QUASAR Audiogram Module

Technical Manual and Package Security Guide

Version 3.0.12

November 2005

Revised July 2007
For Patch ACKQ*3.0*13

Department of Veterans Affairs
Health Systems Design & Development

Revision History

Date	Description	Page	Author
November 2003	ACKQ*3.0*3 Release of the GUI interface, Audiogram Module with two components: Audiogram Edit and Audiogram Display		Denver ALC
November 2005	ACKQ*3.0*12 Updates to QUASAR Audiogram Module		Denver ALC Pam Urrutia
July 2007	Combine, format, and update the QUASAR and the Audiogram Module User Manuals. Historical version: Quality: Audiology and Speech Analysis Reporting (QUASAR) GUI version: QUASAR Audiogram Module		Christine Beynon
July 2007	ACKQ*3.0*13 • Removed Sections IX, X, and XI from the historical version of the user manual. • Configure one of three audiometric instruments, GSI61 (Grason-Stadler), Madsen-Aurical (GN Otometrics), and AC40 (Interacoustics). • Check and monitor the status of the audiometer connection. • Import audiometric data from the audiometer to the Audiogram Module, point by point or batch mode. • Reset values in an audiometer capable of being reset and clear any buffers or memory used in the construction or passing of information. • Incorporate the graph (Audiogram Display component) as a tab in the Audiogram Edit window. The graphic display is updated in real time with data from the device.		Christine Beynon

Date	Description	Page	Author
	• The following items are added or modified to display within the surrounding area of the audiogram display (graph). a. Air Conduction averages b. Audiogram symbol key, No Response, Rollover Index text boxes, and SRT, IAR, and CAR grids • Desktop access to the application is removed. The Audiogram Module can be configured and accessed only through the Computerized Patient Record System (CPRS) Tools menu. • The algorithm for *points to plot on the graph* uses the Retest value if there is no Final value. • The third row label on the Pure Tones tab changed from Final or Masked to Masked. • The Flip Tabs option is removed from the File menu. • A 1500 Hz column is added to the Pure Tones tab for Bone Conduction. • VA form 10-2364 is modified to conform to VA standards.		
	• ACKQAG03 is modified to suppress the MailMan notification sent to the user when an AUDIOMETRIC EXAM DATA file (#509850.9) record is transmitted to the Denver ALC.	21	MUMPS
	• ACKQAG05 is modified to replace DDC with DALC in the subject of the MailMan message that confirms the deletion of an AUDIOMETRIC EXAM DATA file (#509850.9) record from the local and DALC databases.	21	

Date	Description	Page	Author
	• Remote procedure call ACKQAUD1 is added to the ACKQROES3E option to register the call to the Graph Display tab. The following remote procedure calls are removed from the ACKQROES3E option: XUS GET USER INFO, XUS INTRO MSG, XWB CREATE CONTEXT, XWB GET VARIABLE VALUE, and XWB GET BROKER INFO.	27	

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Table of Contents

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Introduction

QUASAR (Quality: Audiology and Speech Analysis and Reporting) is a VistA software package written for the Audiology and Speech Pathology Service (ASPS). QUASAR is used to enter, edit, and retrieve data for each audiometric exam of a patient and provides for the transmission of this data to various programs.

Patch ACKQ*3.0*13 adds the ability to retrieve data directly from certain audiometric devices, and combines the Edit and Display components into one application. Recommended users (not doing data entry or capture), can use the Graph Display tab to view a graphic display of a record.

The **QUASAR Audiogram Module** is a Windows-based GUI interface, developed to simplify and enhance the entry, display, and use of information obtained during an audiometric exam of a patient.

The Audiogram Edit component (ACKQROES3E.exe) is a Windows-based software application that allows clinicians to enter, edit, and view a patient's audiometric exam record and a patient's audiogram graph. You access the component from the Computerized Patient Record System (CPRS) Tools menu.

The **QUASAR Audiogram Module** includes components that reside on two systems: the local facility VistA system and the Denver Acquisition & Logistics Center (Denver ALC) system. The local facility components include a VistA file, 'M' routines and options, remote procedure calls, and a Delphi executable. The Denver ALC ROES*3.0 (Remote Order Entry System) order processing application incorporates patient-specific audiometric information that is taken from data transmitted to a national database from the QUASAR Audiogram Module. The information is used by vendors to produce customized hearing related items.

Related Documentation

Related documentation is located in the VistA Document Library:

 http://www.va.gov/vdl/

QUASAR Audiogram Module Release Notes for Patch ACKQ* 3.0*13

QUASAR Audiogram Module Installation and Implementation Guide for Patch ACKQ* 3.0*13

QUASAR Package User Manual for Patch ACKQ* 3.0*13

Audiogram Display through CPRS

Any doctor with access to the local system can view the Audiogram Display within the application to aid in treatment and diagnosis decisions. They can continue to view the display as assigned in patch ACKQ*3.0*12. For information on Audiogram Display, refer to *Technical Manual - Audiometric Exam Module*, November 2005 in the VistA Document Library.

> http://www.va.gov/vdl/documents/Clinical/Qual_Audio_Speech_Anal_(QUASAR)/ackq3_0_p12tm.pdf

Additional Information

- Users set up to use multiple broker environments default to BROKERSERVER on port 9200 in the production account.

- You must login using local VistA Access and Verify codes. If prompted, use your VistA account, local Access and Verify codes.

  Local Access and Verify codes are not needed when single sign on is enabled in the selected environment, the end user has auto login, multiple sign on is used, and a session is active in another VistA application.

- Users may also have Denver ALC (Denver Acquisition & Logistics Center) Access and Verify codes for the Denver ALC Remote Inquiry System (RIS) or Remote Order Entry System (ROES). These Denver ALC codes are not needed for the Audiogram Module itself.

- Use FileMan's DATA DICTIONARY UTILITIES option to print out the data dictionary for a file.

  From the LIST FILE ATTRIBUTES option, select a version: STANDARD, BRIEF or CONDENSED. It is recommended that you use the CONDENSED version, because of the large number of fields in a file.

- Use the VistA KIDS Build File Print option [XPD PRINT BUILD] for a complete listing of package components exported with this software.

  KIDS - Kernel Installation & Distribution
  Utilities
  Build File Print

- Use the VistA KIDS Install File Print option [XPD PRINT INSTALL FILE] to print out the results of the installation process.

  KIDS - Kernel Installation & Distribution
  Utilities
  Install File Print

- In CPRS select a patient and enter the QUASAR Audiogram Module from the CPRS Tools menu. To change a patient, exit the QUASAR Audiogram Module and in CPRS select a new patient and enter the QUASAR Audiogram Module from the CPRS Tools menu.

Implementation and Maintenance

Required Site-specific Data

- The VistA system must have MailMan connectivity to the Denver ALC (such as DDC.VA.GOV domain open), in order to transmit the audiometric data to the Denver ALC.

- The site's VistA Server must be running the VA's RPC Broker listener.

- The desktop system must be running a Windows operating system (WinNT, Win2K, WinXP).

- The VistA RPC Broker client must be installed and functional on the desktop system.

Installation Process

RPC Broker V1.1

- You are required to install RPC Broker V1.1 on every workstation on which the Audiogram Module is to be executed.

- The RPC Broker is already installed if the workstation connects successfully by way of CPRS, BCMA, or PCMM.

- To install the RPC Broker, refer to the RPC Broker website for configuration information and to download the installation file: http://vista.med.va.gov/broker/download.asp

- The RPC Broker patches must be up-to-date in all accounts running the QUASAR Audiogram Module.

CPRS

The CPRS application must be installed and functional on the VistA server and desktop systems, to access the audiogram application from the CPRS Tools menu.

KIDS

The KIDS[1] build installs (ACKQ*3.0*13) the following options, remote procedure calls, and routines to the VistA system into the local system.

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[1]Patch ACKQ*3.0*13 July 2007 Two M routines and a remote procedure are added in the Patch 13 KIDS build.

QUASAR Audiogram Module (Audiogram Edit)

ACKQROES3E[2]	Audiogram Edit allows access to the QUASAR Audiogram Module and is set up in the Option file #19.

- You must assign ACKQROES3E to a common menu option, or as a secondary menu option for the individual users.
- If not assigned, ACKQROES3E generates an error while context is established.

Remote Procedure

ACKQAUD1	Used in the display part of the application. An RPC that gets the audiogram data the selected entry in the AUDIOMETRIC EXAM DATA file (#509850.9) and returns the data to the calling program.

M Routine List

ACKQAG03	Sends audiometric data to Denver ALC.
ACKQAG05	Utility for transmitting data.

Delphi Executable

ACKQROES3E.exe	Application for the QUASAR Audiogram Module from CPRS. The executable, ACKQROES3E.exe is contained in the ACKQ3_0P13_EDIT.ZIP file.

Vendor Installer

The vendor installer[3] places DLLs in a specific folder on the PC used for hearing tests: C:\Program Files\VistA\QUASAR\Plugins\.

After downloading the vendor files (from http://vista.med.va.gov/clinicalspecialties/quasar) and installing the appropriate driver, as well as installing the current QUASAR executable, QUASAR can search for and communicate with compatible devices.

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[2] Patch ACKQ*3.0*13 July 2007 Section added about the Audiogram Edit component.

[3] Patch ACKQ*3.0*13 July 2007 Section added about the vendor DLL installer.

Troubleshooting QUASAR Audiogram Module

When the QUASAR Audiogram Module[4] does not display your device:

1. Ensure that the driver for the correct device is installed and that all installation instructions (included in the installer) are followed.

2. Check that the physical connection between the PC and the device is plugged in at both ends to available and functioning ports. If any port adapters are used (e.g. USB-COM, RS232-USB, etc.), ensure the driver for the adapter is installed before installing any additional vendor software.

3. Make sure the device is plugged in and powered on. Also make sure that any device-specific changes were made. Changes may include setting communication characteristics through the device's menu and pressing specific buttons to enable communication. In certain cases, physical hardware changes may be necessary, such as firmware chip replacement or dip-switch changes.

4. For vendor-specific settings, consult the documentation for the equipment you are using, which is included with the vendor installer.

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[4]Patch ACKQ*3.0*13 July 2007 Section added for troubleshooting the Audiogram Module.

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Process Logic

The Process Logic[5] section provides technical staff with the processing functions in each application. The flow chart logic is accompanied by related routines and remote procedure calls supporting that logic.

Functions performed by these processes are:

- Entry of clinical audiogram data (creation of new audiogram record or modification of existing unsigned record).

- Transmission of the audiogram record to the Denver ALC.

- Display of the audiogram and associated functions.

    Note: From CPRS, the patient DFN is passed to the application as **DFN=%DFN**.
    If the **DFN** is provided, the program defaults to that **DFN**.
    % is used when you access Audiogram Edit from the server.

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[5]Patch ACKQ*3.0*13 July 2007 Removed the Enter Edit Audiogram Data flow chart and removed the Audiogram Display flow chart.

Transmission of Audiometric Data

This flow chart[6] is a representation of the import of data from an audiometer to the module.


```
                         [ACKQAG03]

RPC:                  ck existence of file  →  error  →
ACKQROES             [ACKQAG04]

ROUTINES:
ACKQAG03             verify existence of entry  →  error  →
ACKQAG04             [ACKQAG04]
ACKQAG05
                     Create message entry  →  error  →
                     [ACKQAG04]

                     Fill in TO/FROM etc.  →  error  →
                     [ACKQAG04]

                     Collect Data  →  error  →
                     [ACKQAG05]

                     Fill message  →  error  →
                     [ACKQAG05]

                     verify msg lines  →  error  →
                     [ACKQAG03]

                     send msg  →  error  →
                     [ACKQAG03]

                         Exit
```

---
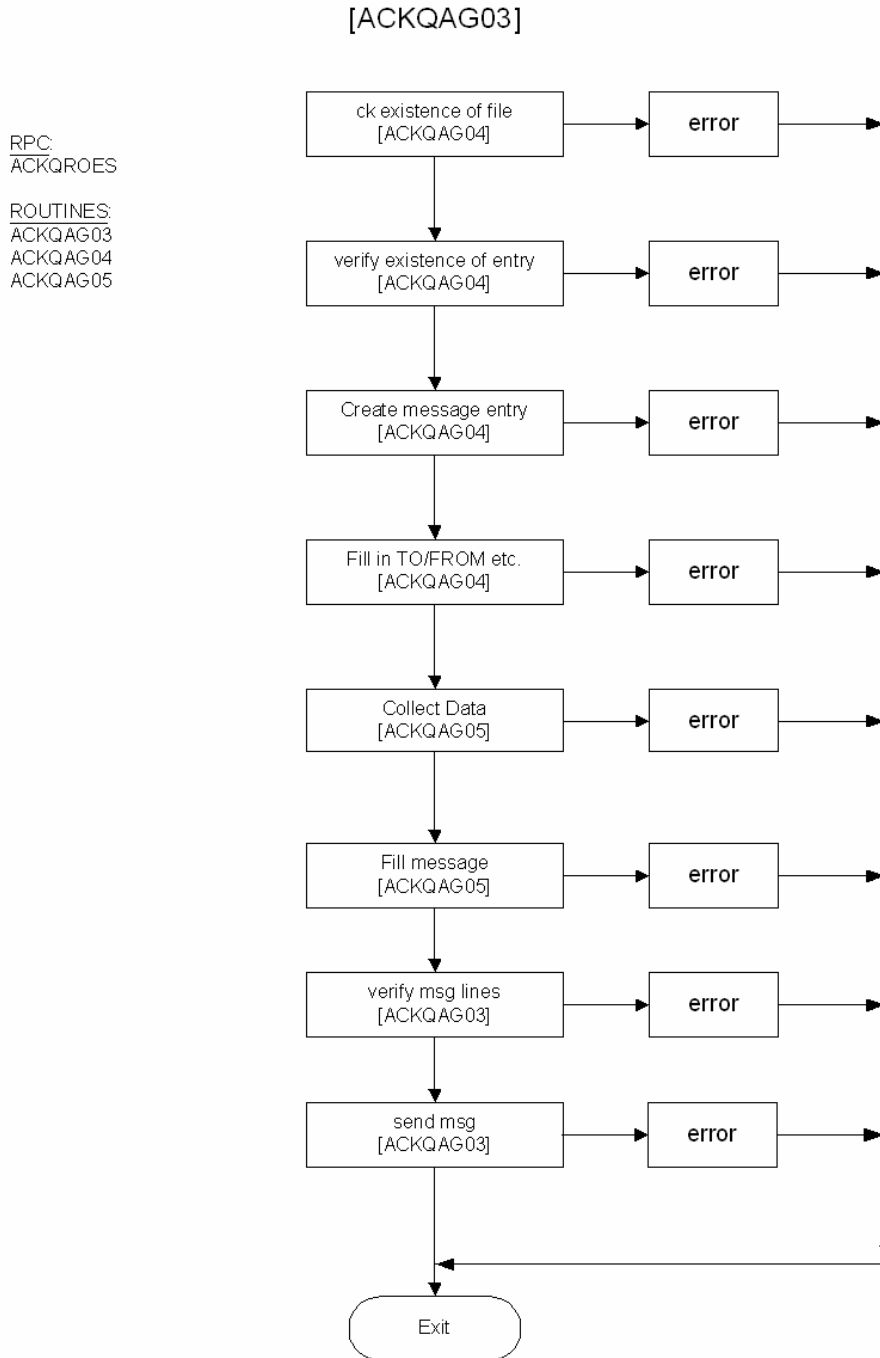
[6]Patch ACKQ*3.0*13 July 2007 Modified the Transmission of Audiometric Data flow chart.

Files

The Files section lists the specific data elements and their attributes, in the AUDIOMETRIC EXAM DATA file.

A number of audiology-specific acronyms and abbreviations are used in the field names. Refer to the *Glossary* for full definitions.

Audiometric Exam Data: ^ACK(509850.9

For a complete listing of fields and attributes use the FileMan: List File Attributes option, selecting the STANDARD or BRIEF format.

The CONDENSED listing[7] follows:

Field	Field Name	[node;position]
.01	DATE/TIME OF VISIT (RD), [0;1]	
.02	PATIENT (P2'), [0;2]	
.03	EXAMINING AUDIOLOGIST (P200'), [0;3]	
.04	REFERRAL SOURCE (P44'), [0;4]	
.05	AGE AT VISIT (NJ3,0), [0;5]	
.06	* VA ELIGIBILITY STATUS (S), [0;6]	
.07	TYPE OF VISIT (F), [0;7]	
.08	TRANSDUCER TYPE (S), [0;8]	
.09	DATE SIGNED (D), [0;9]	
.1	TESTING STATION (P4'), [0;10]	
.11	ICN (F), [0;11]	
.12	DATE SENT TO DDC (D), [0;12]	
.13	MESSAGE NUMBER (P3.9'), [0;13]	
.14	CLAIM NUMBER (F), [0,14]	
.15	RETRANSMISSION DATE (D),[0;15]	
.16	RETRANSMISSION USER (P200),[0;16]	
1.01	RIGHT FOUR FREQUENCY PTA (NJ3,0), [1;1]	
1.02	LEFT FOUR FREQUENCY PTA (NJ3,0), [1;2]	
1.03	RIGHT THREE FREQUENCY PTA (NJ3,0), [1;3]	
1.04	LEFT THREE FREQUENCY PTA (NJ3,0), [1;4]	
1.05	RIGHT TWO FREQUENCY PTA (NJ3,0), [1;5]	
1.06	LEFT TWO FREQUENCY PTA (NJ3,0), [1;6]	
1.07	RIGHT MCL (NJ3,0), [1;7]	
1.08	RIGHT UCL (NJ3,0), [1;8]	
1.09	LEFT MCL (NJ3,0), [1;9]	
1.1	LEFT UCL (NJ3,0), [1;10]	

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[7]Patch ACKQ*3.0*13 July 2007 Updated the condensed listing of fields and attributes.

Field	Field Name	[node;position]
1.11	R TYMPANOGRAM TYPE (S),[1;11]	
1.12	L TYMPANOGRAM TYPE (S),[1;12]	
10.01	INITIAL A/C THRESHOLD R 125 (F), [10;1]	
10.02	INITIAL A/C THRESHOLD R 250 (F), [10;2]	
10.03	INITIAL A/C THRESHOLD R 500 (F), [10;3]	
10.04	INITIAL A/C THRESHOLD R 750 (F), [10;4]	
10.05	INITIAL A/C THRESHOLD R 1000 (F), [10;5]	
10.06	INITIAL A/C THRESHOLD R 1500 (F), [10;6]	
10.07	INITIAL A/C THRESHOLD R 2000 (F), [10;7]	
10.08	INITIAL A/C THRESHOLD R 3000 (F), [10;8]	
10.09	INITIAL A/C THRESHOLD R 4000 (F), [10;9]	
10.1	INITIAL A/C THRESHOLD R 6000 (F), [10;10]	
10.11	INITIAL A/C THRESHOLD R 8000 (F), [10;11]	
10.12	INITIAL A/C THRESHOLD R 12000 (F), [10;12]	
11.01	* INITIAL A/C THRESH TAG R 125 (S), [11;1]	
11.02	* INITIAL A/C THRESH TAG R 250 (S), [11;2]	
11.03	* INITIAL A/C THRESH TAG R 500 (S), [11;3]	
11.04	* INITIAL A/C THRESH TAG R 750 (S), [11;4]	
11.05	* INITIAL A/C THRESH TAG R 1000 (S), [11;5]	
11.06	* INITIAL A/C THRESH TAG R 1500 (S), [11;6]	
11.07	* INITIAL A/C THRESH TAG R 2000 (S), [11;7]	
11.08	* INITIAL A/C THRESH TAG R 3000 (S), [11;8]	
11.09	* INITIAL A/C THRESH TAG R 4000 (S), [11;9]	
11.1	* INITIAL A/C THRESH TAG R 6000 (S), [11;10]	
11.11	* INITIAL A/C THRESH TAG R 8000 (S), [11;11]	
11.12	* INITIAL A/C THRESH TAG R 12000 (S), [11;12]	
15.01	RETEST A/C THRESHOLD R 125 (F), [10;1]	
15.02	RETEST A/C THRESHOLD R 250 (F), [10;2]	
15.03	RETEST A/C THRESHOLD R 500 (F), [10;3]	
15.04	RETEST A/C THRESHOLD R 750 (F), [10;4]	
15.05	RETEST A/C THRESHOLD R 1000 (F), [10;5]	
15.06	RETEST A/C THRESHOLD R 1500 (F), [10;6] zxc	
15.07	RETEST A/C THRESHOLD R 2000 (F), [10;7]	
15.08	RETEST A/C THRESHOLD R 3000 (F), [10;8]	
15.09	RETEST A/C THRESHOLD R 4000 (F), [10;9]	
15.1	RETEST A/C THRESHOLD R 6000 (F), [10;10]	
15.11	RETEST A/C THRESHOLD R 8000 (F), [10;11]	
20.01	FINAL A/C THRESHOLD R 125 (F), [20;1]	
20.02	FINAL A/C THRESHOLD R 250 (F), [20;2]	
20.03	FINAL A/C THRESHOLD R 500 (F), [20;3]	
20.04	FINAL A/C THRESHOLD R 750 (F), [20;4]	

Field	Field Name	[node;position]
20.05	FINAL A/C THRESHOLD R 1000 (F),	[20;5]
20.06	FINAL A/C THRESHOLD R 1500 (F),	[20;6]
20.07	FINAL A/C THRESHOLD R 2000 (F),	[20;7]
20.08	FINAL A/C THRESHOLD R 3000 (F),	[20;8]
20.09	FINAL A/C THRESHOLD R 4000 (F),	[20;9]
20.1	FINAL A/C THRESHOLD R 6000 (F),	[20;10]
20.11	FINAL A/C THRESHOLD R 8000 (F),	[20;11]
20.12	FINAL A/C THRESHOLD R 12000 (F),	[20;12]
21.01	* REPEAT A/C THRESH TAG R 125 (S),	[21;1]
21.02	* REPEAT A/C THRESH TAG R 250 (S),	[21;2]
21.03	* REPEAT A/C THRESH TAG R 500 (S),	[21;3]
21.04	* REPEAT A/C THRESH TAG R 750 (S),	[21;4]
21.05	* REPEAT A/C THRESH TAG R 1000 (S),	[21;5]
21.06	* REPEAT A/C THRESH TAG R 1500 (S),	[21;6]
21.07	* REPEAT A/C THRESH TAG R 2000 (S),	[21;7]
21.08	* REPEAT A/C THRESH TAG R 3000 (S),	[21;8]
21.09	* REPEAT A/C THRESH TAG R 4000 (S),	[21;9]
21.1	* REPEAT A/C THRESH TAG R 6000 (S),	[21;10]
21.11	* REPEAT A/C THRESH TAG R 8000 (S),	[21;11]
21.12	* REPEAT A/C THRESH TAG R 12000 (S),	[21;12]
30.01	INITIAL A/C THRESHOLD L 125 (F),	[30;1]
30.02	INITIAL A/C THRESHOLD L 250 (F),	[30;2]
30.03	INITIAL A/C THRESHOLD L 500 (F),	[30;3]
30.04	INITIAL A/C THRESHOLD L 750 (F),	[30;4]
30.05	INITIAL A/C THRESHOLD L 1000 (F),	[30;5]
30.06	INITIAL A/C THRESHOLD L 1500 (F),	[30;6]
30.07	INITIAL A/C THRESHOLD L 2000 (F,	[30;7]
30.08	INITIAL A/C THRESHOLD L 3000 (F),	[30;8]
30.09	INITIAL A/C THRESHOLD L 4000 (F),	[30;9]
30.1	INITIAL A/C THRESHOLD L 6000 (F),	[30;10]
30.11	INITIAL A/C THRESHOLD L 8000 (F),	[30;11]
30.12	INITIAL A/C THRESHOLD L 12000 (F),	[30;12]
31.01	* INITIAL A/C THRESH TAG L 125 (S),	[31;1]
31.02	* INITIAL A/C THRESH TAG L 250 (S),	[31;2]
31.03	* INITIAL A/C THRESH TAG L 500 (S),	[31;3]
31.04	* INITIAL A/C THRESH TAG L 750 (S),	[31;4]
31.05	* INITIAL A/C THRESH TAG L 1000 (S),	[31;5]
31.06	* INITIAL A/C THRESH TAG L 1500 (S),	[31;6]
31.07	* INITIAL A/C THRESH TAG L 2000 (S),	[31;7]
31.08	* INITIAL A/C THRESH TAG L 3000 (S),	[31;8]
31.09	* INITIAL A/C THRESH TAG L 4000 (S),	[31;9]

Field	Field Name	[node;position]
31.1	* INITIAL A/C THRESH TAG L 6000 (S), [31;10]	
31.11	* INITIAL A/C THRESH TAG L 8000 (S), [31;11]	
31.12	* INITIAL A/C THRESH TAG L 12000 (S), [31;12]	
35.01	RETEST A/C THRESHOLD R 125 (F), [10;1]	
35.02	RETEST A/C THRESHOLD R 250 (F), [10;2]	
35.03	RETEST A/C THRESHOLD R 500 (F), [10;3]	
35.04	RETEST TEST A/C THRESHOLD R 750 (F), [10;4]	
35.05	RETEST A/C THRESHOLD R 1000 (F), [10;5]	
35.06	RETEST A/C THRESHOLD R 1500 (F), [10;6]	
35.07	RETEST A/C THRESHOLD R 2000 (F), [10;7]	
35.08	RETEST A/C THRESHOLD R 3000 (F), [10;8]	
35.09	RETEST A/C THRESHOLD R 4000 (F), [10;9]	
35.1	RETEST A/C THRESHOLD R 6000 (F), [10;10]	
35.11	RETEST A/C THRESHOLD R 8000 (F), [10;11]	
40.01	FINAL A/C THRESHOLD L 125 (F), [40;1]	
40.02	FINAL A/C THRESHOLD L 250 (F), [40;2]	
40.03	FINAL A/C THRESHOLD L 500 (F), [40;3]	
40.04	FINAL A/C THRESHOLD L 750 (F), [40;4]	
40.05	FINAL A/C THRESHOLD L 1000 (F), [40;5]	
40.06	FINAL A/C THRESHOLD L 1500 (F), [40;6]	
40.07	FINAL A/C THRESHOLD L 2000 (F), [40;7]	
40.08	FINAL A/C THRESHOLD L 3000 (F), [40;8]	
40.09	FINAL A/C THRESHOLD L 4000 (F), [40;9]	
40.1	FINAL A/C THRESHOLD L 6000 (F), [40;10]	
40.11	FINAL A/C THRESHOLD L 8000 (F), [40;11]	
40.12	FINAL A/C THRESHOLD L 12000 (F), [40;12]	
41.01	* REPEAT A/C THRESH TAG L 125 (S), [41;1]	
41.02	* REPEAT A/C THRESH TAG L 250 (S), [41;2]	
41.03	* REPEAT A/C THRESH TAG 500 (S), [41;3]	
41.04	* REPEAT A/C THRESH TAG L 750 (S), [41;4]	
41.05	* REPEAT A/C THRESH TAG L 1000 (S), [41;5]	
41.06	* REPEAT A/C THRESHOLD TAG 1500 (S), [41;6]	
41.07	* REPEAT A/C THRESH TAG L 2000 (S), [41;7]	
41.08	* REPEAT A/C THRESH TAG L 3000 (S), [41;8]	
41.09	* REPEAT A/C THRESH TAG L 4000 (S), [41;9]	
41.1	* REPEAT A/C THRESH TAG L 6000 (S), [41;10]	
41.11	* REPEAT A/C THRESH TAG L 8000 (S), [41;11]	
41.12	* REPEAT A/C THRESH TAG L 12000 (S), [41;12]	
50.01	* INITIAL A/C MASK LEVEL R 125 (NJ3,0), [50;1]	
50.02	* INITIAL A/C MASK LEVEL R 250 (NJ3,0), [50;2]	
50.03	* INITIAL A/C MASK LEVEL R 500 (NJ3,0), [50;3]	

Field	Field Name	[node;position]
50.04	* INITIAL A/C MASK LEVEL R 750 (NJ3,0), [50;4]	
50.05	* INITIAL A/C MASK LEVEL R 1000 (NJ3,0), [50;5]	
50.06	* INITIAL A/C MASK LEVEL R 1500 (NJ3,0), [50;6]	
50.07	* INITIAL A/C MASK LEVEL R 2000 (NJ3,0), [50;7]	
50.08	* INITIAL A/C MASK LEVEL R 3000 (NJ3,0), [50;8]	
50.09	* INITIAL A/C MASK LEVEL R 4000 (NJ3,0), [50;9]	
50.1	* INITIAL A/C MASK LEVEL R 6000 (NJ3,0), [50;10]	
50.11	* INITIAL A/C MASK LEVEL R 8000 (NJ3,0), [50;11]	
50.12	* INITIAL A/C MASK LEVEL R 12000 (NJ3,0), [50;12]	
51.01	FINAL A/C MASK LEVEL R 125 (F), [51;1]	
51.02	FINAL A/C MASK LEVEL R 250 (F), [51;2]	
51.03	FINAL A/C MASK LEVEL R 500 (F), [51;3]	
51.04	FINAL A/C MASK LEVEL R 750 (F), [51;4]	
51.05	FINAL A/C MASK LEVEL R 1000 (F), [51;5]	
51.06	FINAL A/C MASK LEVEL R 1500 (F), [51;6]	
51.07	FINAL A/C MASK LEVEL R 2000 (F), [51;7]	
51.08	FINAL A/C MASK LEVEL R 3000 (F), [51;8]	
51.09	FINAL A/C MASK LEVEL R 4000 (F), [51;9]	
51.1	FINAL A/C MASK LEVEL R 6000 (F), [51;10]	
51.11	FINAL A/C MASK LEVEL R 8000 (F), [51;11]	
51.12	FINAL A/C MASK LEVEL R 12000 (F), [51;12]	
60.01	* INITIAL A/C MASK LEVEL L 125 (NJ3,0), [60;1]	
60.02	* INITIAL A/C MASK LEVEL L 250 (NJ3,0), [60;2]	
60.03	* INITIAL A/C MASK LEVEL L 500 (NJ3,0), [60;3]	
60.04	* INITIAL A/C MASK LEVEL L 750 (NJ3,0), [60;4]	
60.05	* INITIAL A/C MASK LEVEL L 1000 (NJ3,0), [60;5]	
60.06	* INITIAL A/C MASK LEVEL L 1500 (NJ3,0), [60;6]	
60.07	* INITIAL A/C MASK LEVEL L 2000 (NJ3,0), [60;7]	
60.08	* INITIAL A/C MASK LEVEL L 3000 (NJ3,0), [60;8]	
60.09	* INITIAL A/C MASK LEVEL L 4000 (NJ3,0), [60;9]	
60.1	* INITIAL A/C MASK LEVEL L 6000 (NJ3,0), [60;10]	
60.11	* INITIAL A/C MASK LEVEL L 8000 (NJ3,0), [60;11]	
60.12	* INITIAL A/C MASK LEVEL L 12000 (NJ3,0), [60;12]	
61.01	FINAL A/C MASK LEVEL L 125 (F), [61;1]	
61.02	FINAL A/C MASK LEVEL L 250 (F), [61;2]	
61.03	FINAL A/C MASK LEVEL L 500 (F), [61;3]	
61.04	FINAL A/C MASK LEVEL L 750 (F), [61;4]	
61.05	FINAL A/C MASK LEVEL L 1000 (F), [61;5]	
61.06	FINAL A/C MASK LEVEL L 1500 (F), [61;6]	
61.07	FINAL A/C MASK LEVEL L 2000 (F), [61;7]	
61.08	FINAL A/C MASK LEVEL L 3000 (F), [61;8]	

Field	Field Name	[node;position]
61.09	FINAL A/C MASK LEVEL L 4000 (F), [61;9]	
61.1	FINAL A/C MASK LEVEL L 6000 (F), [61;10]	
61.11	FINAL A/C MASK LEVEL L 8000 (F), [61;11]	
61.12	FINAL A/C MASK LEVEL L 12000 (F), [61;12]	
70.01	INITIAL B/C THRESHOLD R 250 (F), [70;1]	
70.02	INITIAL B/C THRESHOLD R 500 (F), [70;2]	
70.03	INITIAL B/C THRESHOLD R 750 (F), [70;3]	
70.04	INITIAL B/C THRESHOLD R 1000 (F), [70;4]	
70.05	INITIAL B/C THRESHOLD R 1500 (F), [70;5]	
70.06	INITIAL B/C THRESHOLD R 2000 (F), [70;6]	
70.07	INITIAL B/C THRESHOLD R 3000 (F), [70;7]	
70.08	INITIAL B/C THRESHOLD R 4000 (F), [70;8]	
70.09	INITIAL B/C THRESHOLD R 6000 (F), [70;9]	
71.01	* INITIAL B/C THRESH TAG R 250 (S), [71;1]	
71.02	* INITIAL B/C THRESH TAG R 500 (S), [71;2]	
71.03	* INITIAL B/C THRESH TAG R 750 (S), [71;3]	
71.04	* INITIAL B/C THRESH TAG R 1000 (S), [71;4]	
71.05	* INITIAL B/C THRESH TAG R 1500 (S), [71;5]	
71.06	* INITIAL B/C THRESH TAG R 2000 (S), [71;6]	
71.07	* INITIAL B/C THRESH TAG R 3000 (S), [71;7]	
71.08	* INITIAL B/C THRESH TAG R 4000 (S), [71;8]	
71.09	* INITIAL B/C THRESH TAG R 6000 (S), [71;9]	
72.01	RETEST B/C THRESHOLD R 250 (F), [75;1]	
72.02	RETEST B/C THRESHOLD R 500 (F), [75;2]	
72.03	RETEST B/C THRESHOLD R 750 (F), [75;3]	
72.04	RETEST B/C THRESHOLD R 1000 (F), [75;4]	
72.05	RETEST B/C THRESHOLD R 1500 (F), [75;5]	
72.06	RETEST B/C THRESHOLD R 2000 (F), [75;6]	
72.07	RETEST B/C THRESHOLD R 3000 (F), [75;7]	
72.08	RETEST B/C THRESHOLD R 4000 (F), [75;8]	
72.09	RETEST B/C THRESHOLD R 6000 (F), [75;9]	
75.01	FINAL B/C THRESHOLD R 250 (F), [75;1]	
75.02	FINAL B/C THRESHOLD R 500 (F), [75;2]	
75.03	FINAL B/C THRESHOLD R 750 (F), [75;3]	
75.04	FINAL B/C THRESHOLD R 1000 (F), [75;4]	
75.05	FINAL B/C THRESHOLD R 1500 (F), [75;5]	
75.06	FINAL B/C THRESHOLD R 2000 (F), [75;6]	
75.07	FINAL B/C THRESHOLD R 3000 (F), [75;7]	
75.08	FINAL B/C THRESHOLD R 4000 (F), [75;8]	
75.09	FINAL B/C THRESHOLD R 6000 (F), [75;9]	
76.01	* REPEAT B/C THRESH TAG R 250 (S), [76;1]	

Field	Field Name	[node;position]
76.02	* REPEAT B/C THRESH TAG R 500 (S), [76;2]	
76.03	* REPEAT B/C THRESH TAG R 750 (S), [76;3]	
76.04	* REPEAT B/C THRESH TAG R 1000 (S), [76;4]	
76.05	* REPEAT B/C THRESH TAG R 1500 (S), [76;5]	
76.06	* REPEAT B/C THRESH TAG R 2000 (S), [76;6]	
76.07	* REPEAT B/C THRESH TAG R 3000 (S), [76;7]	
76.08	* REPEAT B/C THRESH TAG R 4000 (S), [76;8]	
76.09	* REPEAT B/C THRESH TAG R 6000 (S), [76;9]	
80.01	INITIAL B/C THRESHOLD L 250 (F), [80;1]	
80.02	INITIAL B/C THRESHOLD L 500 (F), [80;2]	
80.03	INITIAL B/C THRESHOLD L 750 (F), [80;3]	
80.04	INITIAL B/C THRESHOLD L 1000 (F), [80;4]	
80.05	INITIAL B/C THRESHOLD L 1500 (F), [80;5]	
80.06	INITIAL B/C THRESHOLD L 2000 (F), [80;6]	
80.07	INITIAL B/C THRESHOLD L 3000 (F), [80;7]	
80.08	INITIAL B/C THRESHOLD L 4000 (F), [80;8]	
80.09	INITIAL B/C THRESHOLD L 6000 (F), [80;9]	
81.01	* INITIAL B/C THRESH TAG L 250 (S), [81;1]	
81.02	* INITIAL B/C THRESH TAG L 500 (S), [81;2]	
81.03	* INITIAL B/C THRESH TAG L 750 (S), [81;3]	
81.04	* INITIAL B/C THRESH TAG L 1000 (S), [81;4]	
81.05	* INITIAL B/C THRESH TAG L 1500 (S), [81;5]	
81.06	* INITIAL B/C THRESH TAG L 2000 (S), [81;6]	
81.07	* INITIAL B/C THRESH TAG L 3000 (S), [81;7]	
81.08	* INITIAL B/C THRESH TAG L 4000 (S), [81;8]	
81.09	* INITIAL B/C THRESH TAG L 6000 (S), [81;9]	
82.01	RETEST B/C THRESHOLD L 250 (F), [82;1]	
82.02	RETEST B/C THRESHOLD L 500 (F), [82;2]	
82.03	RETEST B/C THRESHOLD L 750 (F), [82;3]	
82.04	RETEST B/C THRESHOLD L 1000 (F), [82;4]	
82.05	RETEST B/C THRESHOLD L 1500 (F), [82;5]	
82.06	RETEST B/C THRESHOLD L 2000 (F), [82;6]	
82.07	RETEST B/C THRESHOLD L 3000 (F), [82;7]	
82.08	RETEST B/C THRESHOLD L 4000 (F), [82;8]	
82.09	RETEST B/C THRESHOLD L 6000 (F), [82;9]	
85.01	FINAL B/C THRESHOLD L 250 (F), [85;1]	
85.02	FINAL B/C THRESHOLD L 500 (F), [85;2]	
85.03	FINAL B/C THRESHOLD L 750 (F), [85;3]	
85.04	FINAL B/C THRESHOLD L 1000 (F), [85;4]	
85.05	FINAL B/C THRESHOLD L 1500 (F), [85;5]	
85.06	FINAL B/C THRESHOLD L 2000 (F), [85;6]	

Field	Field Name	[node;position]
85.07	FINAL B/C THRESHOLD L 3000 (F), [85;7]	
85.08	FINAL B/C THRESHOLD L 4000 (F), [85;8]	
85.09	FINAL B/C THRESHOLD L 6000 (F), [85;9]	
86.01	* REPEAT B/C THRESH TAG L 250 (S), [86;1]	
86.02	* REPEAT B/C THRESH TAG L 500 (S), [86;2]	
86.03	* REPEAT B/C THRESH TAG L 750 (S), [86;3]	
86.04	* REPEAT B/C THRESH TAG L 1000 (S), [86;4]	
86.05	* REPEAT B/C THRESH TAG L 1500 (S), [86;5]	
86.06	* REPEAT B/C THRESH TAG L 2000 (S), [86;6]	
86.07	* REPEAT B/C THRESH TAG L 3000 (S), [86;7]	
86.08	* REPEAT B/C THRESH TAG L 4000 (S), [86;8]	
86.09	* REPEAT B/C THRESH TAG L 6000 (S), [86;9]	
90.01	* INITIAL B/C MASK LEVEL R 250 (NJ3,0), [90;1]	
90.02	* INITIAL B/C MASK LEVEL R 500 (NJ3,0), [90;2]	
90.03	* INITIAL B/C MASK LEVEL R 750 (NJ3,0), [90;3]	
90.04	* INITIAL B/C MASK LEVEL R 1000 (NJ3,0), [90;4]	
90.05	* INITIAL B/C MASK LEVEL R 1500 (NJ3,0), [90;5]	
90.06	* INITIAL B/C MASK LEVEL R 2000 (NJ3,0), [90;6]	
90.07	* INITIAL B/C MASK LEVEL R 3000 (NJ3,0), [90;7]	
90.08	* INITIAL B/C MASK LEVEL R 4000 (NJ3,0), [90;8]	
90.09	* INITIAL B/C MASK LEVEL R 6000 (NJ3,0), [90;9]	
91.01	FINAL B/C MASK LEVEL R 250 (F), [91;1]	
91.02	FINAL B/C MASK LEVEL R 500 (F), [91;2]	
91.03	FINAL B/C MASK LEVEL R 750 (F), [91;3]	
91.04	FINAL B/C MASK LEVEL R 1000 (F), [91;4]	
91.05	FINAL B/C MASK LEVEL R 1500 (F), [91;5]	
91.06	FINAL B/C MASK LEVEL R 2000 (F), [91;6]	
91.07	FINAL B/C MASK LEVEL R 3000 (F), [91;7]	
91.08	FINAL B/C MASK LEVEL R 4000 (F), [91;8]	
91.09	FINAL B/C MASK LEVEL R 6000 (F), [91;9]	
100.01	* INITIAL B/C MASK LEVEL L 250 (NJ3,0), [100;1]	
100.02	* INITIAL B/C MASK LEVEL L 500 (NJ3,0), [100;2]	
100.03	* INITIAL B/C MASK LEVEL L 750 (NJ3,0), [100;3]	
100.04	* INITIAL B/C MASK LEVEL L 1000 (NJ3,0), [100;4]	
100.05	* INITIAL B/C MASK LEVEL L 1500 (NJ3,0), [100;5]	
100.06	* INITIAL B/C MASK LEVEL L 2000 (NJ3,0), [100;6]	
100.07	* INITIAL B/C MASK LEVEL L 3000 (NJ3,0), [100;7]	
100.08	* INITIAL B/C MASK LEVEL L 4000 (NJ3,0), [100;8]	
100.09	* INITIAL B/C MASK LEVEL L 6000 (NJ3,0), [100;9]	
101.01	FINAL B/C MASK LEVEL L 250 (F), [101;1]	
101.02	FINAL B/C MASK LEVEL L 500 (F), [101;2]	

Field	Field Name	[node;position
101.03	FINAL B/C MASK LEVEL L 750 (F), [101;3]	
101.04	FINAL B/C MASK LEVEL L 1000 (F), [101;4]	
101.05	FINAL B/C MASK LEVEL L 1500 (F), [101;5]	
101.06	FINAL B/C MASK LEVEL L 2000 (F), [101;6]	
101.07	FINAL B/C MASK LEVEL L 3000 (F), [101;7]	
101.08	FINAL B/C MASK LEVEL L 4000 (F), [101;8]	
101.09	FINAL B/C MASK LEVEL L 6000 (F), [101;9]	
110.03	MATERIAL-1 (S), [110;3]	
110.04	PERCENT CORRECT R-1 (F), [110;4]	
110.05	PRESENTATION METHOD R-1 (S), [110;5]	
110.06	PRESENTATION LEVEL R-1 (NJ3,0), [110;6]	
110.07	MASKING LEVEL R-1 (F), [110;7]	
110.08	* WORD LIST R-2 (S), [110;8]	
110.09	PERCENT CORRECT R-2 (F), [110;9]	
110.1	* PRESENTATION METHOD R-2 (S), [110;10]	
110.11	PRESENTATION LEVEL R-2 (NJ3,0), [110;11]	
110.12	MASKING LEVEL R-2 (F), [110;12]	
110.13	* WORD LIST R-3 (S), [110;13]	
110.14	PERCENT CORRECT R-3 (F), [110;14]	
110.15	* PRESENTATION METHOD R-3 (S), [110;15]	
110.16	PRESENTATION LEVEL R-3 (NJ3,0), [110;16]	
110.17	MASKING LEVEL R-3 (F), [110;17]	
110.18	* WORD LIST R-4 (S), [110;18]	
110.19	PERCENT CORRECT R-4 (F), [110;19]	
110.2	* PRESENTATION METHOD R-4 (S), [110;20]	
110.21	PRESENTATION LEVEL R-4 (NJ3,0), [110;21]	
110.22	MASKING LEVEL R-4 (F), [110;22]	
110.23	* WORD LIST R-5 (S), [110;23]	
110.24	PERCENT CORRECT R-5 (F), [110;24]	
110.25	* PRESENTATION METHOD R-5 (S), [110;25]	
110.26	PRESENTATION LEVEL R-5 (NJ3,0), [110;26]	
110.27	MASKING LEVEL R-5 (NJ3,0), [F]	
110.28	LIST R-1 (F),[110;28]	
110.29	LIST R-2 (F),[110;29]	
110.3	LIST R-3 (F),[110;30]	
110.31	LIST R-4 (F),[110;31]	
110.32	LIST R-5 (F),[110;32]	
111.03	MATERIAL L-1 (S), [111;3]	
111.04	PERCENT CORRECT L-1 (F), [111;4]	
111.05	PRESENTATION METHOD L-1 (S), [111;5]	
111.06	PRESENTATION LEVEL L-1 (NJ3,0), [111;6]	

Field	Field Name	[node;position]
111.07	MASKING LEVEL L-1 (F), [111;7]	
111.08	* WORD LIST L-2 (S), [111;8]	
111.09	PERCENT CORRECT L-2 (F), [111;9]	
111.1	* PRESENTATION METHOD L-2 (S), [111;10]	
111.11	PRESENTATION LEVEL L-2 (NJ3,0), [111;11]	
111.12	MASKING LEVEL L-2 (F), [111;12]	
111.13	* WORD LIST L-3 (S), [111;13]	
111.14	PERCENT CORRECT L-3 (F), [111;14]	
111.15	* PRESENTATION METHOD L-3 (S), [111;15]	
111.16	PRESENTATION LEVEL L-3 (NJ3,0), [111;16]	
111.17	MASKING LEVEL L-3 (F), [111;17]	
111.18	* WORD LIST L-4 (S), [111;18]	
111.19	PERCENT CORRECT L-4 (F), [111;19]	
111.2	* PRESENTATION METHOD L-4 (S), [111;20]	
111.21	PRESENTATION LEVEL L-4 (NJ3,0), [111;21]	
111.22	MASKING LEVEL L-4 (F), [111;22]	
111.23	* WORD LIST L-5 (S), [111;23]	
111.24	PERCENT CORRECT L-5 (F), [111;24]	
111.25	* PRESENTATION METHOD L-5 (S), [111;25]	
111.26	PRESENTATION LEVEL L-5 (NJ3,0), [111;26]	
111.27	MASKING LEVEL L-5 (F), [111;27]	
111.28	LIST L-1	(F),[110;28]
111.29	LIST L-2	(F),[110;29]
111.3	LIST L-3	(F),[110;30]
111.31	LIST L-4	(F),[110;31]
111.32	LIST L-5	(F),[110;32]
112.03	CI WORD LIST R-1 (S), [112;3]	
112.04	CI PERCENT CORRECT R-1 (NJ6,2), [112;4]	
112.08	CI WORD LIST R-2 (S), [112;8]	
112.09	CI PERCENT CORRECT R-2 (NJ6,2), [112;9]	
112.28	CI NOISE PERCENT RIGHT (NJ6,2), [112;28]	
112.29	CI NOISE MATERIAL RIGHT (S), [112;29]	
113.03	CI WORD LIST L-1 (S), [113;3]	
113.04	CI PERCENT CORRECT L-1 (NJ6,2), [113;4]	
113.08	CI WORD LIST L-2 (S), [113;8]	
113.09	CI PERCENT CORRECT L-2 (NJ6,2), [113;9]	
113.28	CI NOISE PERCENT LEFT (NJ6,2), [113;28]	
113.29	CI NOISE MATERIAL LEFT (S), [113;29]	
115.01	INITIAL SRT THRESH R (F), [115;1]	
115.02	REPEAT SRT THRESH R (F), [115;2]	
115.03	INITIAL SRT MASK LEVEL R (F), [115;3]	

Field	Field Name	[node;position]
115.04	FINAL SRT MASK LEVEL R (F),	[115;4]
115.05	INITIAL SRT THRESH L (F),	[115;5]
115.06	REPEAT SRT THRESH L (F),	[115;6]
115.07	INITIAL SRT MASK LEVEL L (F),	[115;7]
115.08	FINAL SRT MASK LEVEL L (F),	[115;8]
115.09	PBMAX R (NJ3,0),	[115;9]
115.1	PBMIN R (NJ3,0),	[115;10]
115.11	PI/PB R (NJ4,2),	[115;11]
115.12	PBMAX L (NJ3,0),	[115;12]
115.13	PBMIN L (NJ3,0),	[115;13]
115.14	PI/PB L (NJ4,2),	[115;14]
115.15	*FINAL SRT TAG R (S),	[115;15]
115.16	*FINAL SRT TAG L (S),	[115;16]
115.17	*INITIAL SRT TAG R (S),	[115;17]
115.18	*INITIAL SRT TAG L (S),	[115;18]
115.19	APPLIED MAX R (NJ1,0),	[115;19]
115.2	APPLIED MAX L (NJ1,0),	[115;20]
120.01	MIDDLE EAR PRESSURE R (F),	[120;1]
120.02	PK IMMITTANCE 226 R (NJ5,2),	[120;2]
120.03	VEQ - EQUIV EAR CANAL VOL R (NJ5,2),	[120;3]
120.04	IAR THRESHOLD R 500 (F),	[120;4]
120.05	IAR THRESHOLD R 1000 (F),	[120;5]
120.06	IAR THRESHOLD R 2000 (F),	[120;6]
120.07	IAR THRESHOLD R 4000 (F),	[120;7]
120.08	CAR THRESHOLD R 500 (F),	[120;8]
120.09	CAR THRESHOLD R 1000 (F),	[120;9]
120.1	CAR THRESHOLD R 2000 (F),	[120;10]
120.11	CAR THRESHOLD R 4000 (F),	[120;11]
120.12	ACOUSTIC REFLEX DECAY R 500 (S),	[120;12]
120.13	ACOUSTIC REFLEX DECAY R 1000 (S),	[120;13]
120.14	AR HALF LIFE 500 R (F),	[120;14]
120.15	AR HALF LIFE 1000 R (F),	[120;15]
120.16	INTER-TEST CONSISTENCY R (S),	[120;16]
120.17	IAR BBN R (F),	[120;17]
120.18	CAR BBN R (F), (F),	[120;18]
120.19	PK IMMITTANCE 678 R (NJ5,2),	[120;19]
120.2	WEBER R (F),	[120;20]
120.21	PT STENGER R (F),	[120;21]
120.22	RINNE R (F),	[120;22]
120.23	OTHER TEST R (F),	[120;23]
121.01	MIDDLE EAR PRESSURE L (F),	[121;1]

Field	Field Name	[node;position]
121.02	PK IMMITTANCE 226 L (NJ5,2), [121;2]	
121.03	VEQ - EQUIV EAR CANAL VOL L (NJ5,2), [121;3]	
121.04	IAR THRESHOLD L 500 (F), [121;4]	
121.05	IAR THRESHOLD L 1000 (F), [121;5]	
121.06	IAR THRESHOLD L 2000 (F), [121;6]	
121.07	IAR THRESHOLD L 4000 (F), [121;7]	
121.08	CAR THRESHOLD L 500 (F), [121;8]	
121.09	CAR THRESHOLD L 1000 (F), [121;9]	
121.1	CAR THRESHOLD L 2000 (F), [121;10]	
121.11	CAR THRESHOLD L 4000 (F), [121;11]	
121.12	ACOUSTIC REFLEX DECAY L 500 (S), [121;12]	
121.13	ACOUSTIC REFLEX DECAY L 1000 (S), [121;13]	
121.14	AR HALF LIFE 500 L (F), [121;14]	
121.15	AR HALF LIFE 1000 L (F), [121;15]	
121.16	INTER-TEST CONSISTENCY L (S), [121;16]	
121.17	IAR BBN L (F),[121;17]	
121.18	CAR BBN L (F),[121;18]	
121.19	PK IMMITTANCE 678 L (NJ5,2),[121;19]	
121.2	WEBER L (F) ,[121;20]	
121.21	PT STENGER L (F) ,[121;21]	
121.22	RINNE L (F),[121;22]	
121.23	OTHER TEST L (F),[121;23]	
122	COMMENTS (W), [122;0]	

Note: 791000 node is created, but is only used at the Denver ALC.

Files Referenced in ^ACK(509850.9

- ^DPT(PATIENT
- ^VA(200   NEW PERSON
- ^SC(HOSPITAL LOCATION
- ^XMB(3.9,   MESSAGE
- ^DIC(4,   INSTITUTION

Routines

M Routines

The M routines[8] section provides technical staff with a reference list of routines included in the
ACKQ*3.0*13 Audiogram Module.

- ACKQAG03
  Called by RPC: ACKQROES
  Purpose: Retrieves and prepares audiometric exam data for transmission to the Denver ALC.

- .ACKQAG05
  Called by routine: ACKQAG03 *and RPC:* ACKQROESD and ACKQAUD4
  Purpose: Utilities for transmitting data to the Denver ALC.

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[8] Patch ACKQ*3.0*13 May 2007 Added two new M routines.

Delphi Routines

The Delphi routines[9] of the Audiogram Edit are file types: .dpr, .pas, and .dfm.

File	Description
ACKQROES3E.dpr	Project file
uEnterEdit.pas	Main driver program module
uDevice.pas	Select and configure audiometric device to use
uAgmLKUP.pas	Look up prior audiograms
uEditUtils.pas	Utilities for uEnterEdit
uEditUtil2.pas	Additional utilities for uEnterEdit
uEditUtil3.pas	
uInactivate.pas	NotEdit utility to disable all controls
uHelp1.pas	Help for Audiogram Entry page
uHelp2.pas	Help for Pure Tones page
uHelp3.pas	Help for Speech Audiometry page
uHelp4.pas	Help for Acoustic Immittance page
uHelp5.pas	Help for Graph Display page
uTable.pas	Display VA form 10-2364
uGraphUtil.pas	Utility for graphic display page
uGraphUtil2.pas	Utility for graphic display page
uMask.pas	Utility for graphic display page
uInitRead.pas	
frmVistAAbout.pas	VistA About form code
Splvista.pas	VistA splash screen code
uEnterEdit.dfm	Main form
uAgmLKUP.dfm	Form to list available audiograms - Find
uDevice.dfm	Form to list available audiometric devices
uHelp1.dfm	Help Form for the entry page
uHelp2.dfm	Help Form for Pure Tones page
uHelp3.dfm	Help Form for Speech Audiometry page
uHelp4.dfm	Help Form for Acoustic Immittance page
uHelp5.dfm	Help Form for graphic display page
frmVistAAbout.dfm	VistA About form
Splvista.dfm	VistA splash screen

---

[9]Patch ACKQ*3.0*13 July 2007 Removed the Display Audiogram Delphi routines.

Exported Options

The Exported Options[10] section describes the VistA Broker option included in the Audiogram Module.

ACKQROES3E - Audiogram Edit

NAME: ACKQROES3E[11]

MENU TEXT: Audiogram Enter Edit

TYPE: Broker (Client/Server)

PACKAGE: QUASAR

DESCRIPTION: This is the menu item to establish the connection for the AUDIOMETRIC EXAM DATA file Audiogram Edit executable.

RPC: ACKQAUD1

Archiving and Purging

^ACK(509850.9,

Because the data stored in this file is part of the patient record, it should be retained as permanent data in accordance with the VistA patient data storage policy and regulations.

---

[10]Patch ACKQ*3.0*13 July 2007 Removed the exported option: ACKQROES3 – Audiogram Display.

[11]Patch ACKQ*3.0*13 July 2007   Added one remote procedure call.

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APIs

The following list contains the called routines, entry points, and API's[12] of ACKQROES3E.

START^ACKQAG03

Called by RPC: ACKQROES.

Sets up and sends the message to the Denver ALC with the audiometric data.

The message number and date sent is placed back into the AUDIOMETRIC EXAM DATA file for tracing purposes.

ACKEXIST^ACKQAG05

Checks for existence of file 509805.9 at the site.

DFNIN^ACKQAG05

Input the DFN of a patient.

Returns the last entry number in file 509850.9 for a patient.

NEWMSG^ACKQAG05

Returns the message number as set up in ^XMB(3.9.

---

[12]Patch ACKQ*3.0*13 July 2007 Modified the called routines, entry points, and APIs.

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RPC

The following remote procedure call[13] is in ACKQROES3E.

ACKQAUD1

TAG: START

ROUTINE: ACKQAG01

RETURN VALUE TYPE: ARRAY

AVAILABILITY: PUBLIC

WORD WRAP ON: FALSE

DESCRIPTION: This RPC gets the audiogram data for entries in the AUDIOMETRIC EXAM DATA file 509850.9 and returns it to the calling program in the array.

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[13]Patch ACKQ*3.0*13 July 2007 Modified the remote procedure calls list.

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External Relationships

CPRS Functionality

The Audiogram Module cannot be run as a standalone product on a VistA system.

- Facilities are required to use CPRS functionality[14] for the Audiogram Module.

- Other files are referenced: the PATIENT (#2) file, the NEW PERSON (#200) file, the INSTITUTION (#4) file, the HOSPITAL LOCATION (#44) file, and the title of the examining clinician from the TITLE (3.1) file.

- The Audiogram Module delivers audiometric exam records electronically to the Denver ALC.

- Audiometric data is integrated into custom hearing aid orders placed through the Remote Order Entry System (ROES).

- ROES provides hearing aid manufacturers more complete information for the manufacture, modification, and repair of hearing aids.

- Any doctor with access to the local system can view the Audiogram Display within the application to aid in treatment and diagnosis decisions. They may also continue to view the display as assigned in patch ACKQ*3.0*12. For information on Audiogram Display, refer to *Audiometric Exam Module Installation Guide*, November 2005 in the VistA Document Library.

    www.va.gov/vdl/documents/Clinical/Qual_Audio_Speech_Anal_(QUASAR)/ackq3_0_p 12ig.pdf

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[14]Patch ACKQ*3.0*13 July 2007 Modified external relationships by replacing Standalone Functionality with CPRS Functionality.

Recommended Desktop Minimums

A system with the following specifications can provide the functionality necessary for this application.

Specification	Recommended Minimum
Processor	200 MHz
Memory	64 MB
Hard Drive	4GB
Video	AGP 2x w/4MB
CD-ROM	8x
Monitor	17" VGA, .28 pixel resolution
LAN Interface	10/100 Mbps Ethernet
Keyboard	101-key
Mouse	Microsoft Compatible
Operating System	Microsoft Windows 9x, 2000 or XP (MS Windows XP or Windows 2000 Pro strongly recommended)
Browser	IE 5

- The VA Assistant Secretary for Information and Technology established a set of minimum configurations for new procurement of desktop systems across the enterprise (VA Directive 6401).

- The VA minimum baseline exceeds the recommended minimum for this application and applies to most of the specifications listed above. The specifications are provided for use with existing equipment, if necessary.

- Each facility is advised to consider the specifications mandated by Directive 6401 when assessing procurement and/or other resource acquisitions to meet the requirements of the QUASAR Audiogram Module.

Conforming to these established and/or emerging VA standards is recommended.

A dynamic update of the VA Desktop Standards is maintained at
http://vaww.vairm.vaco.va.gov/vadesktop/

Vendor Installation Wizard

The Vendor Installation Wizard[15] places DLLs in a specific folder on the PC used for hearing tests: C:\Program Files\VistA\QUASAR\Plugins\.

> **Note:** GSI 61 may require a firmware chip update. Follow your site's procurement process for contacting the vendor: Viasys Grason-Stadler.

Obtain the current driver installer for your device from the QUASAR website.

http://vista.med.va.gov/clinicalspecialties/quasar

To create a download account:

1. From the VistA menu on the left, click **Downloads**.

2. Follow the directions for creating an account.

3. Download the appropriate installer.

4. Follow the instructions for installing the driver for your device.

> **Note:** The driver installation process varies from installer to installer. Self-guided instructions are within the installer executable.

Integration Agreements

No unsupported integration agreements are used in the Audiogram Module.

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[15]Patch ACKQ*3.0*13 July 2007 Section is added for the vendor installation wizard.

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Internal Relationships

M routines[16]

1. ACKQAG03   Called by Option: ACKQROES
2. ACKQAG05   Called by routine: ACKQAG03

Delphi routines[17]

Display Audiogram Edit files: ACKQROES3E.EXE

Module Variables

The following QUASAR name space variables are used in the Audiogram Module.

ACKI	array subscript value
ACKQ	number of graphs
ACKQ1IEN	first record internal number
ACKQ2IEN	second record internal number
ACKQA1	air initial threshold
ACKQA1L	air initial masking level
ACKQA1T	air initial tag value
ACKQA2	air repeat threshold
ACKQA2L	air repeat masking level
ACKQA2T	air repeat tag value
ACKQARR	array name, passed by reference
ACKQB1	bone initial threshold
ACKQB1L	bone initial masking level
ACKQB1T	bone initial tag value
ACKQB2	bone repeat threshold
ACKQB2L	bone repeat masking level
ACKQB2T	bone repeat tag value

---

[16]Patch ACKQ*3.0*13 July 2007 Modified internal relationships by adding two routines.

[17]Patch ACKQ*3.0*13 July 2007 Modified internal relationships by removing Display Audiogram files: ACKQROES3.EXE .

ACKQDAT	FileMan date
ACKQER	error message
ACKQER1	error message
ACKQERR	error message
ACKQFA	file exist flag
ACKQFMD	FileMan date loop holder
ACKQHSSN	hold SSN value
ACKQIEN	record internal number
ACKQN	subscript/counter
ACKQSTNU	station number
ACKQT	flag & dummy text holder
ACKQUSNM	user name
ACKQUSSR	user service

SAC Exemptions and Approval Dates

The Audiogram Module requires no exemptions from VistA Standards and Conventions for package development.

Data Dictionary Changes

Phonetically-Balanced Maximum (PB Max) fields are used to implement the following new functionality and required data dictionary changes[18]:

The QUASAR Audiogram Module allows the clinician to specify which Word Recognition test (1, 2, 3, 4, or 5) for the left and right ears should be used for displaying the PB Max value. If the test is not specified by the user, the Audiogram Module utilizes current logic for displaying the PB Max value as the default behavior. This is necessary because some Word Recognition tests may include half-list values that cannot be reported as PB Max for some exam types.

The following data dictionary changes were approved by the DBA.

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[18]Patch ACKQ*3.0*13 July 2007 Added a section on data dictionary changes.

The following two fields were added to the AUDIOMETRIC EXAM DATA file (#509850.9) as follows:

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE
509850.9,115.19	APPLIED MAX R 115;19		NUMBER

INPUT TRANSFORM: K:+X'=X!(X>5)!(X<0)!(X?.E1"."1N.N) X

LAST EDITED: NOV 30, 2006

HELP-PROMPT: Type a Number between 0 and 5, 0 Decimal Digits

DESCRIPTION: This field contains the test to use for PB Max.
It is manually selected from the GUI if it is anything other than the default.

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE
509850.9,115.2	APPLIED MAX L 115;20		NUMBER

INPUT TRANSFORM: K:+X'=X!(X>5)!(X<0)!(X?.E1"."1N.N) X

LAST EDITED: NOV 30, 2006

HELP-PROMPT: Type a Number between 0 and 5, 0 Decimal Digits

DESCRIPTION: This field contains the test to use for PB Max.
It is manually selected from the GUI if it is anything other than the default.

The following fields of the AUDIOMETRIC EXAM DATA file (#509850.9) were expanded from the previous length of 1-2 characters to accept 1-4 characters.

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE
509850.9,110.28	List R-1	110;28	FREE TEXT

INPUT TRANSFORM: K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: Answer must be 1-4 characters in length.

DESCRIPTION: Word list used for Test 1 of the Right ear.

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE
509850.9,110.29	LIST R-2	110;29	FREE TEXT

INPUT TRANSFORM: K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: Answer must be 1-4 characters in length.

DESCRIPTION: Word list used for Test 2 of the Right ear.

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE

509850.9,110.3 | LIST R-3 | 110;30 | FREE TEXT

INPUT TRANSFORM: | K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: | Answer must be 1-4 characters in length.

DESCRIPTION: | Word list used for Test 3 of the Right ear.

509850.9,110.31 | LIST R-4 | 110;31 | FREE TEXT

INPUT TRANSFORM: | K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: | Answer must be 1-4 characters in length.

DESCRIPTION: | Word list used for Test 4 of the Right ear.

509850.9,110.32 | LIST R-5 | 110;32 | FREE TEXT

INPUT TRANSFORM: | K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: | Answer must be 1-4 characters in length.

DESCRIPTION: | Word list used for Test 5 of the Right ear.

509850.9,111.28 | LIST L-1 | 111;28 | FREE TEXT

INPUT TRANSFORM: | K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: | Answer must be 1-4 characters in length.

DESCRIPTION: | Word list used for Test 1 of the Left ear.

509850.9,111.29 | LIST L-2 | 111;29 | FREE TEXT

INPUT TRANSFORM: | K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: | Answer must be 1-4 characters in length.

DESCRIPTION: | Word list used for Test 2 of the Left ear.

509850.9,111.3 | LIST L-3 | 111;30 | FREE TEXT

INPUT TRANSFORM: | K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: | Answer must be 1-4 characters in length.

DESCRIPTION: | Word list used for Test 3 of the Left ear.

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE

509850.9,111.31   LIST L-4   111;31   FREE TEXT

INPUT TRANSFORM: K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: Answer must be 1-4 characters in length.

DESCRIPTION: Word list used for Test 4 of the Left ear.

509850.9,111.32   LIST L-5   111;32   FREE TEXT

INPUT TRANSFORM: K:$L(X)>4!($L(X)<1) X

HELP-PROMPT: Answer must be 1-4 characters in length.

DESCRIPTION: Word list used for Test 5 of the Left ear.

Global Variables

The Audiogram Module requires no global variables.

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Software Security[19]

Security Management

No additional security measures are to be applied. The Audiogram Module uses the standard RPC broker log-in procedure to validate the user and allow access to the system.

No additional licenses are necessary to run the software.

Confidentiality of staff and patient data and the monitoring of this confidentiality is no different than with any other paper reference.

Security Features

1. Mail Groups and Bulletins
   There is a mail group or bulletin associated with this software when the record is sent to the Denver ALC, as well as when the record is deleted.

2. Remote Systems
   Application data is transmitted to the Denver ALC.

3. Contingency Planning
   It is the responsibility of the using service to develop a local contingency plan to be used in the event of application problems.

4. Interfacing
   Specialized (non VA) interfaces (DLLs) are used and required by this application.

5. Electronic Signatures
   Electronic signatures are used by this application.

6. Menus
   There are no options of special note for the Information Security Officers (ISO's) to view.

7. Restricted Patient Records
   A patient record marked sensitive is handled by CPRS.

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[19]Patch ACKQ*3.0*13 July 2007 Chapter added for software security.

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Glossary

Word/Acronym	Definition
API	Application Programmer Interface
AC	Air Conduction
AR	Acoustic Reflex
ARD	Acoustic Reflex Decay
ASPS/A&PS	Audiology and Speech Pathology Service
BC	Bone Conduction
C&P	Compensation and Pension
CAR	Contralateral Acoustic Reflex
CNC	Consonant Nucleus Consonant
CNM	Could Not Mask
CNT	Could Not Test
CPRS	Computerized Patient Record System
dB	Decibel
Denver ALC	Denver Acquisition & Logistics Center A part of the Department of Veteran's Affairs, Office of Acquisition and Logistics, and located in Denver, Colorado.
DNT	Did Not Test
DSS	Decision Support System
EM	Effective Masking
HL	Hearing Level
Hz	Hertz
IAR	Ipsilateral Acoustic Reflex
IRM	Information Resource Management
MCL	Most Comfortable Loudness
ML	Masking Level
NR	No Response
PB	Phonetically Balanced
pc	Piece
PCE	Patient Care Encounter

Word/Acronym	Definition
PI/PB	Performance Intensity-Phonetically Balanced
Pr-L	Probe Left
Pr-R	Probe Right
PSAS	Prosthetics and Sensory Aids Service
PTA	Pure Tone Average
QUASAR	Quality: Audiology and Speech Analysis and Reporting
Routine	Groups of program lines that are saved, loaded, and called as a single unit by way of a specific name.
SAT	Speech Awareness Threshold
Sensitive Patient	Patient is marked sensitive when the patient requests the patient data be restricted.
SRT	Speech Reception Threshold
UCL	Uncomfortable Loudness
VACO	Veterans Affairs Central Office
VARO	Veterans Affairs Regional Office
VHA	Veterans Health Administration
VistA	Veterans Health Information Systems and Technology Architecture

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