

DATA FORMAT

The data for the RA500 is transmitted in a format in which the first information is fixed (Patient ID, Test Type, Test Date, Test Time, Calibration Date, Examiner ID, HTL's, and the Extra) and the remaining (Question answer information) is delimited by commas. The question answer information is variant and will only be available if the information is stored. The stored data is determined by the question select/delete setup procedure, only the selected data is stored and will be transmitted. Once one question is selected and data stored, there will be twenty five commas transmitted. In the case of a comma delimiting for a nonselected question/answer there will be no information between commas. This example is as if only question/answer three is enable and is stored.

Example:

[(Fixed data),, (answer to question 3),,,,,,,,,,,,,,,,,,,,,,]

The two Data Layout Form examples provided in this document describe the case where there is no answers stored and where there are all the answer stored. This will make a difference in the number of lines transmitted for the data record. In the case of no answers the record will be transmitted in one line, and in the case of all the answers the record will transmit in three lines. The end of record is noted by the "P" (7EH 50H) at the end of the transmission line.

COMMUNICATIONS

The communications process starts with an inquiry from a computer and responds with an "EOF" if no information is available or begins by sending the first line. The computer, after correctly receiving the line will then send an acknowledgment "ACK" of receiving the information or non-acknowledgement "NAK" if the information is not correctly received. The RA500 will transmit the next line, if acknowledgment, or retransmits the line if non-acknowledgement. This process will continue until all information requested is sent or the communication time-out occurs. The termination or the communication is indicated by the RA500 sending the "EOF" followed by a carriage return.

There are three inquiry commands for sending data from the RA500. The commands are "1", "2" or "3" and the format of the command is " [inquire(05h) command ("1", "2", "3", "4") carriage return(0dh)]

The following is a description of the inquiry commands:

1. <1> commands the RA500 to send all stored information
2. <2> commands the RA500 to send only baseline information
3. <3> commands the RA500 to send only non-baseline information
4. <4> commands the RA500 to send only the current test information

The following is an example of the RA500 communication:

```
Computer      :<05h 31h 0dh>
RA500        :first line of information
Computer      :<06h 0dh>
RA500        :second line of information
Computer      :<06h 0dh>
RA500        :third line of information
Computer      :<06h 0dh>
RA500        :fourth line of information
Computer      :<06h 0dh>
RA500        :”EOF”<0dh>
```

The RS232C parameters used for serial communication are:

```
DATA BITS           = 8
PARITY              = NONE
STOP BITS           = 1
CHARACTER CODE      = ASCII
```

NOTE: The information you receive may be effected by the tagged records and tagged transfer selection on the RA500 Audiometer. Please consult the operators manual for more information.

CHECKSUM CRC

The checksum is an approximation of the sum of the quotient and remainder of the characters from the SOH through the ETB using a divisor of 4096. To compute the checksum start with zero. The checksum is computed by multiplying the checksum by two, adding the character to the checksum, dividing by 4096, adding the remainder to the quotient. No bits may exist in excess of bit 12. The process is repeated through ETB. The 12 bit value is then separated into two six bit values. Each of the 6 bit values have 20h added to them. These two values now are the checksum.

RA500 DATA LAYOUT FORM

EXAMPLE 1

Data Format For Transmission With No Questions Stored

RA500 DATA LAYOUT FORM

EXAMPLE 2

Data Format For Transmission With All Questions Stored

DATA LAYOUT FORM

Line 1

PAGE 1 of 1.

COLUMN RANGE	POS	FIELD DESCRIPTION	FIELD TYPE *	FIELD ATTRIBUTES **	COMMENTS
1	1	SOH	HEX		01H
2	1	FLAG	N		'0' OR '1'
3	1	STX	HEX		02H
4 – 18	15	PATIENT ID	AN		
19	1	TEST TYPE	N		(0,1)
20 – 35	16	TEST ID	N		
36 – 43	8	TEST DATE	N	MM/DD/YY	
44 – 51	8	TEST TIME	N	HH:MM:SS	
52 – 59	8	CAL DATE	N	MM/DD/YY	
60 – 74	15	EXAMINER ID	AN		
75 – 106	32	HTL LEFT	AN		1KT/500/1K/2K/3K/4K/6K/8K
107 – 138	32	HTL RIGHT	AN		1KT/500/1K/2K/3K/4K/6K/8K
139 – 144	6	EXTRA	AN		
145 - 159	15	A1	AN		LAST NAME
160	1	COMMA			
161 – 175	15	A2	AN		FIRST NAME, MIDDLE IN.
176	1	COMMA			
177 – 184	8	A3	AN		DOB
185	1	COMMA			
186	1	A4	AN		SEX
187	1	COMMA			
188 – 190	3	A5 (1 – 3)	AN		
191	1	ETB	HEX		17H
192 – 193	2	CRC CHECK SUM	AN		
194	1	CR	HEX		ODH

76184-0145 (J1840145)

* FIELD TYPE CODE

- A = alpha only
- N = numeric only
- AN = alpha-numeric
- B = blank
- C = constant

** FIELD ATTRIBUTE CODE

- R = right justify
- L = left justify
- Z = zero fill (unused positions)
- B = blank fill (unused positions)

DATA LAYOUT FORM

P/N 78195

Line 2

PAGE 1 of 2.

COLUMN RANGE	POS	FIELD DESCRIPTION	FIELD TYPE *	FIELD ATTRIBUTES **	COMMENTS
1	1	SOH	HEX		01H
2	1	FLAG	N		'0' OR '1'
3	1	STX	HEX		02
4 – 10	7	A5 (4 – 10)	AN		
11	1	COMMA			
12 – 21	10	A6	AN		
22	1	COMMA			
23 – 32	10	A7	AN		
33	1	COMMA			
34 – 43	10	A8	AN		
44	1	COMMA			
45 – 54	10	A9	AN		
55	1	COMMA			
56 – 65	10	A10	AN		
66	1	COMMA			
67 – 76	10	A11	AN		
77	1	COMMA			
78 – 87	10	A12	AN		
88	1	COMMA			
89 – 98	10	A13	AN		
99	1	COMMA			
100 – 109	10	A14	AN		
110	1	COMMA			
111 – 120	10	A15	AN		
121	1	COMMA			
122 – 131	10	A16	AN		
132	1	COMMA			
133 – 142	10	A17	AN		

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