

## JUICE-SCM/Ground Segment - Task #4024

### Première version calibration python

09/02/2023 10:42 AM - Theo Stassen

<b>Status:</b>	New	<b>Start date:</b>	15/02/2023
<b>Priority:</b>	Normal	<b>Due date:</b>	28/07/2023
<b>Assignee:</b>	Theo Stassen	<b>% Done:</b>	99%
<b>Category:</b>		<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>		<b>Spent time:</b>	0.00 hour
<b>revision:</b>	r0		
<b>Description</b>			
<b>Subtasks:</b>			
Task # 4028: Create Kernel in python			<b>Resolved</b>
Task # 4030: Bessel filter			<b>Resolved</b>
Task # 4031: DFB filter			<b>Resolved</b>
Task # 4032: Antenna response function			<b>Resolved</b>
Task # 4037: Bandpass filter			<b>Resolved</b>
Task # 4029: Extract and export cdf file			<b>In Progress</b>
Task # 4038: Discover units test python methods and Create Unit tests of the kernel			<b>Resolved</b>
Task # 4039: Unit test Bessel filter			<b>Resolved</b>
Task # 4040: Unit test DFB			<b>Resolved</b>
Task # 4041: Unit test Antenna filter			<b>Resolved</b>
Task # 4044: Create unit test for corgain (ant, dfb, bessel)			<b>Resolved</b>
Task # 4043: Create the complete Kernel			<b>Resolved</b>
Task # 4050: Create the kernel_creation function			<b>Resolved</b>
Task # 4051: Unit test kernel_creation			<b>Resolved</b>
Task # 4045: Reorganise the code to have all config/metadatas in one csv file, called b...			<b>Resolved</b>
Task # 4052: Full code documentation			<b>Resolved</b>
Task # 4053: Create deconvo_vec function (kernel part)			<b>Resolved</b>
Task # 4054: Hanning window creation			<b>Resolved</b>
Task # 4055: Check real/imag parts			<b>Resolved</b>
Task # 4056: Shift kernel			<b>Resolved</b>
Task # 4057: Coscub window creation			<b>Resolved</b>
Task # 4058: Gaussian window creation			<b>Resolved</b>
Task # 4059: Trapezoid window creation			<b>Resolved</b>
Task # 4060: Unit test deconvo vec (for each window type)			<b>Resolved</b>
Task # 4061: deconvo_vec convolution part			<b>Resolved</b>
Task # 4062: Correct the documentation strings warnings and pylint errors (if possible)			<b>Resolved</b>
Task # 4065: Implement blk_con IDL function			<b>Resolved</b>
Task # 4066: Implement graphical comparison between idl and python calibration			<b>Resolved</b>
Task # 4067: Create Calibrate CDF function			<b>In Progress</b>
Task # 4068: Implement the blocks separation, calibration and concatenation after being...			<b>Resolved</b>
Task # 4069: Implement the cdf writing of results			<b>Resolved</b>
Task # 4070: Implement function that compare two 11b cdf file data			<b>Resolved</b>
Task # 4071: General class to compare waveforms, in order to compare easily different c...			<b>Resolved</b>
Support # 4075: Obtain good result in the comparison of Reference/IDL/python waveforms			<b>Resolved</b>
Task # 4076: Implementation of ConfigHandler class			<b>Resolved</b>
Task # 4077: Implement function that compute the spectrogram of a waveform			<b>Resolved</b>
Task # 4078: Implement a simple spectrogram plot			<b>Resolved</b>
Task # 4079: Create function that plot multiple spectrograms			<b>Resolved</b>

Task # 4081: Create Function that compare idl spectrum and computed spectrum	<b>Resolved</b>
Support # 4082: Find why the computed spectrum is very different of ref, only for anten...	<b>Resolved</b>
Feature # 4083: Make documentation of all important implemented functions (concerning s...	<b>Resolved</b>
Support # 4084: Investigate why results are in general better for antenna x than y and z	<b>Resolved</b>
Task # 4085: Reorganise and simplify spectra related functions	<b>Resolved</b>
Task # 4086: Spectra densities computation	<b>Resolved</b>
Task # 4087: Spectra densities plot and comparison	<b>Resolved</b>
Task # 4088: Completely change ConfigHandler functioning	<b>Resolved</b>
Task # 4089: ConfigHandler modularity implementation	<b>In Progress</b>
Task # 4091: Global attributes and cdf name gestion	<b>Resolved</b>
Task # 4092: default / current / limits config gestion	<b>Resolved</b>
Task # 4093: Make class for deduce parameter values, depending on other parameters	<b>Resolved</b>
Task # 4094: kernel_creation.py reworked for modularity	<b>Resolved</b>
Task # 4095: Implement system of class extends for kernel creation and deduce_parameters	<b>Resolved</b>
Task # 4099: Spectra powers computation	<b>Resolved</b>
Task # 4100: Spectra powers plot / comparison	<b>Resolved</b>
Task # 4101: Quicklook computation / plot	<b>Resolved</b>
Task # 4102: Config Handler and config files modifications / improvements	<b>Resolved</b>
Task # 4103: Modularisation of calibrate data block	<b>Resolved</b>
Task # 4105: Create functional Diagram of the code	<b>Resolved</b>
Task # 4106: Sphinx documentation with cross referencing, complete explanations, struct...	<b>Resolved</b>
Task # 4107: Sphinx documentation with cross referencing, complete explanations, struct...	<b>Resolved</b>
Task # 4108: Sphinx documentation with cross referencing, complete explanations, struct...	<b>Resolved</b>
Task # 4109: Rewrite the readme with a summary of the documentation	<b>Resolved</b>
Task # 4112: Add freq samp deducing function in deduce parameters	<b>Resolved</b>
Task # 4113: Reorganise functions (kernel conv window, waveform padding, set frequency ...	<b>Resolved</b>
Task # 4116: Adapt the code to use SCHB mode	<b>Resolved</b>
Task # 4117: Adapt the code to have correct visual repretation of SHCB results	<b>Resolved</b>
Task # 4120: Add documentation on all code parameters	<b>Resolved</b>
Task # 4122: Make correct and complete quicklook, with same infos than MMS IDL's one	<b>Resolved</b>
Bug # 4123: Resolve problems with epochs	<b>Resolved</b>
Task # 4124: Create script with inline inputs, for calibrate and quicklook	<b>Resolved</b>
Task # 4125: Make inline arguments gestion modular, in separate function, to use it in ...	<b>Resolved</b>
Task # 4126: Modify config handler (config file gestion) and adapt to the new config ha...	<b>Resolved</b>
Task # 4129: Resolve plenty of problems concerning configHandler	<b>Resolved</b>
Task # 4130: Implement a first bash script, with auto venv use	<b>Resolved</b>
Bug # 4131: Resolve problems with venv / conda conflict on local machine	<b>Resolved</b>
Task # 4132: Make the cdf data extraction modular to prepare the different extraction n...	<b>Resolved</b>
Task # 4133: Adapt the matlab code for cdf data extraction (JUICE sid7)	<b>Resolved</b>
Task # 4138: Produce a waveform plot of JUICE data using code based on matlab code	<b>Resolved</b>
Task # 4139: Take the python code of David Pisa instead of Matlab code	<b>Resolved</b>
Task # 4140: Resolve the problem with epochs to be able to quicklook data	<b>Resolved</b>
Task # 4145: Create generic log printer (for log file and/or terminal)	<b>Resolved</b>
Task # 4149: Add systematical logs for each steps (with error excepts, errors, warnings...	<b>Resolved</b>
Task # 4150: Modify the extract data/ epoch part to handle JUICE SID 1/2/3/7 separately	<b>Resolved</b>
Task # 4151: Reorganisation of kernel construction	<b>Resolved</b>
Task # 4154: Add systematical logs for each steps (with error excepts, errors, warnings...	<b>Resolved</b>
Task # 4155: Create and improve the scripts to have 3 fully independent and functional ...	<b>Resolved</b>