

NeuroSpec 2.01 User Note

David M. Halliday

Contents

1	Introduction & Installation	1
2	Plotting of Type 2 analysis	1
3	Licensing	2

1 Introduction & Installation

NeuroSpec 2.01 updates the plotting for results from Type 2 spectral analysis in NeuroSpec 2.0. The routines are compatible with the new graphics system introduced in MATLAB R2014b (version 8.4), are backward compatible with those in NeuroSpec 2.0, and should work with earlier versions of MATLAB without modification. For more details on the changes to MATLAB graphics and compatibility issues see: <http://uk.mathworks.com/products/matlab/matlab-graphics/index.html>

This note provides an overview of the update to NeuroSpec 2.0 provided by NeuroSpec 2.01. The files in `neurospec201.zip` should be installed after those in `neurospec20.zip` and should be installed into the same directory. There is one file with the same name in both zip files: `psp2_tf.m`, the newer version in `neurospec201.zip` should be installed and can safely overwrite the file with the same name in version 2.0. Please install NeuroSpec 2.0 before NeuroSpec 2.01, a separate user guide is available through the web site with full details of this process.

2 Plotting of Type 2 analysis

The plotting of Type 2 analysis with a range of offset values is done using the function `psp2_tf`. The syntax for calling this function is unchanged from that in NeuroSpec 2.0, existing scripts should work without modification. One parameter in `psp2_tf` is now redundant, this is optional parameter number 7: `t_inc`. This is the first optional parameter which has been retained for backward compatibility, the value is ignored in the new version. The appearance of time frequency plots should not be affected by this change. To access later optional parameters in the function a value of zero can be used.

The revised function `psp2_tf` calls a new set of functions to plot individual log spectra, coherence, phase and cumulant density estimates. These have the same filenames as in version 2.0 with an additional 'a' at the end of each filename. The new functions are:

1. `psptf_fa1a` Plotting of time-frequency channel 1 log spectral estimate.
2. `psptf_fb1a` Plotting of time-frequency channel 2 log spectral estimate.
3. `psptf_ch1a` Plotting of time-frequency coherence estimate.
4. `psptf_ph1a` Plotting of time-frequency phase estimate.
5. `psptf_q1a` Plotting of time-frequency cumulant density estimate.

The function `psp2_tf` generates the same number of figures in the same format as in version 2.0. One change is that confidence limits are no longer indicated on the colorbars for coherence and cumulant density plots, this type of use is no longer supported in the new MATLAB graphics system. Otherwise the appearance of plots should be largely unchanged from those in version 2.0. The coherence plotting

function has an additional option to mask coherence values below the confidence limit, which are set to zero. This is controlled by the optional argument `mask_flag`, which should be set to 1 to activate the masking.

3 Licensing

NeuroSpec is free software. This update is covered by the same licence as version 2.0, the GNU General Public Licence, a copy of which is included in the distribution file for NeuroSpec 2.0, `neurospec20.zip`.

NeuroSpec 2.01. User note, Copyright ©2016, David M. Halliday. Verbatim copying and distribution of this entire article is permitted in any medium, provided this notice is preserved. This Version 1.0, 12/07/2016.

The URL of this document is: <http://www.neurospec.org/neurospec201.pdf>

The NeuroSpec home page is at: <http://www.neurospec.org/>

Contact: contact@neurospec.org