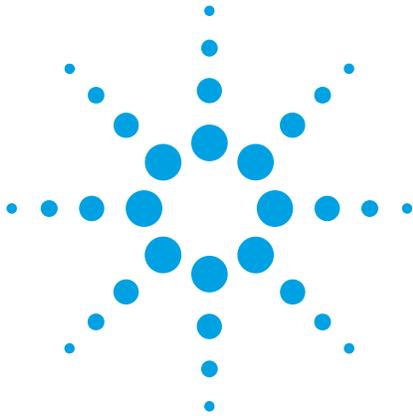


# Agilent E3238 Signals Development System

## Product Overview



**Agilent 35688C  
Application Software  
Upgrade Version C.00.00**

**Menu Bar**  
**Tool Bar**  
**Trace A**  
color spectrogram  
zoomed (scroll bar on)  
**Trace B**  
standard spectrum  
marker is on,  
red is auto threshold  
**Handoff  
Receiver  
Control**  
**Handoff  
Log**  
**Text  
Editor**  
**Command  
Line/Log**

| Rx | Status | Priority | Elapsed | Duration | Frequency | Bandwidth | Det | AGC  | BFO   |
|----|--------|----------|---------|----------|-----------|-----------|-----|------|-------|
| 1  | Active | Medium   | 214     | 300      | 12.83750  | 10,000    | FM  | Auto | 0,000 |
| 2  | Active | Medium   | 214     | 300      | 12.85500  | 10,000    | FM  | Auto | 0,000 |
| 3  | Active | Medium   | 214     | 300      | 12.74500  | 10,000    | FM  | Auto | 0,000 |
| 4  | Active | Medium   | 214     | 300      | 12.81900  | 10,000    | FM  | Auto | 0,000 |
| 5  | Active | Medium   | 214     | 300      | 13.00250  | 10,000    | FM  | Auto | 0,000 |

| Status  | Source  | Date     | Request  | Grant | Release | Rx# | Priority | Duration | Frequency   |
|---------|---------|----------|----------|-------|---------|-----|----------|----------|-------------|
| Pending | Alarm 1 | 07/18/97 | 10:34:12 |       |         |     | Medium   | 300      | 12.7550 MHz |
| Pending | Alarm 1 | 07/18/97 | 10:34:25 |       |         |     | Medium   | 300      | 13.0550 MHz |
| Pending | Alarm 1 | 07/18/97 | 10:34:46 |       |         |     | Medium   | 300      | 12.8800 MHz |

**Pane #1**  
**Pane #2**  
**Sash Button**  
**Pane #3**  
**Pane #4**  
**Pane #5**  
**Pane #6**  
**Pane #7**

**User Signal Processing  
option ASH support**  
**Microwave tuner support**  
**Frequency lists**  
**100 Handoff support**

Enhance the performance of your Agilent E3238 signals development system with the latest release of its software. With this upgraded software package you get:

- Support of the new User Signal Processing option ASH
- Microwave tuner support
- User-defined frequency lists
- Simplified tuner activation
- 100 hand-off receiver control
- Enhanced output data features for User Programming option AS9
- User-defined trace color map
- IRIG-based time stamping
- Offset frequency command



**Agilent Technologies**  
Innovating the HP Way

### User Signal Processing, option ASH

Add narrowband signal processing capability to your E3238 with the new user signal processing option ASH. This option opens up the E3238 in two important ways. It lets you add two sets of “channelizer” hardware (see figure 1) to the platform, and it provides the software hooks and libraries needed to tightly integrate your signal identification functionality into the E3238 software.

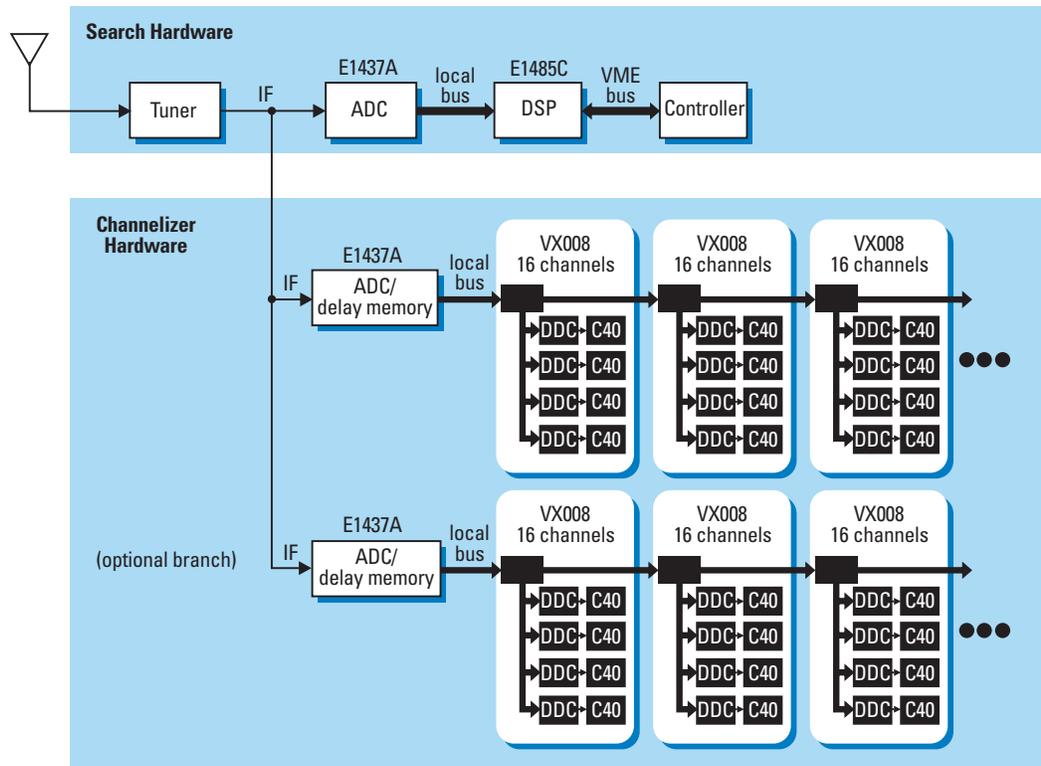
Use the option ASH user signal processing capabilities to implement your own signal detection and demodulation routines. Option ASH provides several features to ease the task. Channelizer control libraries

simplify setup and control of the ADCs, DSPs and DDCs you use to digitize and process suspect energy. Signal processor libraries provide tools for host-to-target and target-to-host communication, data flow management and results retrieval. A host-based signals database eases the task of designing a place to store and act on the results of your signal identification functions. The E3238 alarm function can access the signals database to search for particular signals of interest and can be programmed to assign receiver and DF assets to those signals. And, all control and results are accessed via the standard E3238 graphical user interface.

### Microwave tuner support

Extend the frequency range of your E3238 into microwave with the CS-5040 VXI microwave tuner from Communications Solutions Inc. in Baltimore, Maryland. The CS-5040 is a two-slot module that tunes from 20 MHz to 40 GHz. For more information contact Communications Solutions through its web site: [www.comsol-inc.com](http://www.comsol-inc.com). [Note: requires the E6500 RF tuner.]

Figure 1:  
Option ASH  
channelizer  
example block  
diagram.



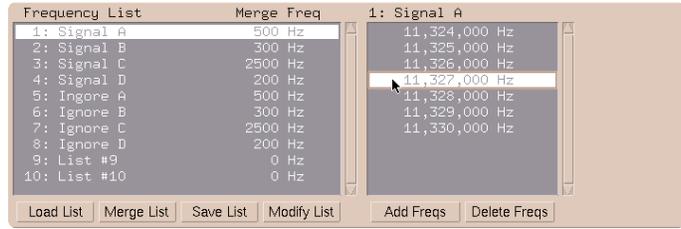
### User-defined frequency lists

Use the new user-defined frequency lists capability provided standard in version C.00.00 to enter a set of signal frequencies for the E3238 to act on. Use your list as part of an alarm criterion or as a trace grid. User-defined components such as filters and feature extractors can access your frequency list. Lists can be created and modified by alarm tasks so your filters and extractors can change dynamically based on the changing content of the frequency list.

### Simplified tuner activation

Select a tuner without re-starting the system—you are no longer required to stop the system and edit the e3238s.cfg file. Simply select the Search Type menu and click on the frequency range you want to search. The E3238 does the rest, including switching the antenna and IF signals. Only one tuner can be active at a time and only one tuner can be used per search setup.

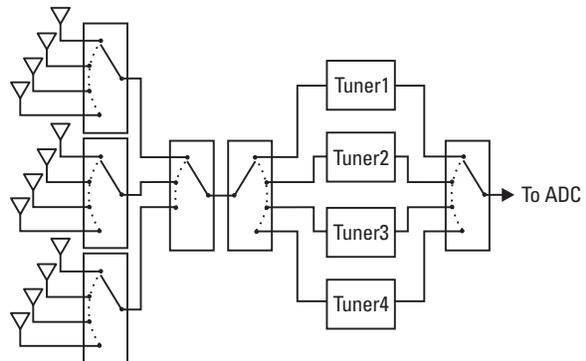
**Figure 2:**  
Agilent E3238  
frequency  
list selection  
menu.



**Figure 3:**  
Simplified  
tuner selection.



**Multiple antenna,  
multiple tuner  
switching  
example.**



**100 hand-off receiver control**

Control more hand-off receivers with the E3238. The number of receivers the E3238 can control has been increased to 100. Tune them manually with the marker, assign them with cursor drag-and-drop or automatically with the alarm functions. As long as the receiver has a VXI, LAN, RS-232C, or GPIB interface and a software driver the E3238 can control it. The E3238 offers software drivers for Watkins Johnson, Cubic Communications, and ICOM receivers. Users can develop their own drivers or have Agilent Technologies develop them. Some networking may be required to connect large numbers of receivers to an E3238.

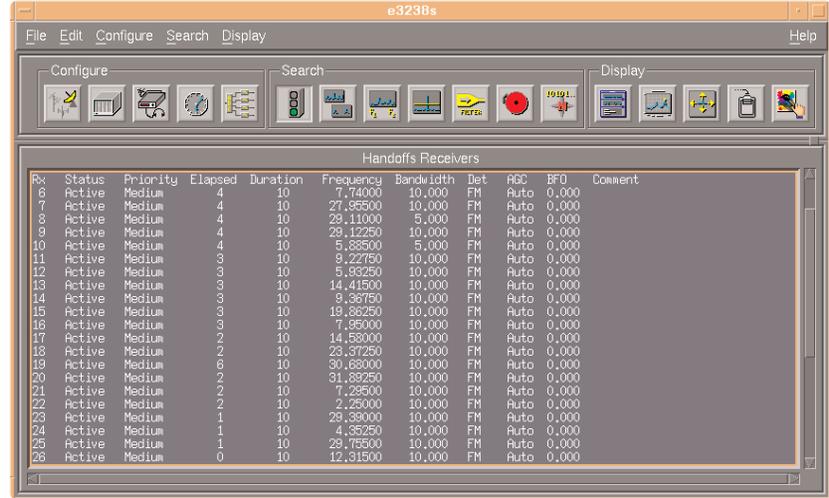
New hand-off receiver drivers are available with the C.00.00 software release. These drivers are for the WJ8615P, ICOM R8500 and R9000, and the E6501A.

**Enhanced user programming, option AS9**

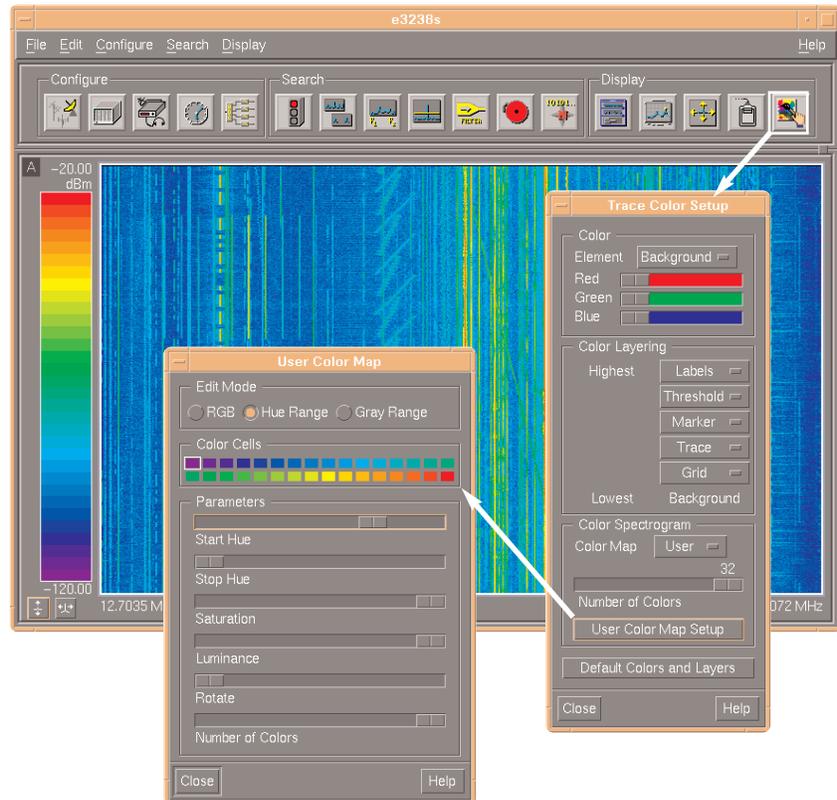
Version C.00.00 adds more “spew data” types to the user programming option. Along with overload, end of sweep and search status data types you get a user trace vector data type. This data type provides a compact stream of data specifically formatted to support user-written trace displays.

Version C.00.00 also increases the flexibility of option AS9 by adding a generic shared library and by tracking all your shared libraries with a “load shared library” display.

**Figure 4: Handoff receiver control display.**



**Figure 5: User trace color menus.**



### User-defined trace color map

Design your own color scheme for the E3238 color spectrogram displays. We supply the system with four preset color maps. You can modify them at any time by selecting the new User Color Map menu. Set hue, saturation, luminance and more, until you have the scheme that shows target signals to your operators with the colors they want.

### IRIG-based time stamping

Increase the accuracy of the E3238 time stamps by adding an IRIG time reference to your system. Software version C.00.00 supports the Datum bc350VXI-C and bc357VXI-C time and frequency processor modules. For more information on these modules try the Datum web site at: [www.bancomm.com/cbc357VXI-C.htm](http://www.bancomm.com/cbc357VXI-C.htm)

### Offset frequency command

Use the new Offset Frequency command to adjust frequency values throughout the system when you use a block downconverter. Simply enter the offset value with the command and the system adjusts everything from the displays to the marker functions, to the energy history database and data blocks for remote data access.

Figure 6: Time reference menu.

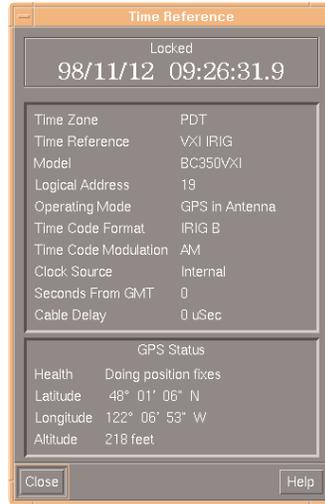
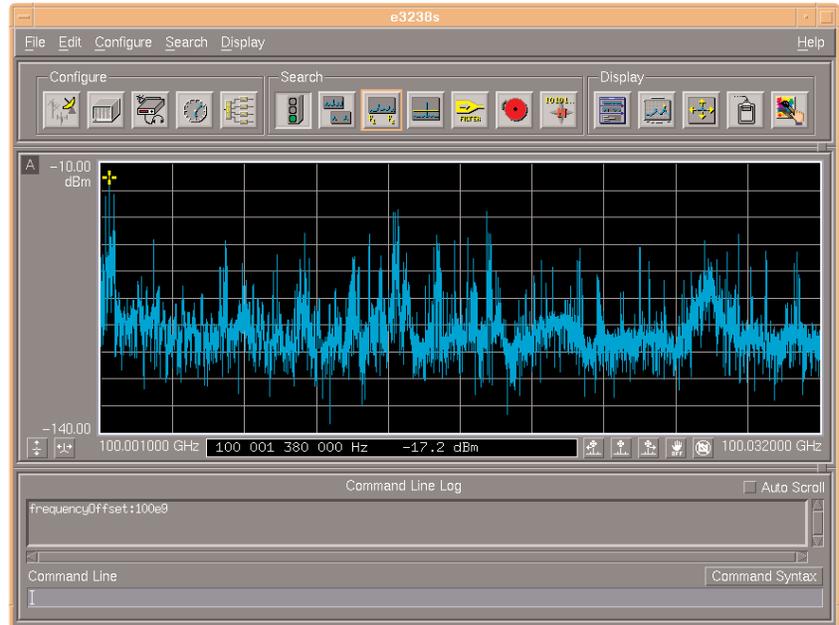


Figure 7: Offset frequency display.



# The Agilent E3238 Signals Development System

The E3238 is a commercial-off-the-shelf, VXI based, wideband signals development system capable of sweep rates in excess of 2.6 GHz/s. It has many features to complement and leverage this speed.

Select from two search modes. Use GENERAL SEARCH for wide spectrum monitoring or as part of an environment characterization. Use ADVANCED DIRECTED search to sequentially scan 100 individual spectrum segments without wasting time on the spaces in between. Each segment is user programmable for start and stop frequency, RBW, averaging, and antenna used. Use the TUNER LOCK search mode to stare continuously at a section of spectrum. Section size depends on the tuner and ADC you select for your system and ranges from 2.0 MHz to 7 MHz

Use the mouse controlled manual signal isolation tools in the E3238 directly on the signal trace. You don't have to take your eyes from an elusive signal to tune to it. Just drag a box around it with the mouse and the system will zoom the display to that signal. Place the cursor on the signal and press a mouse button to activate the frequency and amplitude marker. Assign a hand-off receiver to the signal with a simple drag-and-drop operation.

A selection of energy thresholds automatically isolates signal energy from noise energy. The LEVEL threshold is best for the VHF/UHF environment where the noise floor is flat. The adaptive AUTO threshold will automatically follow the contoured and ever changing noise floor in the HF spectrum. The ENVIRONMENT threshold subtracts the signal and noise environment from the display to enhance new energy searches.

Use the automatic alarm features for automatic energy-of-interest isolation. Program this option to identify energies of interest based on their frequency, amplitude, bandwidth and duration characteristics. Once isolated have the system assign a hand-off receiver to the energy, snapshot record the energy, sound an audible alarm, even save the trace showing the energy.

Automatically gather parameters on all energy events that exceed the selected threshold level in the E3238 energy history database. Capture energy frequency, amplitude, bandwidth, duration, and more. Download this to any comma-separated-value-compatible spreadsheet for analysis.

Use the automatically generated action files to document mission activity. These logs include a new energy log, a hand-off receiver log and an alarm log.

You can operate the E3238 via LAN, accessing all features, displays and menus from any X-compatible server anywhere in your network.

When speed with selectivity is key, when the assigned spectrum is crowded and advanced tools are necessary to isolate signals of interest, the E3238 signals development system delivers.

## Configuration

This software can be ordered as an upgrade to any E3238S or E3238B system. The model number for the upgraded software is 35688CU. To add option ASH to your upgrade, also order 35688C option ASH.

Depending on the age of your system you may also have to upgrade your HP-UX operating system. Contact your Agilent representative for details.

This version of the 35688C software is supplied as a standard part of new systems.

## Supported Hardware

### ADCs

E1430A (BW: 4MHz)  
E1437A (BW: 8 MHz)

### DSPs

E1485A  
E1485C  
SCMVX008  
(with option ASH only)

### Tuners

WJ9119 (0.5 - 32MHz; IFBW: 4MHz)  
WJ9119-1 (0.5 - 32MHz; IFBW: 8MHz)  
89431A (2-2650 MHz)  
E6500A (2 - 1000 MHz)  
E6500A opt 003 (2 - 3000 MHz)  
CS5404 (0.002 - 18, 40, 60 GHz)

### Switch Modules

E1472A  
E1368/69/70A

## Hand-off Receivers

WJ8607  
WJ8611  
WJ8615P  
WJ8629  
WJ8634  
WJ8711  
WJ8712  
WJ8721  
Cubic VXI-3250  
Cubic VXI-3550  
E650X VXI Receivers (10ch/slot)  
ICOM IC-R8500  
ICOM IC-R9000

## Controllers

E1498/100

## System Disks

E3249B

## Mainframes

HP E1401B  
HP E8403A  
HP E8404A

## Ordering information

**35688C** Agilent E3238 Signals  
development system software  
**opt 100** Standard E3238 software  
**opt AS9** User programming  
**opt ASH** User signal processing  
**opt ORU** Software update installation  
planning

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