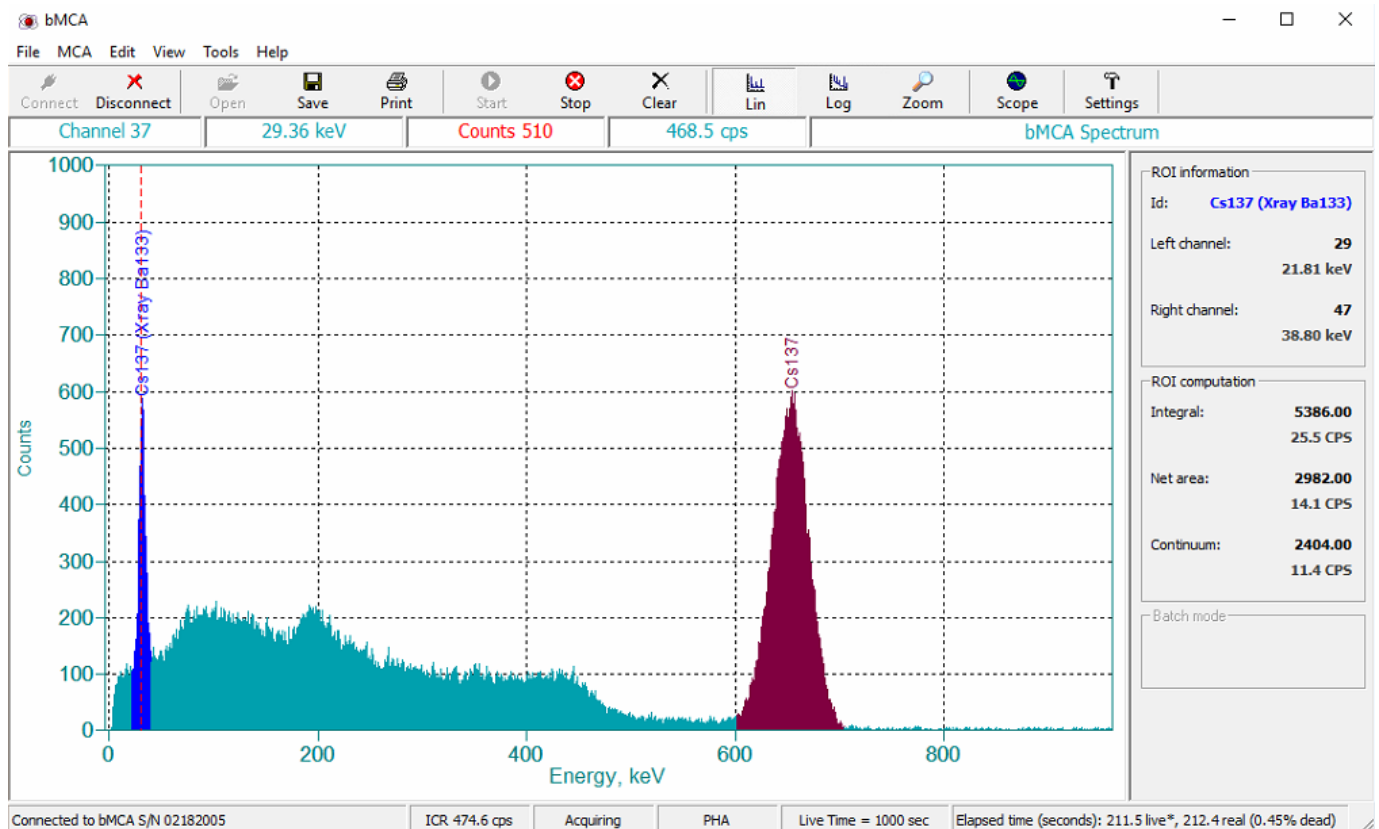


bSpec

Basic Spectroscopy and Acquisition Software



Berkeley Nucleonics
Test, Measurement and Nuclear Instrumentation since 1963

bSpec — Basic Spectroscopy and Acquisition Software

INTRODUCTION

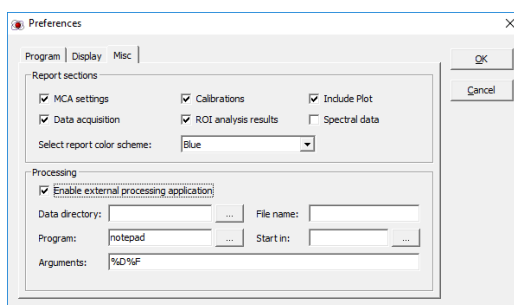
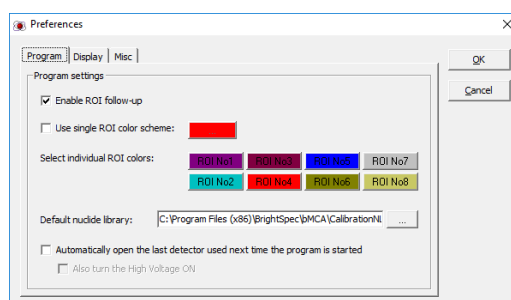
The analysis of the energy spectra resulting from any radioactive sample is still a very critical step in gamma-ray spectrometry due to its complexity. At the same time, the ability to have a tool that can be quickly accessible to connect to an spectroscopy hardware for its verification, setup, troubleshooting and spectrum acquisition is an asset .

bSpec is a tool software. This software is provided “free-of-charge” and “ready-to-download”, and therefore it’s a convenient, easy-to-use, and at-hand tool for verification of the delivered BNC spectroscopy hardware and/or system. With bSpec you can hastily establish connection to any of our Brightspec series detection systems, set it up to best performance, perform data acquisition or troubleshoot any possible problem, without the need of any other component or complex software installations and setups.

Since bSpec is a basic software for data acquisition , it’s not intended to do full spectrum analysis. Nevertheless, this software already provides functionalities that goes beyond basic categories, like for instance, full region-of-Interest (ROI) computations, energy calibration, peak search, nuclide library creation, among others.

Specifically with this software you can perform the following spectroscopy-related tasks:

- Connect and control any spectroscopy hardware provided
- Controls and visualize the data acquisition
- Setup data acquisition either on PHA or MCS modes
- Perform unattended series of spectrum acquisition with automatic spectrum saving (Batch)
- Perform simple energy calibration
- Basic automatic peak search
- ROI marking and ROI calculations.
- Spectral data visualization with ZOOM and user’s preferences and some extended capabilities
- Saved acquired spectra into files, as plain text file or SPE format
- Search and creation of nuclide data libraries
- Produce full-colored, including tables, comprehensive reports



All of above in a very simple and yet powerful way with a modern Graphical User Interface (GUI). bSpec software is a single document software, therefore you can only work or open one spectrum (being from a detector or a file) at the time.

bSpec is MS Windows® software, but there are reduced-functionality versions for Linux as well.

Note: bSpec software has been previously know as “bMCA software”, as well.

FEATURES

- **Free to download** tool software
- Allows to setup **ANY** acquisition hardware (spectroscopy-oriented)
- Performs and controls data acquisition from any device
- Easy setup devices for PHA or MCS acquisition modes
- Provides full setup to acquisition presets, including complex or dual acquisition presets (e.g. Preset on “Time” and “Counts”)
- Offers basic spectrum manipulation and data visualization
- Provides Region of Interest (ROI) calculations
- Allows to perform spectrum “Energy calibration”
- Provides basic digital oscilloscope for best hardware setup or troubleshooting
- Advanced and modern graphical user interface (GUI) that can be set to user’s preferences
- Comprehensive spectrum and data acquisition reports including fully colored and HTML-formatted tables
- Offers the capability of Batch data acquisition with automatic saving spectra into files
- Saves acquired spectra into plain ASCII or IAEA Spe-formatted files
- Easy to interface to an external software for full spectrum analysis
- Includes a nuclear data library editor based on internationally well-know and maintained “NuDat” nuclear data files
- bSpec software runs under MS Windows (Windows 10, Windows 8 and Windows 7). However, reduced-functionality version for Linux can be requested as well.

Berkeley Nucleonics

In Partnership With

BRIGHTSPEC

Berkeley Nucleonics has supported the nuclear R&D and radiation measurements community for 50+ years. BNC manufactures electronics for nuclear research and innovative systems for the detection, location, and identification of radioactive sources. Comprehensive lines of specialized radiation counting and analysis tools are offered with the collaboration of key partners worldwide.

HARDWARE CONNECTION AND CONTROL

Probably the most useful task you can perform with this software is to be able to quickly connect to any spectroscopy device produced by our company (BNC) and be able to correctly set it up.

bSpec would recognize and/or connect to any spectroscopy acquisition hardware offered, independently of the model, data communication protocol, firmware, etc.

After connection to a device the hardware parameters in the setup window will show the specific hardware settings corresponding to the connected device. Using this software you can access the "Advanced" features from each device, as well.

bSpec software tool allows you to quickly set up your spectroscopy acquisition mode between:

- Pulse height analysis (PHA) or
- Multichannel scaling (MCS)

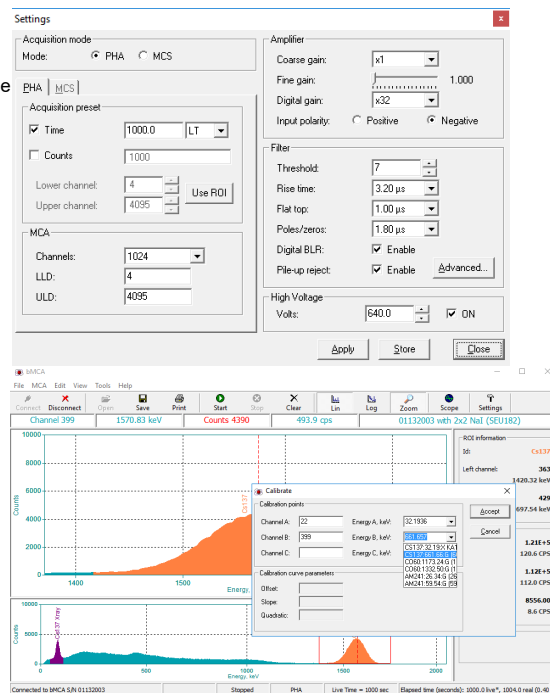
As well as the acquisition presets, including complex acquisition presets, such as dual modes on Time, Counts or External signals.

SPECTRUM VISUALIZATION

Although bSpec is a simple tool program, it provides a modern and complete graphical user interface with advance features, such as spectrum Zoom, different X and Y scales, grids guides, etc.

On the right panel of main window the spectrum calculations and/or ROI results are conveniently shown and "live updated" while acquisition takes place.

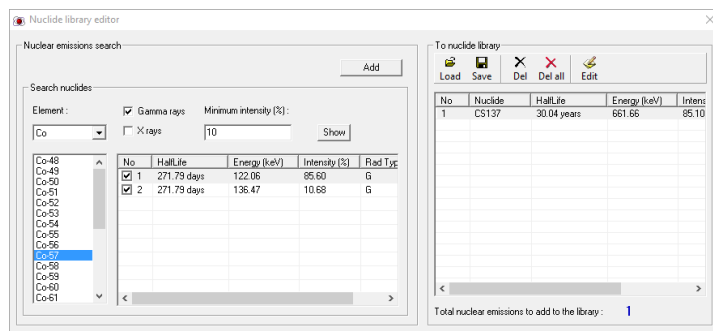
Other information as elapsed acquisition times, instrument dead time, cursor information, etc., are always easy and directly displayed.



ADVANCED FEATURES

Although bSpec is a simple program to quickly connect and setup the spectroscopy devices or systems, it provides a few advanced features, such as:

- Quick and comprehensive setup of MCS mode using specific nuclides
- Automatic peak search
- Spectrum energy calibration
- ROI computations with background subtraction
- Unattended batch data acquisition with automatic spectrum saving into files
- Digital oscilloscope
- Easy interfacing into external programs for further spectrum analysis
- Comprehensive data acquisition and analysis reports using HTML-formatted tables



REQUIREMENTS

bSpec is a single document software, meaning, you can work or display one spectrum (being from data file or detector hardware acquisition) at the time. The software runs on MS Windows:

- Microsoft Windows XP™ up to Windows 10™
⇒ 32-bit or 64-bit processors
- Upon request, there is a reduced-feature version of bSpec or bMCA software for Linux™

ADDITIONAL INFORMATION

The bSpec could be distributed under the name of bMCA as well.

bSpec is provided "free-of-charge" and can be downloaded from our Web site (www.brightspec.be) section downloads.

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