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[CityScape] PSD Plotting Tool - Quick Guide.

1 message

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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.pyhttps://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 or 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)

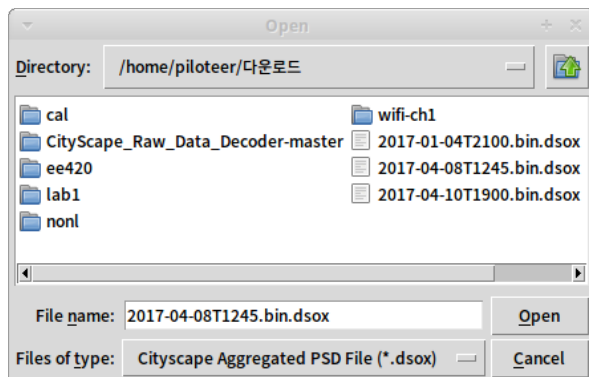


Fig. 1 : File Open Dialogue.

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)

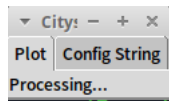


Fig.2 : PSD Plotter application, processing the data.

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)

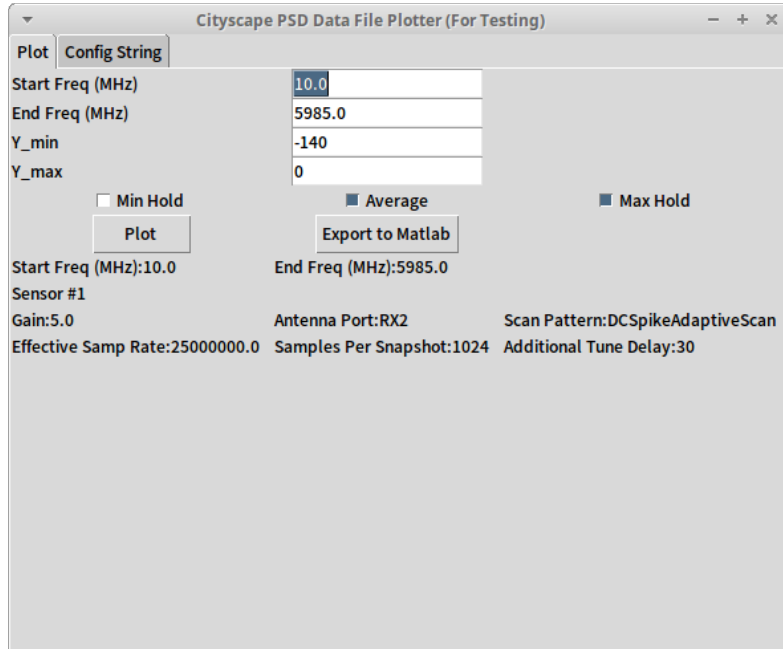


Fig.3 : PSD Plotter application, ready to plot.

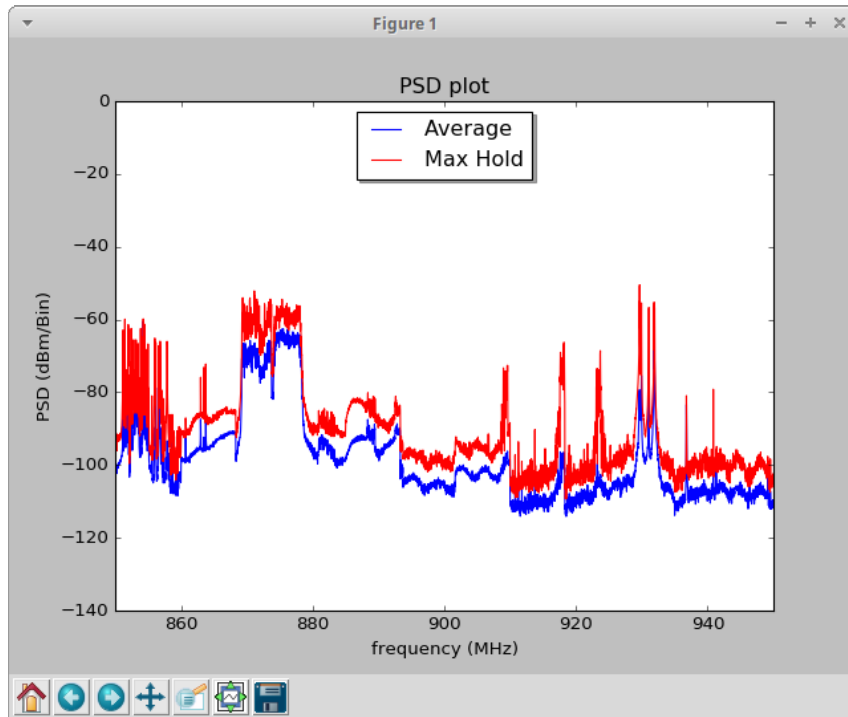


Fig. 4 : A PSD Estimate plot, generated using the plotter.

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).

CityScape Test Suite

Measurement Station Access ID: 7f7a9ad8-dda9-54be-8899d-939ace9eda94

Experiment Type 2 - Time Averaged PSD

☒ Output PSD Data ☐ Output Raw IQ Data ☐ Single Scan

Minutes of Data Per Scan File: 5

Seconds of Data Per Sample: 60

Experiment Type 1 - RAW IQ

Start Frequency MHz: 10 ☐ Output PSD Data In Off Cycle

Stop Frequency MHz: 3000 On Time In Milliseconds: 100

File Duration In Seconds: 600 Cycle Time In Milliseconds: 1000

Retention Seconds: 3600

Scanner Configuration

Min Start Frequency MHz	10	Descriptive Name	UW USRP UBX	Antenna Port	RX2
Max Stop Frequency MHz	6000	Device Type	USRP	Scan Pattern	DCSpikeAdaptiveSc
Start Frequency MHz	10	Device Address	192.168.10.2	Communications Channel	addr
Stop Frequency MHz	6000	RX Gain	5	Eff. Sampling Rate (ESPS In Hz)	25000000
PLL Flag Poll Delay	1	Samples Per Snapshot	10240	<input type="checkbox"/> GPS Enabled	
Number of Samples to Throw Away	0	No. of Snapshots per Channel Visit	1	<input checked="" type="checkbox"/> Locking Communication Channel	
Additional Tune Delay (msec)	30				

Add /Update Device

Load From File... Save As...

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.)