	[ ] (00-1F)
	End code 1	[ ] (01-1F)
	End code 2	[ ] (00-1F)
	Text length	☐ 256 ☐ 512 ☐ 1024
	Unit No.	[ ] (00-99 space)
	ETB control	☐ yes ☐ no
SEQ. Control		
	Bit/sec	☐ 4800 ☐ 9600
	Class	☐ Class A ☐ Class B
	BCC check	☐ yes ☐ no
	Retry	[ ] (0-3)
	Time out T1	[ ] (0-99)
	T2	[ ] (0-99)
	T3	[ ] (0-99)
	T4	[ ] (0-99)
	T5	[ ] (0-99)
	T6	[ ] (0-99)
	T7	[ ] (0-99)
Text format		Setting

Rack No.	☐ none ☐ 4 ☐ 5
Sex	☐ yes ☐ no
AGE/MONTH	☐ yes ☐ no
patient inf. 1	☐ yes[ ]digits ☐ no
patient inf. 2	☐ yes[ ]digits ☐ no
patient inf. 3	☐ yes[ ]digits ☐ no
patient inf. 4	☐ yes[ ]digits ☐ no
patient inf. 5	☐ yes[ ]digits ☐ no
patient inf. 6	☐ yes[ ]digits ☐ no
ID digits	[ ]digits (4-26)
Data format	☐ 6 ☐ 9
ZERO Suppress	☐ yes ☐ no
Sample Type	☐ yes ☐ no
Dummy	☐ yes ☐ no
Block Identification	☐ yes ☐ no
ANL unit No.	☐ yes ☐ no
Cuvette side	☐ yes ☐ no
Sequence of S.No. and S.ID in T.R.I text	☐ No. ☐ S.ID
Sequence of S.No. and S.ID in Test result text	☐ yes ☐ no
Lot No. and Bottle No.	☐ yes ☐ no

(5) ONLINE ALARM LIST

1)ONLINE ERROR [aa] [bbbbbbbbb]
<Operation>
(1). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive has been designated as "STOP", then the following will occur:
1) Text following the alarm will not be received.
2) In a case when the text requisition is received real-time,the "STOP" status is ignored at the start of the next analysis and the text requisition will be received real-time again.
(2). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive has been designated to "CONTINUE", the test requisition for the next sample will be received real-time.
<Description>
(1).Communication error occurs when transmittng the text for test requisition or when receiving the test requisition format.
(2).The display in the [ ] and its meaning are as follows.
aa : type of the errors

---

01 : Device name error
02 : Framing error
03 : Over run error
04 : Parity error
05 : Time out error
06 : Receive NAK when transmitting a text
07 : BCC error when receiving a text
08 : Other communication errors
09 : Function error (Full Duplex instead of Half Duplex)
10 : Unit name error
11 : Parameter error
12 : Request cancel

---

bbbbbbbbb : Text having error

RB : Start text for receiving the test requisition information.
RE : End text for receiving the test requisition information.
R_ __ nnnn : normal run, normal sample, sample No.
R_ _E nnnn : normal run, emergency sample, sample No.
R_ _P nnnn : normal run, STAT sample, sample No.
R_ U_ nnnn : normal run, urine sample, sample No.
R_ UE nnnn : normal run, urine emergency sample, sample No.
R_ UP nnnn : normal run, urine STAT sample, sample No.
R_ X_ nnnn : normal run, urine sample, sample No.
R_ XE nnnn : normal run, urine emergency sample, sample No.
R_ XP nnnn : normal run, urine STAT sample, sample No.
RH __ nnnn : repeat run, normal sample, sample No.
RH _E nnnn : repeat run, emergency sample, sample No.
RH _P nnnn : repeat run, STAT sample, sample No.
RH U_ nnnn : repeat run, urine sample, sample No.
RH UE nnnn : repeat run, urine emergency sample, sample No.
RH UP nnnn : repeat run, urine STAT sample, sample No.
R_ __ xxxxxxxxxxx: normal run, normal sample, sample ID
R_ _E xxxxxxxxxxx: normal run, emergency sample, sample ID
R_ _P xxxxxxxxxxx: normal run, STAT sample, sample ID
R_ U_ xxxxxxxxxxx: normal run, urine sample, sample ID
R_ UE xxxxxxxxxxx: normal run, urine emergency sample,sample ID
R_ UP xxxxxxxxxxx: normal run, urine STAT sample, sample ID
R_ X_ xxxxxxxxxxx: normal run, urine sample, sample ID
R_ XE xxxxxxxxxxx: normal run, urine emergency sample,sample ID
R_ XP xxxxxxxxxxx: normal run, urine STAT sample, sample ID
RH __ xxxxxxxxxxx: repeat run, emergency sample, sample ID
RH _E xxxxxxxxxxx: repeat run, emergency sample, sample ID
RH _P xxxxxxxxxxx: repeat run, STAT sample, sample ID

RH U_ xxxxxxxxxxx: repeat run, urine sample, sample ID
RH UE xxxxxxxxxxx: repeat run, urine emergency sample, sample ID
RH UP xxxxxxxxxxx: repeat run, urine STAT sample, sample ID
RH X_ xxxxxxxxxxx: repeat run, emergency sample, sample ID
RH XE xxxxxxxxxxx: repeat run, emergency sample, sample ID
RH XP xxxxxxxxxxx: repeat run, STAT sample, sample ID
---

2)ONLINE ERROR [aa] [bbbbbbbbb]

<Operation>

(1). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "STOP", the following events can occur:

1). The text following the alarm will not be received.

2). In a case when the text requisition is received real-time,the "STOP" designation is ignored and the text requisition will be received in real-time at the start of the next analysis.

(2). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "Continue", the test requisition for the next sample will be received.

<Description>

(1). Communication error occurs when transmitting the text for test requisition or receiving the test requisition format.

(2). The display in the [ ] and its meaning are as follows.

aa : type of the errors

---

01 : Device name error
02 : Framing error
03 : Over run error
04 : Parity error
05 : Time out error
06 : Receive NAK when transmitting a text
07 : BCC error when receiving a text
08 : Other communication errors
09 : Function error (Full Duplex instead of Half Duplex)
10 : Unit name error
11 : Parameter error
12 : Request cancel

---

bbbbbbbbb : Text having error

RB : Start text for receiving the test requisition information.
RE : End text for receiving the test requisition information.
R_ __ nnnn : normal run, normal sample, sample No.
R_ _E nnnn : normal run, emergency sample, sample No.
R_ _P nnnn : normal run, STAT sample, sample No.
R_ U_ nnnn : normal run, urine sample, sample No.
R_ UE nnnn : normal run, urine emergency sample, sample No.
R_ UP nnnn : normal run, urine STAT sample, sample No.
R_ X_ nnnn : normal run, Other normal sample, sample No.
R_ XE nnnn : normal run, Other emergency sample, sample No.
R_ XP nnnn : normal run, Other STAT sample, sample No.
RH __ nnnn : repeat run, normal sample, sample No.
RH _E nnnn : repeat run, emergency sample, sample No.
RH _P nnnn : repeat run, STAT sample, sample No.
RH U_ nnnn : repeat run, urine sample, sample No.
RH UE nnnn : repeat run, urine emergency sample, sample No.
RH UP nnnn : repeat run, urine STAT sample, sample No.
RH X_ nnnn : repeat run, Other normal sample, sample No.
RH XE nnnn : repeat run, Other emergency sample, sample No.
RH XP nnnn : repeat run, Other STAT sample, sample No.
R_ __ xxxxxxxxxxx: normal run, normal sample, sample ID
R_ _E xxxxxxxxxxx: normal run, emergency sample, sample ID
R_ _P xxxxxxxxxxx: normal run, STAT sample, sample ID
R_ U_ xxxxxxxxxxx: normal run, urine sample, sample ID
R_ UE xxxxxxxxxxx: normal run, urine emergency sample, sample ID
R_ UP xxxxxxxxxxx: normal run, urine STAT sample, sample ID
R_ X_ xxxxxxxxxxx: normal run, Other normal sample, sample ID
R_ XE xxxxxxxxxxx: normal run, Other emergency sample, sample ID
R_ XP xxxxxxxxxxx: normal run, Other STAT sample, sample ID
RH __ xxxxxxxxxxx: repeat run, normal sample, sample ID
RH _E xxxxxxxxxxx: repeat run, emergency sample, sample ID

RH _P xxxxxxxxxx: repeat run, STAT sample, sample ID
RH U_ xxxxxxxxxx: repeat run, urine sample, sample ID
RH UE xxxxxxxxxx: repeat run, urine emergency sample, sample ID
RH UP xxxxxxxxxx: repeat run, urine STAT sample, sample ID
RH X_ xxxxxxxxxx: repeat run, Other normal sample, sample ID
RH XE xxxxxxxxxx: repeat run, Other emergency sample, sample ID
RH XP xxxxxxxxxx: repeat run, Other STAT sample, sample ID

---

3)ONLINE FORMAT ERROR

<<Operation>>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for samples following the alarm.

<<Description>>

(1).In the Online Parameter menu, submenu Set Up, the T.R.I. receive is not designated asn "YES" for the necessary parameter.

(2).The display in the [ ] and its meaning are as follows.

aaaa : Type of error

R_ __ : normal run, a normal sample
R_ _E : normal run, an emergency sample
R_ _P : normal run, a STAT sample
R_ U_ : normal run, a urine normal sample
R_ UE : normal run, a urine emergency sample
R_ UP : normal run, a urine STAT sample
R_ X_ : normal run, a Other normal sample
R_ XE : normal run, an Other emergency sample
R_ XP : normal run, a Other STAT sample

RH __ : repeat run, a normal sample
RH _E : repeat run, an emergency sample
RH _P : repeat run, a STAT sample
RH U_ : repeat run, a urine normal sample
RH UE : repeat run, a urine emergency sample
RH UP : repeat run, a urine STAT sample
RH X_ : repeat run, a Other normal sample
RH XE : repeat run, an Other emergency sample
RH XP : repeat run, a Other STAT sample

---

bbbbbbbbbb : Information type that is not designated
No sample No.
No ID No.

4)ONLINE ILLEGAL TEXT CODE [aa]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for samples following the alarm.

<Description>

(1).When receiving the test requisition information text using online, the text classification code is out of specification.

(2).The display of [ ] and its meaning are as follows.

aa :

R_ : Normal sample

RH : Repeat run sample

---

5)ONLINE ILLEGAL TEXT BLOCK No. [aa -> bb]

<Operation>

(1). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "STOP", the following events occur:

1).Disregard the test requisition information text for the sample generating the alarm.

2).System will not receive text for samples following the sample generating the alarm.

3).In a case when the text requisition is received in real-time, the "STOP" is ignored and the text requisition text will be received with real-time again during the next analysis.

(2). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "Continue", the following events occur:

1).Disregard the test requisition information text for the sample generating the alarm.

2).The test requisition information text for the next sample will be received.

<Description>

(1).When receiving the requisition information text using online, the block identification No. is out of specification.

(2).The display of [ ] and its meaning are as follows.

aa : Previously received block identification No.

bb : Last received block identification No.

6)ONLINE ILLEGAL SAMPLE No. [aa: bbbbb]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for other samples within the run.

<Description>

(1).When receiving the test requisition information text using online, sample No. of the sample generating the alarm does not meet the specification.

(2).The display of [ ] and its meaning are as follows.

aa : Sample type

__	: Normal sample
_E	: Emergency sample
_P	: Stat sample
U_	: Urine normal sample
UE	: Urine emergency sample
UP	: Urine stat sample
X_	: Other Normal sample
XE	: Other Emergency sample
XP	: Other Stat sample

bbbb : Sample No.

0001-9999 : Normal sample
E001-E999 : Emergency
P001-P999 : Stat sample

7)ONLINE ILLEGAL RACK No. [aaaaaaa: b: ccccccc]

<Operation>

(1). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "STOP", the following events occur:

1).Disregard the test requisition information text for the sample generating the alarm.

2).System will not receive text for samples following the sample generating the alarm.

3).In a case when the text requisition is received in real-time, the "STOP" is ignored and the text requisition text will be received with real-time again during the next analysis.

(2). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "Continue", the following events occur:

1).Disregard the test requisition information text for the sample generating the alarm.

2).The test requisition information text for the next sample will be received.

<Description>

(1).When receiving the requisition information text using online, the rack No. is out of specification.

(2).The display of [ ] and its meaning are as follows.

aaa : Transferred sample type and sample No.

__ nnnn : Normal sample
_E nnnn : Emergency sample
_P nnnn : Stat sample
U_ nnnn : Urine normal sample
UE nnnn : Urine emergency sample
UP nnnn : Urine stat sample
X_ nnnn : Other normal sample
XE nnnn : Other emergency sample
XP nnnn : Other Stat sample

bbb : Received sample type and sample No.

__ nnnn : Normal sample
_E nnnn : Emergency sample
_P nnnn : Stat sample
U_ nnnn : Urine normal sample
UE nnnn : Urine emergency sample
UP nnnn : Urine stat sample
X_ nnnn : Other normal sample
XE nnnn : Other emergency sample
XP nnnn : Other Stat sample

---

b : Received the kind of rack

N : Normal sample rack
E : Emergency rack
R : Repeat run rack

---

ccccccc : Received rack No. and position in rack

8)ONLINE ILLEGAL SAMPLE KIND No. [aa]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for the other samples within the run.

<Operation>

(1).When receiving the test requisition information text using online, sample kind No. of the sample generating the alarm does not meet the specification.

(2).The display of [ ] and its meaning are as follows.

aa : Sample type

__ : Normal sample
_E : Emergency sample
_P : Stat sample
U_ : Urine normal sample
UE : Urine emergency sample
UP : Urine stat sample
X_ : Other normal sample
XE : Other emergency sample
XP : Other stat sample

---

9)ONLINE ILLEGAL GENDER TEXT [a]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for other samples within the run.

<Description>

(1).When receiving the requisition information text using online, the sex of this text is not within the specification.

(2).The display of [ ] and its meaning are as follows.

a : Received sex

10)ONLINE ILLEGAL AGE/MONTH [aaa bb]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for other samples within the run.

<Description>

(1).When receiving the requisition information text using online, age or month age (age for baby before one year old) of this text is out of the specification.

(2).The display of [ ] and its meaning are as follows.

aaa : Received age
bb : Received month age

11)ONLINE ANALYSIS METHOD MISMATCH [aa <> bb]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for other samples within the run.

<Description>

(1).When receiving the test requisition information text using online, sample type of this text does not match the required sample type.

(2).The display of [ ] and its meaning are as follows.

aa : Sample type

__	: Normal sample
_E	: Emergency sample
_P	: Stat sample
U_	: Urine normal sample
UE	: Urine emergency sample
UP	: Urine stat sample
X_	: Other normal sample
XE	: Other emergency sample
XP	: Other Stat sample

bb : Received sample type

__	: Normal sample
_E	: Emergency sample
_P	: Stat sample
U_	: Urine normal sample
UE	: Urine emergency sample
UP	: Urine stat sample
X_	: Other normal sample
XE	: Other emergency sample
XP	: Other Stat sample

12)ONLINE SAMPLE No. MISMATCH [aaaaaa <> bbbbbb]

<Operation>
(1).Disregard the test requisition information text for the sample generating the alarm.
(2).Continue to receive the test requisition information text for the other samples within the run.
<Description>
(1).When receiving the test requisition information text using online, sample type of this does not match the required sample.
(2).The display of [ ] and its meaning are as follows.

aaaaaaa : Transferred sample type and sample No.

__ nnnn : Normal sample
_E nnnn : Emergency sample
_P nnnn : Stat sample
U_ nnnn : Urine normal sample
UE nnnn : Urine emergency sample
UP nnnn : Urine stat sample
X_ nnnn : Other normal sample
XE nnnn : Other emergency sample
XP nnnn : Other Stat sample

---

bbbbbb : Received sample type and sample No.

__ nnnn : Normal sample
_E nnnn : Emergency sample
_P nnnn : Stat sample
U_ nnnn : Urine normal sample
UE nnnn : Urine emergency sample
UP nnnn : Urine stat sample
X_ nnnn : Other normal sample
XE nnnn : Other emergency sample
XP nnnn : Other Stat sample

---

13)ONLINE RACK No. MISMATCH [aaaaaa : bbbb <> cccc]

<Operation>

(1). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "STOP", the following events occur:

1).Disregard the test requisition information text for the sample generating the alarm.

2).System will not receive text for samples following the sample generating the alarm.

3).In a case when the text requisition is received in real-time, the "STOP" is ignored and the text requisition text will be received with real-time again during the next analysis.

(2). In the Online Parameter menu, submenu Error Control, if the T.R.I. receive is designated as "Continue", the following events occur:

1).Disregard the test requisition information text for the sample generating the alarm.

2).The test requisition information text for the next sample will be received.

<Description>

(1).When receiving the test requisition information text using online, rack No. of this does not match the required sample.

(2).The display of [ ] and its meaning are as follows.

aaaaaaaaa : Transferred sample type and sample No.

__ nnnn : Normal sample

_E nnnn : Emergency sample

_P nnnn : Stat sample

U_ nnnn : Urine normal sample

UE nnnn : Urine emergency sample

UP nnnn : Urine stat sample

X_ nnnn : Other normal sample

XE nnnn : Other emergency sample

XP nnnn : Other Stat sample

---

bbbb : Transferred rack No.

---

cccc : Received rack No.

---

14)ONLINE MISMATCH [aaaaaaaaa <> bbbbbbbbbb]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for the other samples within the run.

<Description>

(1).When receiving the test requisition information text using online, sample ID of this text does not match the required ones.

(2).The display of [ ] and its meaning as follows.

aaaaaaaaa : Transferred sample ID

bbbbbbbbb : Received sample ID

15)ONLINE ITEM ERROR [aaaaaaaa]

<Operation>

(1).Disregard the test requisition information text for the sample generating the alarm.

(2).Continue to receive the test requisition information text for the other samples within the run.

<Description>

(1).When receiving the test requisition information text using online, the test requisition cannot be stored.

(2).The display of [ ] and its meaning are as follows.

aaaaaa : Sample type and sample No.

__nnnn	: Normal sample
__Ennn	: Emergency sample
__Pnnn	: Stat sample
_U_nnn	: Urine normal sample
_UEnnn	: Urine emergency sample
_UPnnn	: Urine stat sample
_Xnnnn	: Other normal sample
_XEnnn	: Other emergency sample
_XPnnn	: Other Stat sample
H_nnnn	: repeat run normal sample
H_Ennn	: repeat run emergency sample
H_Pnnn	: repeat run stat sample
HUnnnn	: repeat run urine normal sample
HUEnnn	: repeat run urine emergency sample
HUPnnn	: repeat run urine stat sample
HXnnnn	: repeat run other normal sample
HXEnnn	: repeat run other emergency sample
HXPnnn	: repeat run other stat sample

---

16)ONLINE RERUN ITEM ERROR [aaaaaaaa]

<Operation>

(1).Disregard the repeat run test requisition information for the sample generating the alarm.

(2).Continue to receive the test requisition information text for the other samples within the run.

<Description>

(1).When receiving the test requisition information text for repeat run using online, repeat run test requisition cannot be stored with for the following reasons.

1).Original sample that is designated in the repeat run text is not stored in the normal run/sample test requisition information.

2).Sample No. is not set to the original sample that is designated in the repeat run text.

3).Original sample that is designated in the repeat run text has already been stored as a repeat run sample for another sample.

(2).The display of [ ] and its meaning are as follows.

---

aaaaaa : sample type and original sample No.
__nnnn : Normal sample
__Ennn : Emergency sample
__Pnnn : Stat sample
_Unnnn : Urine normal sample
_UEnnn : Urine emergency sample
_UPnnn : Urine stat sample
_Xnnnn : Other normal sample
_XEnnn : Other emergency sample
_XPnnn : Other Stat sample
