AU640

Online Specifications

Issued: 1998.9.18

Olympus Optical Co., Ltd.

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1. Outline

1) The following data is exchanged between the AU640 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) Transmission without synchronizing with analysis
(2) Transmission with synchronizing with analysis during the analytical operation

3) The Following format and protocol can be select by menu

(1) Communication protocol
(2) T.R.I. inquiry text format
(3) Test result text format

2. Basic specification

1) Format of Transmission

Item	Contents
Transmission line	RS-232C
Synchronization	Synchronization
Data transmission mode	Half-Duplex
Bit/sec	(2400bps). 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 select by 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: Nothing class B: 0-3 can be selected by menu.

2) Transmission code

Item	Contents	Limit of value
Data code	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

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	AU640 ⟶ 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 ⟶ AU640
		S_ *	T.R.I. of normal sample	
		SH	T.R.I. of rerun sample	
		SE	Stop of T.R.I. inquiry	
		D#	Test result	AU640 ⟶ 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	
		dH	Stat fast rerun result	
		DQ	QC sample result	
		DE	End of result transfer	
3) Unit No.	0,2			
4) Text code			Contents of Text	
			Data No. is added behind text of Header parts.	
5) text end code	1,2	01h-1Fh	End of text code	
6) BCC (Block Check Character)	1	00h-FFh	The sum with the Exclusive or logic between 2-5	

remarks * _ is space.

(2) Blocking

a) Definition of Term

Term	Definition
Text length	It is shown total bytes from 1) to 6).
	The part of 4) is calculated the number of bytes.
Max block length	It is shown Max length of text in one phase.
	The length of block can be selected in online parameter menu.

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</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

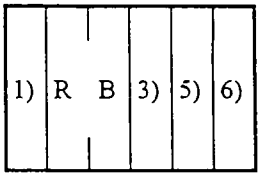
0) Common item

These following can be selected by online parameter menu.

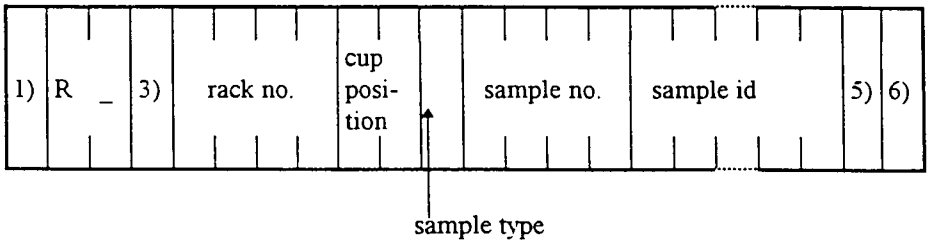
1) Text start code
3) Unit No.
5) Text end code
6) BCC

1) T.R.I. inquiry text

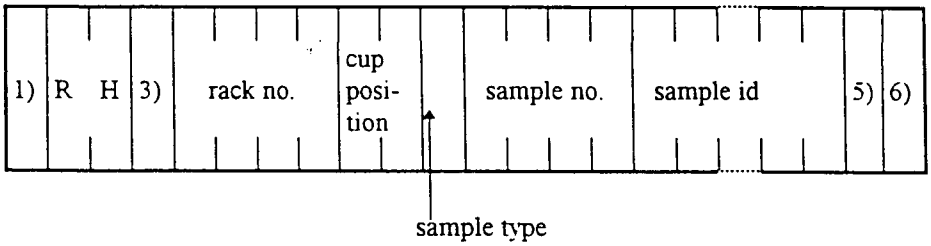
(1) Stat text to inquiry test requisition



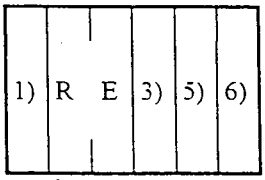
(2) Normal run inquiry test requisition



(3) Rerun inquiry test requisition

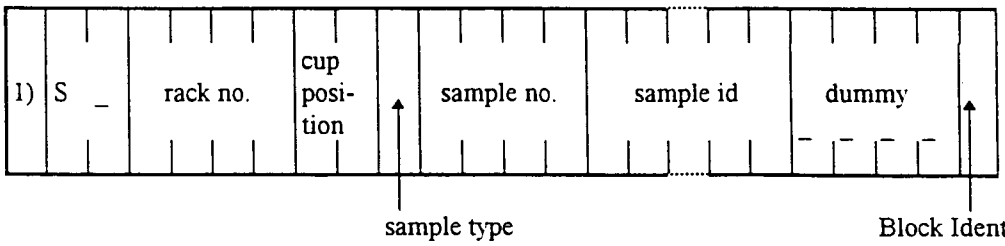


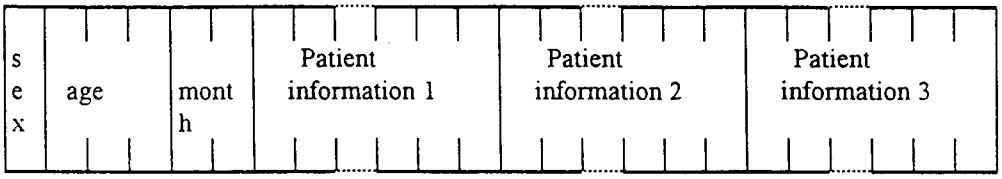
(4) End text to inquiry test requisition

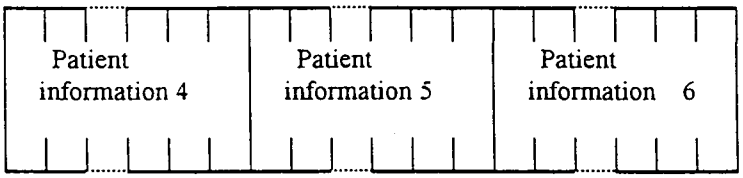


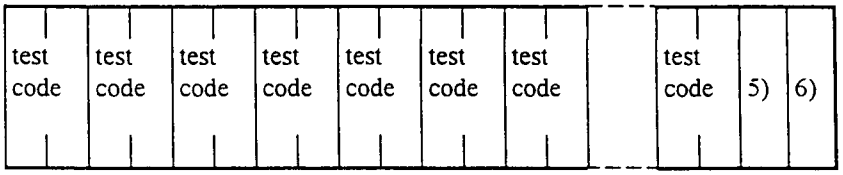
2) T.R.I. text

(1) Normal sample test requisition information text

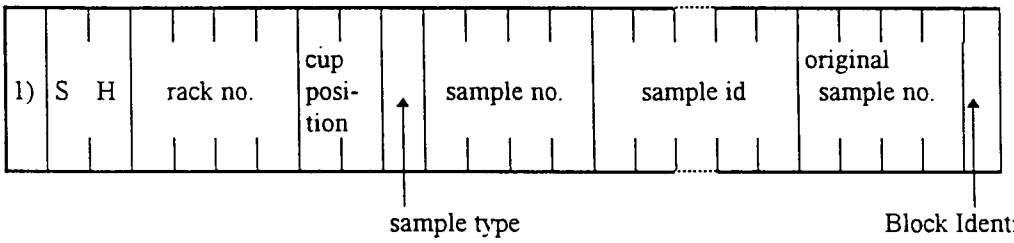


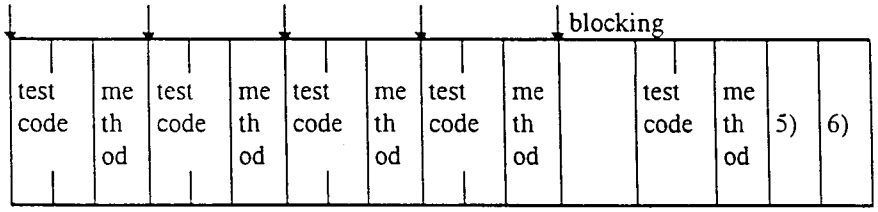




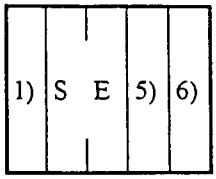


(2) Rerun sample test requisition information text



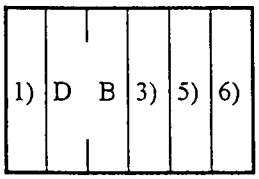


(3) End of T.R.I. transmission text

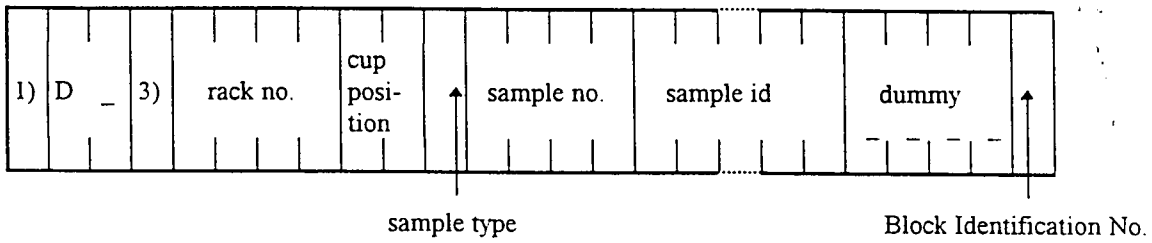


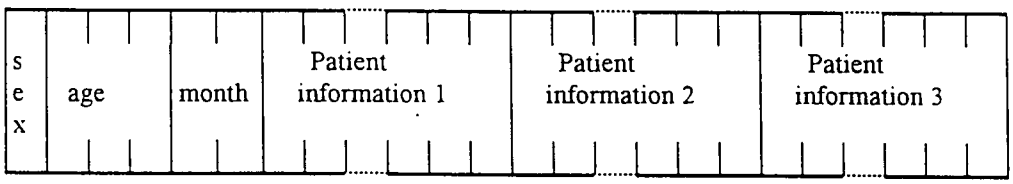
3) Test result transmission text

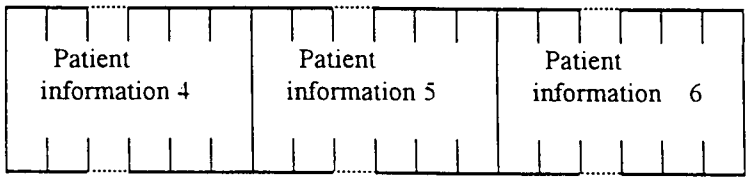
(1) Start of test result transmission text

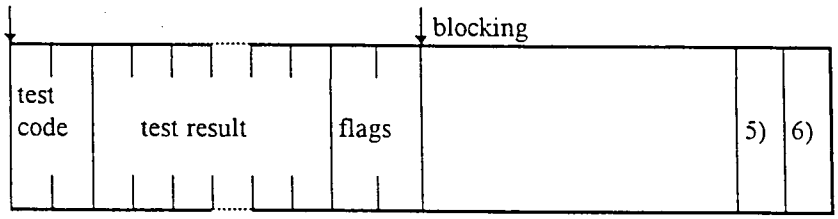


(2) Normal sample test result text

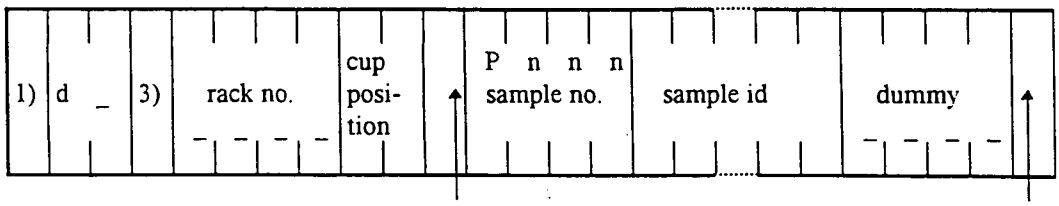






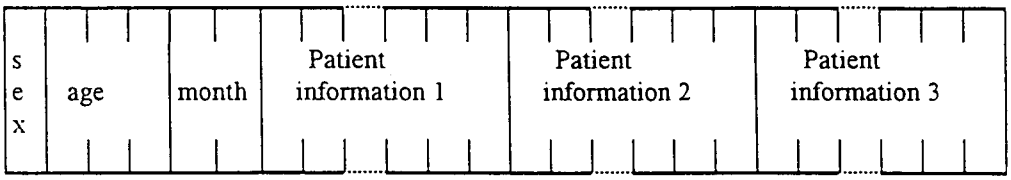


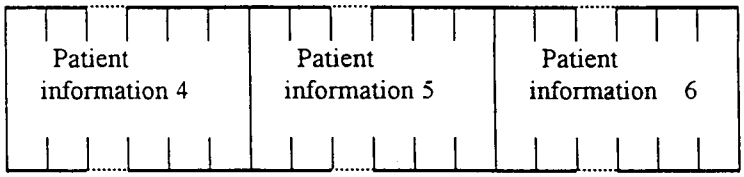
(3) Stat(fast) test result text

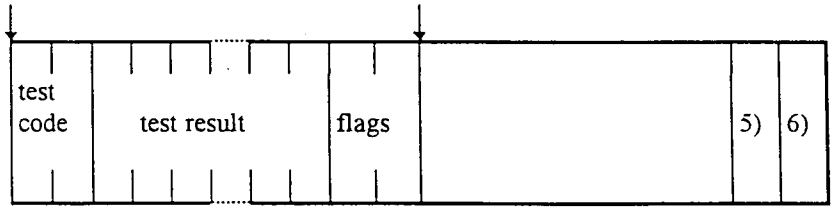


1-22 sample type

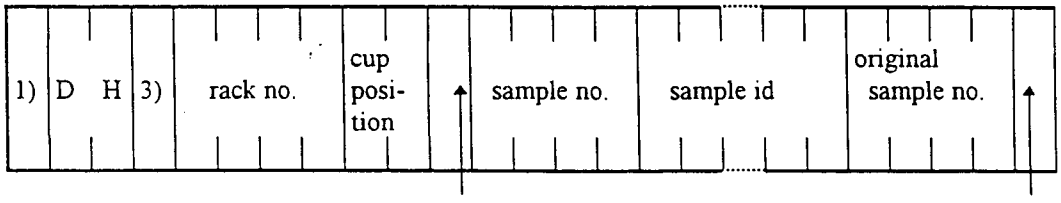
Block Identification No.





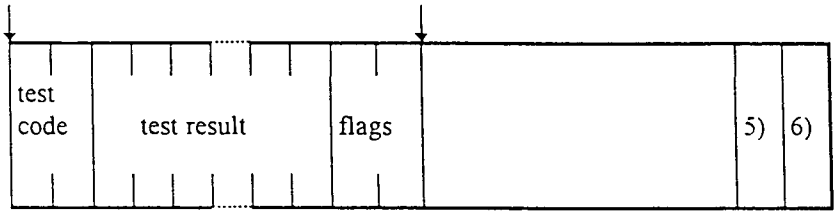


(4) Rerun result text -1

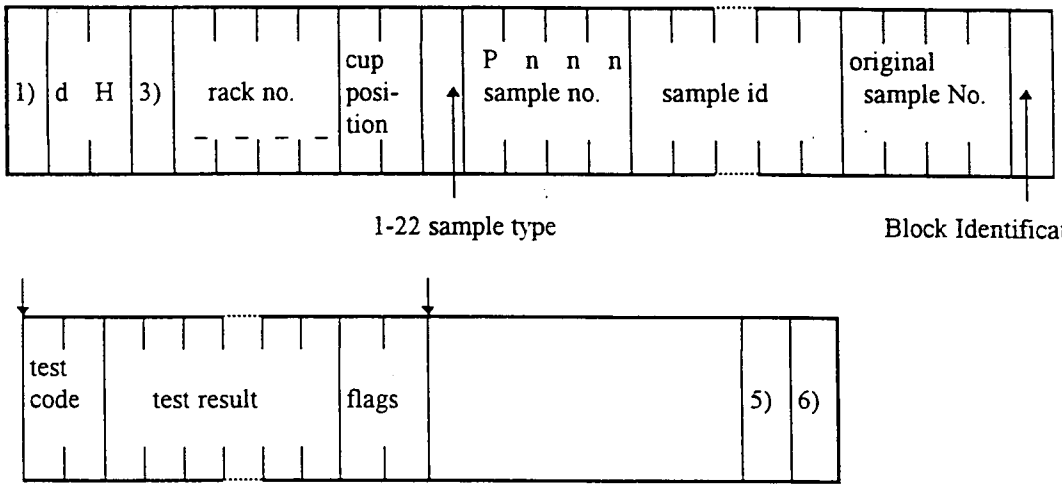


sample type

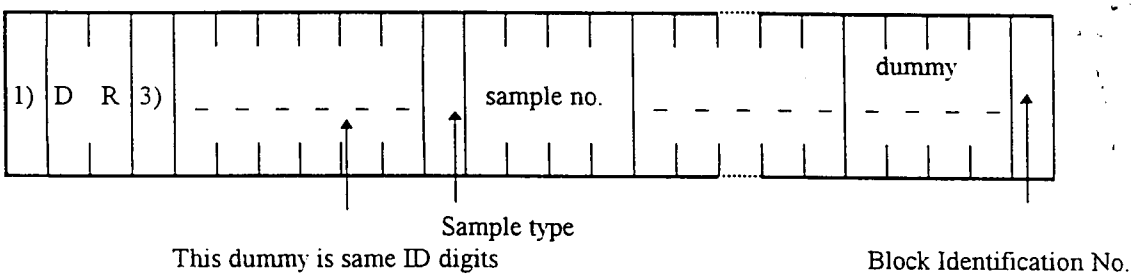
Block Identification No.



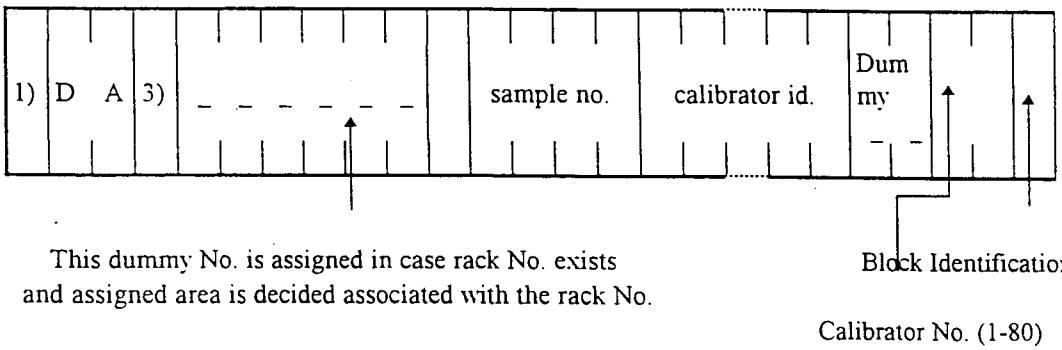
(5) Rerun result text -2(stat fast sample)

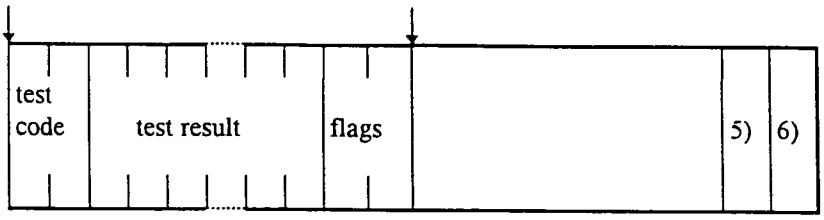


(6) Reagent blank result text

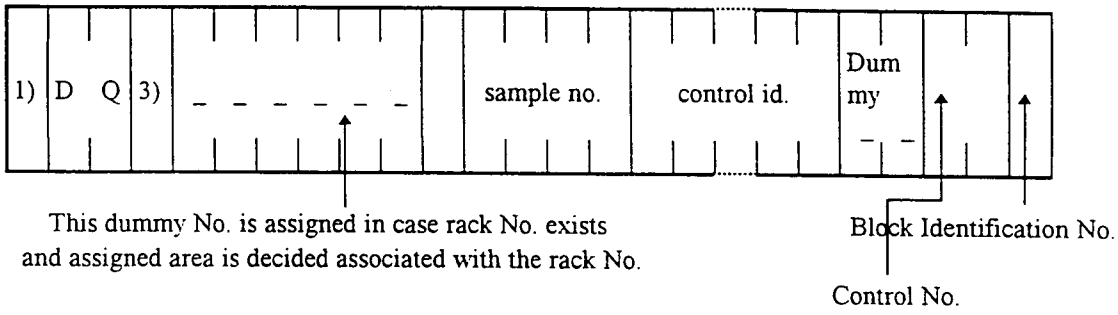


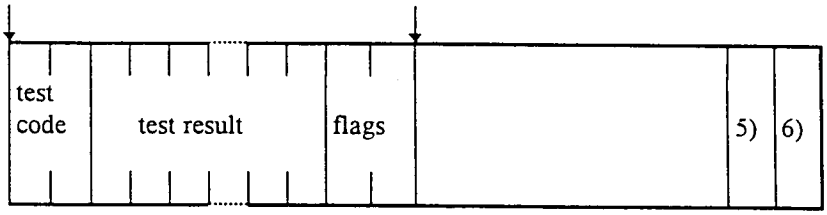
(7) Acal result text



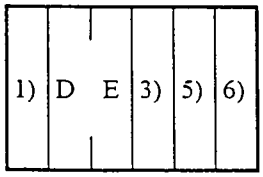


(8) QC result text





(9) End of test result transfer text



4) Relation between real-time/batch and Transmission text

- T.R.I. inquiry and T.R.I. of Routine and Emergency and Stat and Rerun is selectable real-time or batch.
- Test result of all sample is selectable real-time or batch.

5) Others

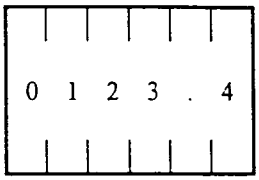
(1) Contents and formats of text

Item	Digit	Contents	Remarks
1. Rack No.	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 online parameters menu. · in case ,receive T.R.I. in batch
2. Cup position	2	rack : '01'-'10' STAT : '01'-'22'	· This is automatically assigned associated with the rack No. in menu.
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	4-20	number or character	· Number of digits can be changed in ~~system~~ menu. Format
6. Original sample No.	4	'0001'-'9999' : normal sample 'E001'-'E999' : emergency sample 'P001'-'P999' : stat sample	
7. Reserved	4	space	
8. Block Identification No.	1	'0'-'9' Last text is 'E'	
9. Sex	1	M : male F : female SP : none sex 0 : no-set	· These items can be selected/canceled in Requisition format menu.
10. Age	3	'000'-'150' space : no-set	
11. Month	2	'00'-'11' space : no-set	
12. Patient information	-20	number or character	
13. Online test No.	2	'01'-'99'	· This number can be changeable in online parameter menu.
14. Method	1	'0':normal '1':dilution '2':condense	
15. Test result	8 or 11	Test result digit 6 or 9 flags digit 2 refer to A.1 Flags list	· 0 suppress can be selected/canceled in online parameter menu · Number of digit can be changed 6 or 9 in online parameter menu.

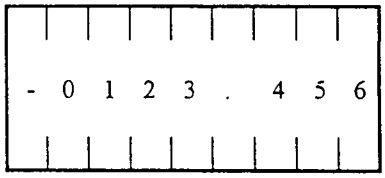
(2) Test result format

a) Test result

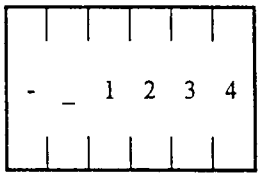
· Data digit is 6 and 0 suppress is not used.



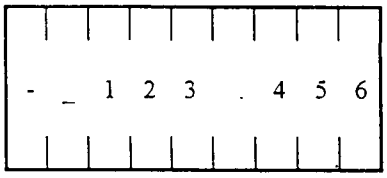
· Data digit is 9 and 0 suppress is not used.



· Data digit is 6 and 0 suppress is used.

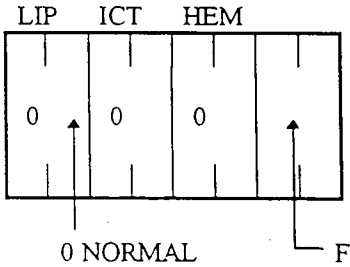


· Data digit is 9 and 0 suppress is used.

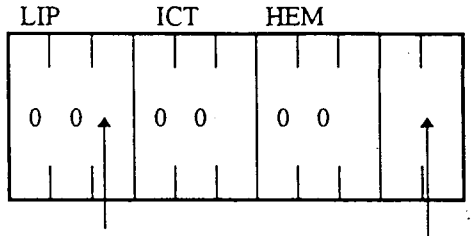


b) LIH result

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



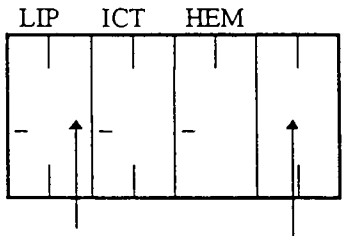
·Data digit is 9 and 0 suppress is not used.



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

FLAG

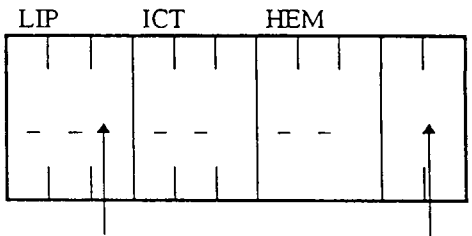
·Data digit is 6 and 0 suppress is used.



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

FLAG

·Data digit is 6 and 0 suppress is used.



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

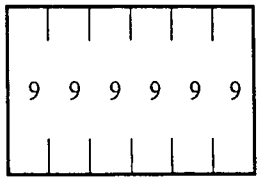
FLAG

3) T.R.I. of calculated tests

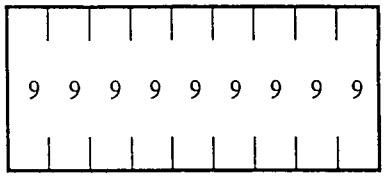
Calculated Test No. in T.R.I. from Host is ignored.

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

· Data digit is 6.

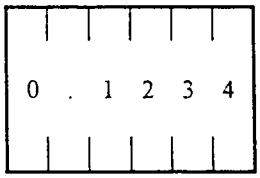


· Data digit is 9.



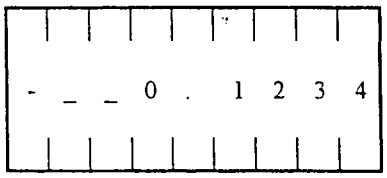
5) Data format that Test result data is OD-value.

· 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.

4. Transmission protocols

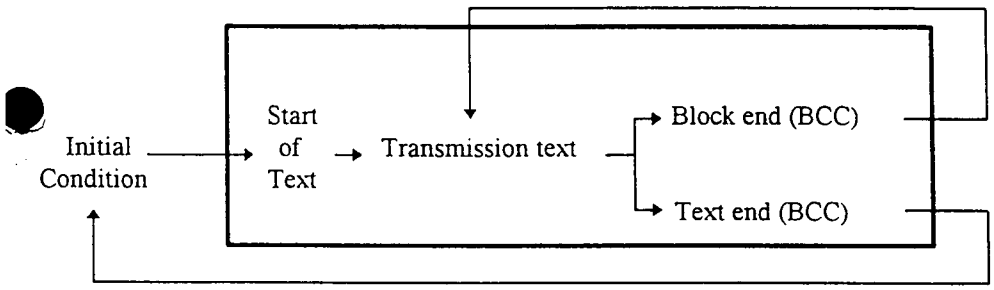
1) Protocols at AU640

A. Class A: without ACK/NAK exchange

a. Sending

Text to be sent:

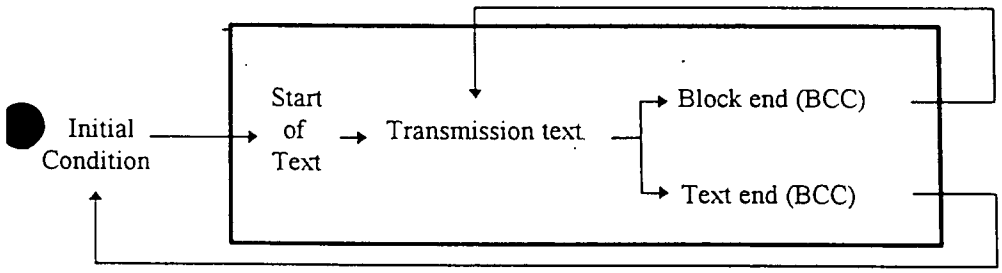
T.R.I. Inquiry text
Repeat Run T.R.I. Inquiry text
Start of Test Result Transmission text
Test Result text
Repeat Run Result text
End of Test Result Transmission text



b. Receiving

Text to be received:

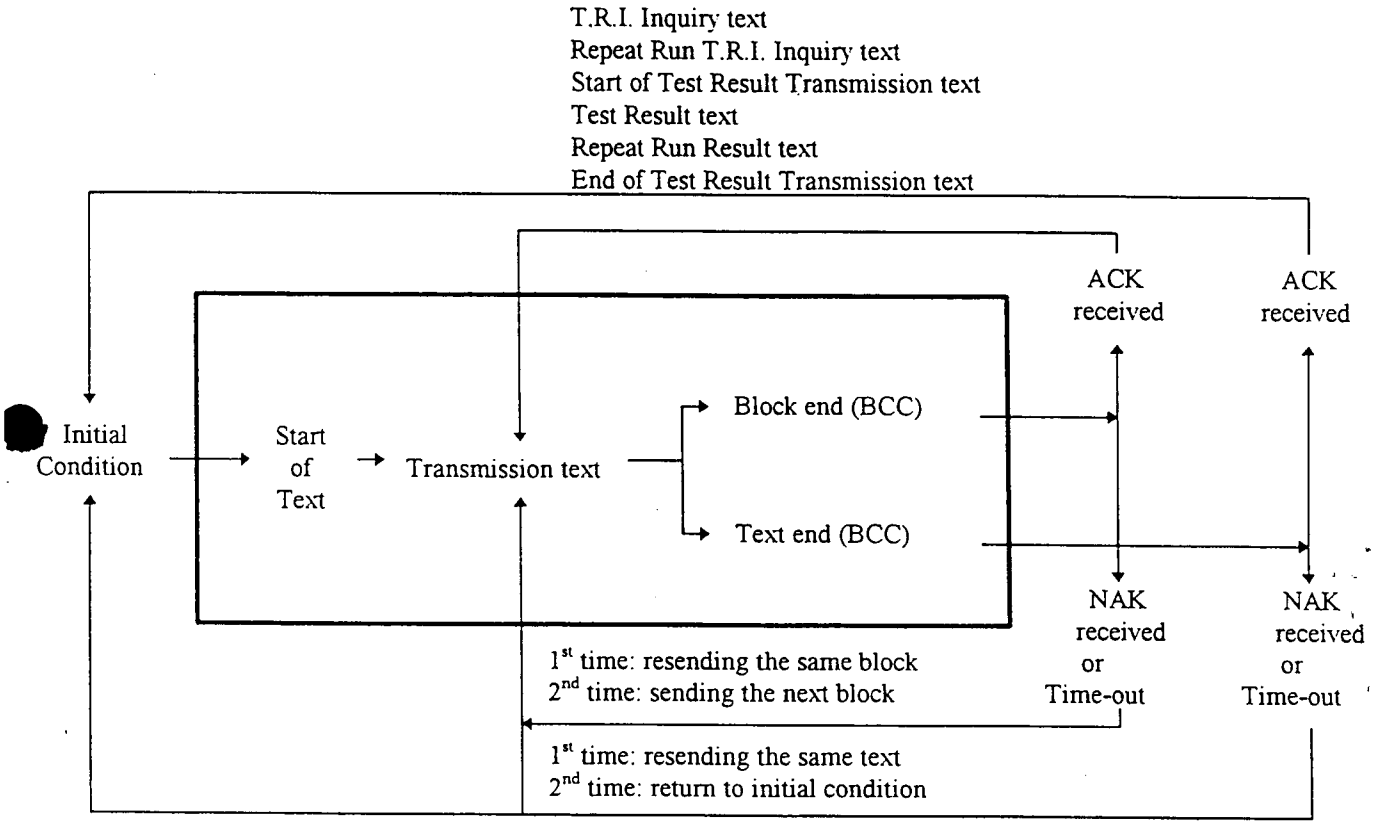
T.R.I. text
Repeat Run T.R.I. text
End of T.R.I. Transmission text



B. Class B: with ACK/NAK protocol

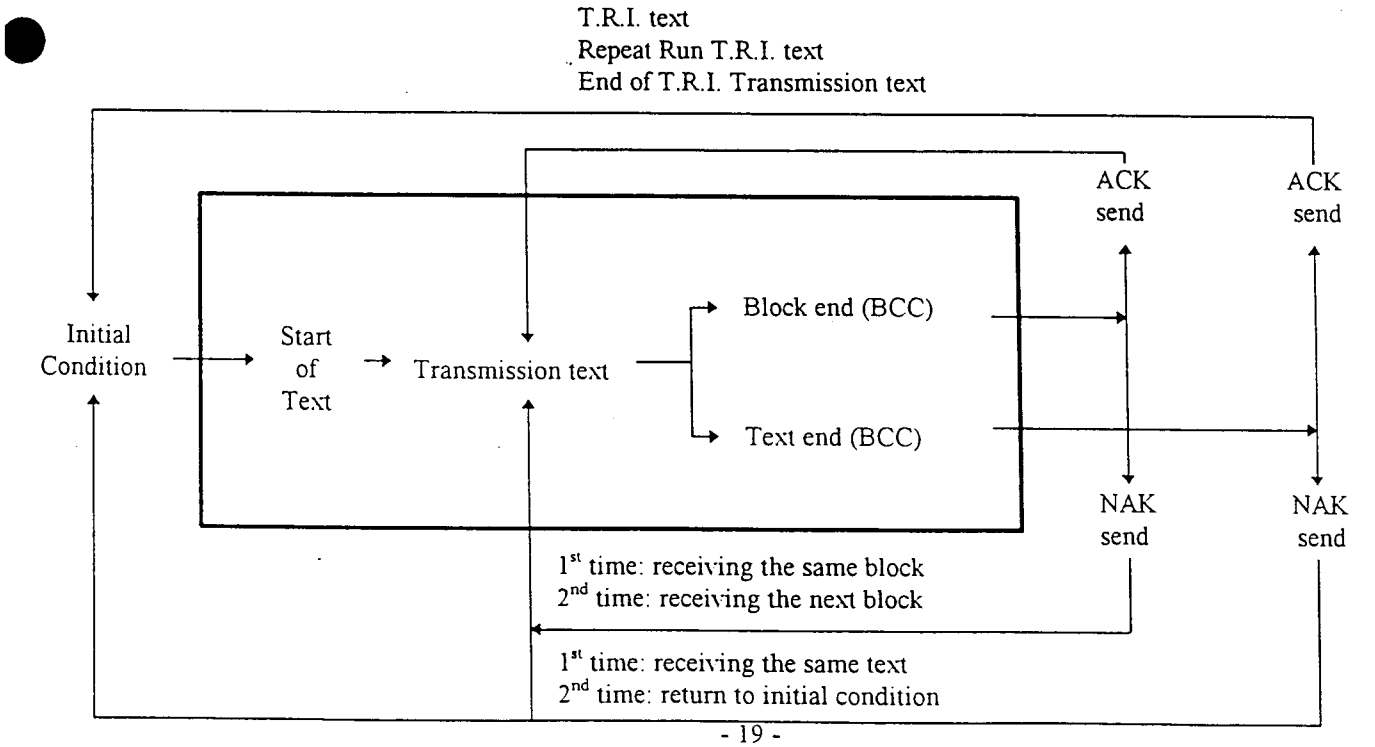
a. Sending

Text to be sent:



b. Receiving

Test to be sent:



2) Timing/time-out

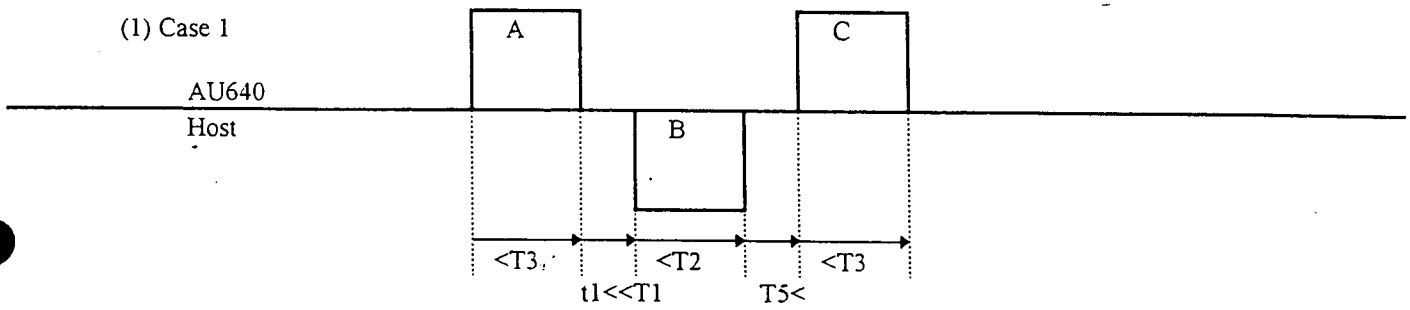
(1) time-out/timing list

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	
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	

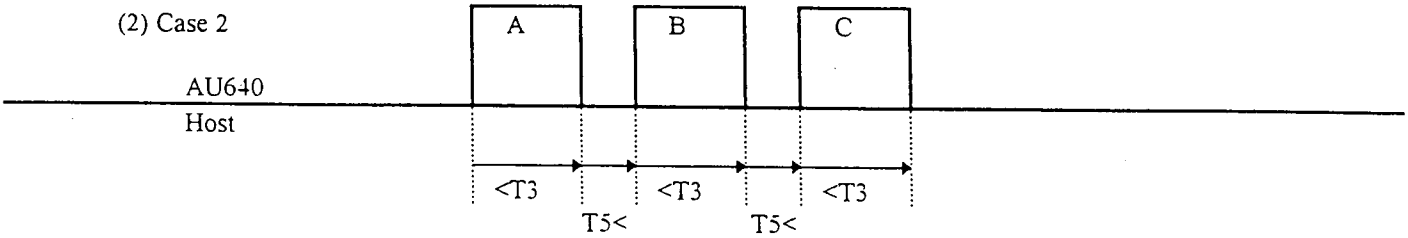
note 1) ((Max text length x Character length)/Bit/sec)+ 0.5 s
note 2) These time-outs can be changed in the online parameters menu.

2) Rule of class A

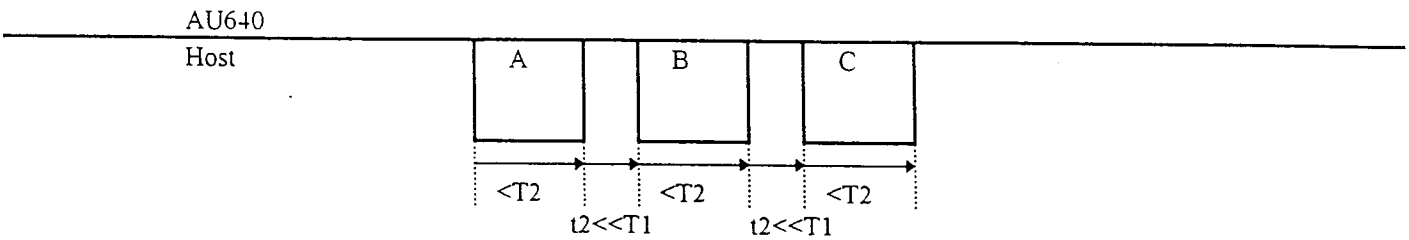
(1) Case 1



(2) Case 2

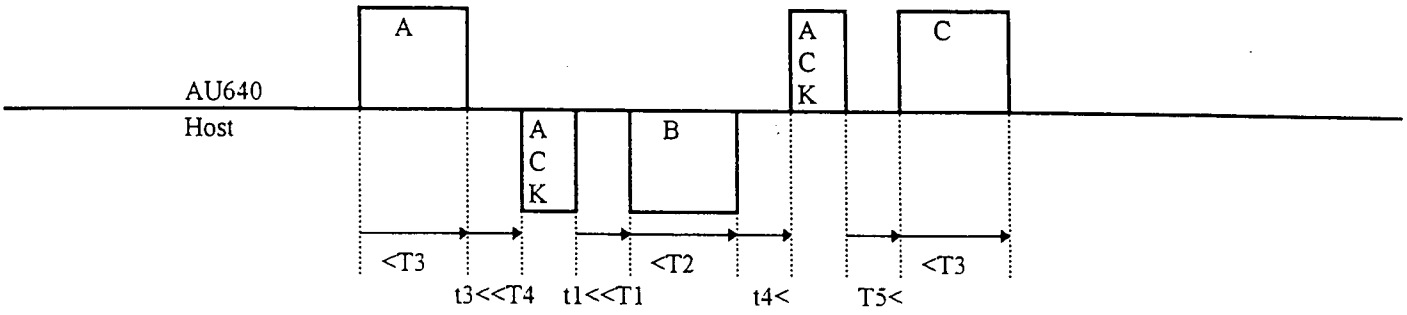


(3) Case 3

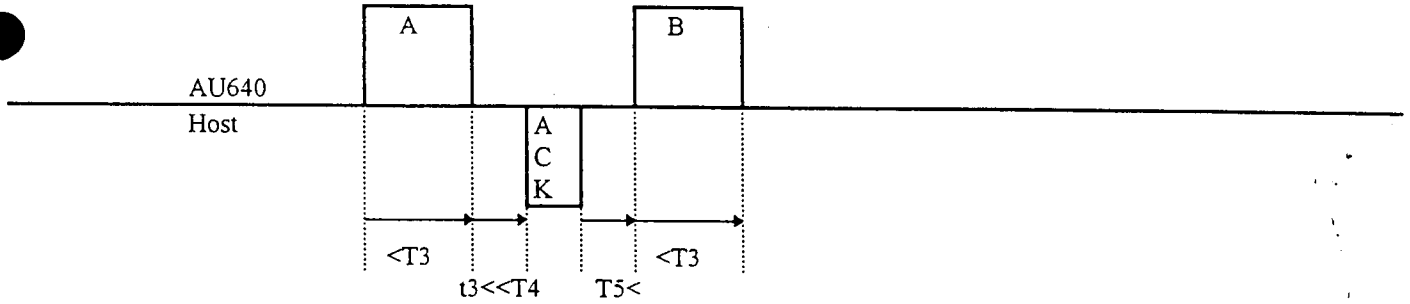


3) Rule of class B

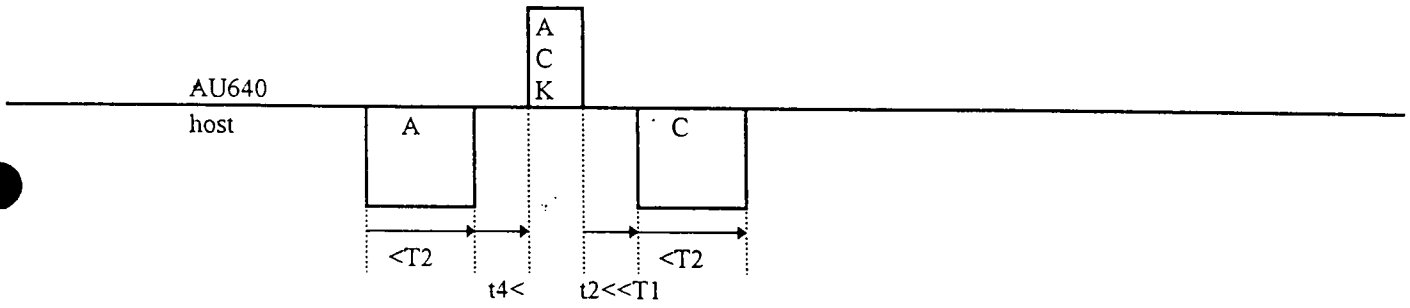
(1) Case 1



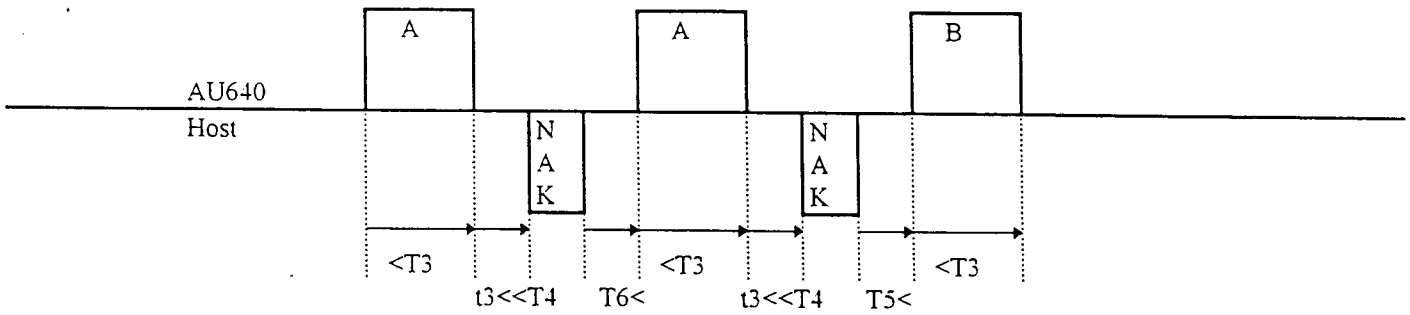
(2) Case 2



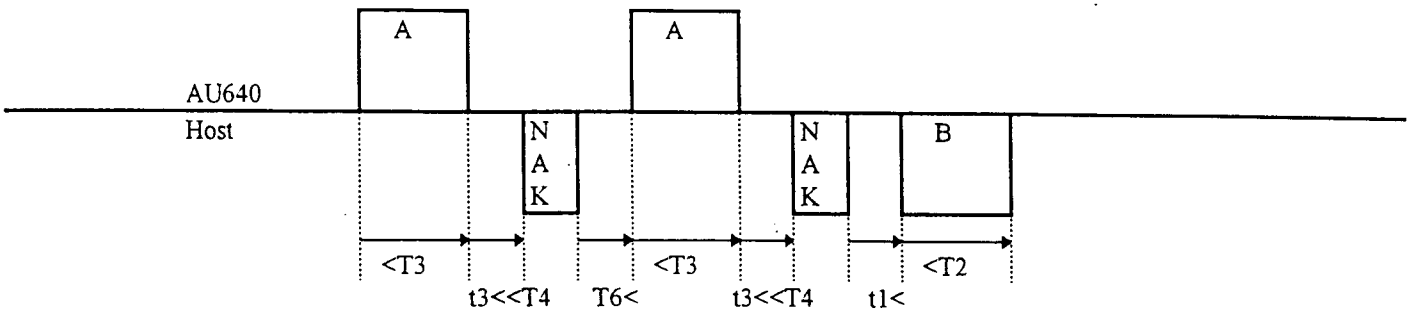
(3) Case 3



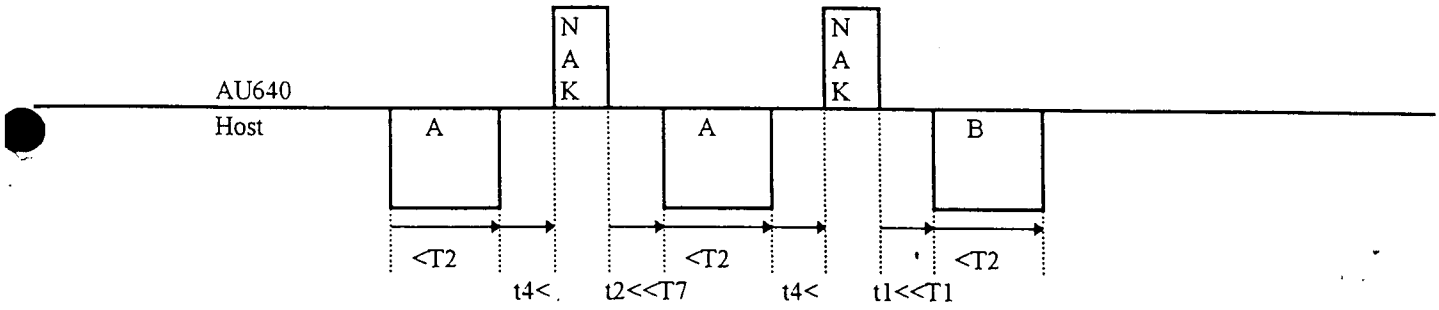
(4) Case 4 (abnormal case 1)



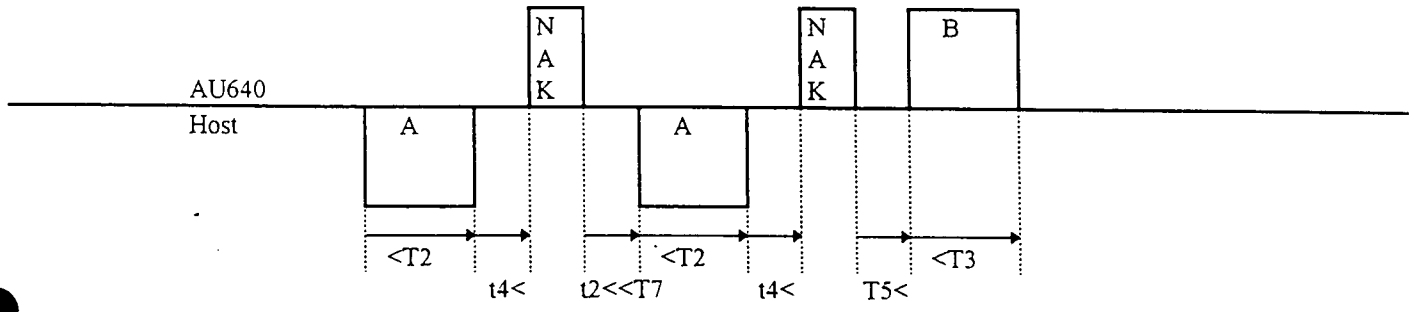
(5) Case 5 (abnormal case 2)



(6) Case 6 (abnormal case 3)



(7) Case 7 (abnormal case 4)

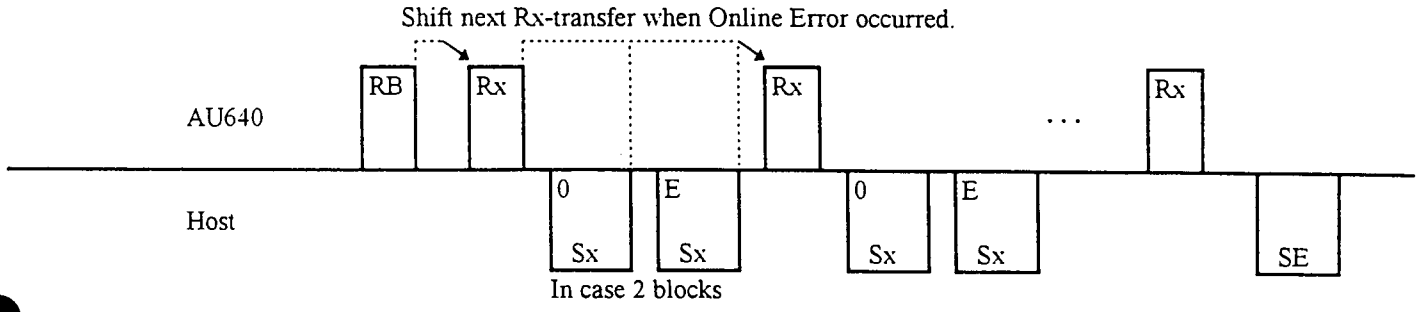


5.Application protocol

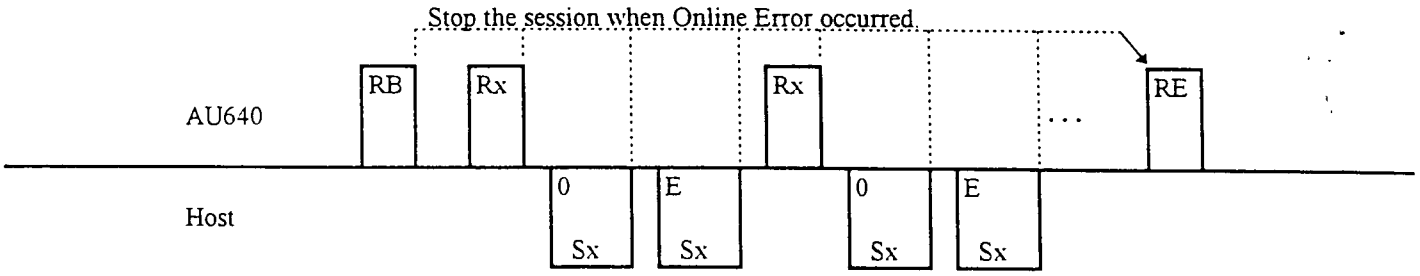
1) Receiving T.R.I.

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

(a) Example 1



(b) Example 2



(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) T.R.I. receiving and Error protocol(receiving) can be selected in the online parameter menu.
note 2) It is possibility that R_-text and RH-text are mixed in the 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 the other sessions.

(2) 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
			Sample no (Calculated rack No. and cup pos. No.)	
	Sample ID	Request of sample ID	Sample ID Sample no *1	Sample ID Sample no *1
Batch	Sequential rack no.	Request of sample no	Sample no.	Sample no
	Sample ID			Sample ID 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. of T.R.I. must be same to the Sample no. of T.R.I inquiry.

b) T.R.I. of Rerun sample

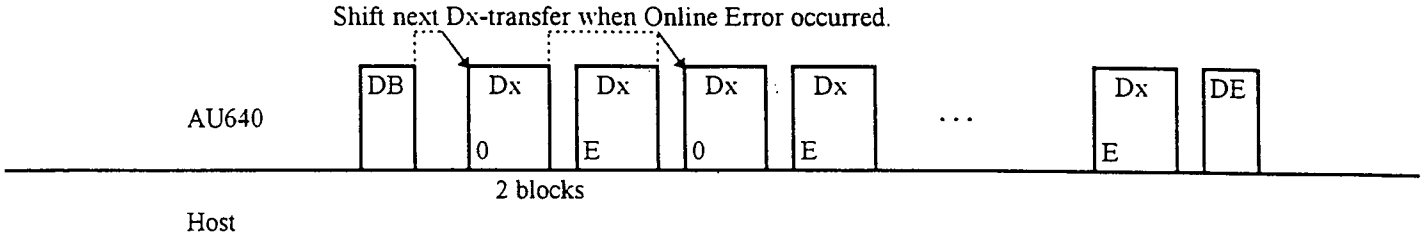
Setting of parameters			Kind of T.R.I.	Method of T.R.I. inquiry & T.R.I.	
Rerun sample Receive of T.R.I.	Rerun rack	Method of T.R.I. inquiry		T.R.I. inquiry	T.R.I.
Real-time	Using	Sequential rack no.	Request of sample no	Rerun sample no.	Original S.No. Rerun sample no.*1
		Sample ID	Request of sample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

Remark *1: Rerun sample no. of T.R.I. must be same to the Rerun sample no. of T.R.I inquiry.

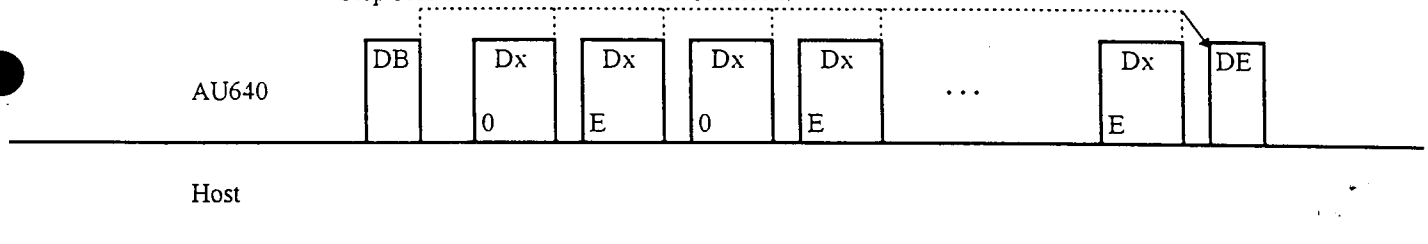
2) Sending test result protocol

(1) Transfer sequence for one session
General sequence :

(a) Example 1



(b) Example 2



(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.		

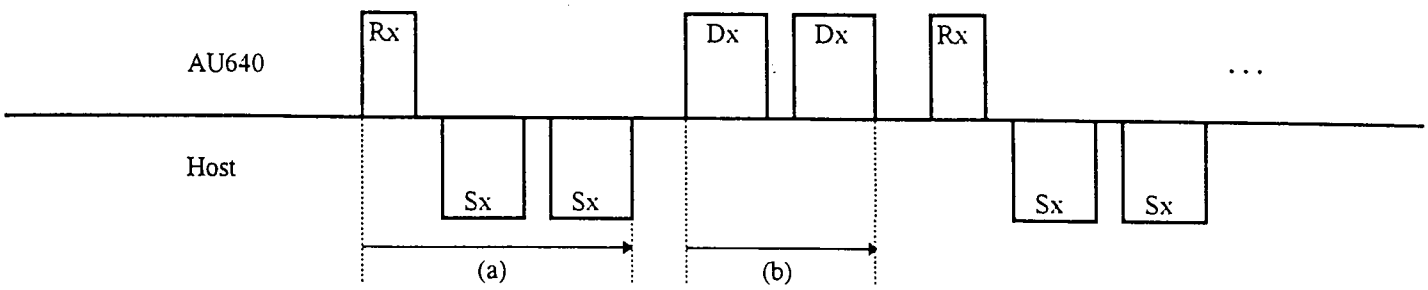
Data trans.	Kind of text	Timing/condition	Normal end	Online error
Batch	DB (start)	This text is transmitted when it selected the start of transmission in the online menu.	It is shifting the transfer of the test Results.	It is output the alarm and it is executed the below · Error protocol is stop. ⟶ It 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) It can be selected the data transfer and the error protocol in the online parameter menu.

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

1) In/Output signals and Terminals

Signal Name	Abbrv.	Terminal at AU640 for Vectra	Direction	Terminal at host computer
Ground	FG	-	⟷	1
Data sent TxDATA	3		⟶	3
Data receive	RxDATA	2	⟵	2
Signal Ground	SG	5	⟷	7
Request to send	RTS	7	⟶	
Clear to send	CTS	8	⟵	

Pin configuration of 25 pins.

Caution: RTS and CTS must be connected directly.

2) Signal Level

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

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

3) Applicable Connector

Style of connector : Conform the standard of IBM PC DB9 male
Style of connector Cover : ditto

4) others

A. When powering ON or OFF the host computer system, ensure that the AU640 is in the power on mode (incubator and refrigerator are only running). Powering ON or OFF the host computer system while the AU640 is being operated, may result in abnormality of the AU640.

B. The cable for host communication is not included in the AU640 standard accessories. A shield cable must be used for host connection.

C. Do not use the terminals on the AU640 other than No. 2,3,5,7, or 8 for any purpose.

A.1 Appendix 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
)	The reagent lot No. used at the time of sample analysis differs from the reagent lot No. used at the time of calibration analysis.
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
d	Data not the object of statistical calculations with [QC monitor]-[Data Edit]

A.2 Appendix Online parameters list

Transmission information		Contents	menu
T.R.I. receive			online parameters
	Normal sample	real-time/batch/none	
	Emergency sample	real-time/batch/none	
	Stat sample	batch/none	
	Rerun sample	real-time/batch	
	Stat rerun sample	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	
	Rerun sample	real-time/batch/none	
	Stat rerun sample	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			online parameter
	receive	continue/stop	
	transfer	continue/stop	

Protocol -1		Contents	menu
Data format			
	character length	7/8	online parameter
	parity bit	ODD/EVEN/none	
	stop bit	1/2	
Basic text format			
	start code 1	00H-FFH	online parameter
	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	2400/4800/9600	online parameter
	protocol	class A/class B	
	BCC check	use/none	
	retry times	n	
	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	use/none	online parameters
rack no. digit	4/5	
sex	use/none	requisition format
age/month	use/none	
patient information 1	use/none digits	requisition format
patient information 2	use/none digits	
patient information 3	use/none digits	
patient information 4	use/none digits	
patient information 5	use/none digits	
patient information 6	use/none digits	
sample ID digits	4-20 digits	requisition format
data format	6 /9 digits	online parameters
data zero suppress	used/none	online parameters

A.3 Appendix 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								

and : This character can be used for Sample ID code.
: This character can be used for Item No.

A1 - DC is Japanese character set.

A.4 AU640 Online Parameter Sheet

Set up		setting
T.R.I. Receive		
	Routine Normal	☐ real time ☐ batch ☐ none
	Routine Emergency	☐ real time ☐ batch ☐ none
	Routine Rerun	☐ real time ☐ batch ☐ none
	Stat Normal	☐ real time ☐ batch ☐ none
	Stat Rerun	☐ real time ☐ batch ☐ none
Results Transfer		
	Routine Normal	☐ real time ☐ batch ☐ none
	Routine Emergency	☐ real time ☐ batch ☐ none
	Routine Rerun	☐ real time ☐ batch ☐ none
	Stat Normal	☐ real time ☐ batch ☐ none
	Stat rerun	☐ real time ☐ batch ☐ none
	Stat quick	☐ 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	☐ 2400 ☐ 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 (4-20)
Data format	☐ 6 ☐ 9
ZERO Suppress	☐ yes ☐ no

A-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 transmitting 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 : Flaming 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
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 xxxxxxxxxx: normal run, STAT sample, sample ID
R_ U_ xxxxxxxxxx: normal run, urine sample, sample ID
R_ UE xxxxxxxxxx: normal run, urine emergency sample, sample ID
R_ UP xxxxxxxxxx: normal run, urine STAT sample, sample ID
R_ X_ xxxxxxxxxx: normal run, urine sample, sample ID
R_ XE xxxxxxxxxx: normal run, urine emergency sample, sample ID
R_ XP xxxxxxxxxx: normal run, urine STAT sample, sample ID
RH __ xxxxxxxxxx: repeat run, emergency sample, sample ID
RH _E xxxxxxxxxx: 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, emergency sample, sample ID
RH XE xxxxxxxxxx: repeat run, emergency sample, sample ID
RH XP xxxxxxxxxx: 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 : Flaming 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
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_ __ xxxxxxxxxx: normal run, normal sample, sample ID
R_ _E xxxxxxxxxx: normal run, emergency sample, sample ID
R_ _P xxxxxxxxxx: normal run, STAT sample, sample ID
R_ U_ xxxxxxxxxx: normal run, urine sample, sample ID
R_ UE xxxxxxxxxx: normal run, urine emergency sample, sample ID
R_ UP xxxxxxxxxx: normal run, urine STAT sample, sample ID
R_ X_ xxxxxxxxxx: normal run, Other normal sample, sample ID
R_ XE xxxxxxxxxx: normal run, Other emergency sample, sample ID
R_ XP xxxxxxxxxx: normal run, Other STAT sample, sample ID
RH __ xxxxxxxxxx: repeat run, normal sample, sample ID
RH _E xxxxxxxxxx: 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 as "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 [aaaaaaaaaa <> bbbbbbbbbbb]

<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

AU640

Off-line Specifications

Issued: 18/09/1998

Olympus Optical Co., Ltd.

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1. Outline

1) The following data is exchanged between the AU600 and the host computer system. with Floppy disk
2) It can be setting the conditions as the below with parameters-menu.
    (1) Patients information Format
    (2) Test result format

2. Basic specification

2.1. Media

Item	Contents
Floppy disk	2HD(1.44MB)
Format type	MS-DOS format

2.2. Output Code

Item	Contents	Limit of value
Data code	7 bit code ASCII CODE	20H-7EH
	8 bit code	
	1 byte code	20H-7EH A1H-DFH

2.3. File Format

(1) File configuration

Item	contents
File structure	one file / one volume
File name	OFFLINE.DAT
Record structure in file	The following table shows the order and number of the records composing the file.

Data start record	1
normal samples data records	n1
repeat sample data records	n2
QC sample data records	n3
Data end record	1

note The records with net are not necessarily output.

(2) Record configuration

1)	2)	3)

Name	Digit	Contents		Remarks
1)Discrimination Code		D#		Saved sample type should be set as "BATCH" at "T.R.I.Receive" of the Parameter/Online menu.
		DB	Start of record	
		D *	Normal sample result	
		DH	Repeat sample result	
		DQ	QC sample result	
		DE	End of record	
2) Data code			Contents of Record	
			Contents of each record is divided to plural fields.	
3) End code	2	0Dh,0Ah (CR,LF)	End of Record code	

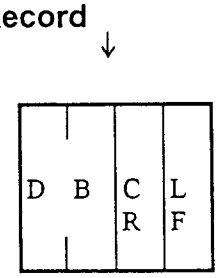
(3) Field configuration

Item	Definition
Filed Identification code	[,] code

3. Data Record Format

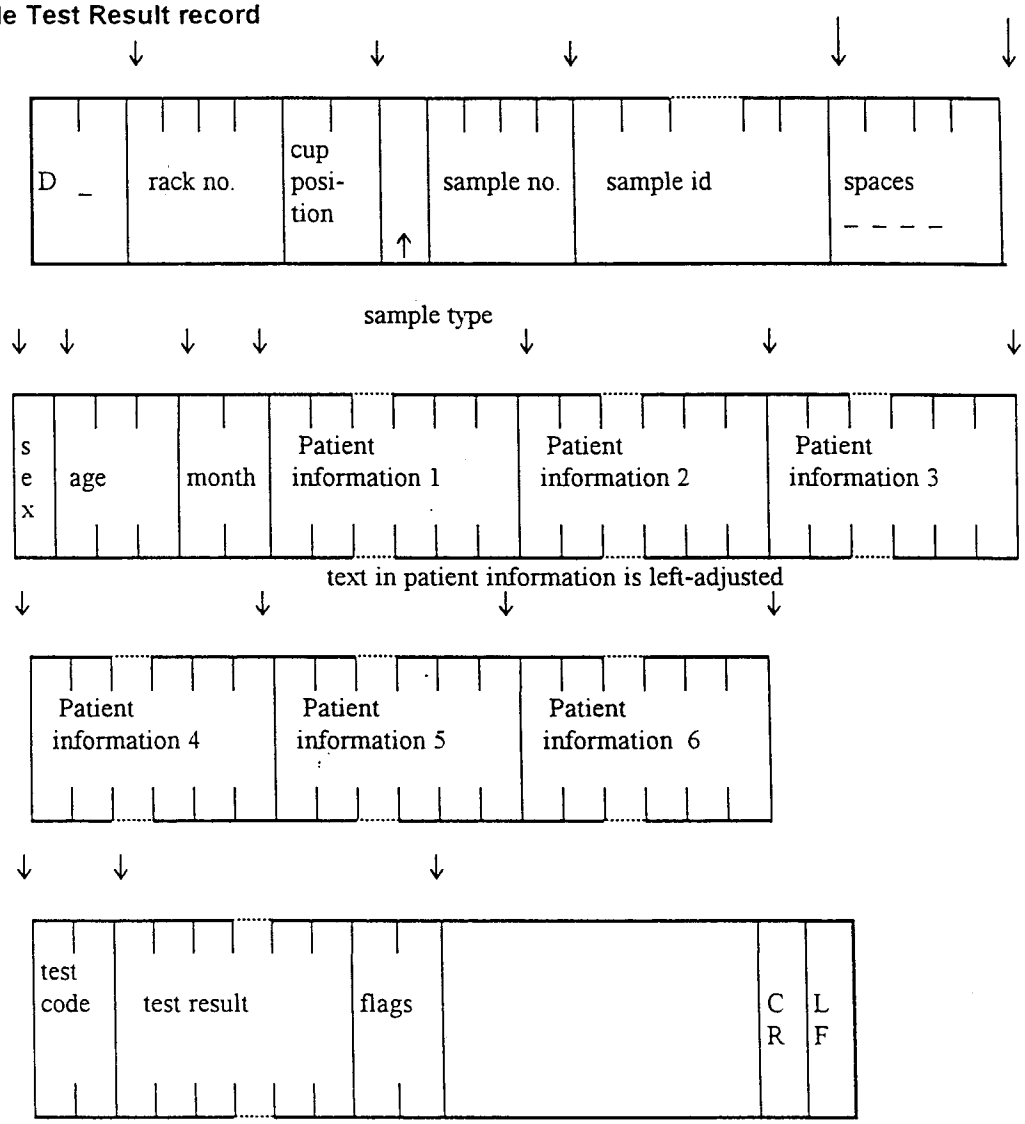
Note) In the following description "↓" shows the position for division of the field.
(The terminate character(defalut ",") is inserted at those position.)

3.1. Data Start Record

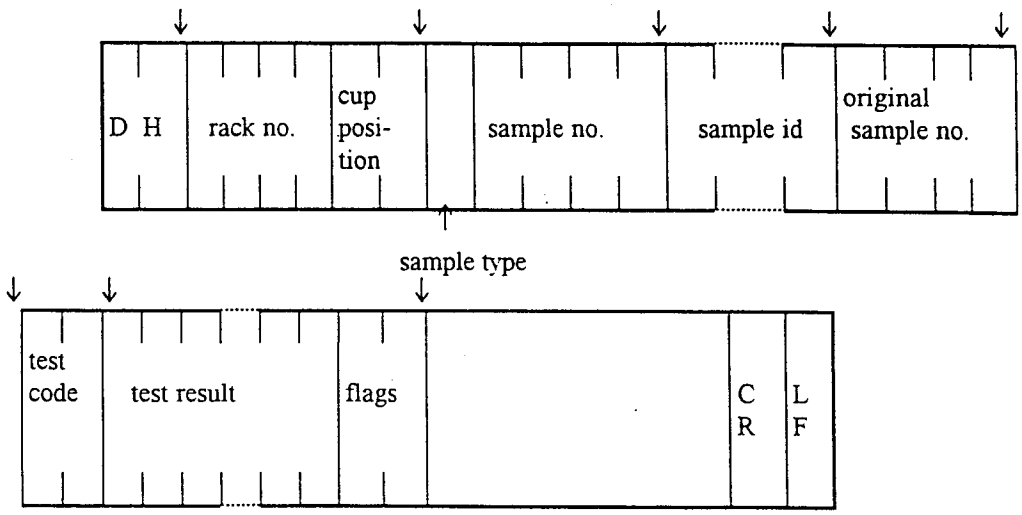


3.2. Sample Data Record

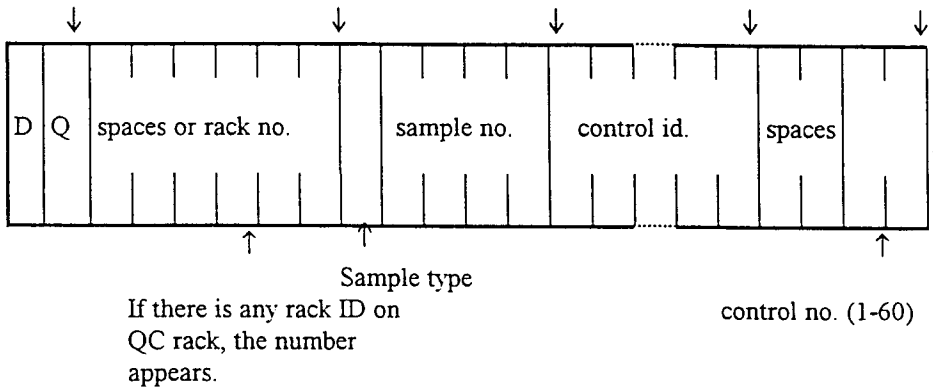
(1) Normal Sample Test Result record

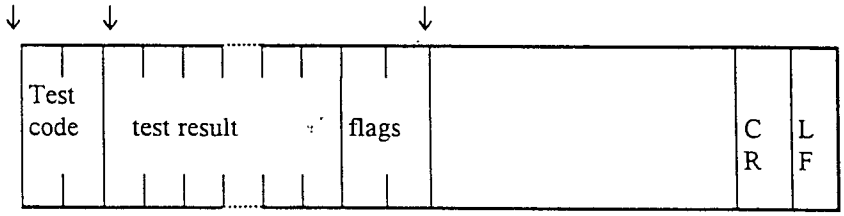


(2) Repeat Sample Result Record

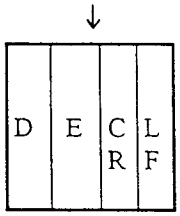


(3) QC Sample Result Record





3.3 Data End Record



3.4. Others

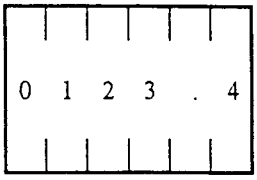
(1) Contents and Format of Fileds

Item	Digit	Contents	Remarks
1. Rack No.	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 online parameters menu.
2. Cup position	2	rack : '01'-'10' STAT : '01'-'22'	-This is automatically assigned associated with the rack No. in menu.
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 'H001'_'H999':Repeat sample 'Q001'-'Q999' : QC sample	
5. Sample id	4-20	number or character	-Number of digits can be changed in system menu.
6. Original sample No.	4	'0001'-'9999' : normal sample 'E001'-'E999' : emergency sample 'P001'-'P999' : stat sample	
9. Sex	1	M : male F : female SP : none sex 0 : no-set	-These items can be selected/canceled in Requisition format menu.
10. Age	3	'000'-'150' space : no-set	
11. Month	2	'00'-'11' space : no-set	
12. Patient information	-20	number or character	
15. Test result	8 or 11	Test result digit 6 or 9 flags digit 2	-0 suppress can be selected/canceled in online parameter menu -Number of digit can be changed 6 or 9 in online parameter menu.

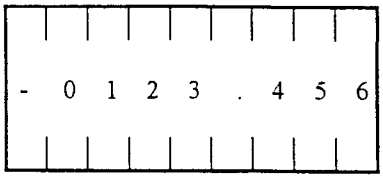
(2) Test Result Field Format

a) Test result

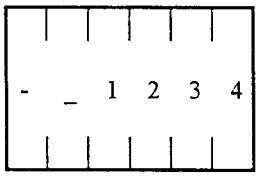
-Data digit is 6 and 0 suppress is not used.



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

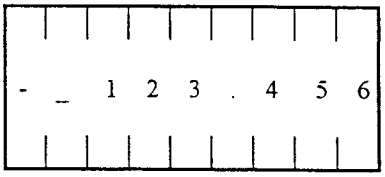


-Data digit is 6 and 0 suppress is used.



_ stands for space

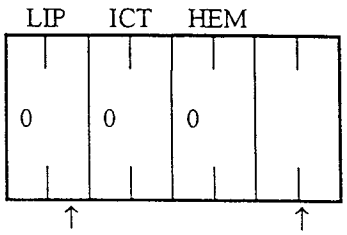
-Data digit is 9 and 0 suppress is used.



_ stands for space

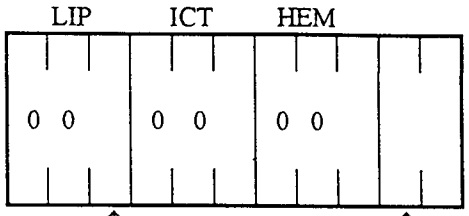
b) LIH result

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



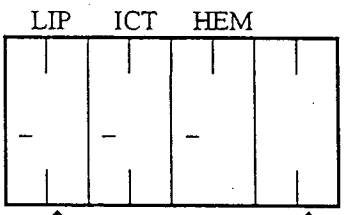
0 NORMAL FLAG
1 +
2 ++
3 +++
4 ++++
5 +++++
6 ABN
9 Test not performed

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



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

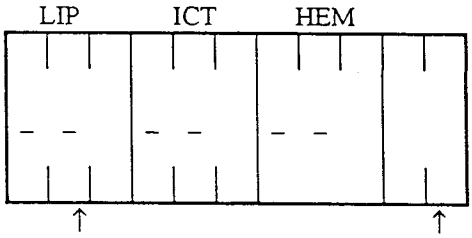
-Data digit is 6 and 0 suppress is used.



_ stands for space

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

-Data digit is 6 and 0 suppress is used.

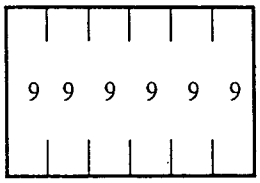


_ stands for space

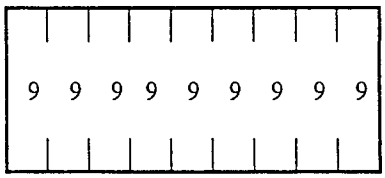
0 NORMAL FLAG
1 +
2 ++
3 +++
4 ++++
5 +++++
6 ABN
9 Test not performed

(3) Data Format for Results with Range-Overflow

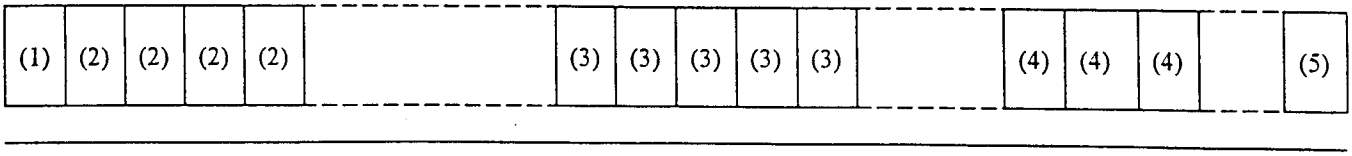
-Data digit is 6.



-Data digit is 9.



3.5 Data File Structure Image



one file

(1) Data start record
(2) Normal sample data record
(3) Repeat sample data record
(4) QC sample data record
(5) Data end record

A Appendix

A.1 Flags list

Flag	Contents
?	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
)	The reagent lot No. used at the time of sample analysis differs from the reagent lot No. used at the time of calibration analysis.
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
d	Data not the object of statistical calculations with [QC Monitor]-[Data Edit]

A2 Selectable field and related menu

Field information	Contents	menu
rack no. /cup position rack no. digit	use/none 4/5	[Parameters][Online] System Maintenance
sex age/month	use/none use/none	[Parameters][Format]- [Requisition Format]
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	[Parameters][Format]- [Requisition Format]
sample ID digits	4-20 digits	[Requisition Format]
data format	6 /9 digits	[Parameters][Online]
data zero suppress	used/none	[Parameters][Online]
offline delimiter	SP, TAB, ",", ".", ":", ";", " ", "_", "/", "|"	[maintenance][FD management] [Offline]

A.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								

and : This character can be used for Sample ID code.
: This character can be used for Item No.

A1 - DC is Japanese character set.