VEST™ 7.0 and I-Portal® 3.0 Release Notes (March 2012)

1 PLATFORM

1.1 Single PC

I-Portal® NOTC systems with VEST™ 7 and I-Portal® 3 now run on a single PC with one keyboard, one mouse and two monitors: one monitor for data acquisition display and the second for eye(s) display.

1.2 Windows® 7 x64 bit operating system

Windows® 7 x64 provides key performance improvements and security-enhanced computing capitalizing on the larger memory address space and improved security and efficiency of the latest and most powerful 64-bit processors. The improved security built into the x64 architecture, along with the DEP of Windows, provides an additional layer of security enhancements against malicious software.

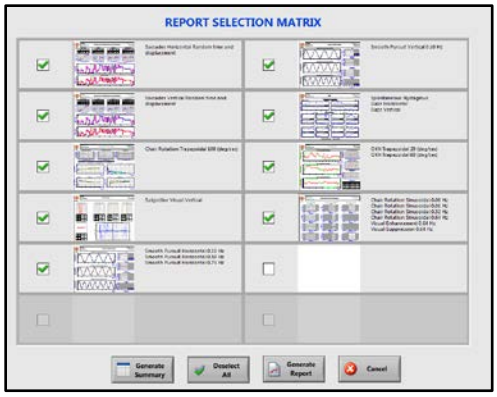
1.3 Based on new LabView™ 2010 platform

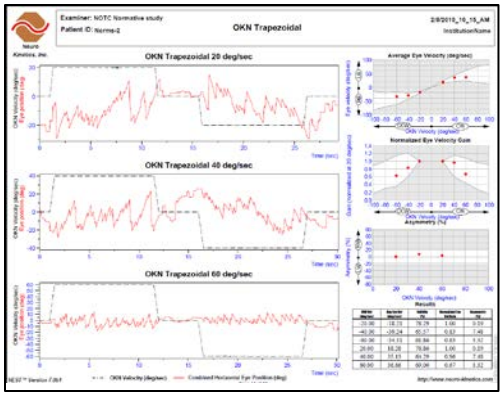
National Instruments' LabView™ 2010 visual programming language adds features that drive enhanced efficiency and performance into applications utilizing the newest parallel technologies such as multi-core processors and new back-end compilers that generate optimized machine code. These advances improve an application's run-time execution up to 20 percent, provide better timing and synchronization capabilities, increase stability and simplify code deployment and distribution by packaging source code into a single file installer and packed project libraries.

2 VEST™ - NEW FEATURES AND IMPROVEMENTS

2.1 New reports

VEST™ reports have been redesigned on National Instruments™ DIAdem™ report generation engine. A selection matrix has been added allowing the clinician to choose which pages they wish to include in a report. A "summary report" can also be printed instead of a full report. The improved VEST™ 7.0 reports include all clinical I-Portal® NOTC tests. The remaining tests exclusive to an I-Portal® VNG will be part of the VEST™ 7.1 release.





Sample Optokinetic (OKN) Test report displayed to the left.

Please refer to Table 1 for a list of the tests with new VEST™ 7.0 reports and the reports that will be included in VEST™ 7.1.

Table 1 - I-Portal® NOTC Tests with New Report Functionality

Test name	VEST™ 7.0	VEST™ 7.1
Spontaneous Nystagmus	Y	Y
Gaze Horizontal	Y	Y
Gaze Vertical	Y	Y
Saccade Horizontal	Y	Y
Saccade Vertical	Y	Y
Smooth Pursuit Horizontal	Y	Y
Smooth Pursuit Vertical	Y	Y
Optokinetic	Y	Y
Sinusoidal Harmonic Acceleration	Y	Y
Visual Suppression	Y	Y
Visual Enhancement	Y	Y
Chair Trapezoidal (Step)	Y	Y
Subjective Visual Vertical (SVV)	Y	Y
Subjective Visual Horizontal	Y	Y
Unilateral Centrifugation	Y	Y
Unilateral Centrifugation with SVV	Y	Y
OVAR	N	Y
Positional	N	Y
Positioning	N	Y
Caloric	N	Y

Note: If one prefers the old Microsoft® Word based reports they are still available in VEST™7.0.

2.2 Saving and reviewing eye video was added to most of the I-Portal® NOTC tests. Table 2 lists the tests with video collection and review capabilities.

Playback is available in slow or fast motion, and frame by frame. See image to the right.

Videos can be exported in compressed file format for efficient storage and collaboration.

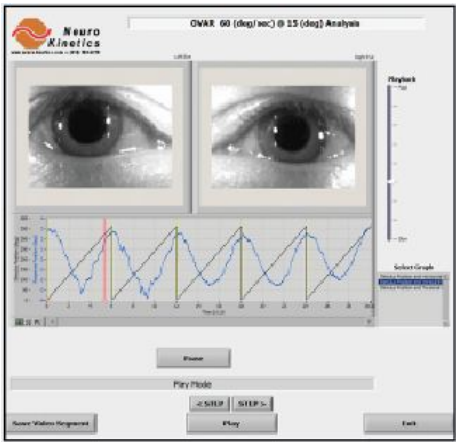


Table 2 – I-Portal® NOTC Tests with Video Options

Test name	VEST™ 7.0	VEST™ 7.1
Spontaneous Nystagmus	Y	Y
Gaze Horizontal	Y	Y
Gaze Vertical	Y	Y
Saccade Horizontal	Y	Y
Saccade Vertical	Y	Y
Smooth Pursuit Horizontal	Y	Y

Smooth Pursuit Vertical	Y	Y
Optokinetic	Y	Y
Sinusoidal Harmonic Acceleration	Y	Y
Visual Suppression	Y	Y
Visual Enhancement	Y	Y
Chair Trapezoidal (Step)	Y	Y
Subjective Visual Vertical (SVV)	N	N
Subjective Visual Horizontal	N	N
Unilateral Centrifugation	N	N
Unilateral Centrifugation with SVV	N	N
OVAR	Y	Y
Positional	Y	Y
Positioning	Y	Y
Caloric	Y	Y

2.3 Improved TCP communication between VEST™ and I-Portal® increase stability.

2.4 Added Auto Adjustment Factor for Velocity Filter in SHA based on test peak velocity parameters.

2.5 Two additional sections are now available for the operator/clinician to add Pre- and Post-test comments.

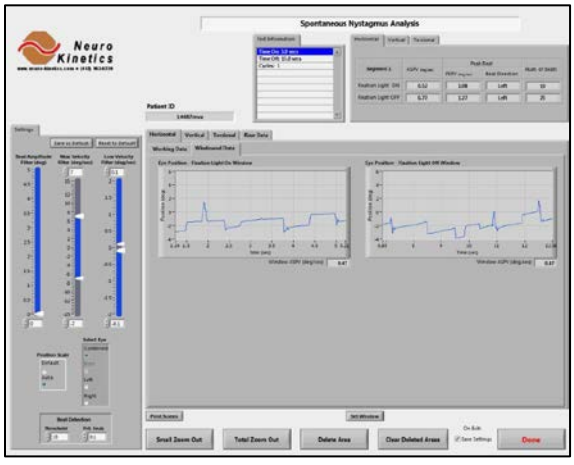
2.6 When Preview Analysis is completed during testing, deleted areas and report data are now saved, allowing the clinician to generate report right after testing is complete or reanalyze the data.

Note: (VEST™ ADATA software users only) - Analysis results saved using the Preview Analysis are not saved to the VEST™ ADATA structured database. One must analyze tests post-testing if results are to be used for further analysis via VEST™ ADATA.

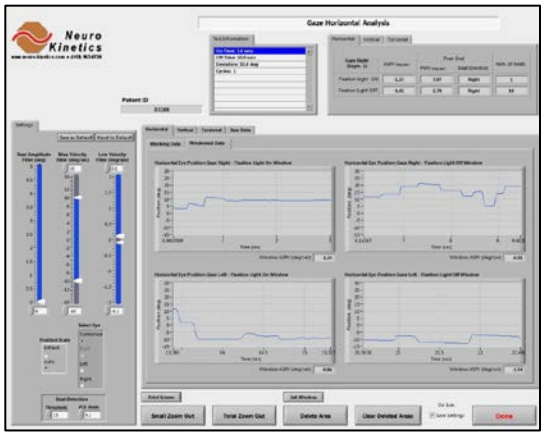
2.7 Expanded Custom Test Analysis to include Vertical and Torsional components.

2.8 For Spontaneous Nystagmus and Gaze tests analysis, the “Windowed Data” tab is automatically populated with data collected during Fixation Light On and Fixation Light Off. These windows are labelled as such and include the complete Fixation Light On and Fixation Light Off test segment data. If a clinician prefers to capture specific sub-segments, they may use the “Set Windows” button at the bottom of the analysis screen. Data captured in these windows is displayed in the new reports.

Example segment capture displayed to the right.



2.9 For the Gaze Test, the “Windowed Data” tab now shows four (4) windows for each component (H/V/T). The windows are: 1) Gaze Right/Up - Fixation Light On, 2) Gaze Right/Up - Fixation Light Off, 3) Gaze Left/Down - Fixation Light On, and 4) Gaze Left/Down - Fixation Light Off.



3 VEST™ - BUG FIXES

3.1 Under certain circumstances operators would be allowed to proceed to the testing screen without selecting a patient and/or skipping the necessary test setup. This has been corrected.

3.2 Previously during patient entry, the inclusion of spaces, or white spaces, when entering a patient name, could corrupt the patient records. This has been corrected.

3.3 Under certain circumstances VEST™ would attempt to restart a test right after a given test was finished. This caused the “… Are you sure that you’d like to re-run this test?” message box to appear. This unnecessary step has been removed.

3.4 The test "Accept" button now appears only at the end of a test.

3.5 Hitting the “Stop” button during dwell time could lead to a software error. The “Stop” button will now appears only after dwell time is complete.

3.6 Custom Test beat detection control is now initialized properly (reset to default) at the beginning of analysis.

3.7 The “Mirror” feature in Protocol Editor for the OVAR test allowed for the creation of a tilt profile not supported by our hardware. This feature has been disabled.

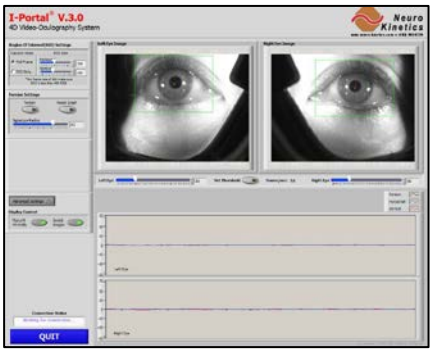
3.8 Double clicking on an operator in “Operator Editor” would cause a return back to the “Administrative Tools” screen instead of opening the operator for editing. The double click now functions properly.

4 I-PORTAL® - NEW FEATURES AND IMPROVEMENTS

4.1 Software architecture has been redesigned to take advantage of NKI's updated platform. Processing intensive tasks such as pupil detection, position and torsion tracking, and video compression have been parallelized. This allows I-Portal® to collect pupil position, torsion and compressed video data at a full 100 frames/sec in both monocular and binocular modes.

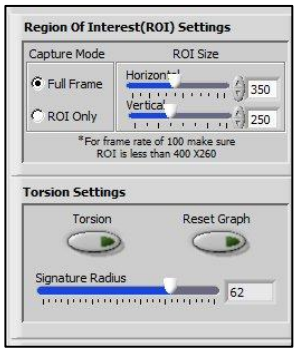
4.2 Added video compression results in 10 times smaller video files and reduces hard drive space consumption.

4.3 Overhaul of the I-Portal® user interface including Region of Interest (ROI) control. The scrolling adjustment has been replaced with an overlay box that the user can drag and resize to define the size and position of the ROI.



Example I-Portal® set up screen shown to the left. Region of Interest windows (green) are set prior to patient testing.

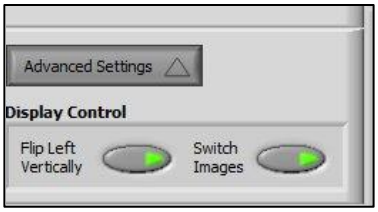
Magnification of ROI Setting box pictured to the right.



4.4 Eye selection in monocular mode and switching between monocular and binocular is now controlled inside VEST™.

4.5 Eye images can now be flipped without stopping acquisition or restarting the software.

See oval buttons with green highlighting to the right.



5 I-PORTAL® - BUG FIXES

5.1 Changed size of patient file name from 120 bytes to 1000 bytes to accommodate longer patient names.