



Software User Manual

labZY-SLO

Version 1.00

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Overview and Installation

Software Overview

The LabZY Spectrum Log Organizer (labZY-SLO, referred to as the **application** throughout this manual) is a lightweight application that converts the spectrum channel data stored in one or more LabZY Spectrum files (.lzs or .lps) into one or more Comma Separated Values files (.csv).

Installation and Execution

The LabZY Spectrum Log Organizer (**labZY-SLO**) is distributed as part of either the **labZY-MCA** or the **labZY-PSD** software packages. It can be installed by downloading either the labZY-MCA or the labZY-PSD zipped installation files from www.labzy.com/resources/. Once the (labZY-MCA or labZY-PSD) software zip file is downloaded, unzip or open the downloaded file, open the **Software_labZY-SLO_ver_1_00/Setup** folder, execute **setup.exe**, and follow the instructions of the software installer. Once the installation is complete, simply execute **labZY-SLO.exe** to use the application.

Supported Operating Systems

The application is supported on:

- Windows 10
- Windows 8
- Windows 7
- Windows Vista
- Windows XP

User Guide

Overview

The labZY-SLO (LabZY Spectrum Log Organizer) is used to organize the data from spectrum log files into spreadsheets accessible by text reading applications such as Microsoft Excel. The labZY-SLO application supports labZY format files written by labZY-MCA or labZY-PSD software applications with extensions .lzs and .lps respectively. The labZY-SLO application is also capable of converting a single (.lzs or .lps) file into a single spreadsheet text file.

The LabZY Spectrum Log Organizer can be broken down into three sections (see Figure 1):

- (1) Interface for selecting input file set
- (2) Interface for selecting the output file format and the conversion options
- (3) Execution commands and application message display

labZY Spectrum Log Organizer

FILE SET

Folder

First File **(1)** Browse

Folder

Last File Browse

File Counter Increment 1 Files To Process 0

OUTPUT

File Format Comma Separated (CSV) Organization TABLE-SINGLE FILE **(2)**

Spectrum Size 16384 Column Labels FILE NAME

☐ Include Channel Number Column

(3)

GO EXIT

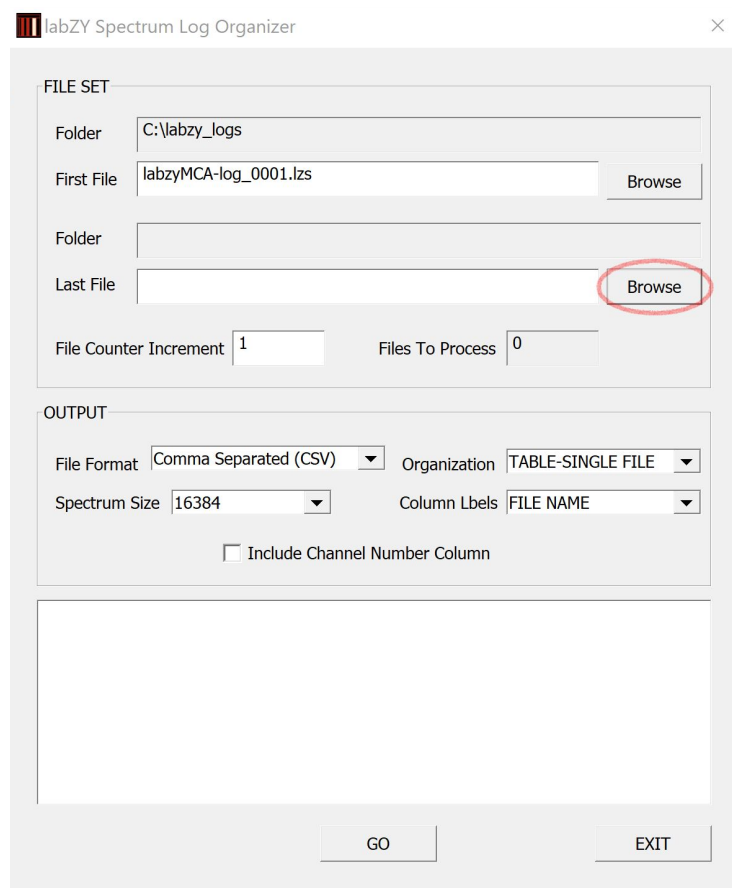
Figure 1: LabZY Spectrum Log Organizer appearance.

Selecting Input File Set

The input files to the application are a series of **one, or more**, LabZY-MCA Spectrum files (.lzs) or LabZY-PSD Spectrum files (.lps).

The input series is specified by indicating the names of the **FIRST FILE** and **LAST FILE** in the series to be converted, as well as the **increment** used to traverse through the series. Note that all files must be located in the same folder (which can be verified by ensuring the “Folder” field for the first and last file are the same).

To select the FIRST FILE of the FILE SET press the **BROWSE** button next to the entry field of the FIRST FILE. A dialog to select the file opens. Similarly the LAST FILE in the file set is selected. See Figure 2 for a view of the file selection interface.



labZY Spectrum Log Organizer

FILE SET

Folder: C:\labzy_logs

First File: labzyMCA-log_0001.lzs Browse

Folder:

Last File: Browse

File Counter Increment: 1 Files To Process: 0

OUTPUT

File Format: Comma Separated (CSV) Organization: TABLE-SINGLE FILE

Spectrum Size: 16384 Column Labels: FILE NAME

☐ Include Channel Number Column

GO EXIT

Figure 2: Select First and Last files using the “Browse” button.

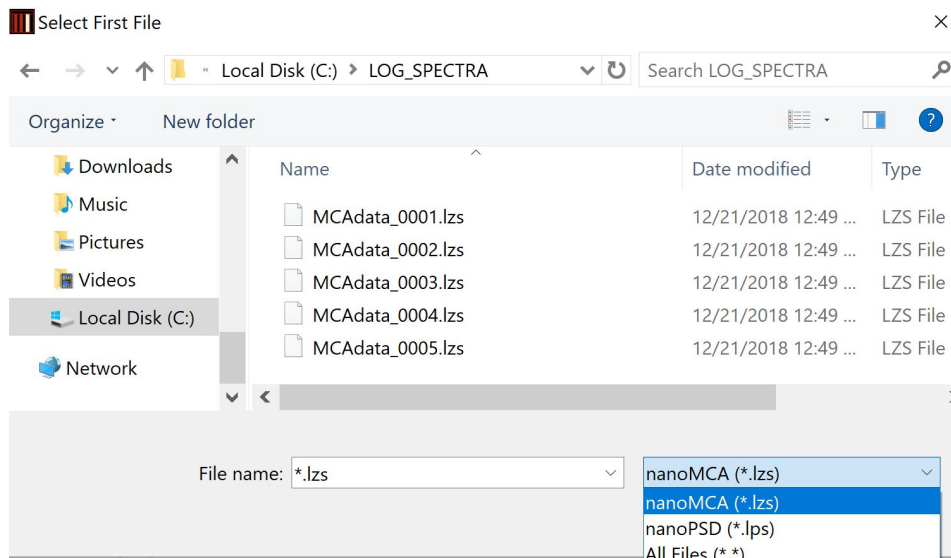


Figure 3: Input file selection screen.

For multiple log file conversion, the format of the input files must follow the structure: **<file-name>_<4-digit file number>{.lzs, .lps}**, where the **<file-name>** is the same for every file in the spectrum log series (base file name), and the **<4-digit file number>** indicates the number of the file in the spectrum log series.

A valid set of labZY-MCA files may look like:

- MCAdata_0001.lzs
- MCAdata_0002.lzs
- MCAdata_0003.lzs

A valid set of labZY-PSD files may look like:

- PSDdata_0001.lps
- PSDdata_0002.lps
- PSDdata_0003.lps

The application will convert all files starting at the FIRST FILE and incrementing the file number by the given increment value until the LAST FILE has been reached or is surpassed.

The application also allows conversion of a single file by setting the FIRST FILE and LAST FILE to be the same. When converting a single file, it may have any filename format, as long as the extension is .lzs or .lps.

Selecting Output File Format and Conversion Options

To create output file(s) with the desired format, choose the relevant settings in the application. There are five settings for the output file format:

Setting Name	Setting Options	Description
File Format	Comma Separated (CSV)	The output file format.
Organization	TABLE-SINGLE_FILE INDIVIDUAL_FILES	<p>The organization of the output file(s).</p> <p>If TABLE-SINGLE_FILE is selected, a single output file is created, wherein each column of the output file contains the spectrum data for each file in the input series.</p> <p>If INDIVIDUAL_FILES is selected, an individual output file is created for each file in the input series.</p>
Spectrum Size	.lzs .lps 16384 4096 8192 2048 4096 1024 2048 512 1024 256 512 128	The spectrum size of the data saved in the output file(s).
Column Labels	FILE NAME FILE NUMBER TIME STAMP ELAPSED TIME[s] NONE	<p>The name of the output file columns that contain input spectrum data.</p> <p>FILE NAME: Use the full file name of the input file for the column name</p> <p>FILE NUMBER: Use only the file number of the input file for the column name</p> <p>TIME STAMP: Use the timestamp of the input file for the column name</p> <p>ELAPSED TIME[s]: Use elapsed times, calculated from successive timestamps of the input files relative to the timestamp of the FIRST FILE, for the column name</p> <p>NONE: Do not include an output column</p>

		name, unless “Include Channel Number Column” is checked, in which case “Counts” is the output column name.
Include Channel Number Column	Checked/Unchecked	If checked, the first column of each output file will have the channel number.

The format of the output file is: **<file-name>_<FIRST FILE 4-digit file number>_to_<LAST FILE 4-digit file number>_+<increment>_{lzs, lps}.csv**, where **<FIRST FILE 4-digit file number>**, **<LAST FILE 4-digit file number>**, and **<increment>** are: the 4-digit number of the FIRST FILE given, the 4-digit number of the LAST FILE, and increment used to traverse the series, respectively. The output file will be saved in the same folder as the folder of the converted files. Note that the application will overwrite an existing file with the same output file name in the folder.

See Figures B.1-6 in [Appendix B: Output CSV File Examples](#) for example images of the output CSV file using various output conversion option settings.

Saving Output Files

To perform the conversion, simply hit the “Go” button. If the conversion is successful, you will see the messages “Start Conversion”, an indication of each file as it is processed, and the message “Conversion Completed Successfully!” in the message window.

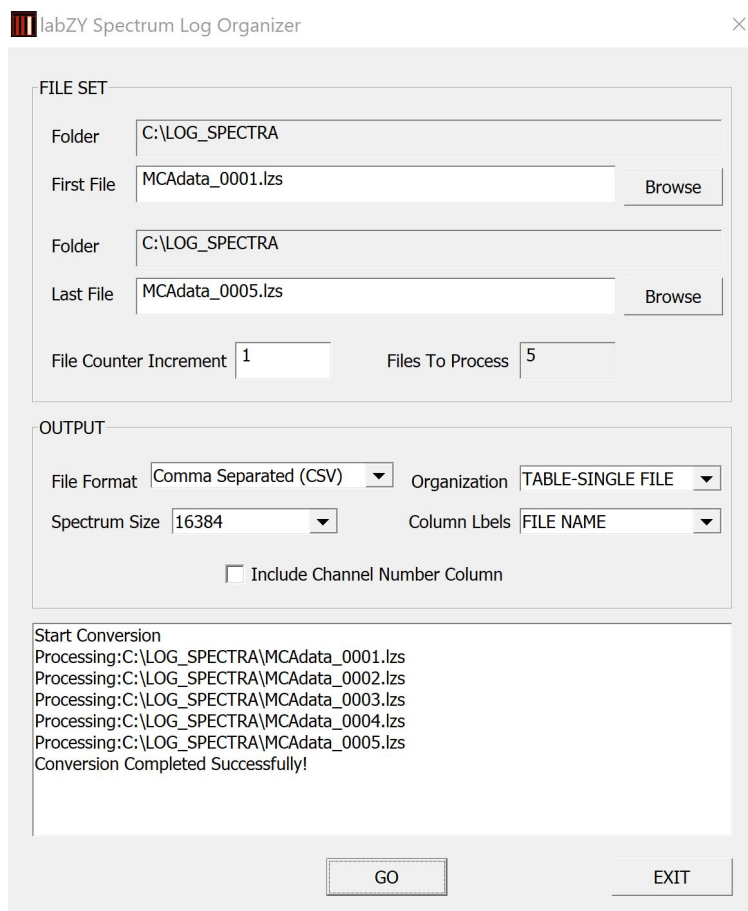


Figure 4: Example Spectrum Log Organizer output messages for successful file conversion.

Appendix A: labZY File Format

```
<?xml version="1.0"?>
<nanoMCA-II>
  <serialnumber>23005</serialnumber>
  <spectrum>
    <tag>nanoMCA-II-SP, Cs-137, NaI 3"x3"</
tag>
    <hardsize>16384</hardsize>
    <softsize>4096</softsize>
    <data>
0
0
0
82
44
.
.
.
.
.
.
346
+567
+1054
+1109
+985
+605
588
587
597
561
.
.
.
.
5
2
0
1
    </data>
  </spectrum>
```

Hardware

Spectrum tag and spectrum size information.

**Counts from Channel 0 to Channel 16383.
An explicit + sign in front of the channel counts indicates that the corresponding channel is marked as an ROI.**

```

<time>
  <real> 2000.0000</real>
  <live> 1954.4138</live>
  <dead> 2.2793</dead>
  <date>17 APR 2014 @ 19:20:04</date>
</time>
<registers>
  <size>128</size>
  <data>
0
8000
160
20
8
.
.
.
.
0
0
0
  </data>
</registers>
<calibration>
  <enabled>YES</enabled>
  <units>2</units>
  <channelA> 330.1600</channelA>
  <energyA> 36.4000</energyA>
  <channelB> 5879.4102</channelB>
  <energyB> 662.0000</energyB>
</calibration>
<volatile>
  <intemp>42</intemp>
  <adctemp> 0.81</adctemp>
  <bias>0</bias>
  <cpwr>0</cpwr>
</volatile>
</nanoMCA-II>

```

Time information .

**Hardware Register record
Register 0 to Register 127.**

Calibration data

Volatile data

Appendix B: Output CSV File Examples

The screenshot shows the 'labZY Spectrum Log Organizer' window. On the left, the 'FILE SET' section shows 'Folder' as 'D:\LOG_SPECTRA', 'First File' as 'PSDdata_0001.lps', and 'Last File' as 'PSDdata_0004.lps'. The 'OUTPUT' section shows 'File Format' as 'Comma Separated (CSV)', 'Organization' as 'TABLE-SINGLE FILE', 'Spectrum Size' as '128', 'Column Lbls' as 'FILE NAME', and 'Include Channel Number Column' checked. A log window at the bottom shows processing status. On the right, a spreadsheet shows the output with columns A, B, C, and D. Row 1 contains the file names, and subsequent rows contain numerical data.

	A	B	C	D
1	PSDdata_0001	PSDdata_0002	PSDdata_0003	PSDdata_0004
2	S0			
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	2
8	0	0	0	62
9	0	0	0	2907
10	0	108689	0	29100
11	0	46895	1	310189
12	0	36	230081	18074064
13	0	788	130926	13969159
14	166257	5915	34	650658
15	46	304	526	256405
16	162	1	8628	226992
17	6017	0	4671	202568
18	589	0	210	7889550
19	3	0	1	17395095
20	0	0	1	174129

Figure B.1: Example output selection (left) and resulting output spreadsheet (right) for labZY-PSD (.lps) input files, with the output settings:

- *File Format*: Comma Separated (CSV)
- *Organization*: TABLE-SINGLE_FILE
- *Column Lbls*: **FILE NAME**
- *Spectrum Size*: 128
- *Include Channel Number Column*: **Checked**

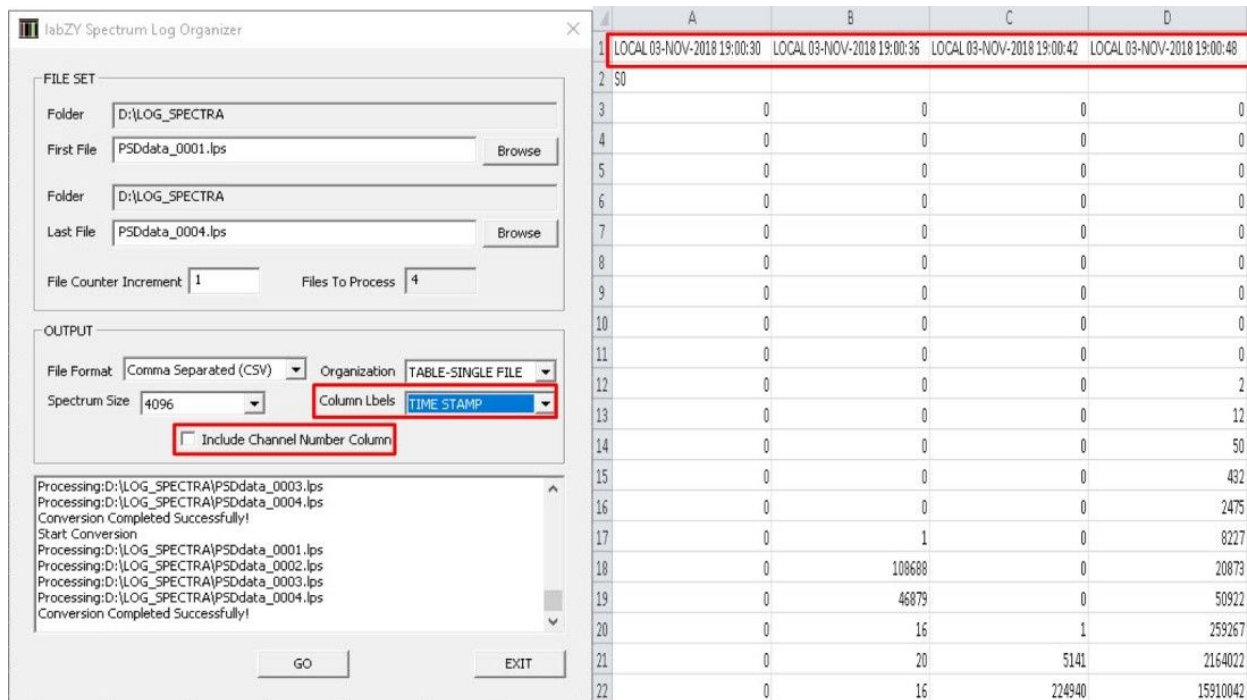


Figure B.2: Example output selection (left) and resulting output spreadsheet (right) for labZY-PSD (.lps) input files, with the output settings:

- **File Format:** Comma Separated (CSV)
- **Organization:** TABLE-SINGLE_FILE
- **Column Lbls:** **TIME STAMP**
- **Spectrum Size:** 4096
- **Include Channel Number Column:** **Unchecked**

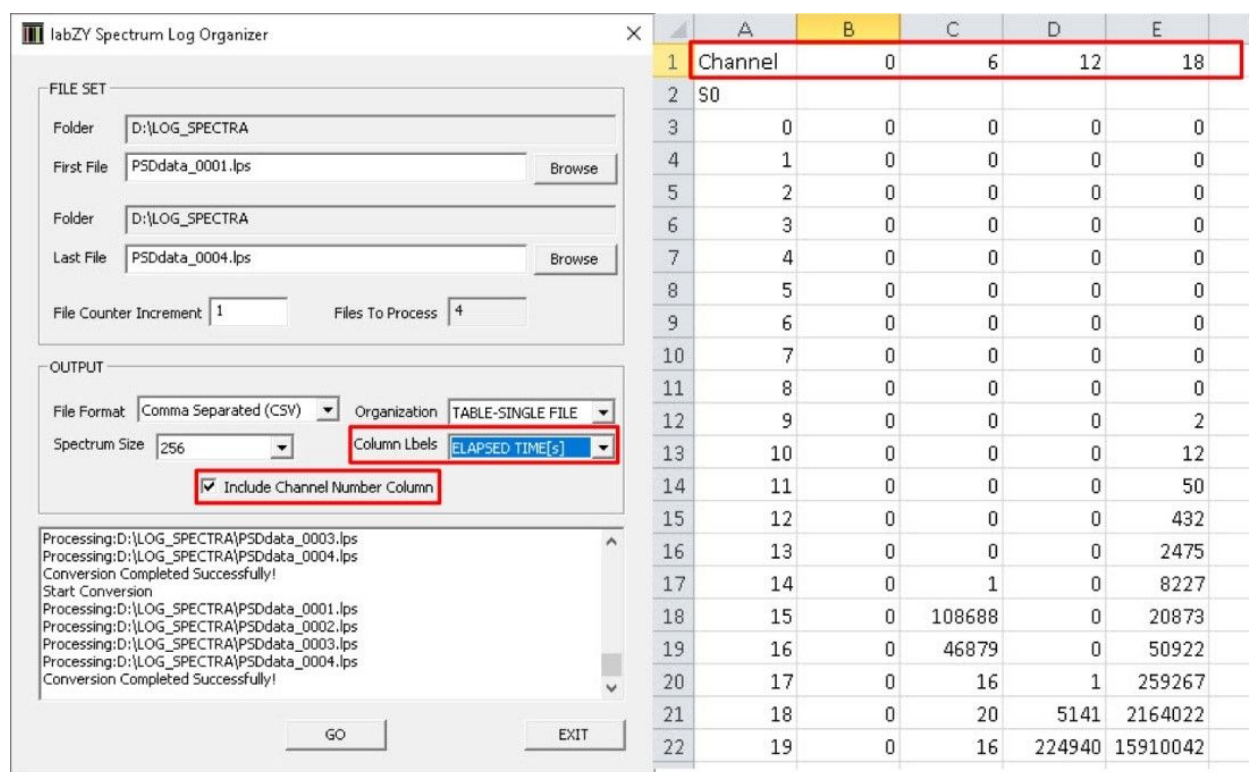


Figure B.3: Example output selection (left) and resulting output spreadsheet (right) for labZY-PSD (.lps) input files, with the output settings:

- *File Format:* Comma Separated (CSV)
- *Organization:* TABLE-SINGLE_FILE
- *Column Lbls:* **ELAPSED TIME[s]**
- *Spectrum Size:* 256
- *Include Channel Number Column:* **Checked**

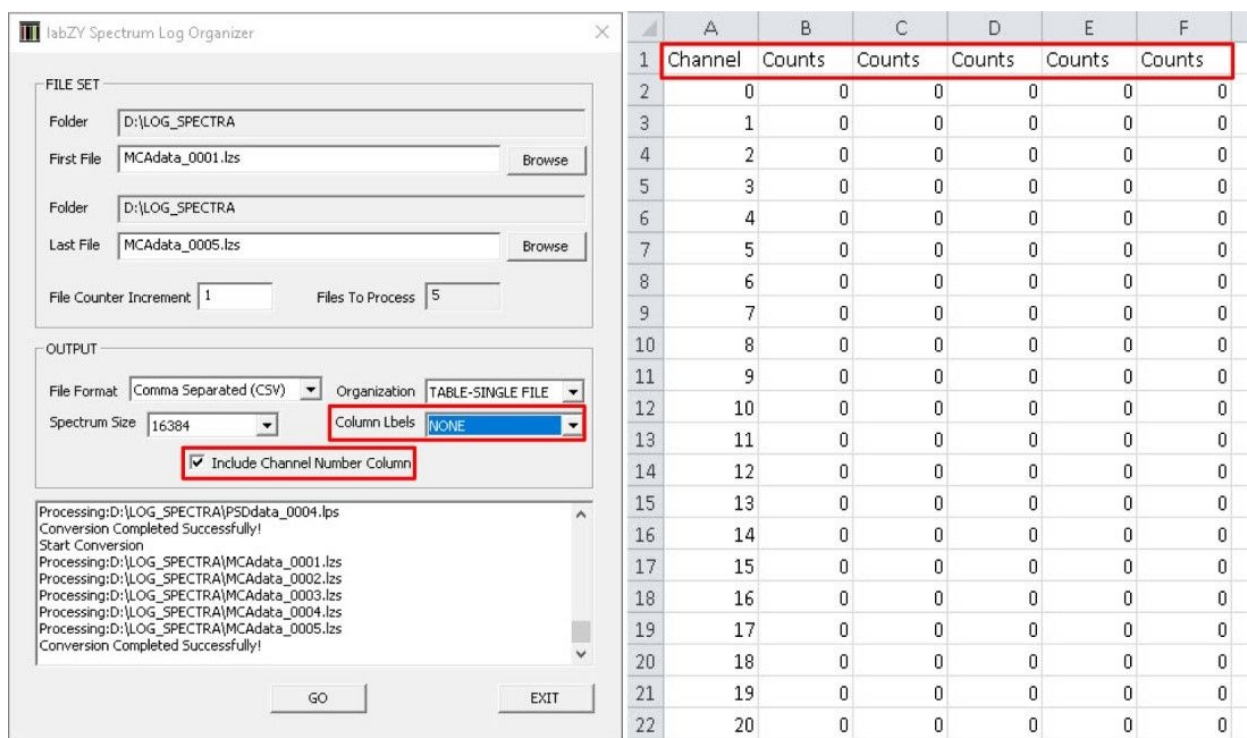


Figure B.4: Example output selection (left) and resulting output spreadsheet (right) for labZY-MCA (.lzs) input files, with the output settings:

- *File Format:* Comma Separated (CSV)
- *Organization:* TABLE-SINGLE_FILE
- *Column Lbls:* **NONE**
- *Spectrum Size:* 16384
- *Include Channel Number Column:* **Checked**

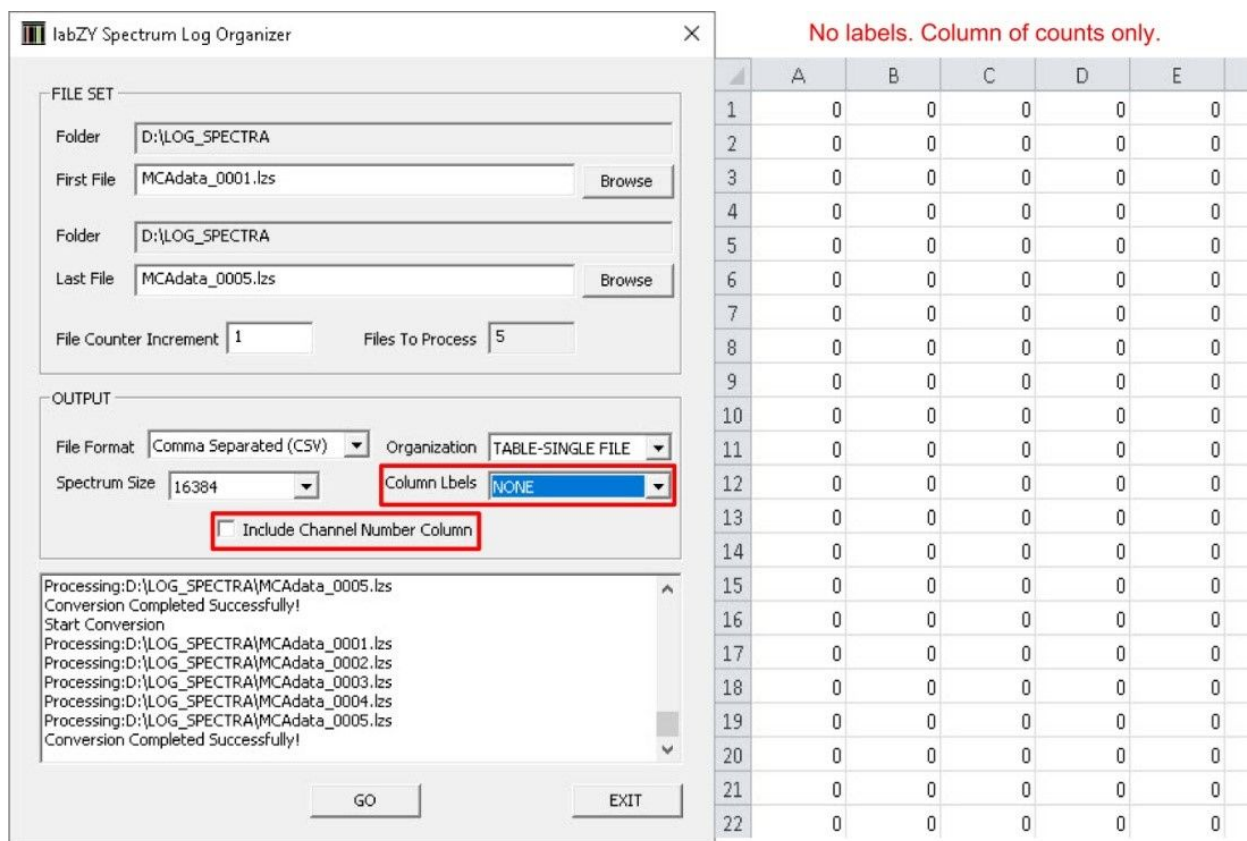


Figure B.5: Example output selection (left) and resulting output spreadsheet (right) for labZY-MCA (.lzs) input files, with the output settings:

- *File Format:* Comma Separated (CSV)
- *Organization:* TABLE-SINGLE_FILE
- *Column Lbls:* **NONE**
- *Spectrum Size:* 16384
- *Include Channel Number Column:* **Unchecked**