Kyeong Su Shin <ksshin@uw.edu>

[CityScape] PSD Plotting Tool - Quick Guide.
1 message

Kyeong Su Shin <ksshin@uw.edu>
To: Mark McHenry <mmchenry@sharedspectrum.com>, Venkat Maddisetti <vmaddisetti@sharedspectrum.com>
Cc: Shyam Kannam <shyam.kannam@hotmail.com>, Dave Aragon <daragon@uw.edu>, Sumit Roy <sroy@u.washington.edu>

Mon, Apr 10, 2017 at 10:07 PM

To whom it may concern:

This is a quick guide for the PSD plotting tool that I wrote and uploaded to Dropbox recently. It is intended to be used with Mr.Kannam's tool to test stations. The tool will parse 'dsox' files (CityScape aggregated PSD data files) and will allow you to either directly plot the content of the file or to dump them into a Matlab compatible data format (.mat). It is somewhat slow on Windows, but for 5 - 10minute worth of data, it shouldn't be too much of wait.

Download

Distribution for Windows (if you don't want to figure out dependencies):
https://www.dropbox.com/s/26gr5uh0f8t3adh/Windows-CityScapePSDFilePlotter.zip?dl=0

Source codes (If you want to actually modify the program or run on non-WIndows machines):
https://github.com/city-scape/CityScape_Raw_Data_Decoder/blob/master/python/GUI_Example/CityScapePSDPlotter.py
https://github.com/city-scape/CityScape_Raw_Data_Decoder/blob/master/python/psdFile_pb2.py

(You need to download both CityScapePSDPlotter.py and psdFile_pb2.py and place them in a same directory.)

Installation

Distribution for Windows (if you don't want to figure out dependencies):

-Download and extract the zip file. Run CityScapePSDPlotter.exe to execute the program.

Using Python Source codes:

1.Install the following dependencies.

```
-Python 2.7

-Protobuf Python binding (python-protobuf)

-MatPlotLib

-NumPy

-SciPy
```

2.Place both CityScapePSDPlotter.py and psdFile_pb2.py in a same directory.

3.Using CLI (bash, tcsh, cmd.exe, etc), go to the directory where the python files are located.

4.Run "python CityScapePSDPlotter.py" to execute the program. (Alternatively, you can use chmod +x CityScapePSDPlotter.py to make it an executable file if you are using Linux of Mac.)

Usage

1.When you launch the program, it will open a file dialogue. Navigate to where the aggregate PSD file is located, and open the file. (fig.1)
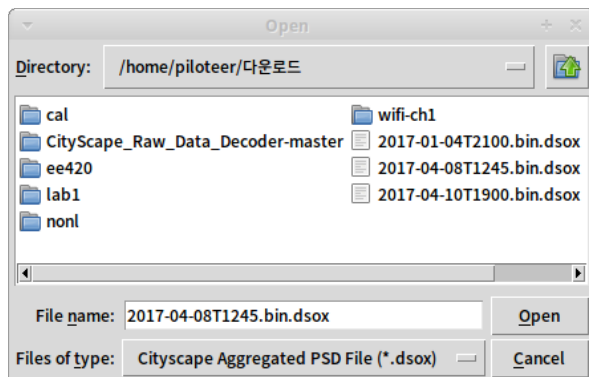

Fig. 1 : File Open Dialogue.

2. Give the program some time to process the file. It is somewhat slow on Windows, but if the file is small enough (5 - 10 min), it won't take too long. (fig .2)
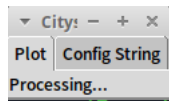
Fig.2 : PSD Plotter application, processing the data.

3.Once the program is ready, it will display a summary of the station configuration and prompt you to input start & stop frequency, and y-axis range of the plot (default : -140 to 0 dBm/bin). Set the values, and click the "Plot" button below to generate a plot. (Fig.3 / 4)
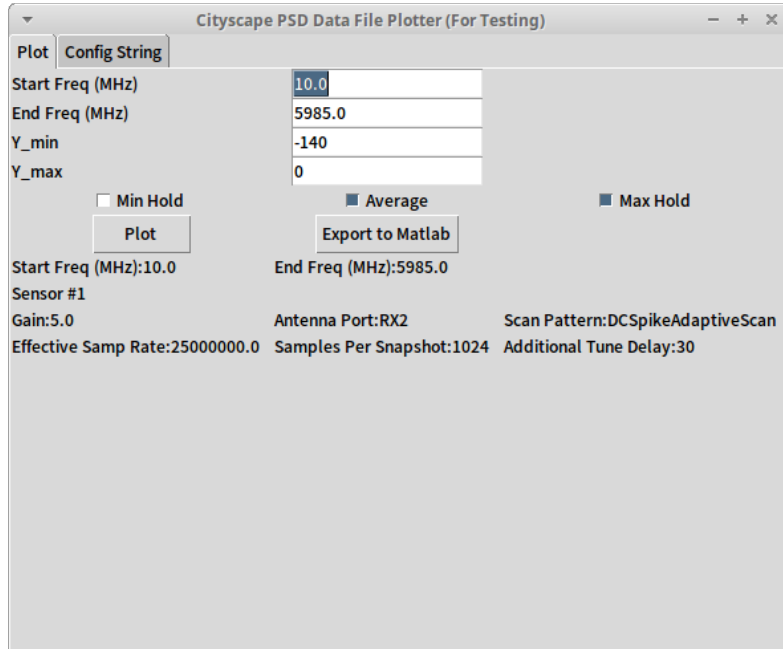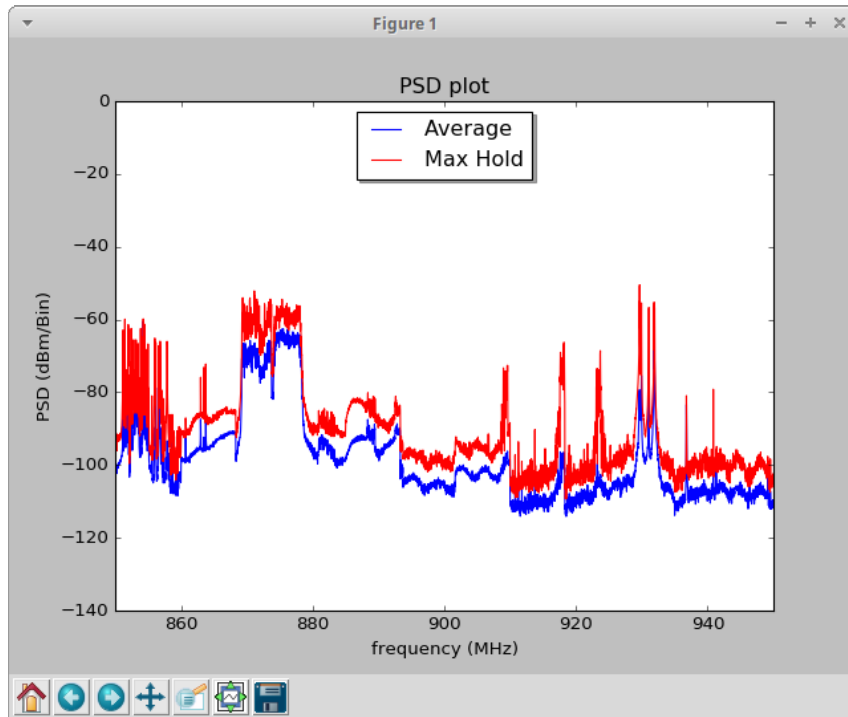
Fig.3 : PSD Plotter application, ready to plot.

Fig. 4 : A PSD Estimate plot, generated using the plotter.

3.1. Alternatively, you can save the data into a Matlab .mat file by clicking the "Export to Matlab" button. It will prompt you to type in a new file name.

PSD data files that should be fed in to this program can be generated using Mr.Kannam's station testing program (ask Mr.Kannam for details). Figure 5 shows the configurations that I used to generate these files. Note that it can generate aggregated PSD files within 10 minutes (vs 60 minutes, when using the web portal).

Fig. 5 : Configuration of Mr.Kannam's tools used to test the plotting tool.

Regards,
Kyeong Su Shin

(The body of this e-mail will be also uploaded to Dropbox.)