Correlations between a Shintergy synchronized brain and a laser field; a possible fractal structure of Consciousness
(Part 2 of 7 – Local measure in time, and distant in space).

José Luis Bueno-Ramos BSc[1][*] | Arturo Ortiz-Tapia PhD[1][*] | Inés Urdaneta PhD[2, 1][*] | Alan Armando Aguero-Rojas-Vertiz MSc[1][*]

[1]Hypatia Research Institute Mexico SC Av Nuevo León 213 Despacho 503-3 Hipódromo Condesa, Cdmx 06140

[2]Hawaii Institute for Unified Physics, Kailua Kona, Hawaii, 96740, USA

Correspondence
* Department of Mathematics and Theoretical Physics, Hypatia Research Institute Mexico SC Av Nuevo León 213 Despacho 503-3 Hipódromo Condesa, Cdmx 06140
Email: egl.arturo.ortizta@unadmexico.mx

Strong correlations are found between brain activity of a subject distant in space, concurrent in time (present), performing Shintergy-like synchronization under controlled conditions, and measurements made with a 100mW, 532nm laser.

KEYWORDS
Shintergy, synchronization, expanded states of consciousness, distant space, present time

[*]Equally contributing authors.

1 | INTRODUCTION

2 | METHODOLOGY

2.1 | Experimental set-up for the physical measurements

The whole strategy of the physical measurements while on Shyntergy-synchronization is driven by the idea that consciousness has physical manifestations, and thus it should be measurable, in particular using a laser beam according of a planned, but unexecuted, experiment thought by Jacobo Greenberg [2]. The laser device was connected to an Arduino electronic control tablet, and the Arduino program compiler [4].

In the following sections the design and construction of the equipment is going to be briefly described.

2.1.1 | Laser

A 100mW, 532nm laser, activated in continuous mode, was fixed on the extreme of a mounting that allow fine-tune of the supporting legs through screws. At the other side it was fixed a photocell (as a laser beam profiler) which registered any variation of brilliancy from the laser, rendering low numbers for high brilliancy, and bigger numbers for any increase of darkness. Between the laser beam and the said photocell, a focusing device was fixed, which consist of a hollow tube with a small perforation on one side, so that the laser beam arrives mostly within the diameter of the photocell.

The photocell is connected to an Arduino circuit, which in turn is connected to a computer (see paragraphs below for detailed explanation), where an Arduino program may be started to begin the registration of the measurements, until the Arduino plaque is disconnected, to allow the manual transcription of the collected measurements towards a spreadsheet. The strategy was that if the Shintergy synchronization could have any influence whatsoever, this would be registered as variations of the brilliancy. However, after the first experiments were made, it was clear that further devices were needed, to attempt to assert the nature of the phenomenon that made the brilliancy change. It is known that loss of received brilliancy would imply a loss of photons, which in turn usually can be ascribed to optical phenomena [6].

Under the development of the proper equipment for the laser experiment, the following principal points were taken into consideration (Fig.1):

Body Frame
With the help of a CAD software (Siemens NX 12) a model of the 1/2 inch galvanised pipe frame was design in such a way to hold the laser, filter the incoming beam of light and support the photoelectric resistor. The principal idea for which galvanised pipe was used as material for the construction of the system it is the great work versatility and stiffness of the material. These not only allowed the system to have a strong hold of the equipment but at the same time gives the possibility of adjustment on an irregular surface, this thanks to the pipe threading on the entire design.

Electronics
The integration of the electronics systems for the data acquisition was based on four main components which are
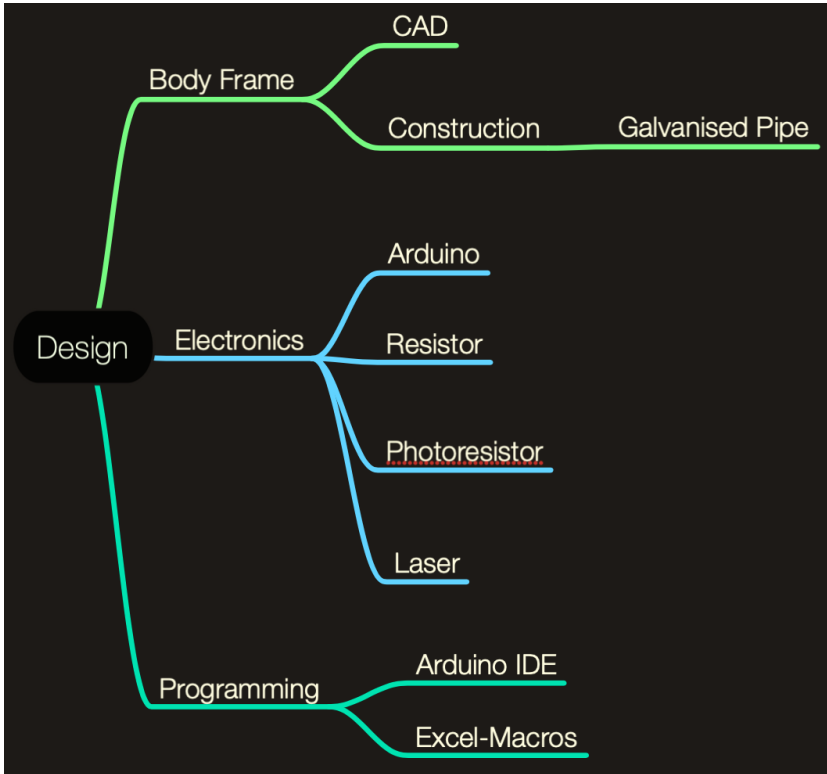
- Arduino

FIGURE 1 Design mind-map.

- Laser
- Resistor
- Photo-Resistor

Using a common resistance and photo-resistor, a voltage divider was created (Fig.2a). Based upon this electric principle, it was possible for the Arduino to read the analog signal values coming from the photo-resistor and convert them into digital ones able to be analyzed into a computer connected to the Arduino's serial port (Fig.2b). These values range from 0 to 1023 accordingly to the range voltage from 0 to 5 volts coming out from the photo-resistor (Fig.2).

(a) Voltage divider.

(b) Laser circuit diagram.
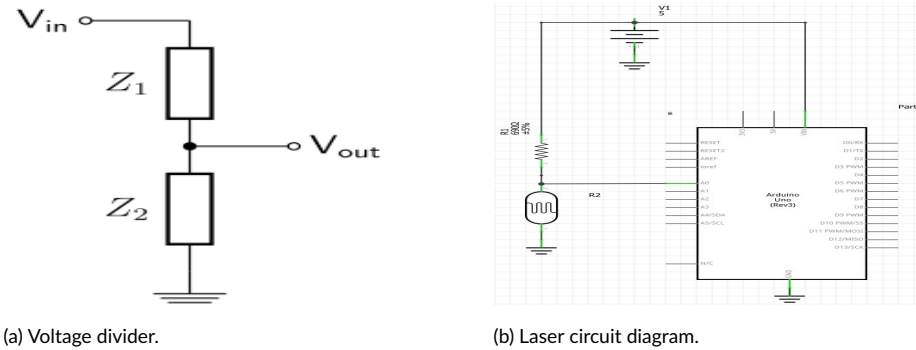
FIGURE 2   Circuitry for laser detection.

It is important to note that the impedance of the photo resistor increases as the photon intensity decreases. This can be expressed with the following mathematical expression

$$I_p \propto \frac{1}{R} \tag{1}$$

By Ohms Law, we can say that $V \propto R$; therefore

$$I_p \propto \frac{1}{V_{out}} \tag{2}$$

This design implication has a deep meaning in the test result, as can be seen by the above equations, the Arduino analog input registers high values as the photo-resistor register losses in photon intensity. The voltage across the photo-resistor can be easily obtained with the next equation below

$$V_{out} = \frac{R_2}{R_1 + R_2} V_{in} \tag{3}$$

Programming

Two different sets of programming codes where design, one was made on the Arduino programming language and the other on Excel Macros. These two codes were planned to work together in such a way that Arduino would collect the data from the photo-resistor and then transfer that information to an Excel spread sheet. This was planned to

analyzed the data in a cleaner and easier way.

2.2 | The synchronization technique

The synchronization technique was already discussed in [3].

2.3 | Neurological measurements

In this report we are comparing each separated task against the same international database contained in Neuroguide [1]. The neurological measurements were analyzed with the software Z-Builder [1], and the laboratory results refer to the standard ten-twenty nomenclature for the electrodes in the head of the subject[5].

2.4 | Data postprocessing

All data postprocessing was performed with the help of the Wolfram's Mathematica, v.10.

2.4.1 | Direct data plot

The data was taken and plotted directly, so that all graphics show a progressive numbering related with the time stamp of that individual measurement, which in turn, depending on the device, had different sampling rate. On the y axis it is shown the amount of each individual measurement. No units are assigned to either cartesian axis. The graphics contained baseline data and that of the particular experiment itself. The direct observation of the resulting graphic was considered enough to see if any departure existed from the baseline.

3 | RESULTS

3.1 | First Laser Experiments (2019)

The collection of the most representative graphics, from experiments made between October and December 2019 is shown. At this time, the described laser was the only operational measuring device.

3.1.1 | Red

This section exhibit the influence over a laser, with the subject a variable distances, but always at least 2 kilometers away, and in the present time (called red measurements). Each red measurement is shown with all and each one of the base lines of that day.

December 17th, 2019

$$
\begin{pmatrix}
11{:}09{:}06.676 & \text{/01baseline.txt} \\
11{:}18{:}18.146 & \text{/02baseline.txt} \\
11{:}26{:}51.017 & \text{/03baseline.txt} \\
11{:}49{:}25.166 & \text{/04baseline.txt} \\
12{:}08{:}29.261 & \text{/05baseline.txt} \\
09{:}15{:}10.474 & \text{/06redMeasurement.txt} \\
09{:}25{:}09.179 & \text{/07redMeasurement.txt}
\end{pmatrix}
$$
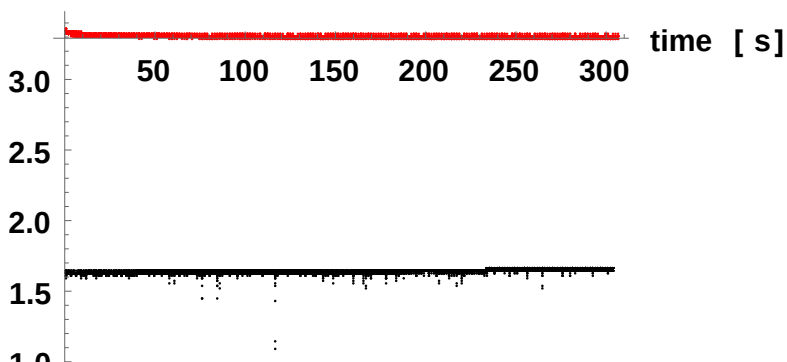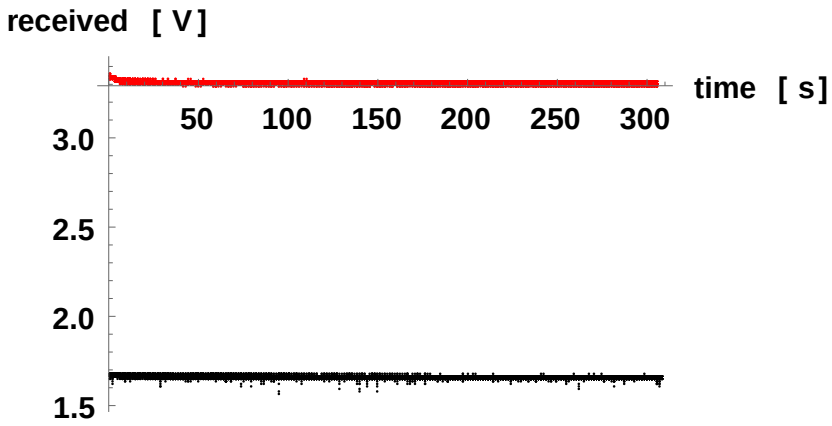
Initial time stamp of measurements.

received [V]

FIGURE 4 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/02baseline.txt} \end{array}\right)$

received [V]

FIGURE 5 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/03baseline.txt} \end{array}\right)$

received [V]

FIGURE 6 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/04baseline.txt} \end{array} \right)$

received [V]

FIGURE 7 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/05baseline.txt} \end{array} \right)$

received [V]

FIGURE 8 $\left(\begin{array}{c}\text{/07redMeasurement.txt}\\\text{/01baseline.txt}\end{array}\right)$

received [V]
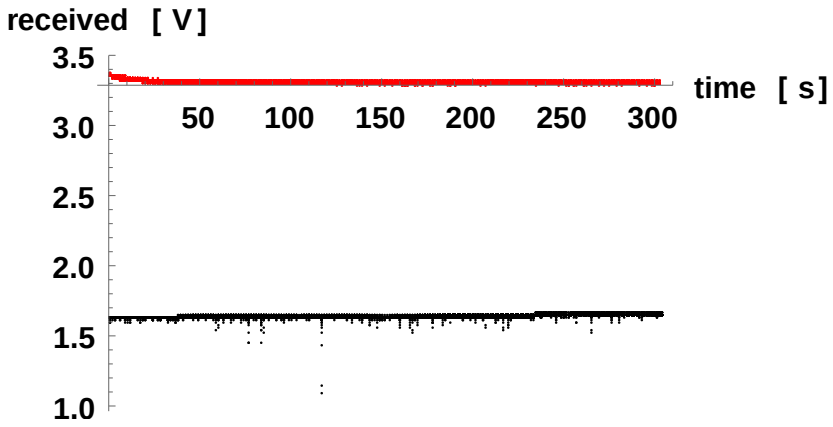
FIGURE 9 $\left(\begin{array}{c}\text{/07redMeasurement.txt}\\\text{/02baseline.txt}\end{array}\right)$
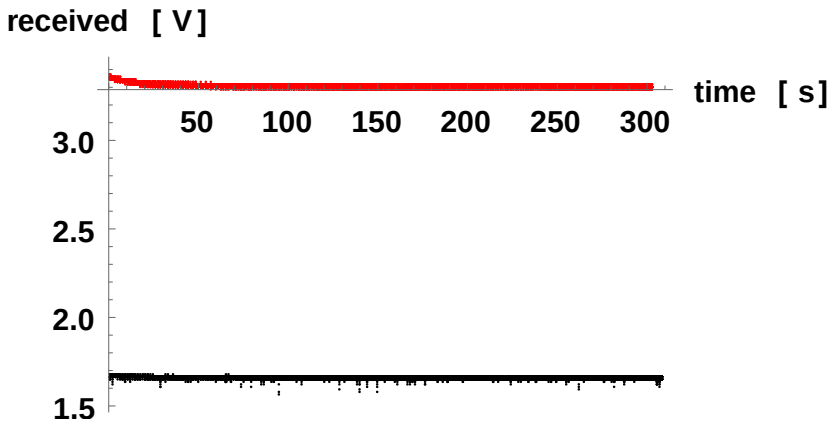
received [V]

FIGURE 10 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/03baseline.txt} \end{array} \right)$
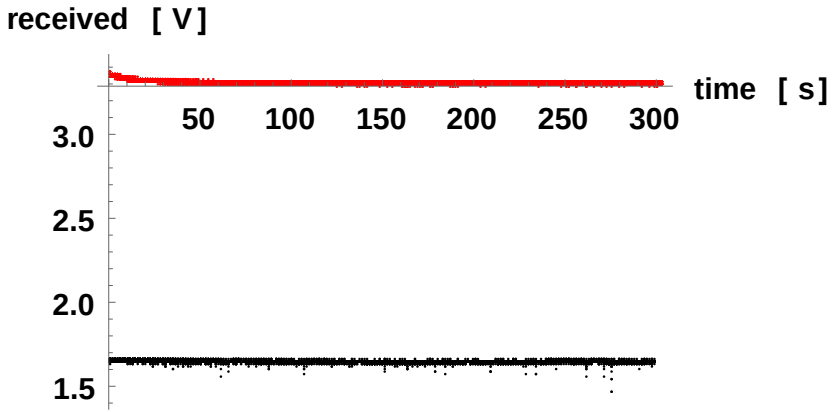
received [V]
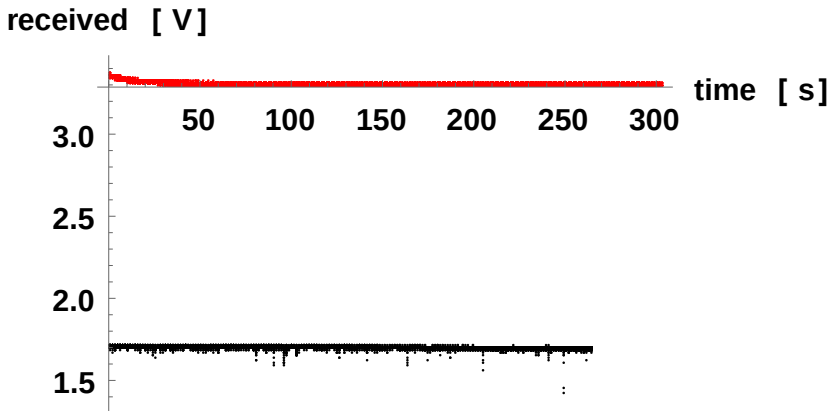
FIGURE 11 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/04baseline.txt} \end{array} \right)$

received [V]

FIGURE 12 $\begin{pmatrix} \text{/07redMeasurement.txt} \\ \text{/04baseline.txt} \end{pmatrix}$

December 18th, 2019

$$\begin{pmatrix} \text{09:53:08.965} & \text{/01baseline.txt} \\ \text{10:38:47.106} & \text{/02baseline.txt} \\ \text{11:42:12.836} & \text{/03redMeasurement.txt} \\ \text{11:52:19.135} & \text{/04redMeasurement.txt} \end{pmatrix}$$
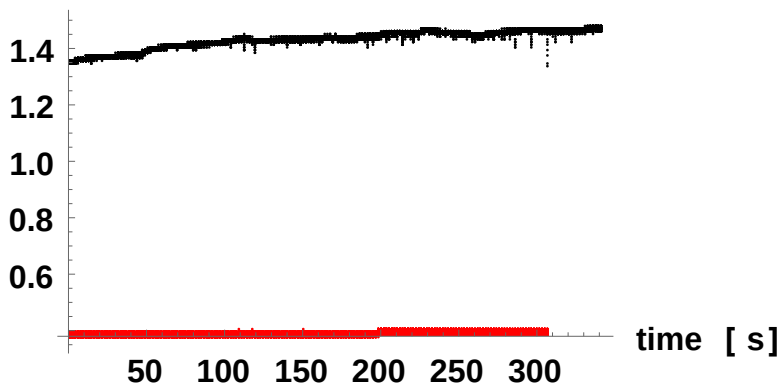
Initial time stamp of measurements.

received [V]

FIGURE 13 $\begin{pmatrix} \text{/03redMeasurement.txt} \\ \text{/01baseline.txt} \end{pmatrix}$
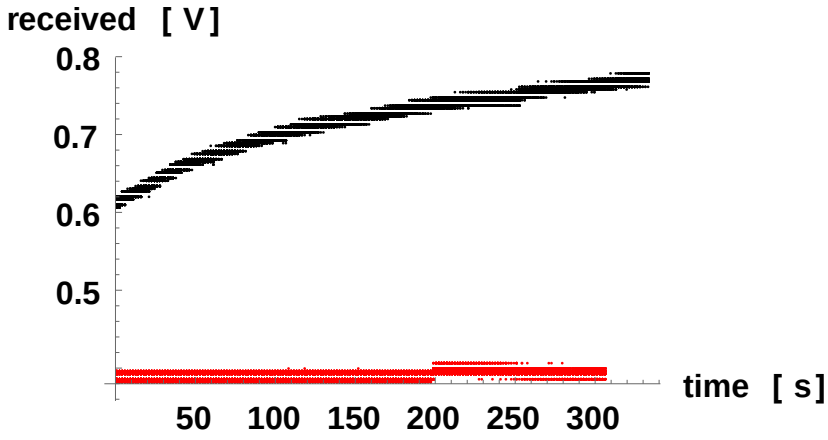
FIGURE 14 $\begin{pmatrix} \text{/03redMeasurement.txt} \\ \text{/02baseline.txt} \end{pmatrix}$

FIGURE 15 $\begin{pmatrix} \text{/04redMeasurement.txt} \\ \text{/01baseline.txt} \end{pmatrix}$

received [V]
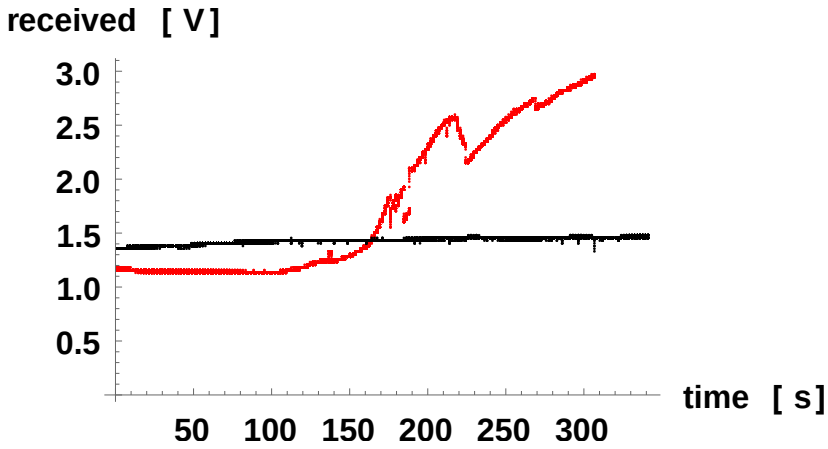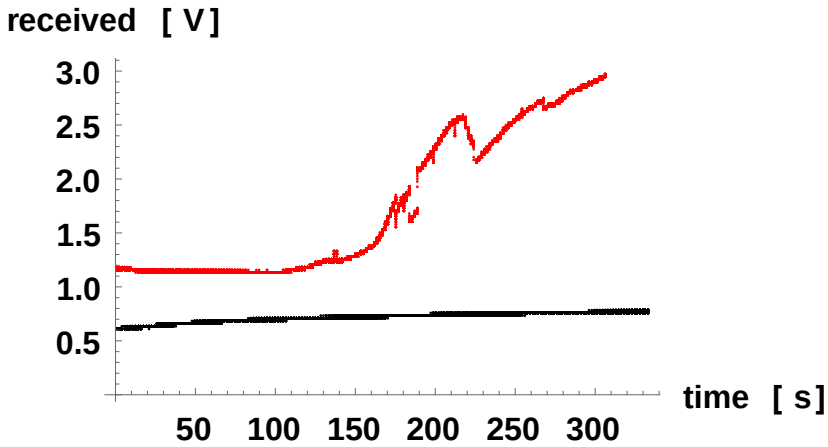
FIGURE 16 $\left(\begin{array}{c} \text{/04redMeasurement.txt} \\ \text{/02baseline.txt} \end{array}\right)$

December 26th, 2019

$$\left(\begin{array}{ccc} 11\text{:}21\text{:}15.845 & & \text{/01baseline.txt} \\ 11\text{:}38\text{:}21.254 & & \text{/02baseline.txt} \\ 11\text{:}48\text{:}14.033 & \text{/03redMeasurement.txt} \\ 12\text{:}00\text{:}07.174 & \text{/04redMeasurement.txt} \end{array}\right)$$
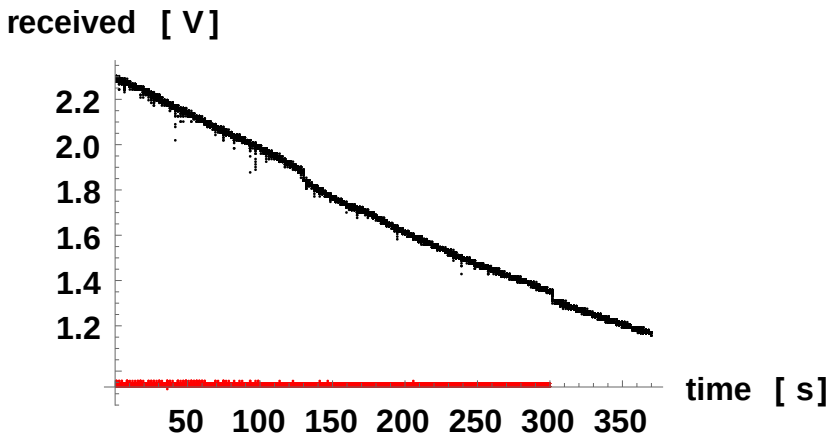
Initial time stamp of measurements.

received [V]

FIGURE 17 $\left(\begin{array}{c} \text{/03redMeasurement.txt} \\ \text{/01baseline.txt} \end{array}\right)$

received [V]
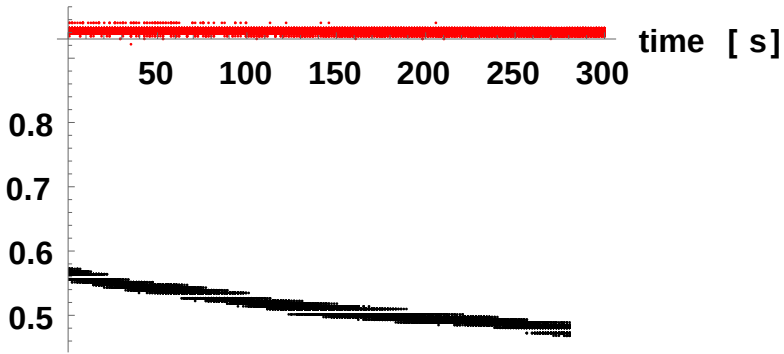
FIGURE 18 $\left(\begin{array}{c} \text{/03redMeasurement.txt} \\ \text{/02baseline.txt} \end{array} \right)$

received [V]

FIGURE 19 $\left(\begin{array}{c} \text{/04redMeasurement.txt} \\ \text{/01baseline.txt} \end{array} \right)$
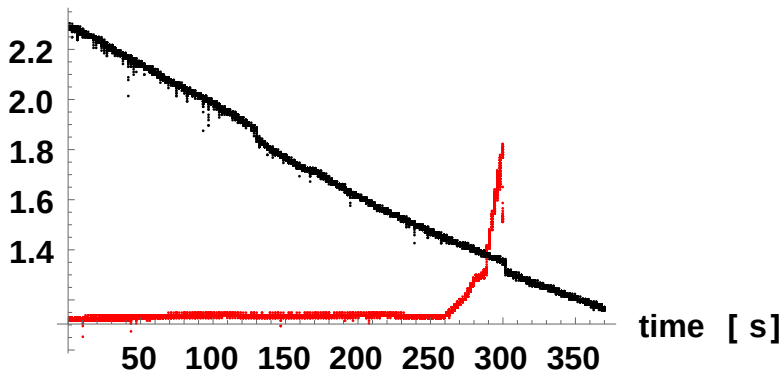
January 10th, 2020

$$\begin{pmatrix} \text{10:10:34.786} & \text{/01baseline.txt} \\ \text{10:23:50.216} & \text{/02baseline.txt} \\ \text{14:18:06.227} & \text{/06redMeasurement.txt} \\ \text{14:33:13.153} & \text{/07redMeasurement.txt} \end{pmatrix}$$

Initial time stamp of measurements.

received [V]

FIGURE 20 $\begin{pmatrix} \text{/06redMeasurement.txt} \\ \text{/01baseline.txt} \end{pmatrix}$
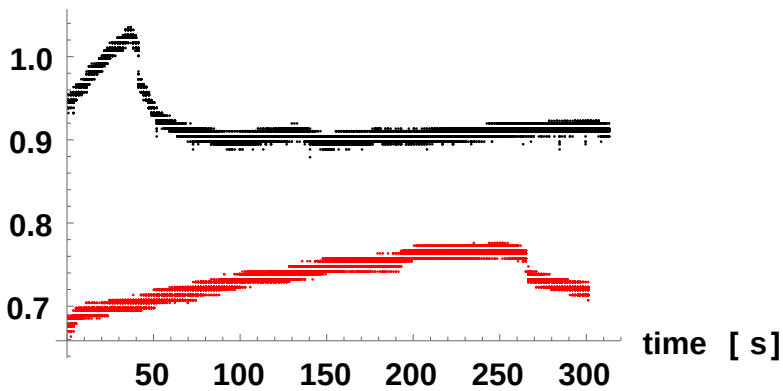
received [V]

FIGURE 21 $\begin{pmatrix} \text{/06redMeasurement.txt} \\ \text{/02baseline.txt} \end{pmatrix}$

received [V]
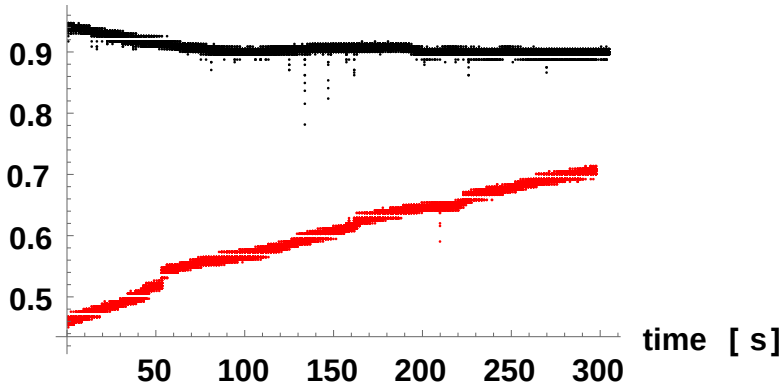
FIGURE 22 $\begin{pmatrix} \text{/07redMeasurement.txt} \\ \text{/01baseline.txt} \end{pmatrix}$

received [V]
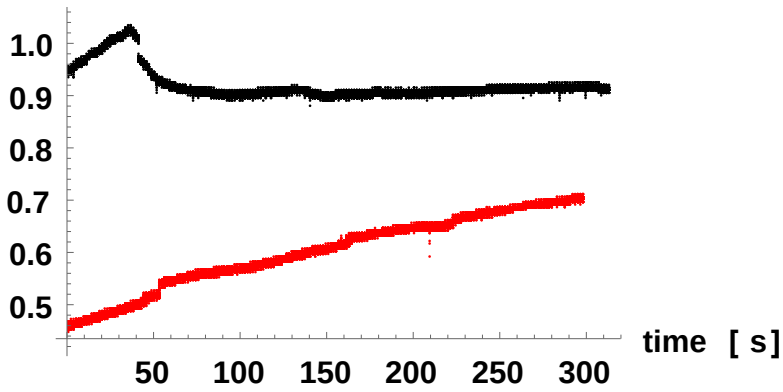
FIGURE 23 $\begin{pmatrix} \text{/07redMeasurement.txt} \\ \text{/02baseline.txt} \end{pmatrix}$

January 13th, 2020

$$\begin{pmatrix} 10:37:52.706 & \text{/01baseline.txt} \\ 10:52:12.974 & \text{/02baseline.txt} \\ 14:12:24.070 & \text{/03baseline.txt} \\ 12:30:20.004 & \text{/06redMeasurement.txt} \\ 13:00:09.223 & \text{/07redMeasurement.txt} \end{pmatrix}$$
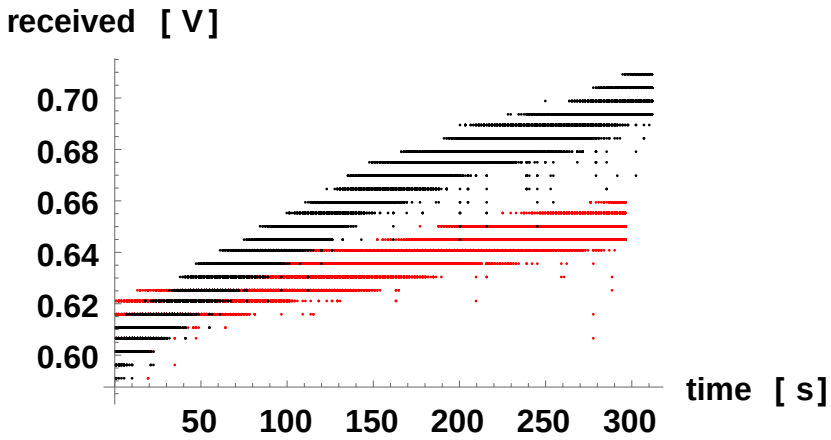
Initial time stamp of measurements.

FIGURE 24 $\begin{pmatrix} \text{/06redMeasurement.txt} \\ \text{/01baseline.txt} \end{pmatrix}$
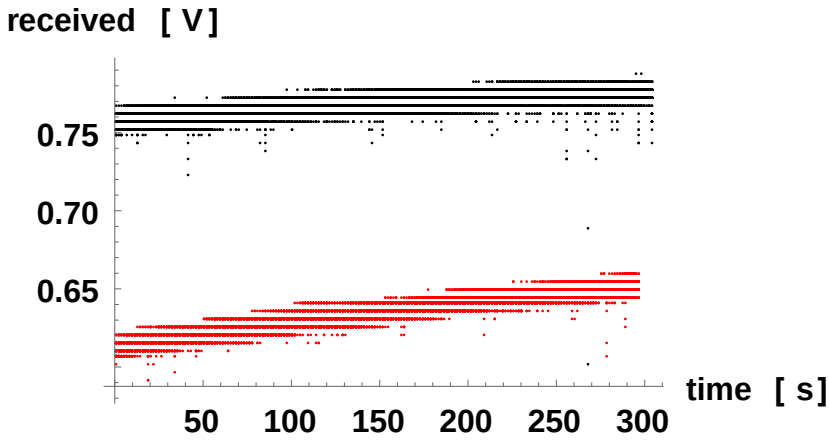
received [V]

FIGURE 25 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/02baseline.txt} \end{array}\right)$

received [V]
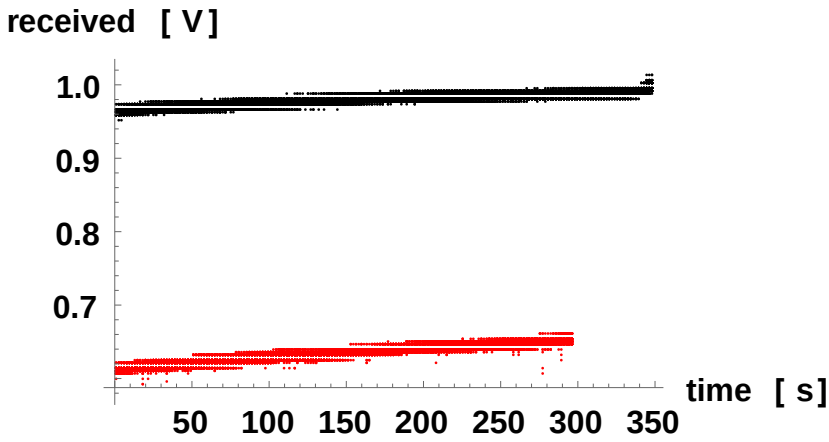
FIGURE 26 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/03baseline.txt} \end{array}\right)$
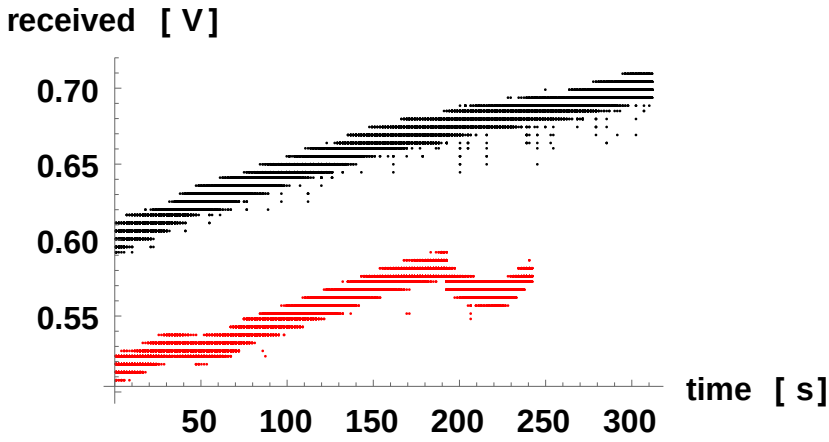
FIGURE 27 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/01baseline.txt} \end{array} \right)$

FIGURE 28 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/02baseline.txt} \end{array} \right)$
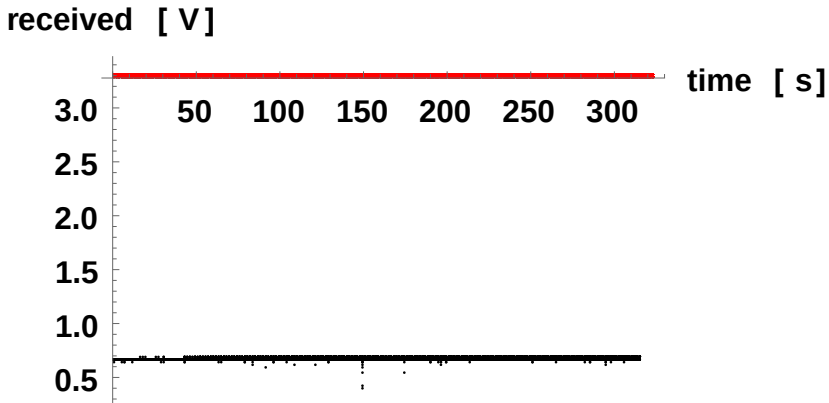
received [V]

FIGURE 29
$$\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/03baseline.txt} \end{array} \right)$$

January 27th, 2020

$$\left(\begin{array}{ll} 10\!:\!12\!:\!23.745 & \text{/01baseline.txt} \\ 10\!:\!31\!:\!16.936 & \text{/02baseline.txt} \\ 10\!:\!55\!:\!59.598 & \text{/03baseline.txt} \\ 11\!:\!21\!:\!18.201 & \text{/04baseline.txt} \\ 14\!:\!08\!:\!48.891 & \text{/05baseline.txt} \\ 14\!:\!23\!:\!40.655 & \text{/06baseline.txt} \\ 15\!:\!15\!:\!32.476 & \text{/07redMeasurement.txt} \\ 15\!:\!36\!:\!01.284 & \text{/08redMeasurement.txt} \\ 15\!:\!48\!:\!03.121 & \text{/09redMeasurement.txt} \end{array} \right)$$

Initial time stamp of measurements.

received [V]

FIGURE 30 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/01baseline.txt} \end{array} \right)$

received [V]

FIGURE 31 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/02baseline.txt} \end{array} \right)$

received [V]

F I G U R E   3 2 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/03baseline.txt} \end{array} \right)$

received [V]

F I G U R E   3 3 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/04baseline.txt} \end{array} \right)$

received [V]

FIGURE 34 $\left(\begin{array}{c}\text{/07redMeasurement.txt}\\\text{/05baseline.txt}\end{array}\right)$

received [V]

FIGURE 35 $\left(\begin{array}{c}\text{/07redMeasurement.txt}\\\text{/06baseline.txt}\end{array}\right)$

received [V]
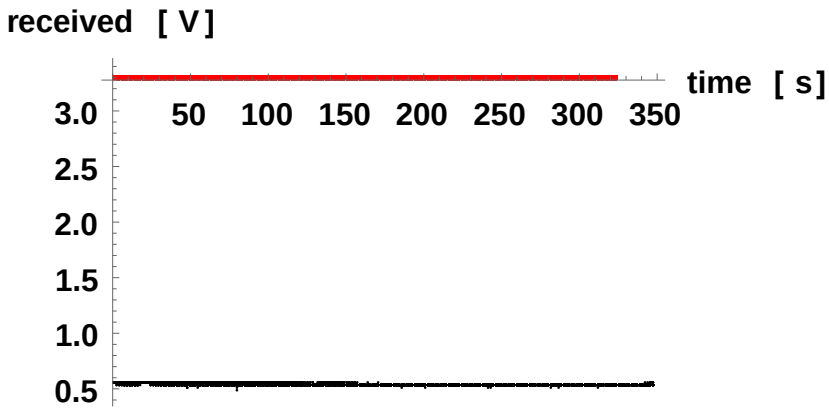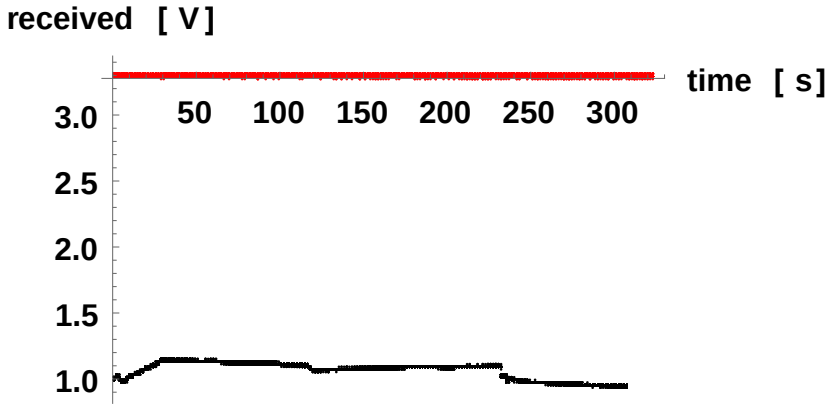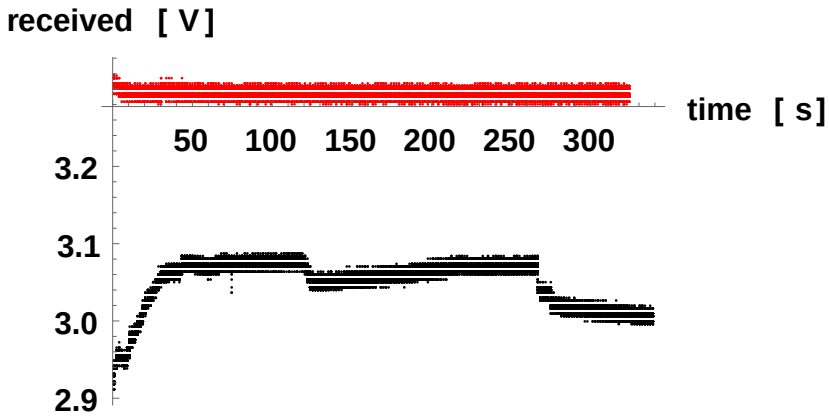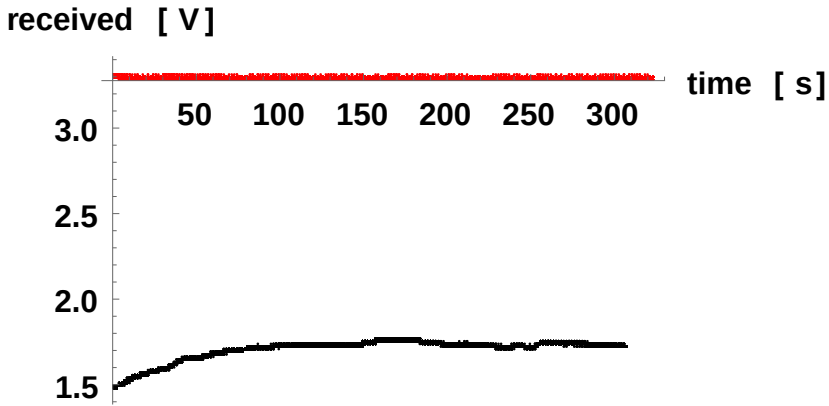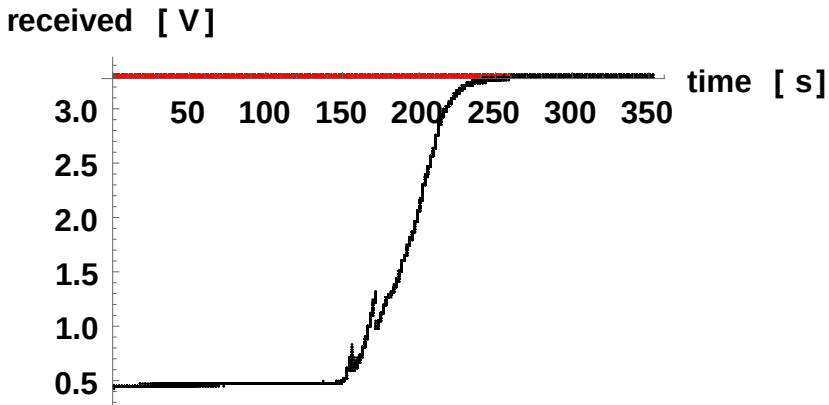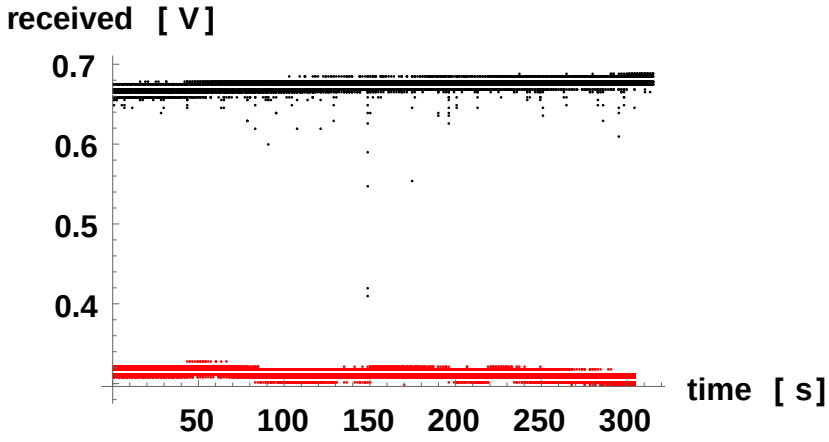
FIGURE 36 (/08redMeasurement.txt)
(/01baseline.txt)

received [V]
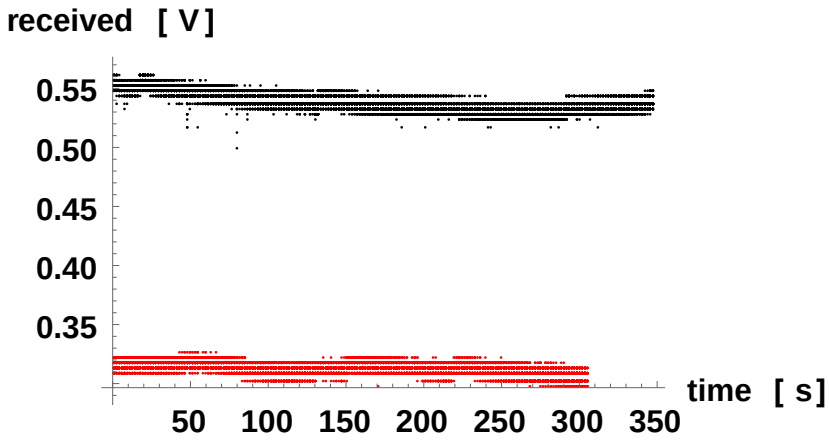
FIGURE 37 (/08redMeasurement.txt)
(/02baseline.txt)
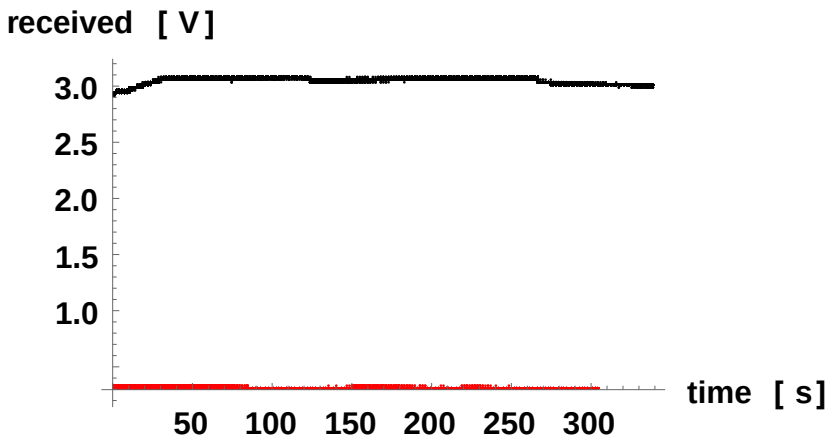
received [V]

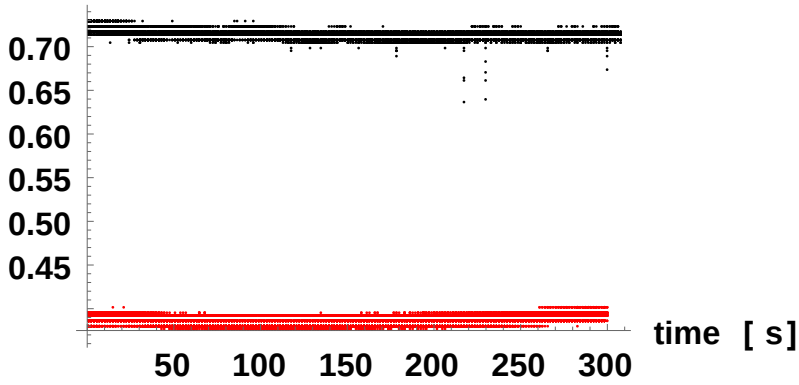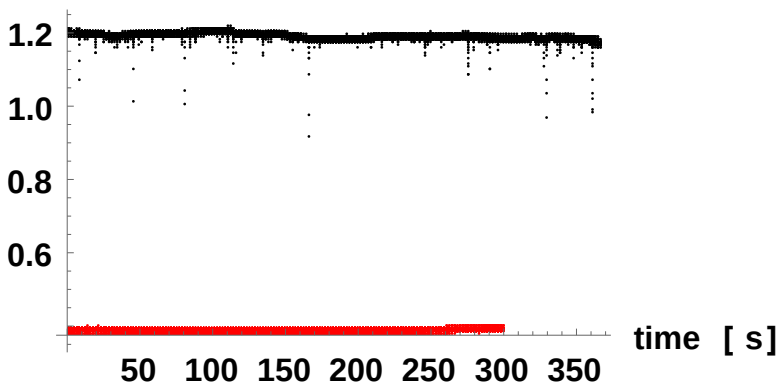**FIGURE 38** $\begin{pmatrix} \text{/08redMeasurement.txt} \\ \text{/03baseline.txt} \end{pmatrix}$

received [V]

FIGURE 39 $\begin{pmatrix} \text{/08redMeasurement.txt} \\ \text{/04baseline.txt} \end{pmatrix}$

received [V]

FIGURE 40 $\begin{pmatrix} \text{/08redMeasurement.txt} \\ \text{/05baseline.txt} \end{pmatrix}$

received [V]

FIGURE 41 $\begin{pmatrix} \text{/08redMeasurement.txt} \\ \text{/06baseline.txt} \end{pmatrix}$

received   [V]

FIGURE 42 $\left(\begin{array}{c} \text{/09redMeasurement.txt} \\ \text{/01baseline.txt} \end{array} \right)$

received   [V]

FIGURE 43 $\left(\begin{array}{c} \text{/09redMeasurement.txt} \\ \text{/02baseline.txt} \end{array} \right)$

FIGURE 44 $\left(\begin{array}{c}\text{/09redMeasurement.txt} \\ \text{/03baseline.txt}\end{array}\right)$

FIGURE 45 $\left(\begin{array}{c}\text{/09redMeasurement.txt} \\ \text{/04baseline.txt}\end{array}\right)$

received [V]

FIGURE 46 $\left(\begin{array}{c} \text{/09redMeasurement.txt} \\ \text{/05baseline.txt} \end{array} \right)$

received [V]
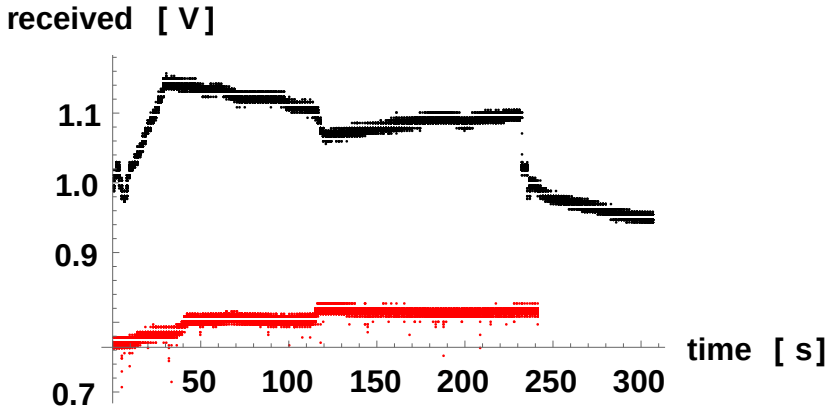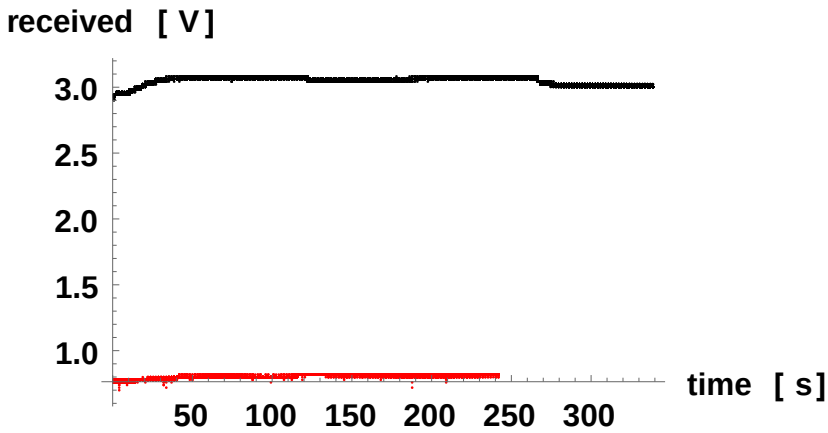
FIGURE 47 $\left(\begin{array}{c} \text{/09redMeasurement.txt} \\ \text{/06baseline.txt} \end{array} \right)$
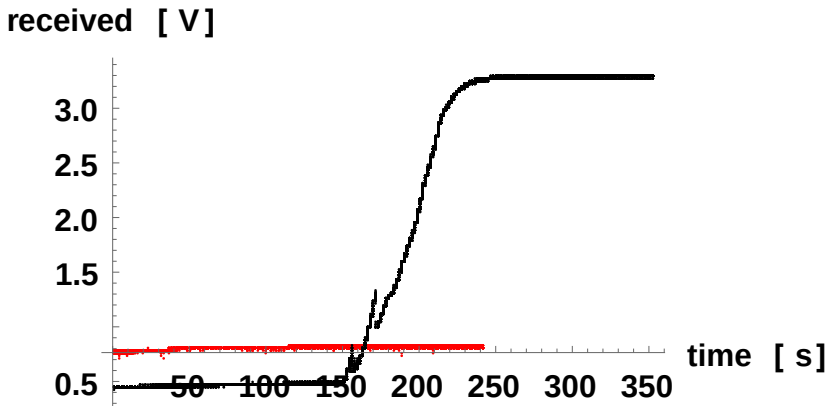
January 28th, 2020

$$\left(\begin{array}{ll}
\text{09:20:33.944} & \text{/01baseline.txt} \\
\text{09:51:20.946} & \text{/02baseline.txt} \\
\text{11:56:15.028} & \text{/03baseline.txt} \\
\text{11:56:15.028} & \text{/04baseline.txt} \\
\text{12:49:15.432} & \text{/05baseline.txt} \\
\text{10:19:59.941} & \text{/06redMeasurement.txt} \\
\text{10:35:29.786} & \text{/07redMeasurement.txt} \\
\text{10:50:59.902} & \text{/08redMeasurement.txt}
\end{array}\right)$$

Initial time stamp of measurements.

FIGURE 48 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/01baseline.txt} \end{array}\right)$

received [V]

FIGURE 49 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/02baseline.txt} \end{array} \right)$

received [V]

FIGURE 50 $\left(\begin{array}{c} \text{/06redMeasurement.txt} \\ \text{/03baseline.txt} \end{array} \right)$

received [V]

FIGURE 51 $\left(\begin{array}{c}\text{/06redMeasurement.txt}\\\text{/04baseline.txt}\end{array}\right)$

received [V]

FIGURE 52 $\left(\begin{array}{c}\text{/06redMeasurement.txt}\\\text{/05baseline.txt}\end{array}\right)$

received [V]

3.0
2.5
2.0
1.5
1.0
0.5

time [s]

50   100   150   200   250   300

F I G U R E   5 3 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/01baseline.txt} \end{array} \right)$

received [V]

3.0
2.5
2.0
1.5
1.0
0.5

time [s]

50   100   150   200   250   300

F I G U R E   5 4 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/02baseline.txt} \end{array} \right)$

received [V]

time [s]

FIGURE 55 $\begin{pmatrix} \text{/07redMeasurement.txt} \\ \text{/03baseline.txt} \end{pmatrix}$

received [V]

time [s]

FIGURE 56 $\begin{pmatrix} \text{/07redMeasurement.txt} \\ \text{/04baseline.txt} \end{pmatrix}$

received [V]

FIGURE 57 $\left(\begin{array}{c} \text{/07redMeasurement.txt} \\ \text{/05baseline.txt} \end{array} \right)$

received [V]

FIGURE 58 $\left(\begin{array}{c} \text{/08redMeasurement.txt} \\ \text{/01baseline.txt} \end{array} \right)$

FIGURE 59 $\begin{pmatrix} \text{/08redMeasurement.txt} \\ \text{/02baseline.txt} \end{pmatrix}$

FIGURE 60 $\begin{pmatrix} \text{/08redMeasurement.txt} \\ \text{/03baseline.txt} \end{pmatrix}$

received [V]

FIGURE 61 $\left(\begin{array}{c}\text{/08redMeasurement.txt}\\\text{/04baseline.txt}\end{array}\right)$

received [V]

FIGURE 62 $\left(\begin{array}{c}\text{/08redMeasurement.txt}\\\text{/05baseline.txt}\end{array}\right)$

January 31st, 2020.

$$\begin{pmatrix} \text{09:20:46.855} & \text{/01baseline.txt} \\ \text{10:44:54.091} & \text{/02baseline.txt} \\ \text{09:42:44.169} & \text{/03redMeasurement.txt} \\ \text{09:56:58.789} & \text{/04redMeasurement.txt} \end{pmatrix}$$
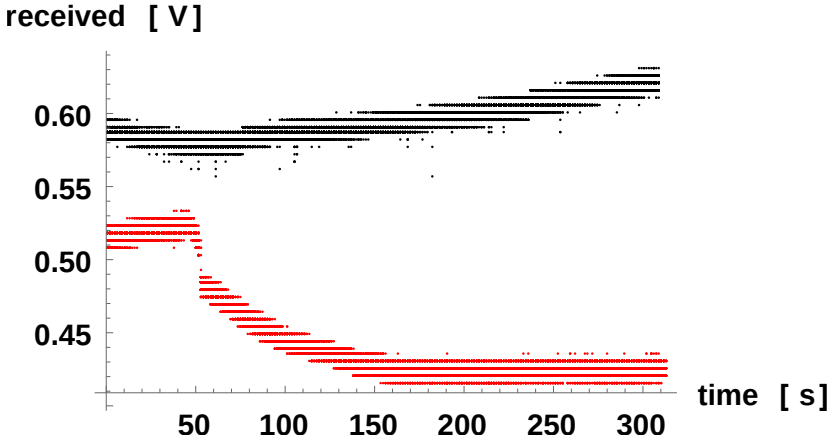
Initial time stamp of measurements.

FIGURE 63 $\begin{pmatrix} \text{/03redMeasurement.txt} \\ \text{/01baseline.txt} \end{pmatrix}$
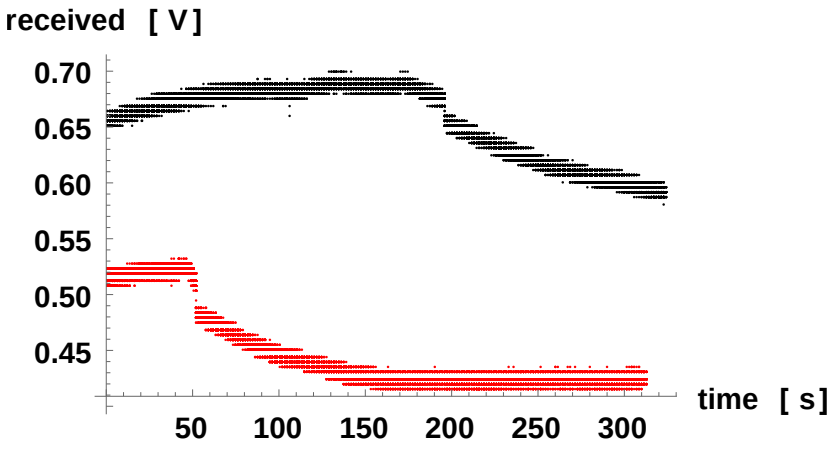
received [V]

FIGURE 64 $\left(\begin{array}{c}\text{/03redMeasurement.txt}\\\text{/02baseline.txt}\end{array}\right)$

received [V]

FIGURE 65 $\left(\begin{array}{c}\text{/04redMeasurement.txt}\\\text{/01baseline.txt}\end{array}\right)$

received [V]
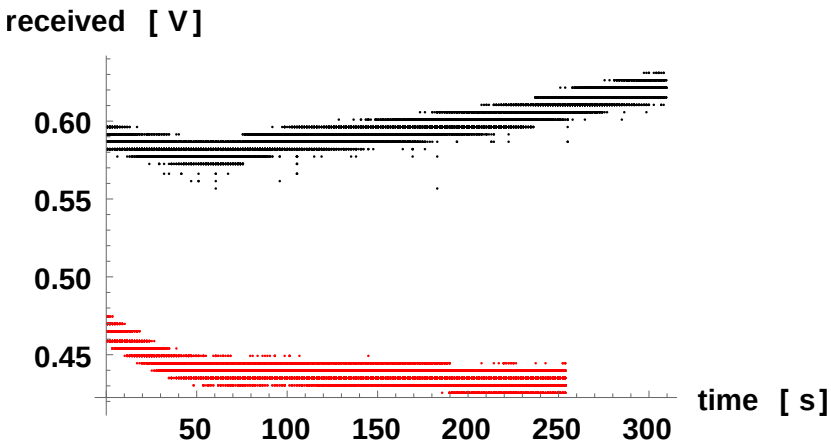
FIGURE 66 $\begin{pmatrix} \text{/04redMeasurement.txt} \\ \text{/02baseline.txt} \end{pmatrix}$
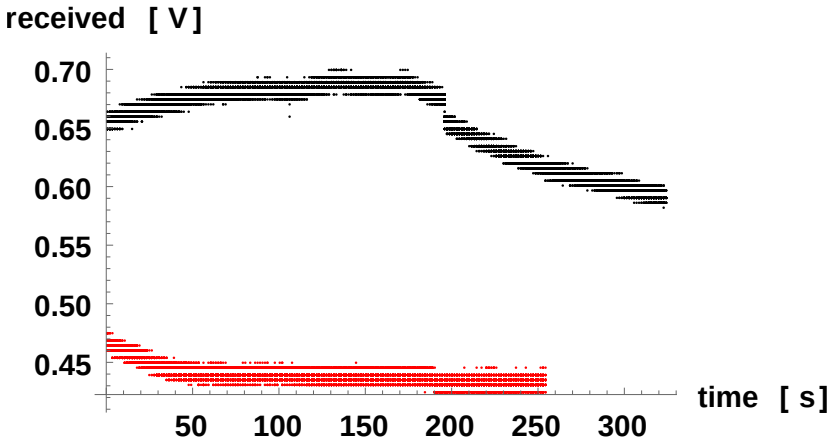
March 12th, 2020

$$\begin{pmatrix} 09\text{:}24\text{:}40.492 & \text{/01baseline.txt} \\ 09\text{:}47\text{:}07.400 & \text{/02baseline.txt} \\ 12\text{:}00\text{:}15.048 & \text{/03redMeasurement.txt} \end{pmatrix}$$

Initial time stamp of measurements.

received [V]

FIGURE 67 $\begin{pmatrix} \text{/01baseline.txt} \\ \text{/03redMeasurement.txt} \end{pmatrix}$

received [V]
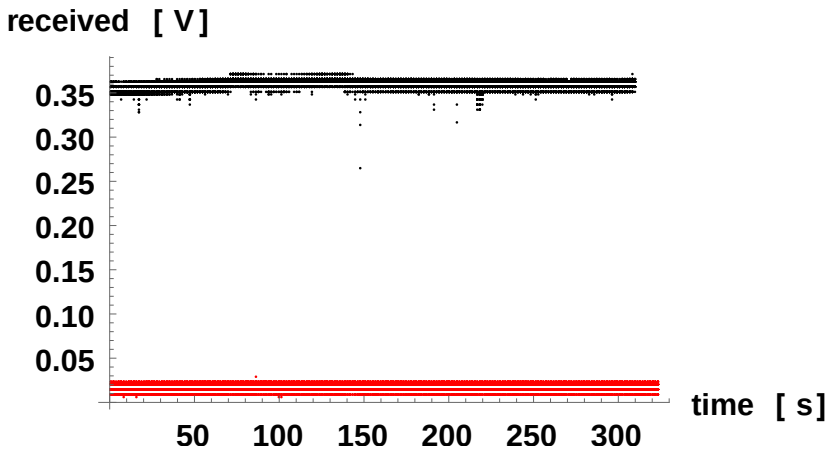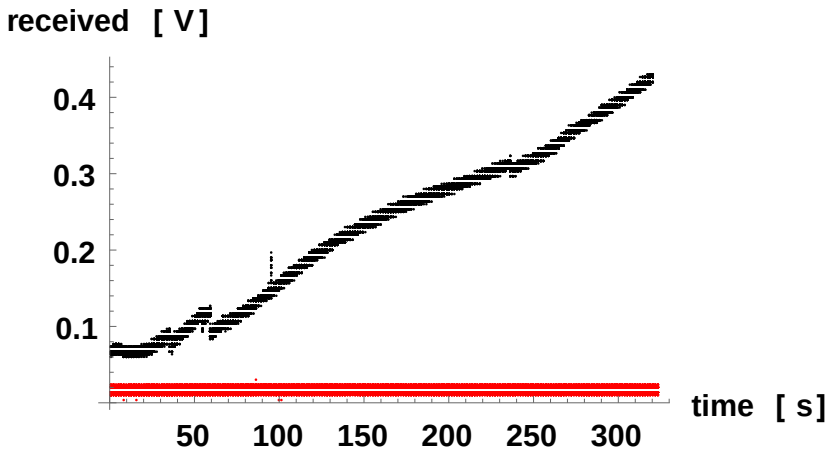
FIGURE 68
$$\begin{pmatrix} \text{/02baseline.txt} \\ \text{/03redMeasurement.txt} \end{pmatrix}$$

3.2 | Neurological and physical measurements simultaneously

These experiments attempted to substantiate a correlation between the access to the Shintergy synchronization according to the different time labels, identifiable through neurological measurements, and the physical measurements. The experiments were performed between March 11th through March 13th, 2020. The experiments that match the same date are thos from March 12th.

3.2.1 | Basal line

neurological measurements
Statistically significant changes are observed in the absolute power of:

- Decrease of power: T5 (-0.7) in Delta
- Increase of power: Fp2 (0.6) in Beta, Beta 3 and Hi-Beta; F8 (0.6) in Delta

3.2.2 | Red line

The decrease in the power of Delta is concentrated in the upper right parietal region (AB 7, 5), which could be associated with the decrease in visuospatial processing, with the perception of personal space and the sensation of "I".

The increase in Delta power is bilaterally concentrated in the prefrontal region (AB 10), which could be associated with modulation and inhibition of impulses and behavior.

The increase in Gamma power is mainly concentrated in the upper left parietal region (AB 7, 5) and the left motor and premotor region (AB 4, 8), which could be associated with visuospatial processing, the perception of space personal and the feeling of "I", self-monitoring and imagination of movement.

Statistically significant changes are observed in the absolute power of:

- Decrease of power: O1 (-0.6) in Delta, T5 (-1.6) in Delta, O2 (-0.6) in Delta, T6 (-0.8) in Delta
- Increase of power: Fp2 (0.7) in Beta, Beta 3 and Hi-Beta

3.3 | Statistics of manifestation of phenomenon

From the graphics it is possible to roughly see that the data composing the Yellow plots is "less dispersed" than the base lines. In order to formally see if this is true or not, measurement of the dispersion of data was performed. The following table records statistics of the data for each base line measurement, presented in the same order as the graphics. The dispersion measures used were inter-quartile range (defined as the difference between the 75th and 25th percentiles of the data.), variance, trimmed variance (minus 20% of extreme data), and standard deviation. Table

4: Statistics for base lines.

Interquartile Range	Trimmed Variance (-0.2%)	Variance	StandardDeviation		
0.0146628	0.0000240512	0.000135337	0.0116335	Dec.17_01	
0.00488759	$7.16531 *^\wedge -6$	0.0000279344	0.0052853	Dec.17_02	
0.00488759	$5.6552699999999995 *^\wedge -6$	0.0000275549	0.00524928	Dec.17_03	
0.00488759	$6.35055 *^\wedge -6$	0.0000408598	0.00639216	Dec.17_04	
0.0342131	0.00015236	0.00091243	0.0302065	Dec.17_05	
0.0342131	0.00016231	0.000928752	0.0304754	Dec.18_01	
0.058651	0.000443998	0.00177438	0.0421234	Dec.18_02	
0.606061	0.0439652	0.115445	0.339772	Dec.26_01	
0.0391007	0.000195414	0.000580723	0.0240982	Dec.26_02	
0.00977517	0.000015171	0.000127744	0.0113024	Jan.10_01	
0.00977517	0.0000189287	0.000964431	0.0310553	Jan.10_02	
0.0488759	0.00027663	0.000819118	0.0286202	Jan.13_01	
0.00977517	0.0000131508	0.0000446713	0.00668366	Jan.13_02	
0.0146628	0.0000222259	0.0000731026	0.00855	Jan.13_03	(4)
0.00977517	$8.54971 *^\wedge -6$	0.0000359996	0.00599997	Jan.27_01	
0.00977517	0.0000140907	0.0000616518	0.00785187	Jan.27_02	
0.102639	0.00113452	0.00378335	0.061509	Jan.27_03	
0.0439883	0.000219933	0.000962093	0.0310176	Jan.27_04	
0.0342131	0.000169707	0.00395789	0.0629117	Jan.27_05	
2.81036	1.47314	1.69742	1.30285	Jan.27_06	
0.00977517	$7.70352 *^\wedge -6$	0.0000231653	0.00481304	Jan.28_01	
0.00977517	0.0000200393	0.0000698966	0.00836042	Jan.28_02	
0.00977517	0.0000152951	0.0000735983	0.00857895	Jan.28_03	
0.0146628	0.000022318	0.00136397	0.036932	Jan.28_05	
0.0195503	0.0000469105	0.000173059	0.0131552	Jan.31_01	
0.0635386	0.000482635	0.00110435	0.0332317	Jan.31_02	
0.00488759	$5.58394 *^\wedge -6$	0.00002198	0.00468828	Mar.12_01	
0.190616	0.00431106	0.0114302	0.106912	Mar.12_02	

Table 5: Statistics of red lines.

Interquartile Range	Trimmed Variance (-0.2%)	Variance	StandardDeviation	Date & #
0.00488759	$7.335619999999999 \times 10^-6$	0.0000446026	0.00667851	Dec.17_06
0.00977517	0.0000121763	0.0000995338	0.00997666	Dec.17_07
0.00977517	0.0000114056	0.0000262039	0.00511898	Dec.18_03
1.30499	0.268549	0.446479	0.668191	Dec.18_04
0.00488759	5.96466×10^-6	0.0000139433	0.00373408	Dec.26_03
0.00488759	0.0000106037	0.00872019	0.0933819	Dec.26_04
0.0391007	0.00018296	0.000570733	0.02389	Jan.10_06
0.102639	0.00140486	0.00489618	0.0699727	Jan.10_07
0.0195503	0.0000479617	0.000136222	0.0116714	Jan.13_06
0.0391007	0.000185845	0.000417417	0.0204308	Jan.13_07
0.00977517	0.0000118799	0.0000337588	0.00581023	Jan.27_07
0.00977517	6.96473×10^-6	0.0000225711	0.0047509	Jan.27_08
0.0146628	0.0000283826	0.000189727	0.0137741	Jan.27_09
0.00977517	9.57548×10^-6	0.0000235863	0.00485657	Jan.28_06
1.18768	0.218858	1.0427	1.02112	Jan.28_07
0.0488759	0.000349577	0.00128069	0.0357867	Jan.28_08
0.0342131	0.000184168	0.00125155	0.0353773	Jan.31_03
0.00977517	0.0000102289	0.0000683048	0.00826467	Jan.31_04
0.00488759	5.85524×10^-6	0.0000142418	0.00377384	Mar.12_03

$$(5)$$

From the data in Tables 4 and 5, it was calculated again the dispersion of all dispersion measurements, now comparing all the graphics, meaning that the standard deviation, inter-quartile range and mean of all measurements was calculated and arranged into the following comparative table (the order of the statistics and their meanings is the same as in Table 4 or 5, except that the mean is now calculated for all measurements in Tables 4 and 5, for reasons that will be explained:

	Bases	Reds
stdiqr	0.533773	0.387211
stdtvar	0.278158	0.0772402
stdvar	0.320503	0.25464
stdstd	0.247828	0.267346
iqriqr	0.0366569	0.0293255
iqrtvar	0.000234661	0.000175687
iqrvar	0.001181	0.00124531
iqrstd	0.0278141	0.0303926
mutvar	0.054461	0.0257833
muvar	0.0657994	0.0793152
mustd	0.0810807	0.107714

$$(6)$$

Red lines exhibit less dispersion in the data than base lines, in general. The standard deviation and mean have been used to assume red lines could be taken as a random variable which generates a probability distribution function (pdf).

Hence, all red lines were measured as if they belonged to that hypothetical pdf (assumed from the results presented in table 6) within plus or minus one standard deviation, i.e., for all statistical parameters p in the red measurements, if

$$\mu_{pdf} - \sigma_{pdf} \leq p \leq \mu_{pdf} + \sigma_{pdf}, \ p \in pdf \tag{7}$$

The result was that all red measurements belong to that pdf within one standard deviation.

As a final statistical observation, a set was formed with all the trimmed variances from all the red measurements, and the mean of all trimmed variances from the base lines. With all this, a Hypothesis test was performed, using the sign test (which does not assume neither normality, nor symmetry), and the probability that the trimmed variances are located within the pdf of the base lines resulted in $p = 0.000728607$.

3.4 | Wavelet analysis

From section 3.3 it became clear that yellow measurements has less dispersion, thus we could say that they have "less entropy" or more information. As per the definition given in [3], whereupon consciousness is defined as a fractal, it was judged convenient to test which data sets exhibited a higher concentration of information. The data was, thus, processed through a wavelet analysis to find density of information at several scales. Most red scalograms exhibit more density in the middle that most base measurements as it will be shown here below.

3.4.1 | December 17th
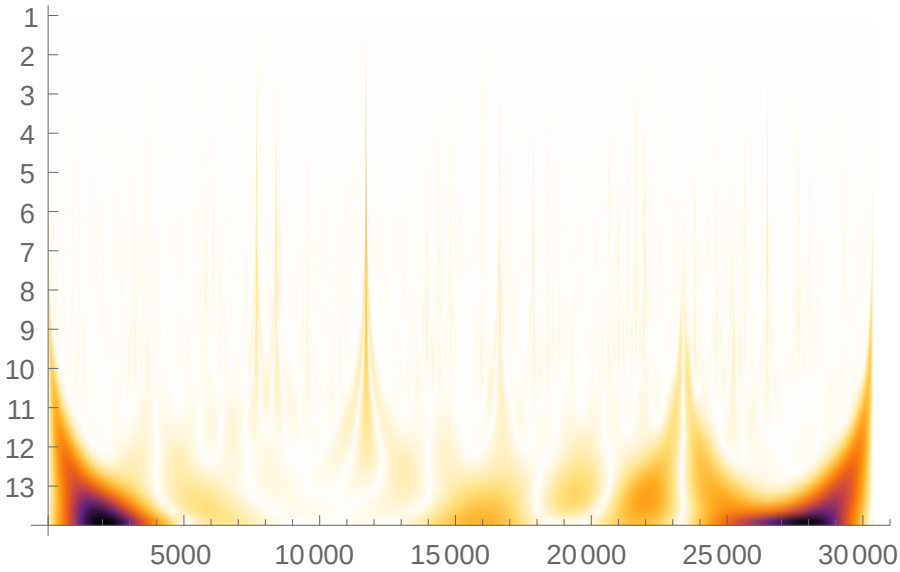
FIGURE 69 Scalogram, base line 01.
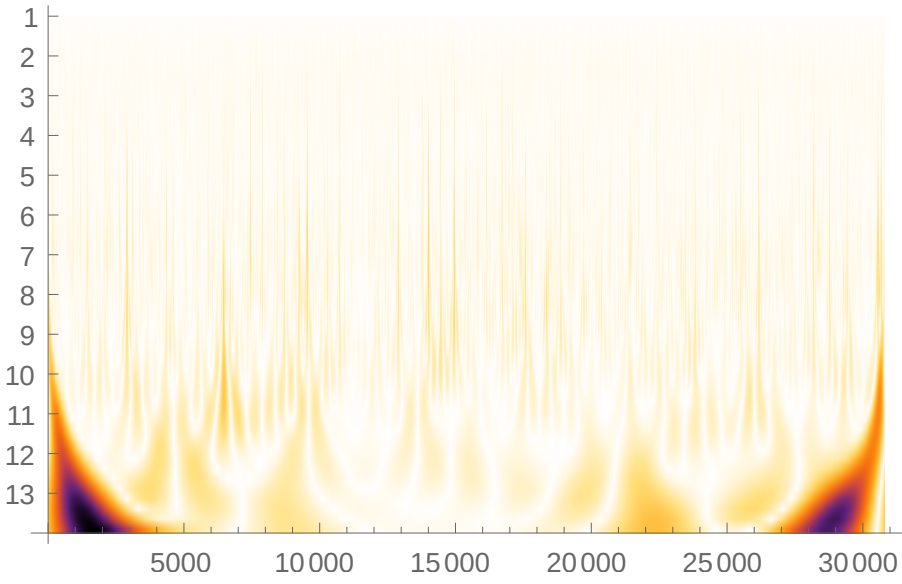
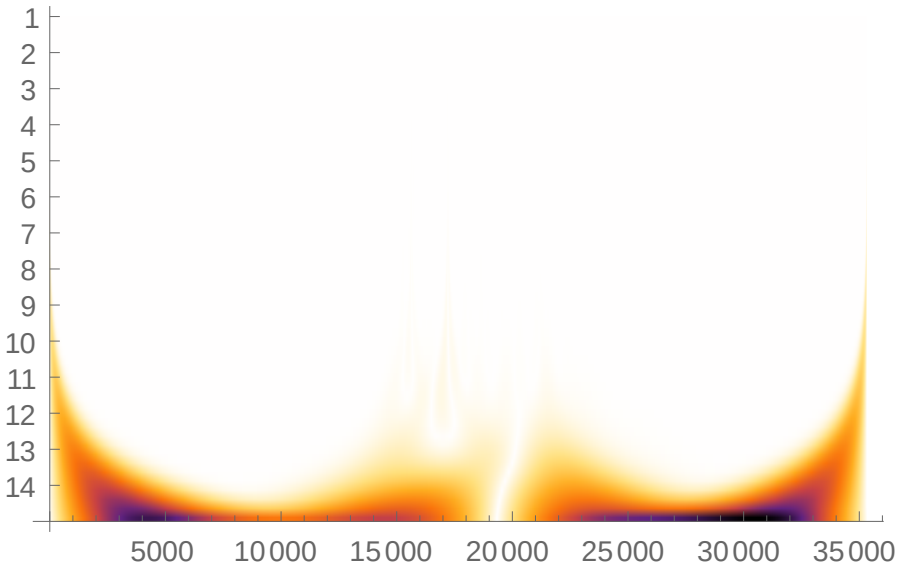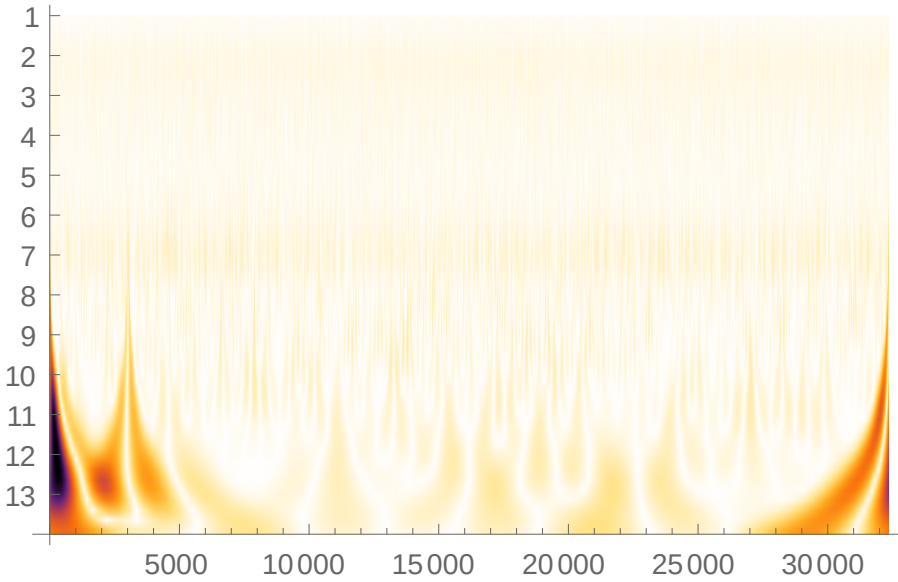**FIGURE 70** Scalogram, base line 02.
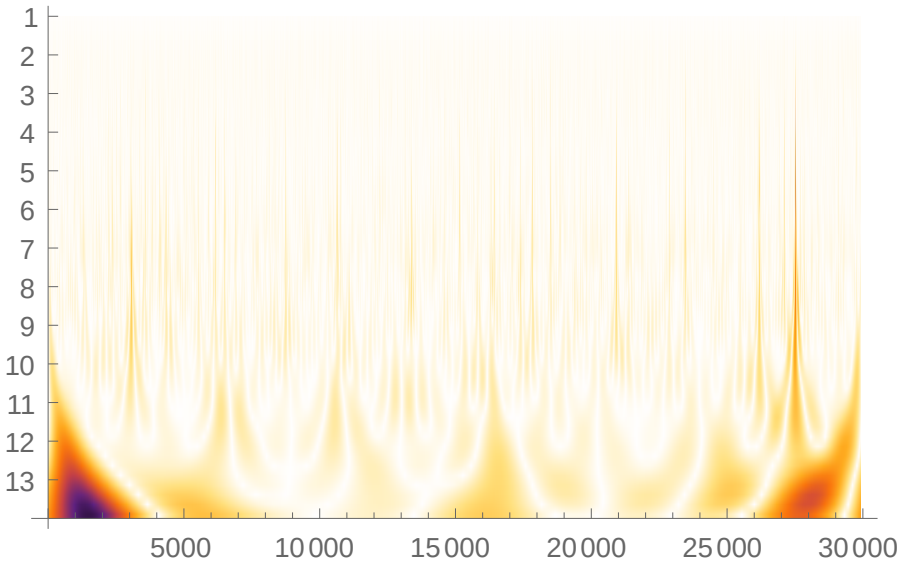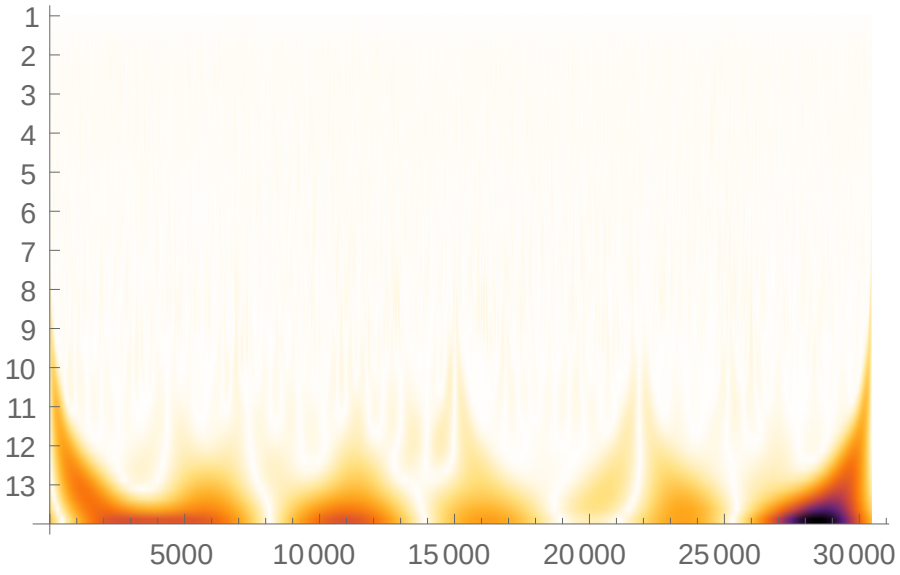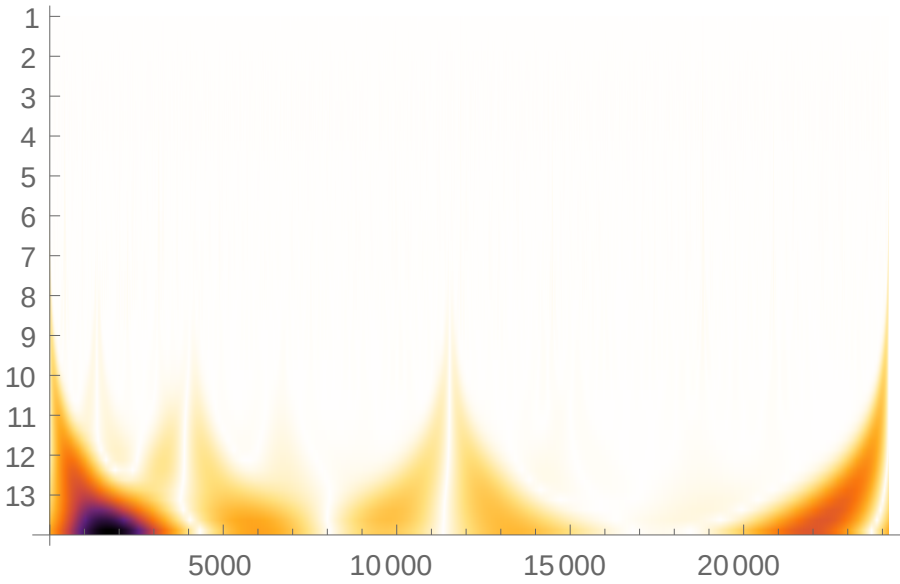

FIGURE 71 Scalogram, base line 03.
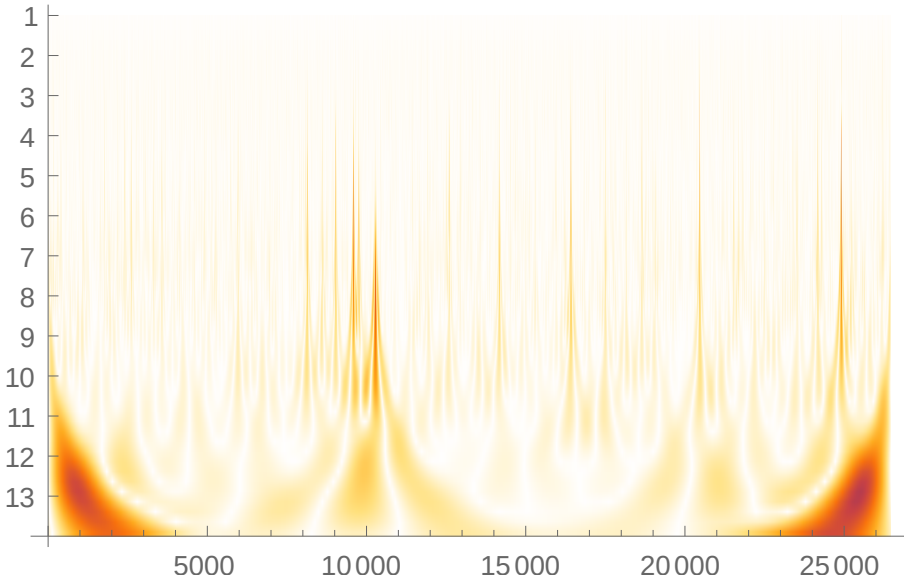
FIGURE 72 Scalogram, base line 04.
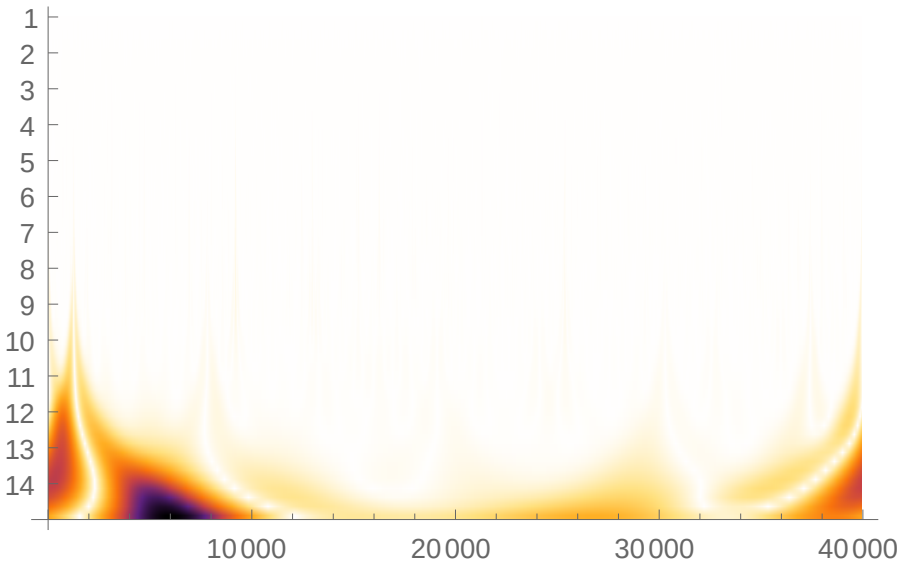
FIGURE 73 Scalogram, base line 05.
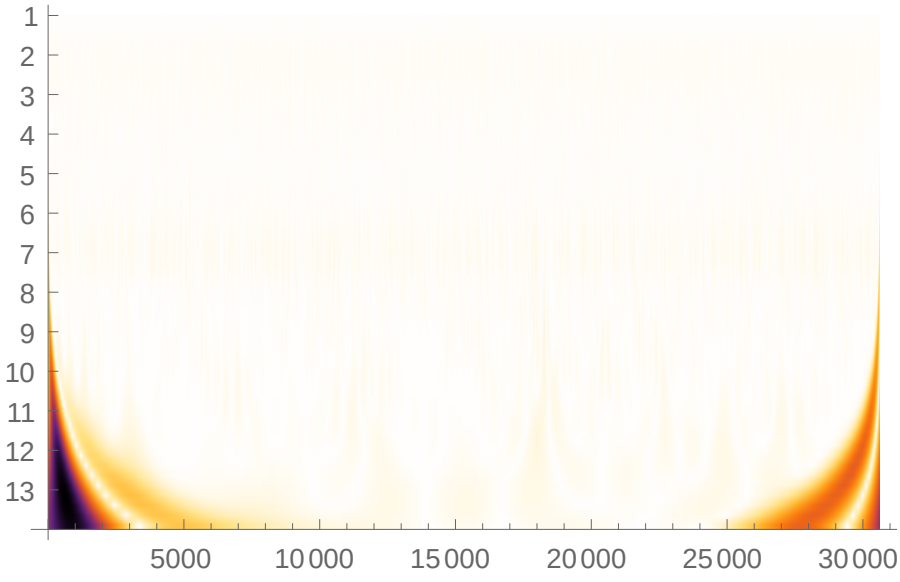
FIGURE 74   Scalogram, red line 06.
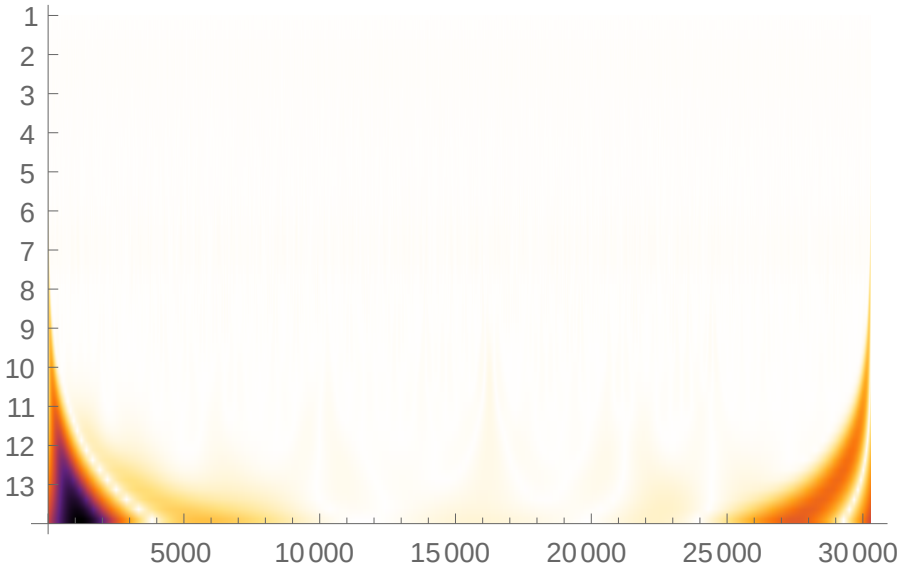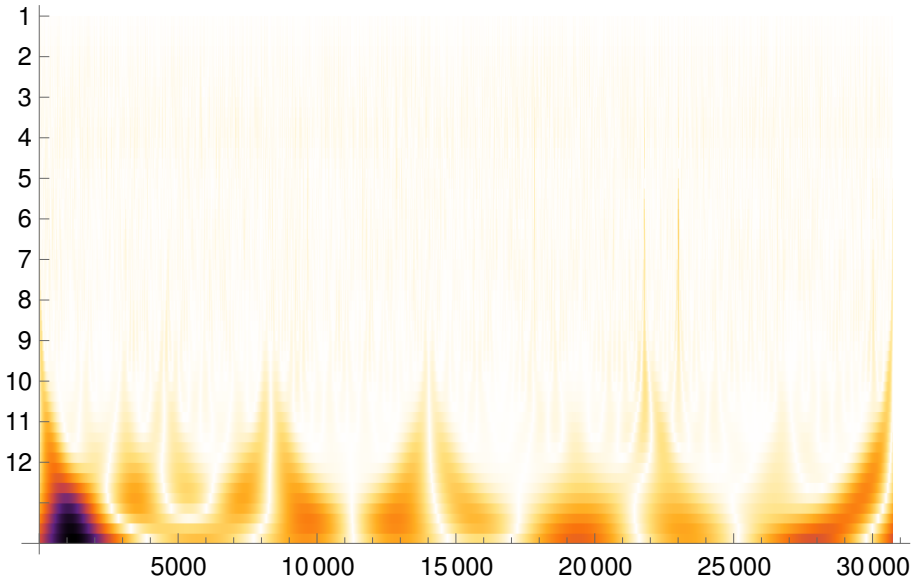

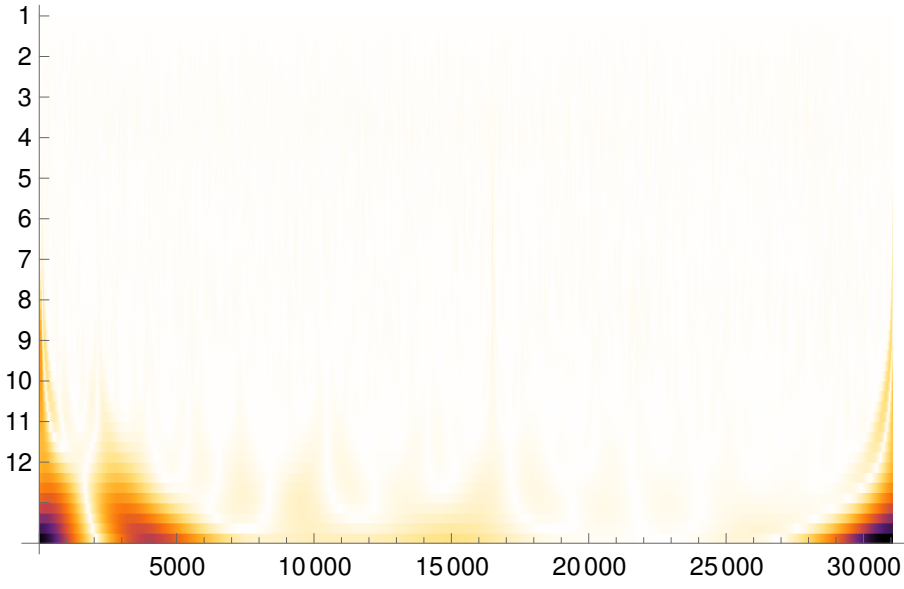**FIGURE 75**   Scalogram, red line 07.

3.4.2 | December 18th
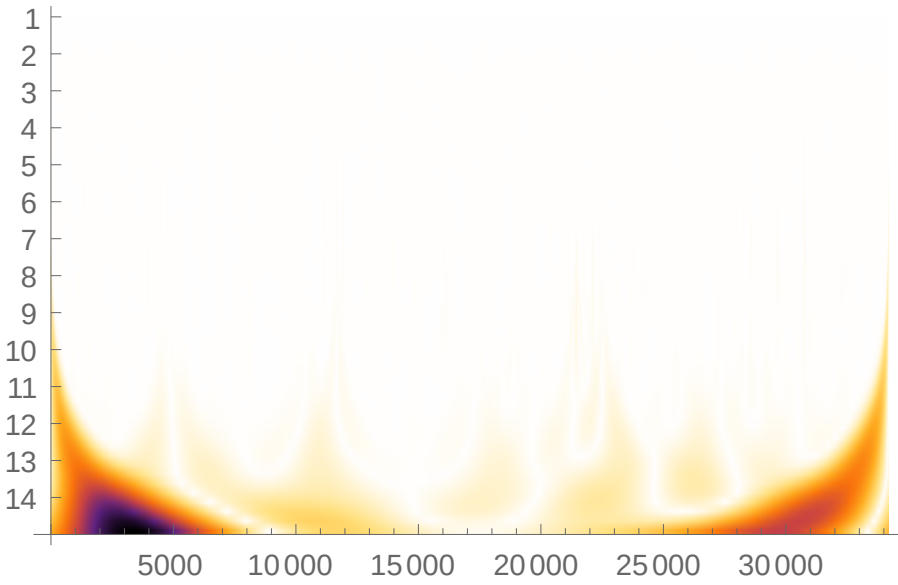
FIGURE 76 Scalogram, base line 01.
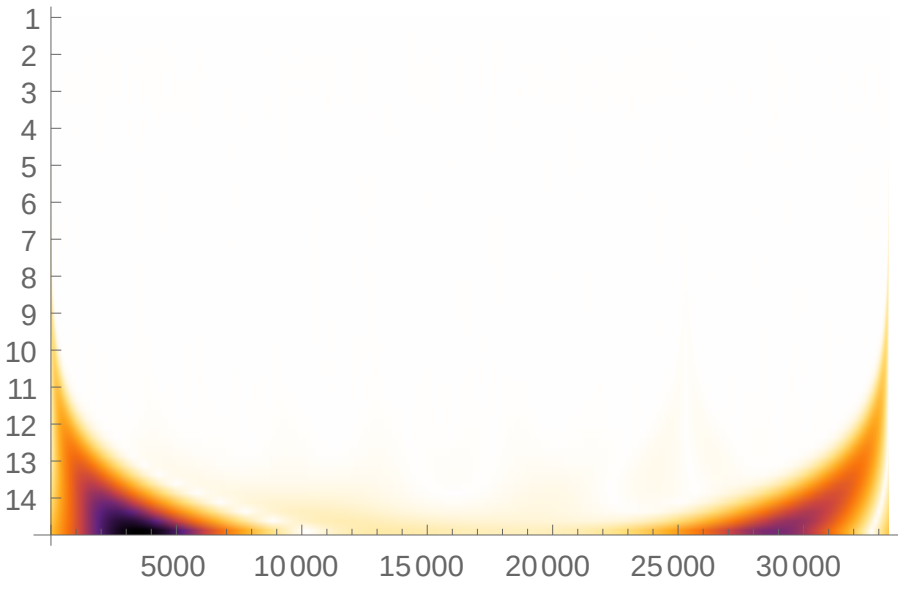
FIGURE 77   Scalogram, base line 02.
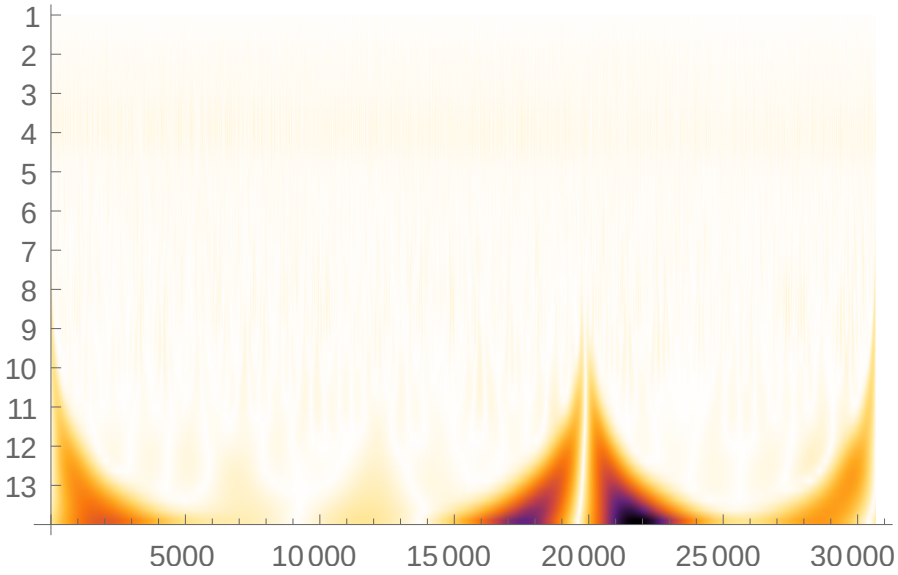
FIGURE 78   Scalogram, red line 03.
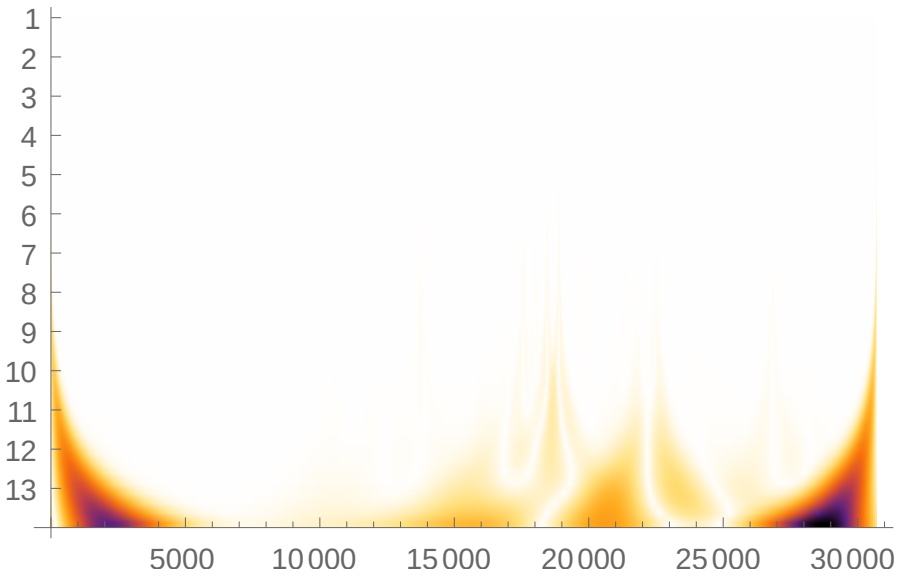
FIGURE 79 Scalogram, red line 04.
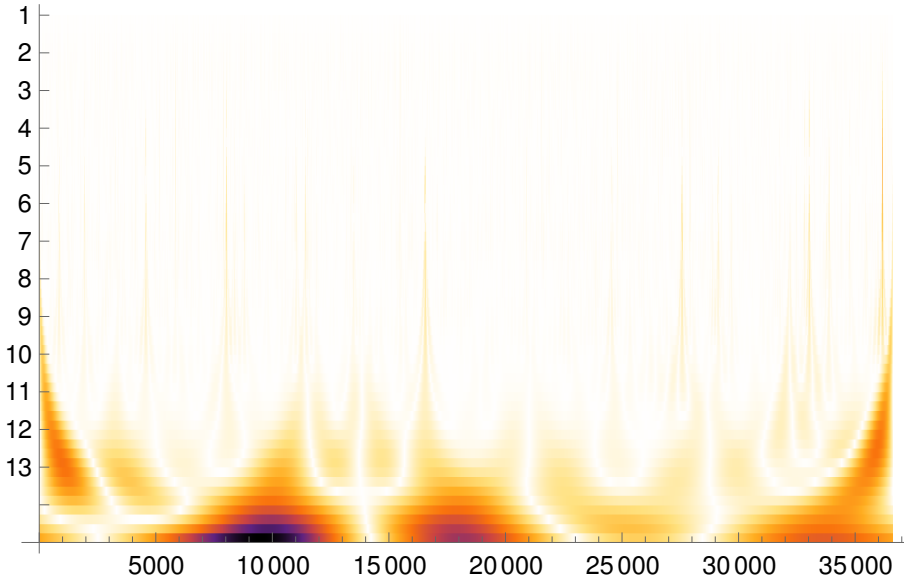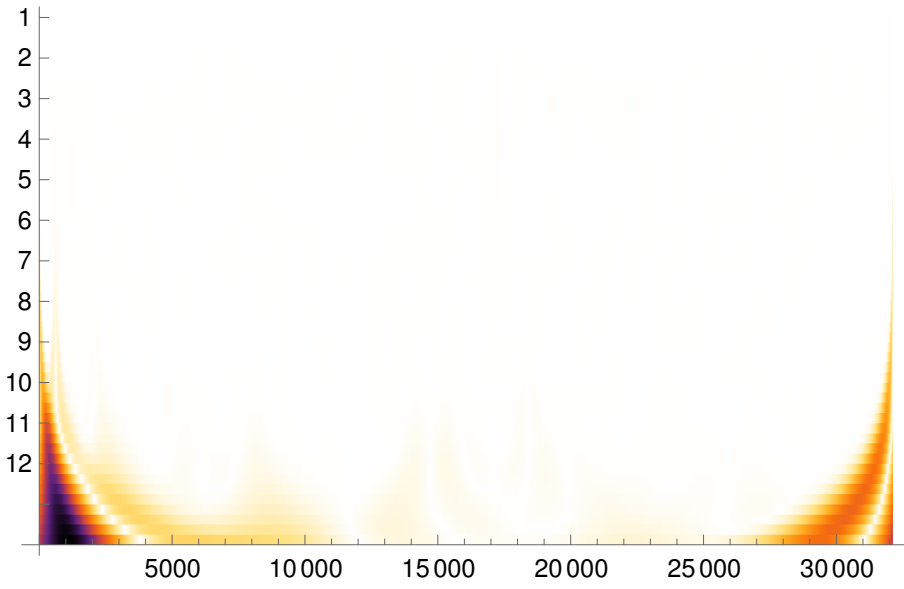
3.4.3 | December 26th
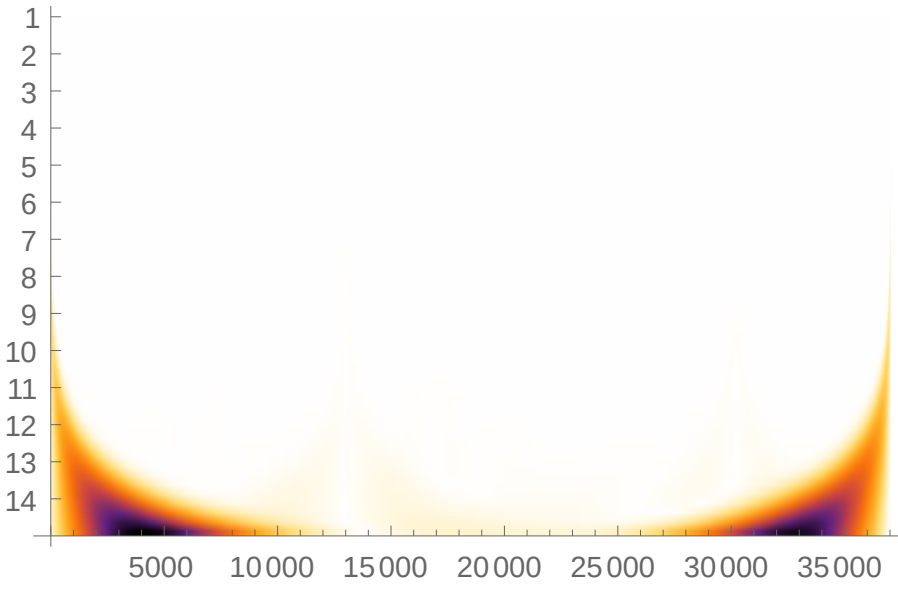
FIGURE 80 Scalogram, base line 01.
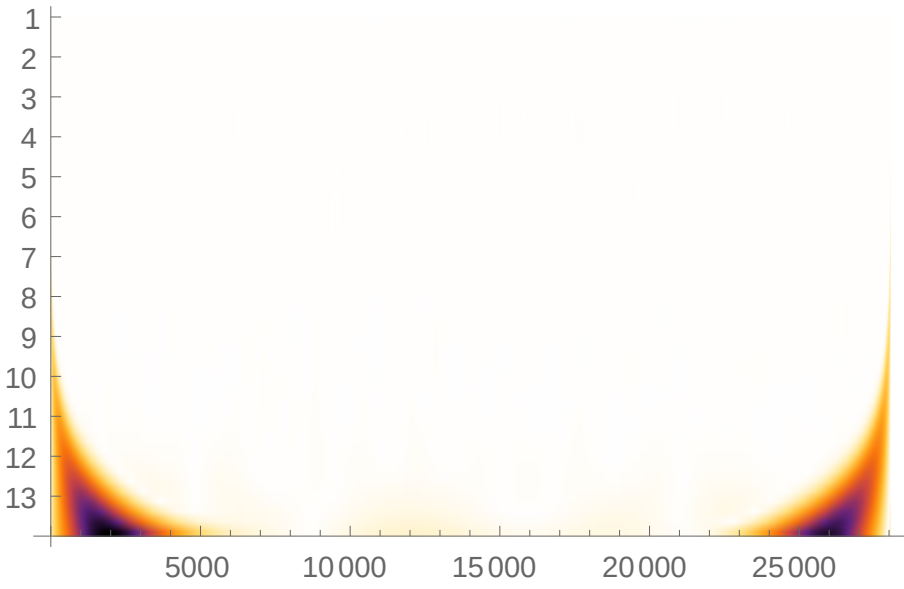
FIGURE 81 Scalogram, base line 02.
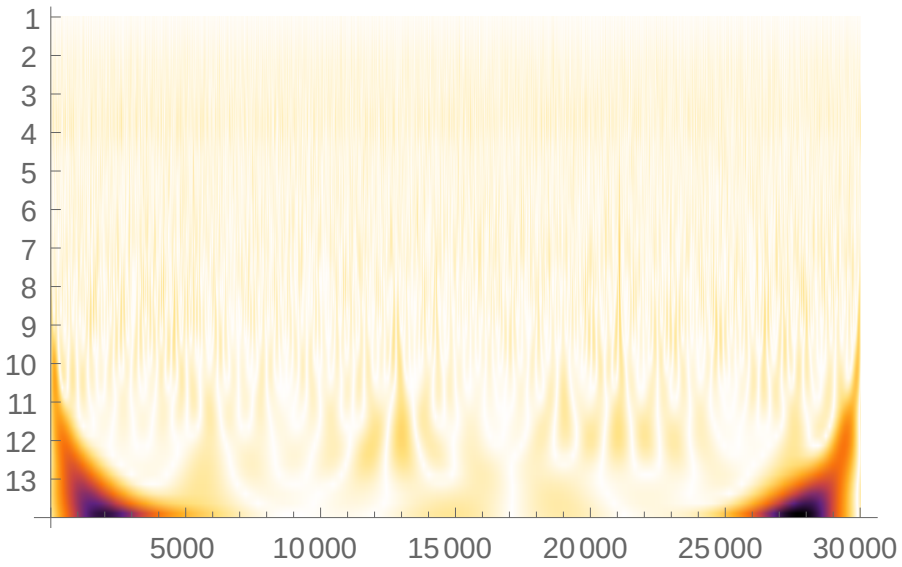
FIGURE 82 Scalogram, red line 03.
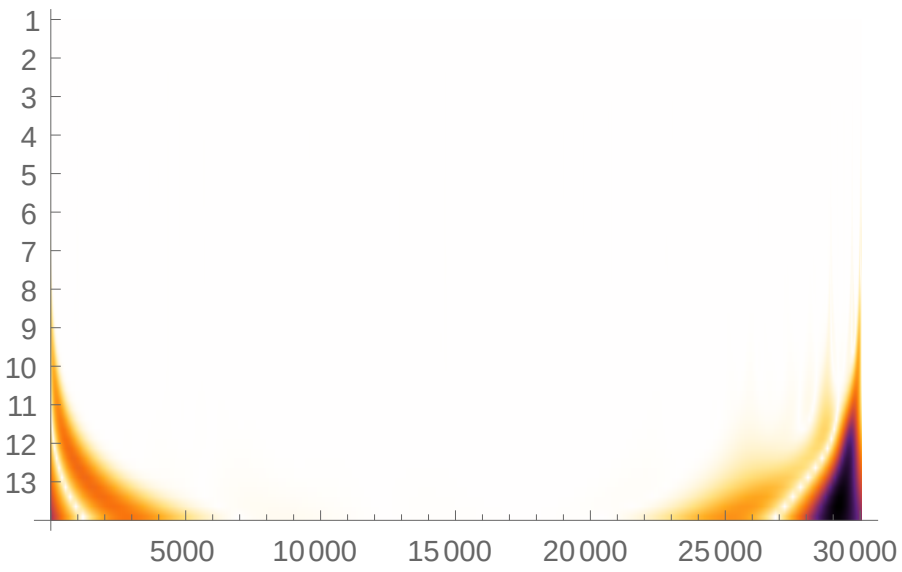
FIGURE 83   Scalogram, red line 04.

3.4.4 | January 10th
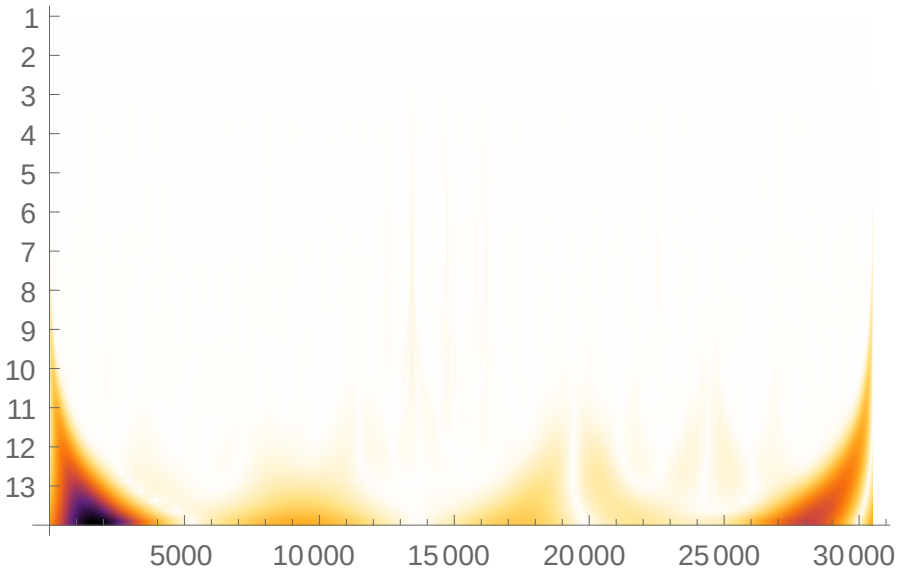
FIGURE 84 Scalogram, base line 01.
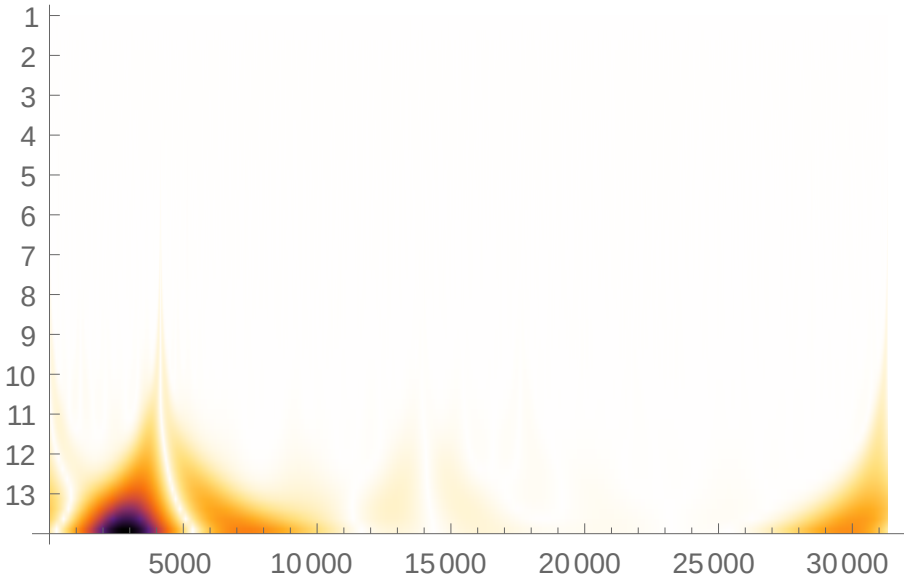
FIGURE 85 Scalogram, base line 02.
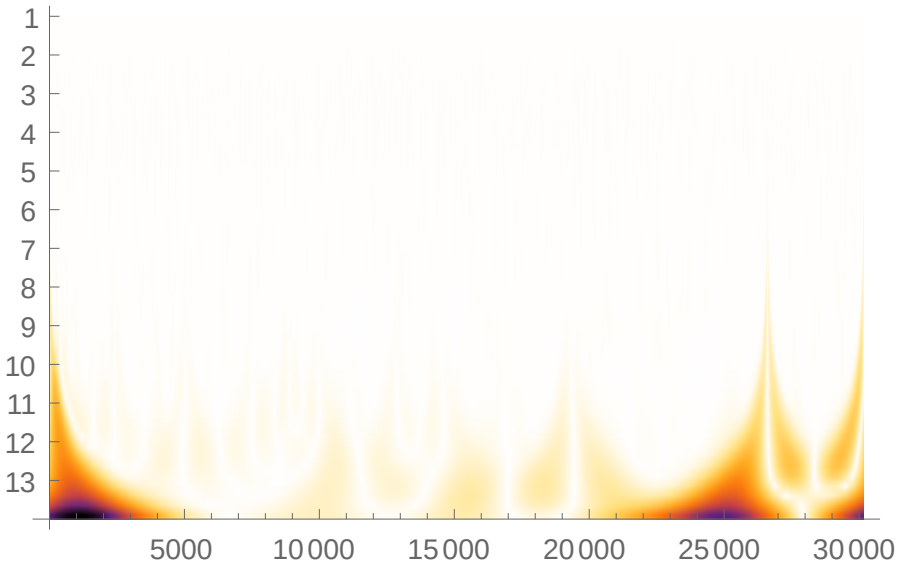
FIGURE 86 Scalogram, red line 06.
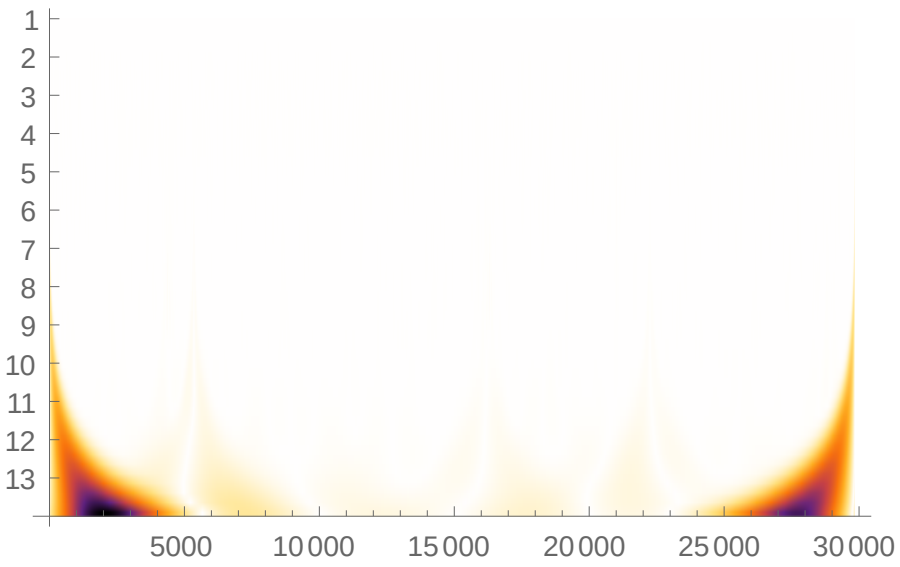
FIGURE 87 Scalogram, red line 07.

3.4.5 | January 13th
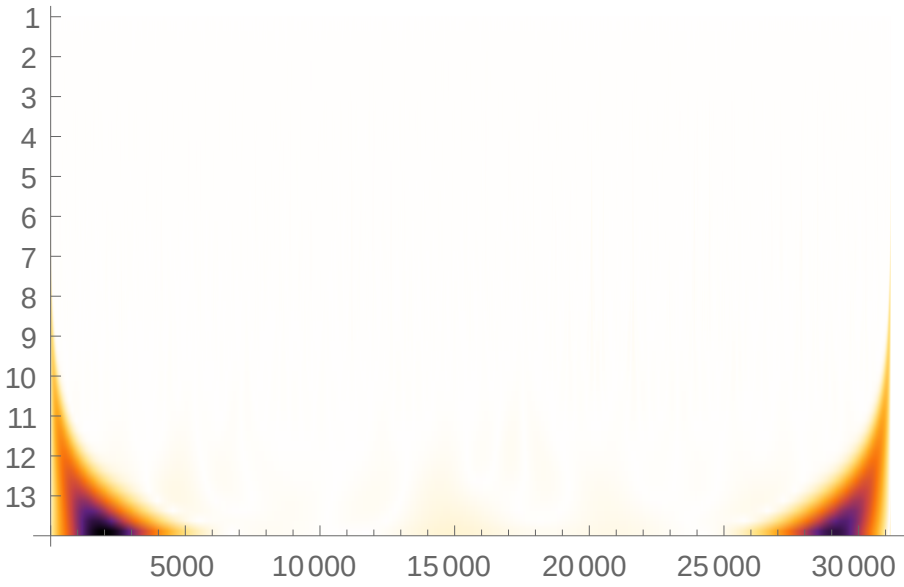
FIGURE 88 Scalogram, base line 01.
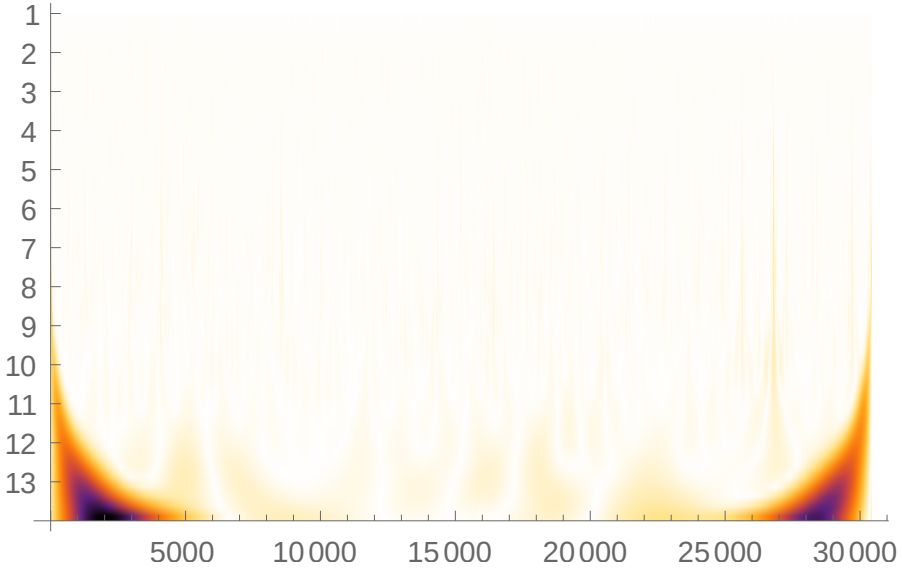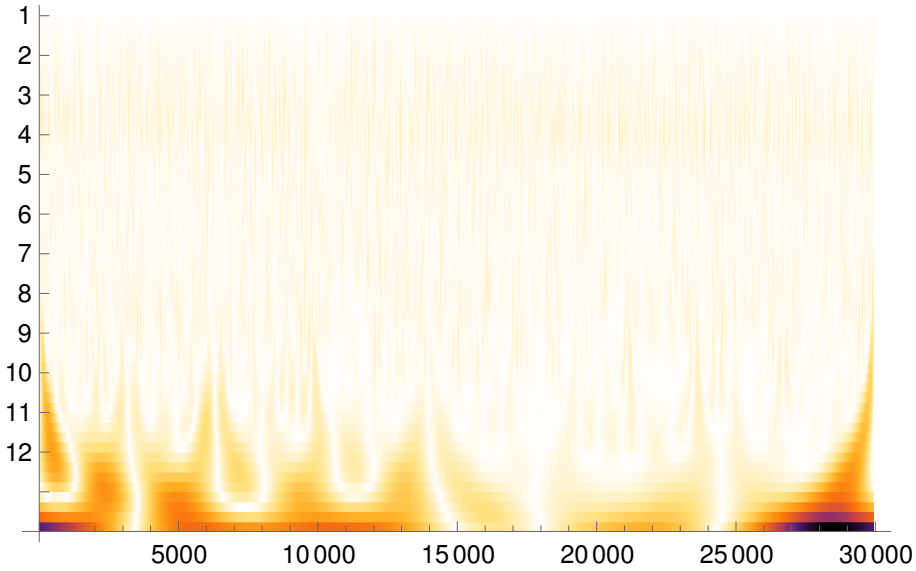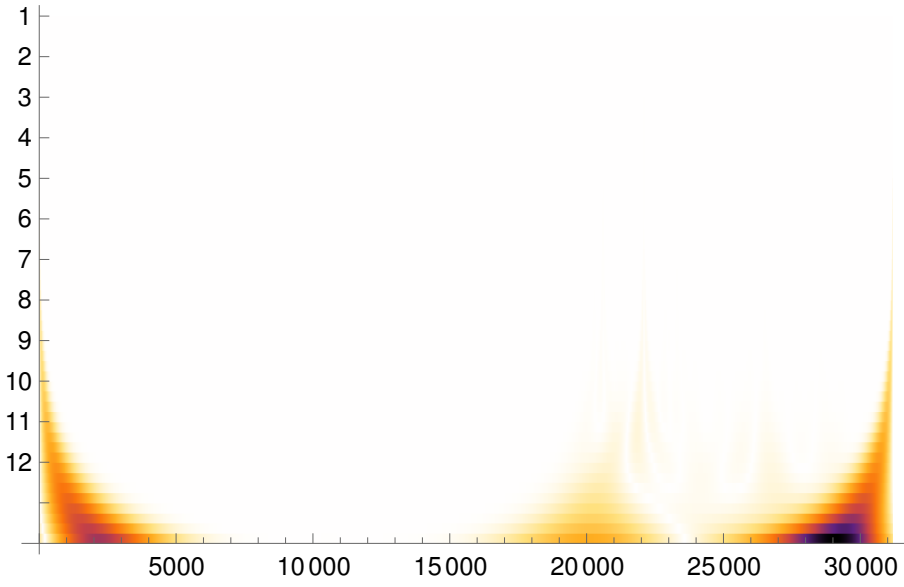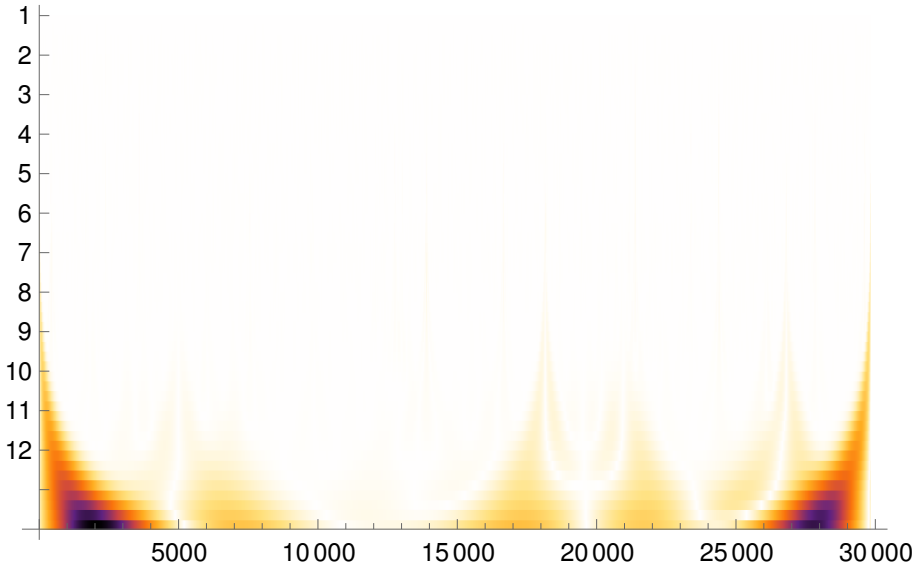
FIGURE 89   Scalogram, base line 02.
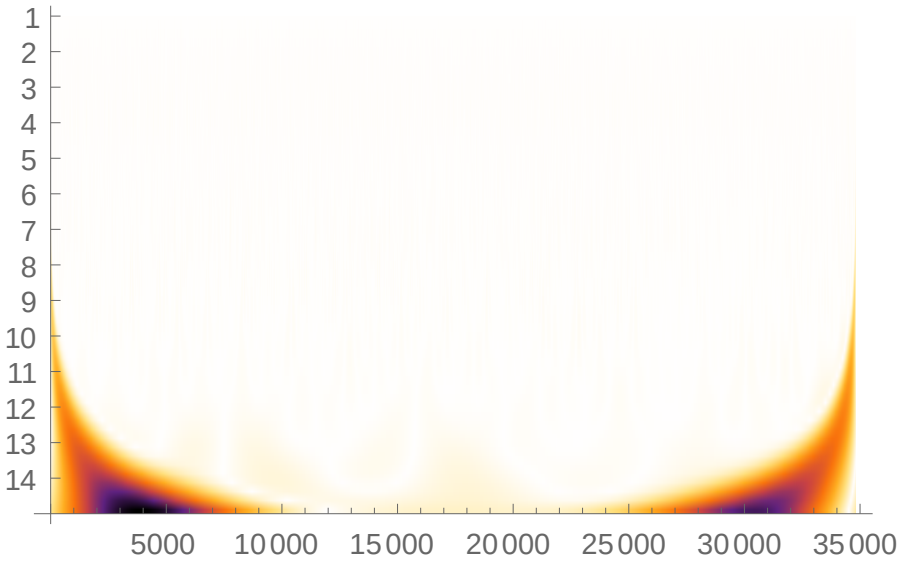
FIGURE 90   Scalogram, base line 03.
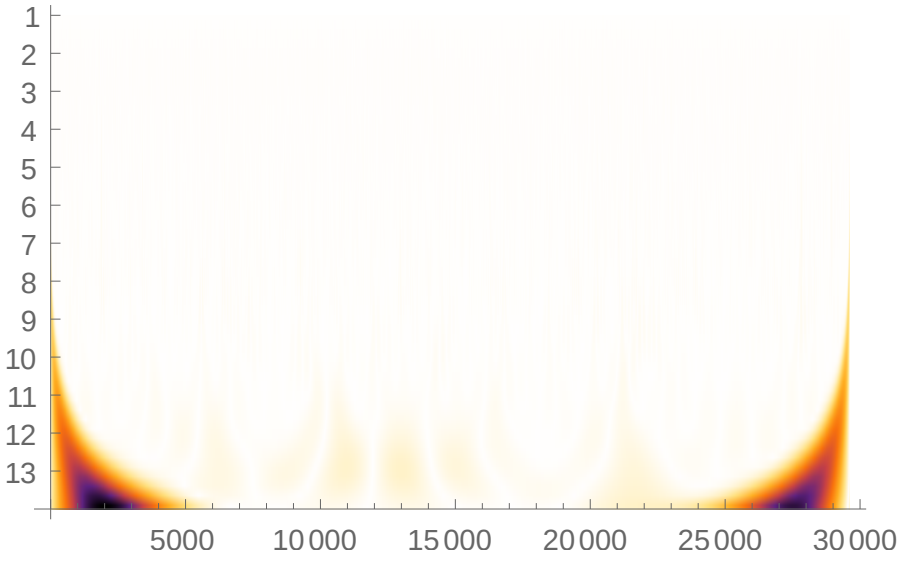
FIGURE 91 Scalogram, red line 06.
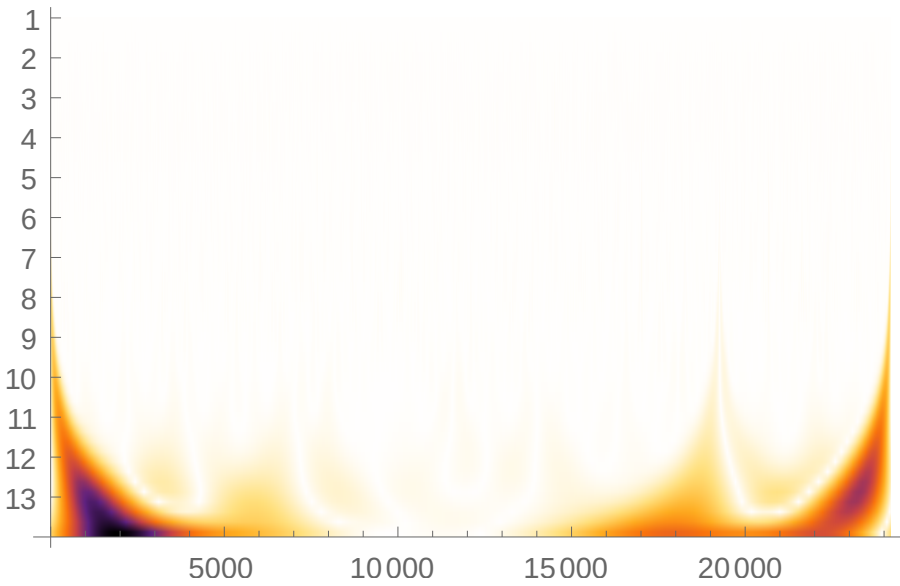
FIGURE 92 Scalogram, red line 07.

3.4.6 | January 27th
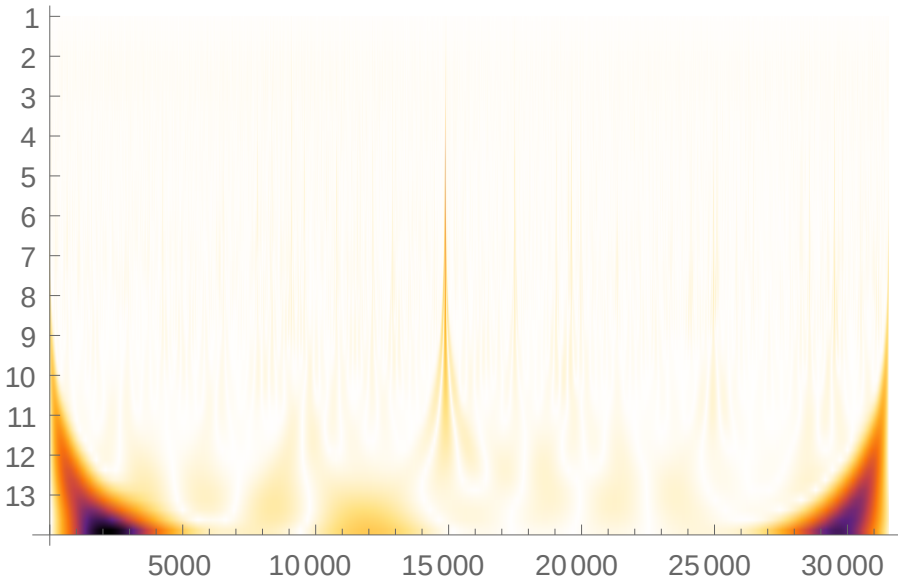
FIGURE 93 Scalogram, base line 01.
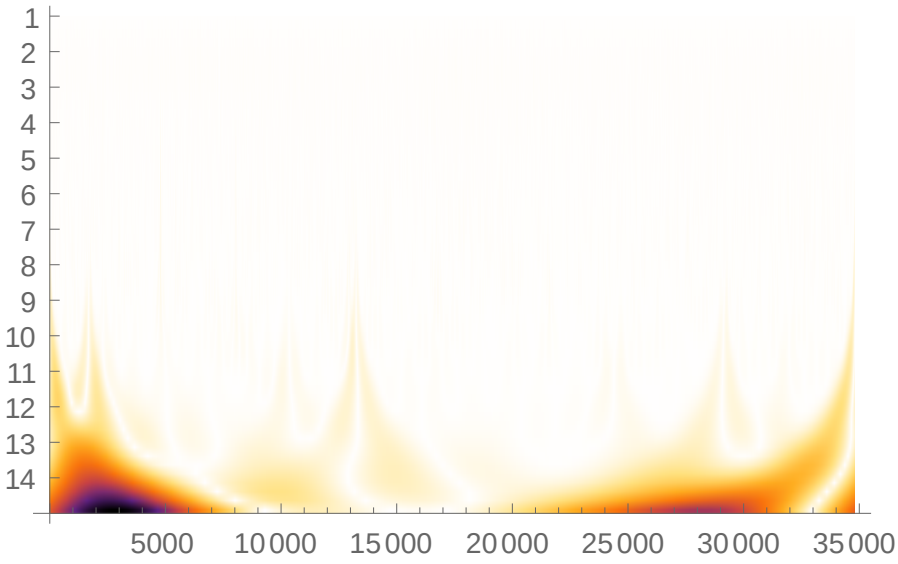
FIGURE 94　Scalogram, base line 02.
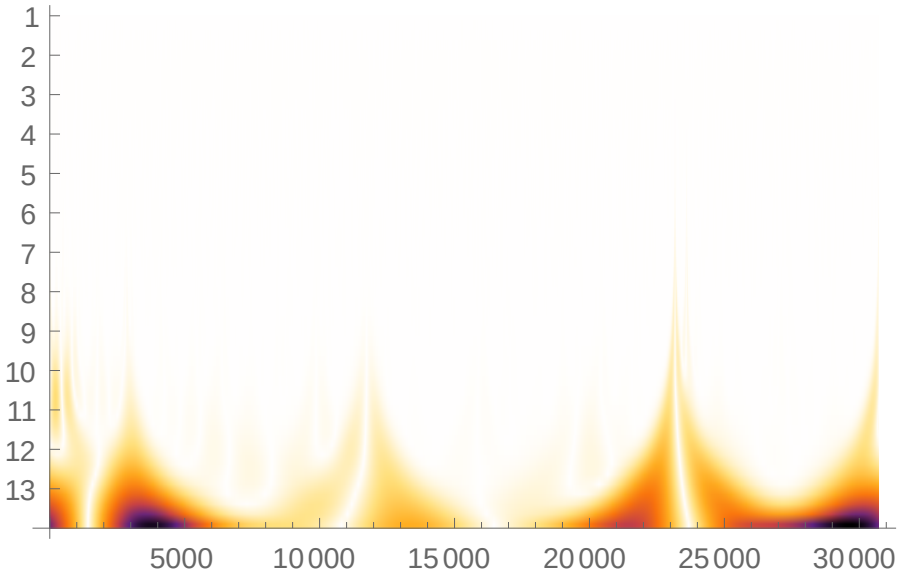
FIGURE 95　Scalogram, base line 03.
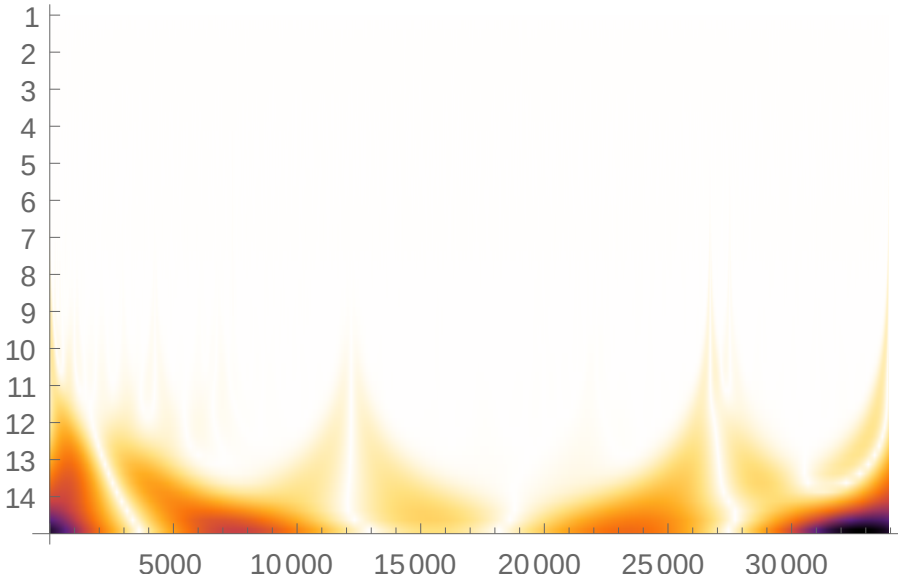
FIGURE 96 Scalogram, base line 04.
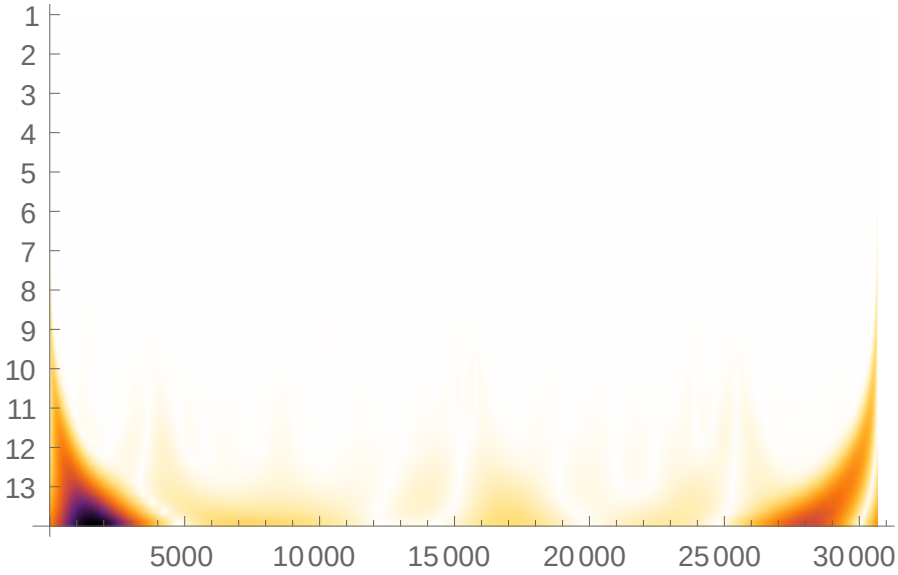
FIGURE 97 Scalogram, base line 05.

FIGURE 98   Scalogram, base line 06.
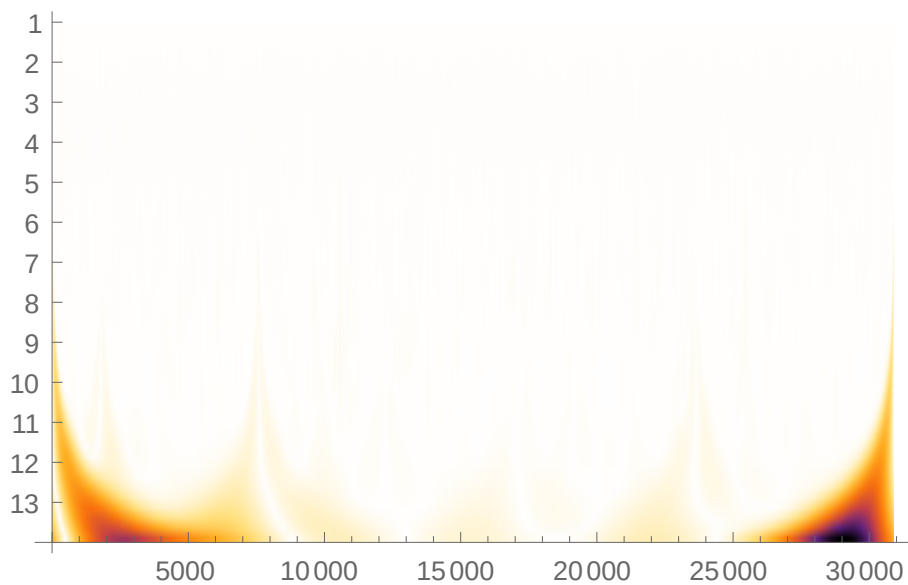

FIGURE 99   Scalogram, red line 07.

FIGURE 100 Scalogram, red line 08.

FIGURE 101 Scalogram, red line 09.

3.4.7 | January 28th

FIGURE 102   Scalogram, base line 01.

FIGURE 103 Scalogram, base line 02.

FIGURE 104 Scalogram, base line 03.

FIGURE 105 Scalogram, base line 05.

FIGURE 106 Scalogram, red line 06.

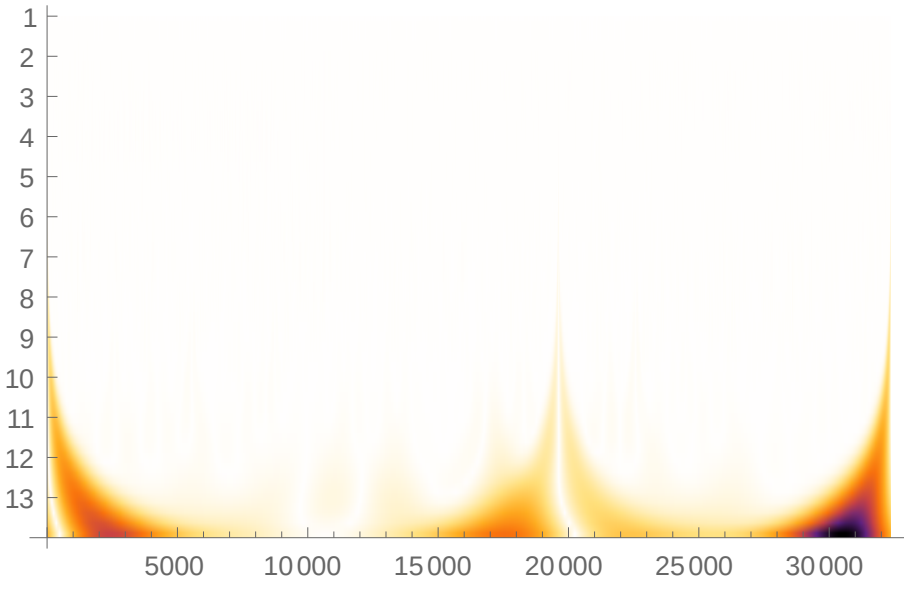**FIGURE 107**   Scalogram, red line 07.
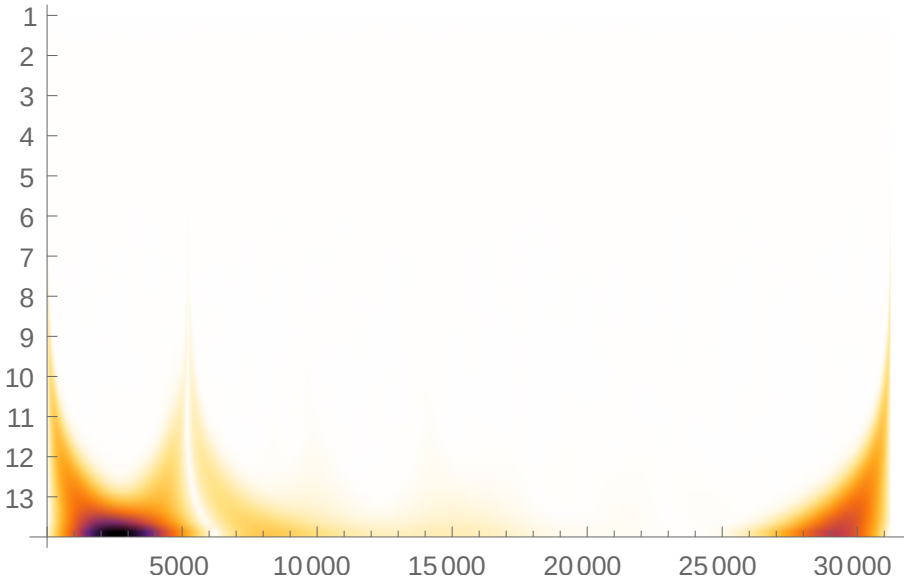

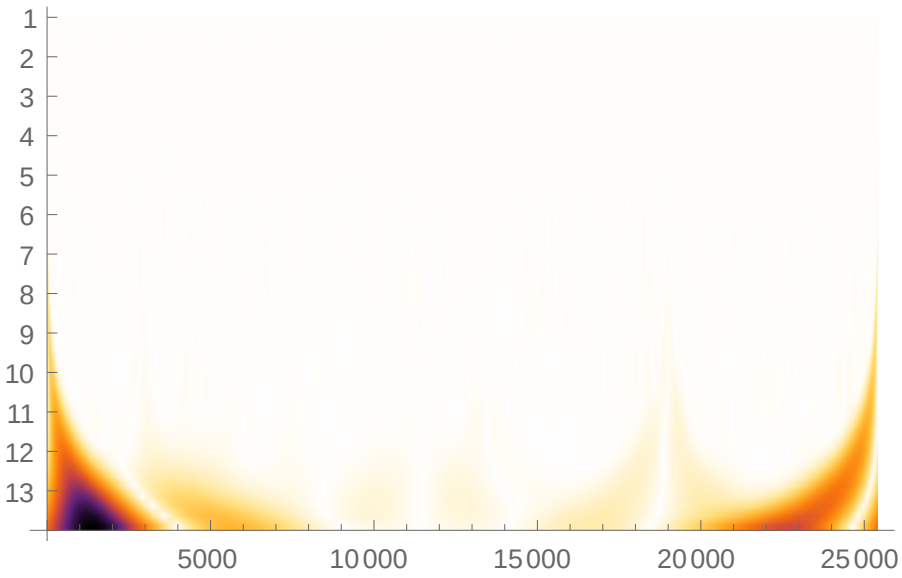**FIGURE 108**   Scalogram, red line 07.

3.4.8 | January 31th

FIGURE 109 Scalogram, base line 01.

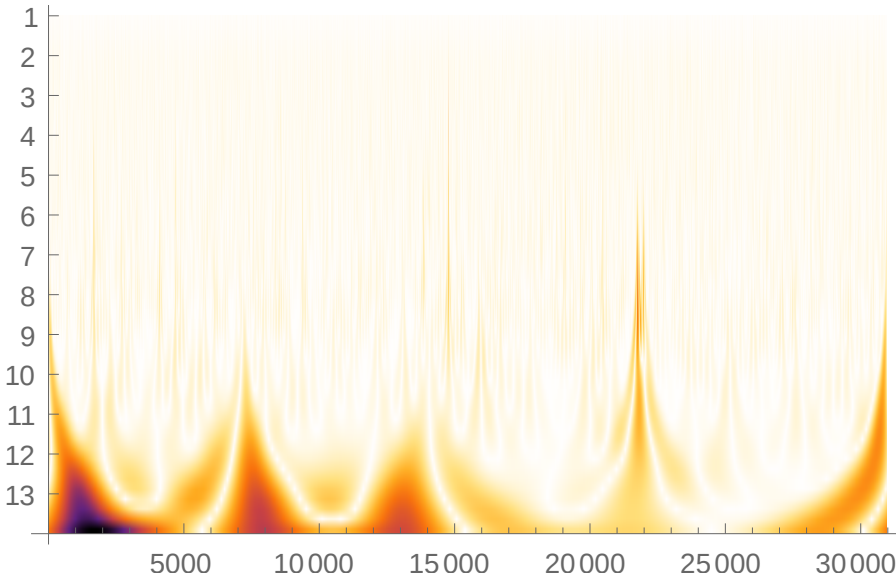**FIGURE 110** Scalogram, base line 02.

FIGURE 111 Scalogram, red line 03.

FIGURE 112 Scalogram, red line 04.

3.4.9 | March 12th

FIGURE 113 Scalogram, base line 01.

4 | DISCUSSION

4.1 | General remarks
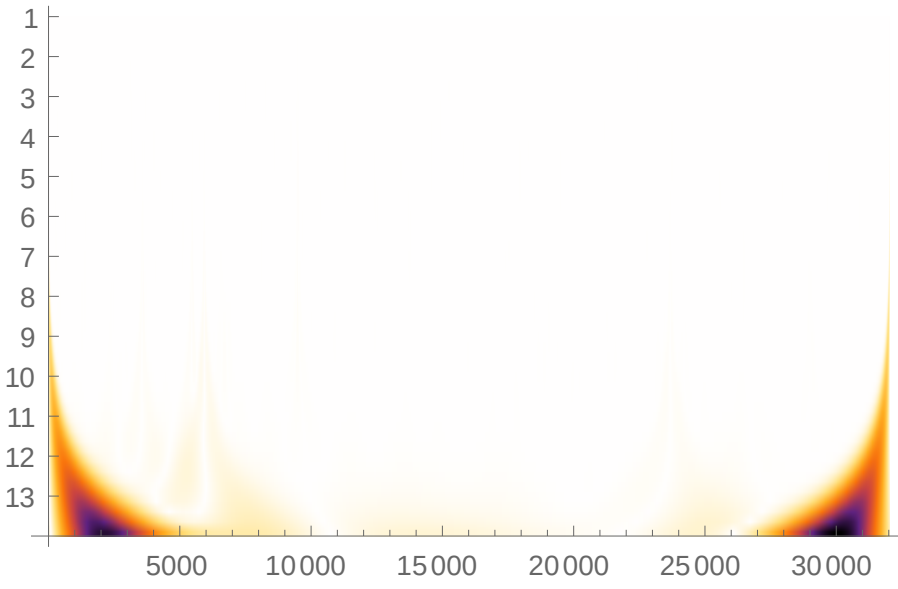
5 | CONCLUSIONS AND FURTHER WORK
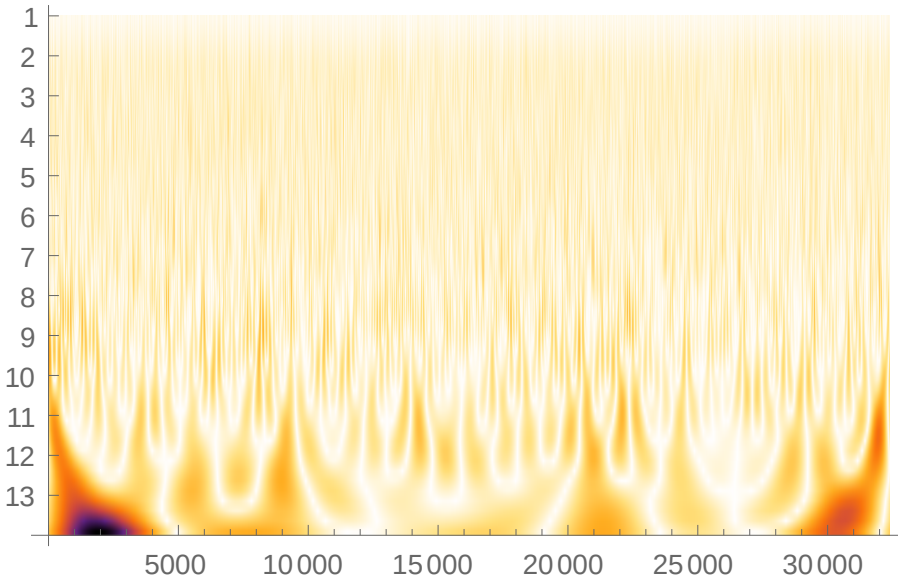
acknowledgements

Supporting Information

As it was mentioned, further supporting information can be found at the following page https://www.researchgate.net/project/Gravitational-Anomalies-and-Shintergy-brain-synchronization

references

[1] Biver, C. J., 2020: *Neuroguide*.
URL https://appliedneuroscience.com/neuroguide/

FIGURE 114 Scalogram, base line 02.

FIGURE 115 Scalogram, red line 03.

[2] Bueno, J., 2017: personal communication.

[3] Bueno, J. L., A. Ortiz-Tapia, I. Urdaneta, and A. Agüero, 2022: *Correlations between a shintergy synchronized brain and a laser field; a possible fractal structure of consciousness (part i of 7 – local measure in time and space).* URL http://dx.doi.org/10.5281/zenodo.6649075

[4] Hughes, J. M., 2016: *Arduino: a technical reference: a handbook for technicians, engineers, and makers.* " O'Reilly Media, Inc.".

[5] Klem, G. H., H. Lüders, H. H. Jasper, and C. Elger, 1999: The ten-twenty electrode system of the international federation. the international federation of clinical neurophysiology. *Electroencephalography and clinical neurophysiology. Supplement*, **52**, 3–6.

[6] Renk, K. F., 2012: *Basics of laser physics.* Springer.