

auch – Reference Chart, version 0.9

ON4CKO - full documentation on <http://www.4cko.be/auch-www/>

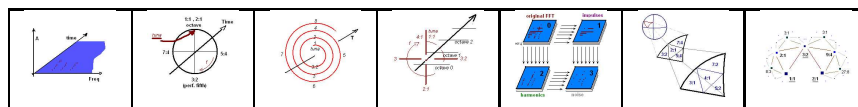
auch displays harmonics in music. Harmonics are essential to the understanding of how music is built from notes and chords.

Four audio streams can be displayed. These are *the microphone* and *the wave file* -both in stereo. Displays are labeled :0 and :1 respectively for left and right microphone. Displays :2 and :3 are for left and right wave file¹.

1. displays types

The table below gives an overview of the different graphs that can be displayed for an audio stream. The graph type is selected with the **style** parameter.

type	description
FFT	frequency and amplitude over time
c5	spectrum over time in one octave (eg. 440Hz..880Hz)
c5c	spectrum over time, plotted as a spiral
WLET	compare wavelet coefficients of two octaves (HAAR)
w2d	2D pyramidal wavelet transform of the spectrum
IFS	fractal representation of frequencies in the spectrum
IVIV	correlation between important frequency ratios
HIDE	don't show the display



graph styles (l→r): fft, c5, c5c, wlet, w2d, ifs, iviv.

2. Commands

command	syntax	description
plot	plot [<filename>]	start audio capture from microphone or file
mute	mute	stop acquisition
set	set [:display] option value set [option]	change the configuration of one or all displays. A display specific setting overrules the global setting. get current option or show all settings
analyse	analyse :display filename analyse	write analysis to file for the indicated display close analysis files
help	help [command]	help (on a command)
exit	exit	quits the program

¹16bit .wav file format

3. Configuration Settings

<i>option</i>	<i>alias</i>	<i>example</i>	<i>description</i>
KNOWN		set KNOWN	show all known options and aliases
VERSION		set VERSION	show current version
style	st	set :0 style wlet	set graph style
scale	sc	set scale 0.5	amplify audio (0=mute)
x / y		set :2 x 2.5	move a display
tuna		set tuna 440	set tonica of desired octave (freq.)
listen		set listen :2:3	sends data of display(s) to the soundcard
guidelay		set guidelay 5	reduce fps (1=fastest)
acqdelay		set acqdelay 1	reduce cpuload (1=fastest)
samplerate	sr	set sr 22050	samples per second of recording
resample		set resample 0.5	set playback-speed (1=normal, 0.5=twice as fast)
wlet.detail		set wlet.detail 0	select <i>smooth</i> (0) or <i>detail</i> (1) coeff. in wlet display
quadrant	qd	set :2 qd 3	select quadrant in w2d: 1(<i>rythm</i>),2(<i>harmonics</i>),3(<i>details</i>) or 0(<i>debug</i>)
relh / hshrink		set :2 hshrink 0.5	modify appearance of IVIV tree. Eg. a smaller hshrink plots tree leaves in a circle.

4. Analysis

Analysis writes data of the display to file. The file is in space delimited plain text format.

- C5 ANALYSIS The file contains *timestamps* and *correlation* of the octave with equal temperament tuning.
- IVIV ANALYSIS The file contains *timestamps* and a *frequency pair with the weights* at that time.