

MARTIN LORENZ

OSCILLATIONS IV (2014)

for Saxophone, Piano, Percussion and Electronics

written for Ensemble Werktag, Zürich  
kindly supported by STEO-Stiftung

[www.martinlorenz.ch](http://www.martinlorenz.ch)

#### Instrumentation:

##### Piano:

- tube amplifier

The pianist uses a magnetic pickup (single coil or humbucker) to feed the tube amp.

An additional overdrive or boost effect can be used to distort the amp. A pedal is required to fade in and mix the volume of the tube amp.



custom built magnetic pickup



##### Saxophone:

- tenor saxophone
- soprano saxophone

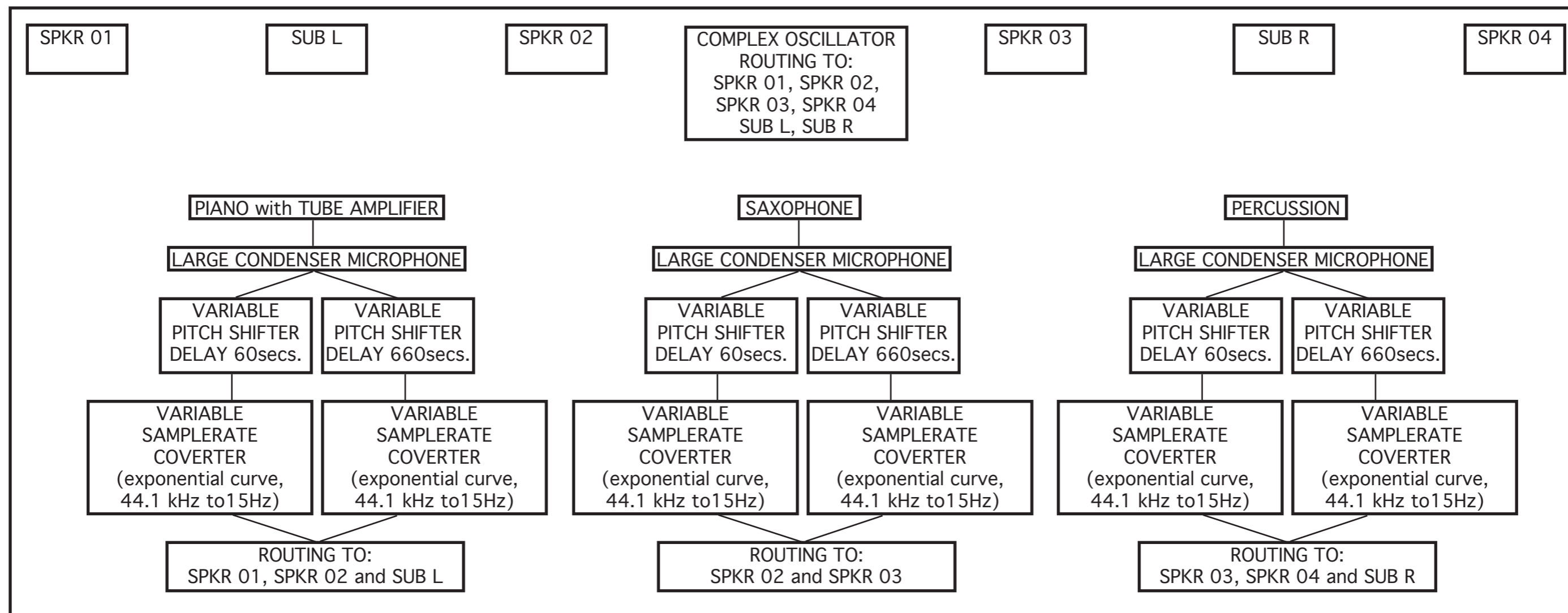
##### Percussion:

- timpano 32"
- 2 tuned gongs (f / c1)
- snare drum
- large suspended cymbal
- woodchimes
- 5 crotales (d3 / g#3 / a3 / b3 / e4)
- superbball, mallets, 2 bowes

##### Electronics:

- computer with DSP, providing 6 channels of pitchshifting, delay (60sec. / 660 sec.), variable samplerate converter (exponential curve 44.1 kHz to 3 Hz)
- 3 large diaphragm condenser microphones (eg. AKG C414)
- complex oscillator providing variable waveshaping
- mixing desk
- 4 loudspeakers
- 2 subwoofers

Electronics Setup:



The amplitude levels of the instruments, the complex oscillator and the (transposed) feedback should be the same. Performers should strive for a consistently loud volume throughout. The mix engineer can provide assistance, including compression, as necessary and appropriate.

# OSCILLATIONS IV for Saxophone, Piano, Percussion and Electronics

Martin Lorenz 2014

The score is divided into three main sections, each with a time axis from 0:00 to 8:00. The top section is for Saxophone, the middle for Piano, and the bottom for Percussion. Each section includes a Pitchshifter and Samplerate track above the musical notation.

**Saxophone Section:**

- PITCHSHIFTER:** ±0 cents (0:00-1:00), ±0 cents (1:00-2:00), +700 cents (2:00-3:00), +700 cents (3:00-4:00), +700 cents (4:00-5:00), ±0 cents (5:00-6:00), +700 cents (6:00-7:00), -700 cents (7:00-8:00).
- SAMPLERATE:** FULL SAMPLING RATE (44.1 kHz) (2:00-4:00), 1'911 Hz (7:00-8:00), 1'568 Hz (8:00).
- MUSICAL NOTATION:** TENOR SAXOPHONE in Bb. Notes start at 2:00 and rise to a peak at 5:00, then fall. Includes a C3 frequency marker at 4:00.

**Piano Section:**

- PITCHSHIFTER:** ±0 cents (0:00-1:00), ±0 cents (1:00-2:00), +700 cents (2:00-3:00), ±0 cents (3:00-4:00), +700 cents (4:00-5:00), +1400 cents (5:00-6:00), +700 cents (6:00-7:00), ±0 cents (7:00-8:00), ±0 cents (8:00).
- SAMPLERATE:** 734 Hz (1:00-2:00), 523.2 Hz (2:00-3:00), 932.3 Hz (3:00-4:00), 1'345 Hz (4:00-5:00), 1'592 Hz (5:00-6:00), 1'592 Hz (6:00-7:00), 523.2 Hz (8:00).
- MUSICAL NOTATION:** PUT PEDAL ON AND OFF CONTINUOUSLY (0:00-2:00), GRADUALLY FADE IN OVERDRIVE (6:00-8:00).

**Percussion Section:**

- PITCHSHIFTER:** ±0 cents (0:00-1:00), ±0 cents (1:00-2:00), +700 cents (2:00-3:00), +700 cents (3:00-4:00), +700 cents (4:00-5:00), ±0 cents (5:00-6:00), ±0 cents (6:00-7:00), +700 cents (7:00-8:00), ±0 cents (8:00).
- SAMPLERATE:** FULL SAMPLING RATE (44.1 kHz) (2:00-4:00).
- MUSICAL NOTATION:** TIMPANI (3:00-4:00), TUNED GONG ON SNAREDRUM (5:00-7:00), LARGE CYMBAL (6:00-8:00).

9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00

P.S. ±0 cents ±0 cents ±0 cents ±0 cents ±0 cents +700 cents ±0 cents +700 cents +1400 cents

S.R. 13'152 Hz 13'152 Hz ..... FULL SAMPLING RATE (44.1 kHz) 466.2 Hz 466.2 Hz ..... ADD VOICE

SAX. CHANGE IRREGULAR BETWEEN FLUTTER TONGUE AND ORDINARIO ADD MULTIPHONICS RANDOMLY

9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00

P.S. ±0 cents +700 cents +700 cents +700 cents +700 cents +700 cents +1400 cents +700 cents ±0 cents

S.R. 261.6 Hz ..... 30.85 Hz ..... 23.1 Hz 13'152 Hz 13'152 Hz ..... 4'186 Hz ..... 7902.2 Hz 622.3 Hz 622.3 Hz ..... 7902.2 Hz ..... Nach Gehör !!! muss in den Proben mit der Elektronik definiert werden

PNO. 15<sup>ma</sup> MUTE STRINGS WITH LEFT HAND GRADUALLY AD MORE AND MORE UNMUTED ACCENTS

OSC. 8<sup>va</sup>

9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00

P.S. -700 cents ±0 cents +700 cents +700 cents +1400 cents +700 cents ±0 cents -700 cents -700 cents

S.R. 2'960 Hz ..... 30.85 Hz 155.6 Hz 155.6 Hz ..... LARGE CYMBAL

PERC. SNAREDRUM WITH SUPERBALL IRREGULAR WOODCHIMES TIMPANI MOVE FROM ROLL TO BOW

Detailed description of the score: The score is divided into three systems. The first system (SAX.) features a pitch line starting at ±0 cents and ending at +1400 cents, with a sampling rate of 13'152 Hz. The saxophone part includes performance instructions like 'CHANGE IRREGULAR BETWEEN FLUTTER TONGUE AND ORDINARIO' and 'ADD MULTIPHONICS RANDOMLY'. The second system (PNO.) has a pitch line starting at ±0 cents and ending at ±0 cents, with a sampling rate that fluctuates between 261.6 Hz and 7902.2 Hz. It includes instructions for 'MUTE STRINGS WITH LEFT HAND' and 'GRADUALLY AD MORE AND MORE UNMUTED ACCENTS'. The third system (PERC.) has a pitch line starting at -700 cents and ending at -700 cents, with a sampling rate of 2'960 Hz. It includes instructions for 'SNAREDRUM WITH SUPERBALL IRREGULAR', 'WOODCHIMES', 'TIMPANI', and 'LARGE CYMBAL', along with the instruction 'MOVE FROM ROLL TO BOW'. Time markers are provided every minute from 9:00 to 17:00.

18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00

P.S. +700 cents +700 cents ±0 cents ±0 cents -700 cents +700 cents +700 cents +700 cents +700 cents

S.R. FULL SAMPLING RATE (44.1 kHz) 3.44 Hz ..... 17.3 Hz ..... 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz FULL SAMPLING RATE (44.1 kHz) 11.55 Hz ..... 5.15 Hz ..... 3.44 Hz ..... 17.3 Hz ..... 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz ..... 5.15 Hz

SAX. *8<sup>va</sup>* SOPRANO SAXOPHONE in Bb

18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00

P.S. +700 cents +700 cents ±0 cents ±0 cents -700 cents -700 cents -700 cents ±0 cents +700 cents

S.R. FULL SAMPLING RATE (44.1 kHz) 16'744 Hz 5.15 Hz ..... 3.44 Hz ..... 17.3 Hz ..... 7.71 Hz FULL SAMPLING RATE (44.1 kHz) 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz ..... 5.15 Hz ..... 3.44 Hz ..... 11.55 Hz 2'349 Hz 4'698 Hz

PNO. MUTE STRINGS WITH LEFT HAND GRADUALLY AD MORE AND MORE UNMUTED ACCENTS

OSC. *8<sup>va</sup>*

18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00

P.S. ±0 cents -700 cents +700 cents +1400 cents +700 cents -700 cents

S.R. FULL SAMPLING RATE (44.1 kHz) 17.3 Hz ..... 7.71 Hz ..... 3.44 Hz FULL SAMPLING RATE (44.1 kHz) 25.95 Hz ..... 11.55 Hz ..... 5.15 Hz ..... 3.44 Hz ..... 17.3 Hz ..... 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz

PERC. CROTALES WITH BOW

The score is divided into three systems, each with time markers from 27:00 to 36:00. The tracks are:

- P.S. (Pitch Shift):** Shows pitch adjustments in cents. System 1: ±0 cents, ±0 cents, ±0 cents, ±0 cents, -700 cents, -1400 cents, -700 cents, -700 cents, ±0 cents. System 2: +700 cents, +700 cents, ±0 cents, ±0 cents, ±0 cents, -1400 cents, -700 cents, ±0 cents, +700 cents. System 3: ±0 cents, ±0 cents, ±0 cents, +700 cents, ±0 cents, +700 cents, ±0 cents, ±0 cents, -700 cents, ±0 cents.
- S.R. (Sampling Rate):** Shows frequency changes. System 1: 18'794 Hz, 587.3 Hz, 146.8 Hz, 9'397 Hz, FULL SAMPLING RATE (44.1 kHz), 146.8 Hz. System 2: 4'698 Hz, 9'397 Hz, 146.8 Hz, 2'349 Hz, 1'174 Hz, 146.8 Hz. System 3: 2'349 Hz, 1'174 Hz, 146.8 Hz, 4'698 Hz, 9'397 Hz, 587.3 Hz, 146.8 Hz.
- SAX. (Saxophone):** Musical notation with a sharp sign and a crescendo hairpin.
- PNO. (Piano):** Musical notation with a crescendo hairpin and the instruction "GRADUALLY FADE IN OVERDRIVE".
- OSC. (Oscillator):** Musical notation with the instruction "GRADUALLY ADD OVERTONES".
- PERC. (Percussion):** Musical notation with instructions "GRADUALLY FADE IN ROLL", "LARGE CYMBAL", and "TUNED GONG ON SNAREDRUM".

**0:00**      **1:00**      **2:00**      **3:00**      **4:00**      **5:00**      **6:00**      **7:00**      **8:00**

±0 cents      ±0 cents      +700 cents      +700 cents      +700 cents      ±0 cents      +700 cents      -700 cents      -700 cents

THE PITCHSHIFTER'S OUTPUT IS DELAYED BY 60secs. BY 660secs.

FULL SAMPLING RATE (44.1 kHz)

1'911 Hz ..... 1'568 Hz

TENSOR SAXOPHONE in Bb

C3

8<sup>va</sup>

Tf - C#

**9:00**      **10:00**      **11:00**      **12:00**      **13:00**      **14:00**      **15:00**      **16:00**      **17:00**

±0 cents      ±0 cents      ±0 cents      ±0 cents      ±0 cents      +700 cents      ±0 cents      +700 cents      +1400 cents

13'152 Hz      13'152 Hz ..... FULL SAMPLING RATE (44.1 kHz)

466.2 Hz

466.2 Hz

CHANGE IRREGULAR BETWEEN FLUTTER TONGUE AND ORDINARIO      ADD MULTIPHONICS RANDOMLY

ADD VOICE

18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00

+700 cents +700 cents ±0 cents ±0 cents -700 cents +700 cents +700 cents +700 cents +700 cents

19

FULL SAMPLING RATE (44.1 kHz)

3.44 Hz ..... 17.3 Hz ..... 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz FULL SAMPLING RATE (44.1 kHz)

11.55 Hz ..... 5.15 Hz ..... 3.44 Hz ..... 17.3 Hz ..... 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz ..... 5.15 Hz

SAX. *8<sup>va</sup>* SOPRANO SAXOPHONE in Bb

27:00 28:00 29:00 30:00 31:00 32:00 33:00 34:00 35:00 36:00

±0 cents ±0 cents ±0 cents ±0 cents -700 cents -1400 cents -700 cents -700 cents ±0 cents

18'794 Hz ..... 9'397 Hz ..... FULL SAMPLING RATE (44.1 kHz) 146.8 Hz

587.3 Hz 146.8 Hz

SAX.

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00

±0 cents ±0 cents +700 cents ±0 cents +700 cents +1400 cents +700 cents ±0 cents ±0 cents

THE PITCHSHIFTER'S OUTPUT IS DELAYED BY 60secs. BY 660secs.

734 Hz ..... 523.2 Hz ..... 932.3 Hz ..... 1'345 Hz ..... 1'592 Hz ..... 1'592 Hz ..... 523.2 Hz

PIANO PUT PEDAL ON AND OFF CONTINUOUSLY

COMPLEX OSCILLATOR GRADUALLY ADD OVERTONES

GRADUALLY FADE IN OVERDRIVE

9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00

±0 cents +700 cents +700 cents +700 cents +700 cents +700 cents +1400 cents +700 cents ±0 cents

261.6 Hz ..... 30.85 Hz ..... 23.1 Hz ..... 13'152 Hz ..... 13'152 Hz ..... 4'186 Hz ..... 7902.2 Hz ..... 622.3 Hz ..... 7902.2 Hz

15<sup>ma</sup> *b<sub>4</sub>x<sub>2</sub>x* ..... *b<sub>4</sub>x<sub>2</sub>x* ..... *b<sub>4</sub>x<sub>2</sub>x* ..... *b<sub>4</sub>x<sub>2</sub>x*

MUTE STRINGS WITH LEFT HAND GRADUALLY AD MORE AND MORE UNMUTED ACCENTS

Nach Gehör!!! muss in den Proben mit der Elektronik definiert werden

PNO.

OSC.

18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00

+700 cents +700 cents ±0 cents ±0 cents -700 cents -700 cents -700 cents ±0 cents +700 cents

19 16'744 Hz 5.15 Hz 3.44 Hz 17.3 Hz 7.71 Hz FULL SAMPLING RATE (44.1 kHz) 4'698 Hz

FULL SAMPLING RATE (44.1 kHz) 7.71 Hz 25.95 Hz 11.55 Hz 5.15 Hz 3.44 Hz 11.55 Hz 2'349 Hz

PNO. 19 MUTE STRINGS WITH LEFT HAND GRADUALLY AD MORE AND MORE UNMUTED ACCENTS

OSC. 19 8<sup>th</sup>

27:00 28:00 29:00 30:00 31:00 32:00 33:00 34:00 35:00 36:00

+700 cents +700 cents ±0 cents ±0 cents ±0 cents -1400 cents -700 cents ±0 cents +700 cents

28 4'698 Hz 9'397 Hz 146.8 Hz 2'349 Hz 1'174 Hz 146.8 Hz

PNO. 28 GRADUALLY FADE IN OVERDRIVE

OSC. 28 GRADUALLY ADD OVERTONES

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00

±0 cents ±0 cents +700 cents +700 cents +700 cents ±0 cents ±0 cents +700 cents ±0 cents

THE PITCHSHIFTER'S OUTPUT IS DELAYED BY 60secs. BY 660secs.

FULL SAMPLING RATE (44.1 kHz)

PERCUSSION

TIMPANI

LARGE CYMBAL

TUNED GONG ON SNAREDRUM

9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00

-700 cents ±0 cents +700 cents +700 cents +1400 cents +700 cents ±0 cents -700 cents -700 cents

2'960 Hz ..... 30.85 Hz

155.6 Hz

155.6 Hz

PERC.

SNAREDRUM WITH SUPERBALL IRREGULAR

WOODCHIMES

TIMPANI

LARGE CYMBAL

MOVE FROM ROLL TO BOW

18:00

19:00

20:00

21:00

22:00

23:00

24:00

25:00

26:00

±0 cents

-700 cents

+700 cents

+1400 cents

+700 cents

-700 cents

19

17.3 Hz ..... 7.71 Hz ..... 3.44 Hz

FULL SAMPLING RATE (44.1 kHz)

FULL SAMPLING RATE (44.1 kHz)

25.95 Hz ..... 11.55 Hz ..... 5.15 Hz ..... 3.44 Hz ..... 17.3 Hz ..... 7.71 Hz ..... 25.95 Hz ..... 11.55 Hz

19

CROTALES WITH BOW

PERC.

27:00

28:00

29:00

30:00

31:00

32:00

33:00

34:00

35:00

36:00

±0 cents

±0 cents

±0 cents

+700 cents

±0 cents

+700 cents

±0 cents

±0 cents

-700 cents

±0 cents

2'349 Hz

146.8 Hz

4'698 Hz

9'397 Hz

587.3 Hz

146.8 Hz

28

GRADUALLY FADE IN ROLL

LARGE CYMBAL

TUNED GONG ON SNAREDRUM

PERC.