

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

BRYAN PRINGLE, an individual,
Plaintiff,
vs.
WILLIAM ADAMS, JR.; STACY
FERGUSON; ALLAN PINEDA; and
JAIME GOMEZ, all individually and
collectively as the music group The
Black Eyed Peas, *et al.*,
Defendants

Case No. SACV 8:10-CV-01656 JST
(RZx)

**DECLARATION OF PAUL
GELUSO IN FURTHER SUPPORT
OF DEFENDANTS' MOTION FOR
SUMMARY JUDGMENT**

I, PAUL GELUSO, declare as follows:

I. Expert Qualifications

1. I am an expert in music technology, music production and sound recording, and have worked professionally as an audio engineer, producer, and musician for more than 20 years. I have been credited as producer, recording engineer, mastering engineer and/or musician on more than 100 commercially available albums across numerous musical genres, including electronic, rock, hip-hop, jazz and classical. I have also mixed soundtracks for award-winning films and broadcast television programs, and have served as sound editor and mixer for several media companies, including HBO, Miramax, MTV II, Outpost Digital and Radical Media.

2. I hold a Bachelor of Science in Electrical Engineering and a Masters of Music in Music Technology from New York University where I currently serve as

DECLARATION OF PAUL GELUSO

1 full-time professor and the Chief Recording Engineer for the Department of Music
2 and Performing Arts Professions. Prior to joining the full-time faculty at New York
3 University, I taught classes in music production and sound recording at the Peabody
4 Institute of The Johns Hopkins University, at Bard College and at the State
5 University of New York at Oneonta. I have lectured extensively on topics related to
6 music technology, including analog electronics, digital electronics, digital signal
7 processing, sound art, electronic music, critical listening, music production, sound
8 recording, sound processing and sound mixing.

9 3. I have previously been retained to perform expert forensic music
10 analysis in copyright infringement lawsuits involving claims of digital sampling. A
11 copy of my CV is attached to this declaration.

12 4. I have personal knowledge of the facts stated herein, and if called as a
13 witness, could and would testify competently regarding the following facts.

14 **II. Scope of Assignment**

15 5. I have been asked to review and respond to the Declaration of Bryan
16 Pringle In Opposition to Defendants' Motion for Summary Judgment, dated
17 December 19, 2011 [Doc. 198] ("Pringle Declaration") and portions of the
18 Declaration of Barbara Frederiksen-Cross, dated December 16, 2011 [Doc. 189]
19 ("Cross Declaration"), to the extent they comment on the analysis I performed in
20 this matter and on my November 14, 2011 Declaration [Doc. 162].

21 **III. General Response to the Pringle Declaration**

22 6. As an initial matter, I note that Mr. Pringle's declaration contains
23 numerous conclusory, nonsensical and rambling arguments, which appear designed
24 only to distract the Court from my objective scientific analysis of the sound
25 recordings at issue in this case. I will not respond to those inappropriate comments
26 by Mr. Pringle. Suffice it to say that neither those arguments, nor anything else in
27
28

1 Mr. Pringle’s declaration, causes me to doubt the analysis I have conducted in this
2 case or the conclusions I have reached.

3 7. In addition, although Mr. Pringle frequently repeats or re-phrases the
4 same arguments in a random, scattershot fashion, I have chosen to organize my
5 response according to topic, rather than responding to each paragraph of Mr.
6 Pringle’s declaration in sequential order.

7 8. It is most troubling to me that Mr. Pringle still fails to explain exactly
8 how the sound recordings in his NRG file that make up the “guitar twang sequence”
9 were obtained. He has offered a range of possible scenarios—from recording a
10 Fender Stratocaster himself to using a sample collection CD—and he now claims
11 that he “may” have re-recorded a multi-layer sample within the ASR10 and deleted
12 the original wavesamples to save space. He appears to choose whatever scenario
13 best supports his argument at the moment, without verifying what he actually did.
14 Thus, not only does Mr. Pringle’s NRG file indicate that he sampled the guitar
15 twang sequence from another source (as discussed in paragraphs 25-28 of my
16 November 14, 2011 Declaration [Doc. 162]), but his latest submission fails to show
17 that he independently created the guitar twang sequence.

18 **IV. Neither Mr. Pringle Nor Ms. Frederiksen-Cross Have Expertise in Sound**
19 **Recording Analysis**

20 9. Neither Mr. Pringle nor Ms. Frederiksen-Cross appear to have the
21 education, training or skill required to perform expert sound recording analysis or to
22 provide expert opinion testimony in that field. Although Ms. Frederiksen-Cross
23 appears to have experience in computer software forensics, including analysis of
24 computer software source code and development of “clean room” procedures for
25 software development, her Curriculum Vitae makes no mention of having
26 performed any analysis or comparison of electronic sound recordings or music files.
27 Indeed, as discussed below, Ms. Frederiksen-Cross’s declaration demonstrates a
28

1 lack of understanding as to how music is created and processed electronically, as
2 well as a lack of familiarity with accepted methods of sound recording analysis.

3 10. Mr. Pringle similarly lacks credentials as either a professional
4 musicologist or sound recording expert. The only formal training Mr. Pringle points
5 to are middle-school drum and piano lessons, and classes on music and sound
6 recording at a community college. (Pringle Decl. ¶¶ 7, 10.) Although Mr. Pringle
7 claims to have “acquired substantial knowledge of and experience with computer
8 based musical composition” from his claimed writing of “hundreds, if not thousands
9 of songs, in a wide variety of musical genres” (*id.* at ¶¶ 8, 10), he testified to having
10 earned no more than “beer money”, *i.e.*, “less than \$2,000” through the exploitation
11 of all of his music over the years. (Pringle Dep. Tr. 339.) Nor is there any
12 indication that Mr. Pringle has ever collaborated with any professional musicians or
13 audio engineers, earned any degrees in musicology or sound recording technology,
14 or taught any courses on these subjects.

15 **V. Mr. Pringle Acknowledges That Defendants Could Not Have Copied the**
16 **Guitar Twang Sequence from “Take a Dive” (Dance Version)**

17 11. I note that Mr. Pringle has conceded the central point in both my
18 January 10, 2011 and November 14, 2011 Declarations—*i.e.*, that it would have
19 been technologically impossible for the creators of “I Gotta Feeling” to have
20 sampled the “guitar twang sequence” from the mixed version of Pringle’s “Take a
21 Dive” (Dance Version) which he claims to have distributed and which he registered
22 with the Copyright Office, because that song has other sound elements layered over
23 the guitar twang sequence which do not appear in “I Gotta Feeling.”

24 12. Mr. Pringle acknowledges that “it would have been impossible for the
25 Defendants to sample my guitar twang sequence out of the full sound recording of
26 ‘Take a Dive’ (Dance Version) with all the instrumentation playing.” (Pringle Decl.
27 ¶ 125) and “I do not contend . . . that the Defendants sampled the ‘guitar twang
28

1 sequence' for 'I Gotta Feeling' directly out of the fully played version of 'Take a
2 Dive' (Dance Version) presented to the Court" (*id.* at ¶ 142). This would appear to
3 mean that Mr. Pringle has abandoned any claim that the Defendants sampled the
4 alleged sound recording which is the subject matter of this action. The majority of
5 Mr. Pringle's declaration is devoted to proving that *he* did not copy from the
6 *Defendants*, rather that that the *Defendants* sampled from him.

7 13. In addition, to the extent Mr. Pringle now claims that Mr. Riesterer did
8 not directly sample the guitar twang sequence from "Take a Dive" (Dance Version),
9 but instead re-created it using the Plugsound pre-set and other sound processing
10 effects—essentially creating a "sound alike"—that too would be technologically
11 impossible. Because Mr. Pringle allegedly created the guitar twang sequence in
12 1999 using something other than the Plugsound guitar preset—which was not
13 recorded until 2001—any alleged re-creation of Pringle's guitar twang by Riesterer
14 would not have waveforms that match as closely as they do. Thus, the undisputed
15 forensic evidence that I have analyzed shows not only that Mr. Riesterer could not
16 possibly have sampled the guitar sequence from Pringle, but that it would also have
17 been impossible for Mr. Riesterer to have copied a musical composition and
18 attempted to make a sound alike that would have matching waveforms.

19 **VI. Mr. Pringle and Ms. Frederiksen-Cross Fundamentally Misunderstand**
20 **My Analysis of Mr. Riesterer's Music Creation Files**

21 14. Both Mr. Pringle and Ms. Frederiksen-Cross argue that I was "forced"
22 to apply sound processing effects to the MIDI file representation within Mr.
23 Riesterer's Logic session files in order to make those files match the final guitar
24 twang sound heard in "I Gotta Feeling." (*See, e.g.*, Pringle Decl. ¶¶ 22, 26, 31-32,
25 212-213; Cross Decl. ¶¶ 48-49). That is incorrect. The final guitar twang sequence
26 that appears in "I Gotta Feeling" already exists in Mr. Riesterer's creation files as
27 "GTRR Lead 1.aif." The purpose of the analysis in paragraphs 10 and 15-21 of my
28

1 November 14, 2011 Declaration was to determine whether or not the sound
2 processing effects described in Mr. Riesterer’s November 9, 2011 Declaration [Doc.
3 166] were, in fact, the method by which the unprocessed MIDI file representation
4 was transformed into the final guitar twang sequence that is heard in “I Gotta
5 Feeling”—which they are. In other words, my analysis simply confirmed that the
6 raw, unprocessed MIDI file representation within Mr. Riesterer’s Logic session file
7 was, in fact, an earlier generation that ultimately became the guitar twang sequence
8 in “I Gotta Feeling”—thereby indicating that Mr. Riesterer independently created
9 the guitar twang sequence without sampling anything from Mr. Pringle. But a
10 sound file rendering of the final processed guitar twang already existed within Mr.
11 Riesterer’s creation files as “GTRR Lead 1.aif”, which matches the Beatport “I
12 Gotta Feeling” guitar twang stem. (Waveform analysis comparing these files are
13 attached hereto as Exhibit C, and a copy of “GTRR Lead 1.aif” is attached hereto as
14 Exhibit D, Audio Track 3.) There was no need for me to modify Mr. Riesterer’s
15 files in order to “make them match” the guitar twang heard in “I Gotta Feeling.”

16 15. Mr. Pringle accuses me of having “manually manipulated,” “altered”
17 and “doctored” Mr. Riesterer’s creation files such that they no longer match the files
18 as they were given to me by Mr. Riesterer through counsel. (*See, e.g.*, Pringle Decl.
19 ¶¶ 35, 40, 43, 214.) In doing so, Mr. Pringle apparently assumes that no other copy
20 of Mr. Riesterer’s creation files exist other than the ones that I analyzed. That is
21 incorrect. The sound file I created was for my own analysis. I was given a *copy* of
22 Mr. Riesterer’s creation files on a read-only CD-ROM, and I then copied those files
23 onto my computer equipment for analysis. The original copies of Mr. Riesterer’s
24 creation files as they were given to me still exist on the CD-ROM that was sent to
25 me by counsel. They also exist in the possession of Mr. Pringle’s counsel, as I
26 understand that those files have been produced to them during discovery in this
27
28

1 action. Any suggestion that I altered original copies of Mr. Riesterer’s creation files
2 is unsupported and simply not true.

3 16. Mr. Pringle states that, the fact that Mr. Riesterer did not save his
4 precise sound processing effects within his Logic session, “makes it very difficult to
5 replicate the identical musical sound effects used in the creation of the original
6 music later.” (*See, e.g.*, Pringle Decl. ¶¶ 17-19.) As an initial matter, Mr Pringle’s
7 assertions that Mr Riesterer did not save his settings are incorrect and overblown.
8 The majority of the sound processing settings were indeed saved by Mr Riesterer in
9 his Logic session file. The only adjustment I had to make to see whether Mr.
10 Riesterer’s Logic session file matched the guitar twang in “I Gotta Feeling” was to
11 add a small amount of reverberation processing using Plugsound.

12 17. Moreover, as noted above, Mr. Riesterer *did* save a rendering of the
13 final guitar twang sequence in his creation files as “GTRR Lead 1.aif.” (attached as
14 Track 03 of Exhibit D). That sound file is a rendering of the original PlugSound
15 guitar preset sound, as well as all of the sound effects processing, including
16 equalization, distortion and reverberation, that Mr. Riesterer applied to create the
17 guitar twang sequence. Thus, it is not correct to say that Mr. Riesterer did not save
18 his precise sound processing effects used to create the guitar twang sequence
19 anywhere. My point in my November 14, 2011 Declaration was that Mr. Riesterer
20 did not save his precise settings *within his Logic session file*, and thus I had to rely
21 on Mr. Riesterer’s November 9, 2011 Declaration in order to determine what
22 processing to apply to the raw MIDI file representation to see if that would match
23 the final processed version—which it did. But the final processing was saved
24 elsewhere in Mr. Riesterer’s music creation files.

25 18. Mr. Pringle speculates that the files I analyzed were not a copy of Mr.
26 Riesterer’s actual Logic session file because, according to Mr. Pringle, if they were,
27 and if I were not using the same computer Mr. Riesterer used, I would receive an
28

1 error message informing me that the same instruments and software peripherals that
2 were connected to Mr. Riesterer's computer, were not connected to my computer.
3 (*See, e.g.*, Pringle Decl. ¶¶ 42-43.) But I *did* have all necessary instruments, Logic
4 Pro (Version 8) and peripheral software loaded onto my computer when I analyzed
5 the guitar twang sequence in Mr. Riesterer's Logic session file. They consisted of
6 the PlugSound: Fretted Instruments virtual instrument sound bank and the
7 CamelPhat sound distortion plug-in, which were discussed in paragraphs 8 and 18 of
8 my November 14, 2011 Declaration. Because that was the only software, in
9 addition to Logic Pro, that Mr. Riesterer used to create the guitar twang sequence (as
10 explained in his November 9, 2011 Declaration), those were the only peripheral
11 software that I needed to have installed in order to listen to and analyze the guitar
12 twang sequence within Mr. Riesterer's Logic session file.

13 19. In fact, when opening Mr. Riesterer's Logic session file, I did get a
14 temporary error messages alerting me to the fact that *other* software products and
15 audio devices that Mr. Riesterer used to create *other* musical elements of "I Gotta
16 Feeling" were not connected to my computer system. But because my analysis
17 focused on the guitar twang sequence, not the other musical elements of "I Gotta
18 Feeling," those other software products and audio devices were unnecessary, and I
19 was able to clear the error messages without hindering my analysis.

20 20. Ms. Frederiksen-Cross criticizes me for comparing "only" 12
21 milliseconds of the waveforms of Mr. Pringle's isolated guitar twang sample and of
22 the "I Gotta Feeling" Beatport guitar twang stem. (*See, e.g.*, Cross Decl. ¶¶ 50, 57.)
23 As an initial matter, I note that neither Mr. Pringle nor Ms. Frederiksen-Cross
24 criticize my conclusions with respect to the portions of the waveforms that I did
25 analyze. Indeed, they appear to concede my conclusion that the original source of
26 the guitar twang sound heard in "I Gotta Feeling" was the Plugsound "Strat with
27 SM57 Stereo Spread" preset, as Mr. Riesterer has indicated. Mr. Pringle has not
28

1 disputed that that preset was first recorded in 2001, and therefore that Pringle could
2 not have used it to create the guitar twang sequence in 1999 as he claims.

3 21. Ms. Frederiksen-Cross’s criticism also demonstrates her lack of
4 familiarity with techniques commonly used to forensically examine electronic audio
5 files. My analysis relies on the use of waveform analysis, which the FBI
6 acknowledges “provides accurate timing of occurrences too rapid to catalog aurally
7 and whose temporal relationships are important to an examination.”¹ It is widely
8 known within the sound engineering profession that analysis of even a few
9 milliseconds of a waveform will allow an experienced audio professional to
10 determine whether two recordings share the same source. That is because one must
11 observe the waveform magnified (or “zoomed in”) in order to reveal similarities or
12 differences that cannot be observed through a simple listening analysis. Indeed, the
13 sound recording expert Mr. Pringle relied upon in his application for a temporary
14 restraining order and for a preliminary injunction, Mark Rubel, analyzed even
15 *shorter* waveform segments than I did in my analysis. (*See, e.g.*, Nov. 22, 2010
16 Rubel Report [Doc. 15-2] at 18-19.) Moreover, if too much of a waveform is
17 analyzed, it may actually become *more* difficult to detect similarities or differences
18 because the waveform oscillations will be more compacted. (*See, e.g., id.* at 12.) In
19 addition, as I testified at my deposition, I did analyze other segments of the relevant
20 sound files, which served to confirm my conclusion. I have attached my waveform
21 analysis of all three guitar chords as Exhibit A.

22 22. Ms. Frederiksen-Cross inexplicably claims that I did not identify which
23 audio exhibit from Mr. Rubel’s report I analyzed. (*See* Cross Decl. ¶ 53.) In fact,
24 the “Index of Audio Exhibits” on page 22 of my November 14, 2011 Declaration
25

26 ¹ Bruce E. Koenig, “Authentication of Forensic Audio Recordings”, Federal Bureau
27 of Investigation, Engineering Research Facility, Lorton, VA22079, USA Audio Eng.
28 Soc., Vol. 38, No. 1/2, 1990 January/February.

1 *did* identify the file I analyzed as Exhibit 3 to Mr. Rubel’s report, which Mr. Rubel
2 identified as “Bryan Pringle, ‘Take a Dive – Piano Twang Sequence.’” (Nov. 22,
3 2010 Rubel Report [Doc. 15-2] at 20).

4 23. Ms. Frederiksen-Cross next asserts that I did not consider whether the
5 similarity between Mr. Pringle’s isolated guitar twang sequence and the Beatport
6 guitar twang stem could be explained by Mr. Pringle having re-sampled from the
7 ASR10’s audio output. (Cross Decl. ¶ 58.) However, Ms. Frederiksen-Cross’
8 assertion is nonsensical, as she does not indicate what “other source” she believes
9 Mr. Pringle “may” have sampled from. Moreover, Mr. Pringle’s alleged
10 “demonstration CDs” would have nothing to do with any re-sampling, since any
11 supposed re-sampling would have had to take place before those alleged CDs were
12 created.

13 24. In any event, none of those alleged “demonstration CDs” have been
14 provided to me, and it is my understanding that none have been produced in the
15 litigation. As discussed above, it would have been impossible for the Defendants to
16 have sampled the guitar twang sequence from the one version of “Take a Dive”
17 (Dance Version) that has been provided to me, even assuming it was ever actually
18 sent to the Defendants.

19 25. Similarly, Mr. Pringle accuses me of being “intellectually dishonest”
20 for not analyzing a *different* version of “Take a Dive” that allegedly had the guitar
21 twang soloed out, which Mr. Pringle claims to have sent to certain of the Defendants
22 years ago. (*See, e.g.*, Pringle Decl. ¶¶ 64-66, 96, 101.) Again, no such “soloed out”
23 version of “Take a Dive” has been provided to me, and I understand that none has
24 been produced in the litigation or registered with the Copyright Office. I obviously
25 cannot analyze audio recordings that do not exist. As a forensic sound recording
26 expert, I must deal in provable facts, not unsupported conjecture.

27
28

1 26. All that can be said based on the evidence that *does* exist is that (i) it
2 would have been technologically impossible for the Defendants to have sampled the
3 guitar twang sequence from the registered version of “Take a Dive” (Dance
4 Version)—a fact that Mr. Pringle now concedes (*see, e.g.*, Pringle Decl. ¶¶ 125,
5 142), (ii) Mr. Riesterer’s Logic session file contains evidence of independent
6 creation of the guitar twang sequence sound recording, while Mr. Pringle’s NRG file
7 does not contain an indication of where the guitar twang chord samples that make up
8 the guitar twang sequence in his creation files originate, and (iii) the guitar twang
9 samples in Mr. Pringle’s NRG creation file are electronic copies of portions of the “I
10 Gotta Feeling” isolated guitar twang sequence that was available for download on
11 Beatport.com and other Internet websites.

12 **VII. Mr. Pringle’s Speculation as to How He “May Have” Created The**
13 **Guitar Twang Sequence Cannot Withstand Scientific Scrutiny**

14 27. In several places throughout his declaration, Mr. Pringle suggests that
15 he could have created the guitar twang sequence in various ways other than by
16 obtaining a copy of the Beatport guitar twang stem and inserting it into his NRG
17 file. For example, Mr. Pringle speculates that “anyone could have reproduced the
18 identical sound of the Plugsound: Fretted Instruments ‘Strat With SM 57 Stereo
19 Spread’ preset, with an instrument and amplifiers which have been around for over
20 50 years.” (Pringle Decl. ¶ 52-54.)

21 28. Mr. Pringle’s statement is incorrect and demonstrates his lack of
22 familiarity with the most basic audio engineering principals. Although it is true that
23 the untrained ear might perceive a recording of someone playing another Fender
24 Stratocaster guitar into another Shure SM 57 microphone as being similar to the
25 PlugSound “Strat with SM57 Stereo Spread” preset, waveform analysis of those two
26 recordings would reveal great differences that would indicate they came from
27 different sources. Indeed, Mr. Pringle’s sound recording expert, Mark Rubel,
28

1 recognized this. (See Nov. 11, 2010 Rubel Report [Doc. 15-2] at 9 (“The shape of
2 the waves is a kind of sonic fingerprint—if one sings the same note numerous times,
3 close analysis of the waveforms will show that they are different.”) Thus, it would
4 not have been possible for Mr. Pringle to have independently created the guitar
5 twang sequence by recording himself (or someone else) playing an electric guitar,
6 because the resulting waveform would not match the “I Gotta Feeling” Beatport
7 guitar twang stem as closely as does the guitar twang sample in Mr. Pringle’s NRG
8 file.

9 29. In addition, according to the Declaration of Alain Etchart [Doc. 169]
10 the PlugSound “Strat with SM57 Stereo Spread” preset was first recorded in
11 February 2001. It would therefore have been impossible for Mr. Pringle to have
12 used that same preset to create the guitar twang sequence in 1999, which is when he
13 claims to have created “Take a Dive” (Dance Version).

14 30. Mr. Pringle similarly suggests that, because his ASR10 sampling
15 keyboard was capable of applying the same types of sound processing effects that
16 Mr. Riesterer used in creating the guitar twang sequence, including the “stereo
17 spread” effect, as well as reverberation, distortion and equalization, he could have
18 created the guitar twang sequence in 1999 without access to the PlugSound “Strat
19 with SM57 Stereo Spread” preset. (Pringle Decl. ¶¶ 56-62, 82, 217-219.) That
20 statement is incorrect and demonstrates Mr. Pringle’s lack of understanding of
21 electronic sound processing effects. Mr. Pringle’s assertion is like saying if one
22 were to look at two people through red-tinted glasses, it would be impossible to tell
23 them apart. Similarly, even if the same sound processing effects were applied to
24 two different recorded guitar sounds, waveform analysis would still reveal that the
25 two sounds derived from different sources. (See Nov. 11, 2010 Rubel Report [Doc.
26 15-2] at 9) (“expert analysis can reveal similarities that, as in this case, could not
27
28

1 have been achieved in any way other than that they stem from the same electronic
2 source.”)

3 31. Mr. Pringle asserts that he originally created the guitar twang sequence
4 not for “Take a Dive”, but for another song he created named “Faith”, and that the
5 guitar twang sequence was “inspired by” and layered with “instrumentation” from a
6 song named “Cruellest Joke”, both of which Mr. Pringle registered with the
7 Copyright Office in 1998. (Pringle Decl. ¶¶ 133-134.) I have listened to the
8 Copyright Office’s deposit copies of “Faith” and “Cruellest Joke”, however, and
9 determined that neither of those songs contain the guitar twang sequence. In
10 addition, the guitar twang sequence that Mr. Pringle has added to his “re-creation”
11 of “Faith” does not match the guitar twang sequence in “Take a Dive.” Both the
12 tempo and pitch are different.

13 32. Mr. Pringle asserts that the guitar twang samples in his NRG file were
14 created using two separate wavesamples for each of the three chords that make up
15 the guitar twang sequence, for a total of six wavesamples, rather than one
16 wavesample for each of the three chords. (*See, e.g.*, Pringle Decl. ¶¶ 151-152,
17 224(i), 225.) Mr. Pringle does not specify what the six files are or what they
18 contain. He may be referring to the fact there are three *stereo* guitar twang samples
19 in his NRG file, each consisting of a left and right channel. I concede that
20 technically each stereo sample is really two samples, with left and right
21 wavesamples. But the point is that the stereo samples in Mr. Pringle’s NRG file
22 exist as one sample per chord, not the individual notes that make up each chord.
23 The chords in Mr. Pringle’s NRG file are fused together and cannot be separated or
24 muted (turned on and off) as can be done with the MIDI file representation in Mr.
25 Riesterer’s Logic session files—thereby indicating that Mr. Riesterer has an earlier
26 iteration of the guitar twang sequence and that he independently created the guitar
27 twang sequence, whereas Mr. Pringle obtained the guitar twang sequence by
28

1 sampling it from another source. Indeed, Mr. Pringle admits that that the guitar
2 twang wavesamples in his NRG file are fused together. (*See, e.g.*, Pringle Decl. ¶
3 225(v) (“I had to have fused together ‘layers’ for the multi-sampled ‘guitar twang
4 sequence’ chords which exist with the respective sound effects processing.”); *Id.* at ¶
5 226 (“I purposely fused together multiple layers of stacked wavesamples.”); *Id.* at ¶
6 227 (“the only way to conserve available RAM memory space and polyphony, was
7 to fuse multiple stacked layers of wavesamples down to a single stereo or mono
8 wavesample.”)

9 **VIII. Mr. Pringle’s Claim That He Could Not Possibly Have Sampled the**
10 **Guitar Twang Sequence from the Beatport Stems Does Not Withstand**
11 **Scientific Scrutiny**

12 33. Mr. Pringle offers a number of reasons why, according to him, he could
13 not possibly have used the “I Gotta Feeling” guitar twang stem that was available
14 for download on Beatport.com and other websites to create “Take a Dive” (Dance
15 Version). None of these purported explanations withstand scientific scrutiny.

16 34. Mr. Pringle first asserts that he could not possibly have obtained the “I
17 Gotta Feeling” re-mix stems that were available for download on Beatport.com
18 because the download phase of the Beatport re-mix competition ended in September
19 2009, before Mr. Pringle claims to have become aware of “I Gotta Feeling.” (*See,*
20 *e.g.*, Pringle Decl. ¶¶ 104-105.) Similarly, Ms. Frederiksen-Cross states that,
21 according to Beatport’s website, the tracks available as part of the remix contest
22 could only be downloaded from that website during August and September 2009.
23 (Cross Decl. ¶ 35.)

24 35. But this ignores the fact that Mr. Pringle could have obtained the
25 Beatport “I Gotta Feeling” stems from other sources. A quick Internet search for “I
26 Gotta Feeling Re-Mix Stems” revealed several websites that still offer the Beatport
27 re-mix stems for download. I downloaded those stems from one such website,
28

1 <http://letitbit.net/download4.php> on January 2, 2012 for free (a copy of the guitar
2 twang stem that I downloaded from that website is attached hereto as Exhibit D,
3 Audio Track 01), and determined that these are digital copies of the original
4 Beatport stems, encoded at the same high-quality 320 Kbs. Thus, the “I Gotta
5 Feeling” re-mix stems, including the guitar twang sequence, were available long
6 after the Beatport re-mix competition itself ended.

7 36. Moreover, Mr. Pringle testified during his deposition that the isolated
8 “I Gotta Feeling” guitar twang sequence is available “everywhere” and that he
9 actually downloaded re-mixes of “I Gotta Feeling” that had the guitar twang soloed
10 out. (Pringle Deposition 185-186.) In fact, Mr. Pringle testified that he was able to
11 sample The Black Eyed Peas’ vocals from one of the “I Gotta Feeling” re-mixes he
12 downloaded, and to insert them into his song. (Pringle Deposition 180-184.) And
13 in his declaration, Mr. Pringle acknowledges that “there are literally thousands of
14 these re-mixed versions that flooded the internets and YouTube.com long after the
15 Beat port re-mix context closed.” (Pringle Decl. ¶ 231.) It is therefore entirely
16 possible that Mr. Pringle obtained the guitar twang sequence from those re-mix
17 versions (if not the isolated guitar stem from Beatport itself) and then used the guitar
18 twang to create “Take a Dive” (Dance Version).

19 37. If any of those “I Gotta Feeling” re-mixes which Mr. Pringle
20 downloaded were available for analysis, they could shed additional light on whether
21 Mr. Pringle sampled the guitar twang sequence that appears in “Take a Dive”
22 (Dance Version) from those “I Gotta Feeling” re-mixes. Unfortunately, I
23 understand that Mr. Pringle has disposed of the computer hard drives he used during
24 2009 and 2010, thereby preventing any analysis of those computer files.

25 38. Mr. Pringle next claims that he could not have sampled the Beatport
26 guitar twang stem into “Take a Dive” (Dance Version) because the Beatport stem
27
28

1 was available in MP3 format,² which file format is not compatible with the ASR10.
2 (See, e.g., Pringle Decl. ¶ 114, 117.) Similarly, Ms. Frederiksen-Cross states it is
3 her “understanding” that the ASR10 “cannot read in or manipulate common sound
4 file formats such as MP3.” (Cross Decl. ¶ 28.) Mr. Pringle’s and Ms. Frederiksen-
5 Cross’s statements ignore the fact that the ASR10 has an on-board analog to digital
6 converter, which enables the ASR-10 to record in real-time from an analog source
7 such as the analog output from an MP3 player or computer.³ Further, only three
8 stereo samples (about 0.5 seconds each) would be required to make the guitar twang
9 sequence, well within memory limitations of the ASR10.

10 39. Indeed, Mr. Pringle acknowledges that, not only was it *possible* to
11 convert MP3 files into an ASR10-compatible format, but that he *actually did so*.
12 (Pringle Decl. ¶ 117(i)) (“I converted the isolated guitar twang sequence mp3 file
13 that was posted on Beatport.com, and provided to me by the Defendants, to a
14 working wave file (which the Ensoniq ASR-10 recognizes and can play).”). Thus,
15 the fact that the Beatport “I Gotta Feeling” guitar twang stem was available in MP3
16 format does not mean that Mr. Pringle could not have used that stem to create “Take
17 a Dive” (Dance Version).

18 40. Mr. Pringle next claims that, had he sampled from the “I Gotta Feeling”
19 Beatport guitar twang stem in MP3 format, the resulting wavesample in his NRG

21 ² I note that the document Mr. Pringle cites (Exhibit 23 to his Declaration) does not
22 state that the “I Gotta Feeling” Beatport stems were available only in MP3 format.
23 The cited document states that the “I Gotta Feeling” stems could also be
downloaded as a WAV file. (See Pringle Decl., Ex. 23 at 2 “The Rules” ¶ 1.)

24 ³ See http://www.deepsonic.ch/deep/manuals/ensoniq_asr10_manual.pdf ASR-10
25 Musician’s Manual, Preface (i) (“The ASR-10 features true stereo Sigma-Delta
26 (one-bit) 64 times oversampling technology with a selectable sample rate of 30kHz
27 or 44.1 kHz. Samples can be recorded from a variety of input sources audio inputs,
28 the optional DI-10 Digital I/O Board (consumer AES/EBU digital interface) or the
ASR-10’s own Main Audio Output (for resampling). The ASR-10 can sample while
the sequencer is playing, and can even sample its own sequencer playback.”)

1 creation file would have degraded sound quality, known as “fidelity”. (*See, e.g.*,
2 Pringle Decl. ¶¶ 119-120.) To test this hypothesis, I used critical listening analysis
3 to compare the isolated Beatport guitar twang stem with Pringle’s guitar twang
4 sample in his NRG file. If there was any degradation in fidelity due to low quality
5 MP3 encoding, that fidelity loss or artifacts would be audible. However, my
6 listening analysis determined that no such fidelity loss or artifacts were present.
7 (Copies of these recordings played back-to-back for listening evaluation are attached
8 as Exhibit D, Audio Track 2.)

9 41. To further test Mr. Pringle’s hypothesis, I analyzed the guitar twang
10 wavesamples from Mr. Pringle’s NRG file, as well as the Beatport “I Gotta
11 Feeling” guitar twang stem, using spectral analysis, which is used to analyze the
12 frequency content and dynamic range of a sound recording. (Screenshots of my
13 spectral analysis are attached hereto as Exhibit B)⁴ The results of this analysis
14 shows that the fidelity of the guitar twang samples in Mr. Pringle’s NRG file is no
15 better than the fidelity of the Beatport “I Gotta Feeling” guitar twang stem. Indeed,
16 the Beatport guitar twang stem was encoded in 320 Kbs, which is much higher
17 quality than most music MP3s which are commonly encoded at only 128 to
18 conserve hard drive space, but still deliver adequate sound quality.⁵ Thus, there is
19 no significant fidelity loss in the Beatport “I Gotta Feeling” guitar twang stem MP3
20 that would have prevented Mr. Pringle from using that file to create the guitar twang
21 sequence in “Take a Dive” (Dance Version).

22 42. Ms. Frederiksen-Cross similarly speculates that analyzing MP3 sound
23 files may not be a valid form of forensic analysis because different MP3s can be
24

25 ⁴ The colored bands of the spectral analysis represent the amount of energy that
26 exists at certain frequencies (vertical scale) over time (horizontal scale). The
27 frequency response and dynamic range largely determine the perceived “fidelity” of
28 a sound recording.

⁵ http://en.wikipedia.org/wiki/MP3#Audio_quality

1 created using different compression algorithms, encoders, and bit rates. (Cross
2 Decl. ¶¶ 54-56). Once again, this demonstrates Ms. Frederiksen-Cross's lack of
3 familiarity with accepted methods of forensic sound recording analysis. Analyzing
4 high quality MP3 files is a widely accepted method of comparing sound recordings.
5 Indeed, Mr. Pringle's own sound recording expert, Mark Rubel, analyzed both
6 Pringle's isolated guitar twang sequence and "I Gotta Feeling" in MP3 format.
7 (November 22, 2010 Declaration of Mark Rubel [Doc. 15-2] ¶ 4) ("I was provided
8 with three Mp3s to conduct my test").

9 43. Mr. Pringle claims it would have been impossible for him to have
10 inserted the entire 4 minute and 50 second Beatport "I Gotta Feeling" guitar twang
11 stem into his ASR-10 to create "Take a Dive" (Dance Version) because, Pringle
12 says, when he converted the Beatport guitar twang stem MP3 file into a format
13 which the ASR-10 would recognize, the resulting WAV file was 48.9 megabytes,
14 which exceeds the maximum amount of memory available in his ASR-10. (*See,*
15 *e.g.*, Pringle Decl. ¶¶ 117-118.)

16 44. As an initial matter, this is a mischaracterization of my work in this
17 matter. I never stated that Mr. Pringle could have copied the entire Beatport guitar
18 twang stem whole into the ASR10, but merely that the guitar twang samples in his
19 NRG disc match the Beatport guitar twang stem. In order for Mr. Pringle to have
20 used the Beatport "I Gotta Feeling" guitar twang stem to create "Take a Dive"
21 (Dance Version), Mr. Pringle would only have needed to sample one "twang" of
22 each of the three chords that make up the guitar twang sequence. Those individual
23 "twangs" would then be repeated by the ASR-10 to create the entire sequence.
24 These individual "twang" chord sounds are less than .5 seconds each. When
25 converted from MP3 file to stereo WAV file at 16 bits 44.1 Khz, the resulting .5 sec
26 WAV is 90 kilobytes in size (or 0.09 megabytes), which is far smaller than the
27
28

1 entire guitar twang stem that was available on Beatport and would easily fit into the
2 ASR-10's 16 megabytes of storage.

3 45. Mr. Pringle next asserts that it would have been impossible for him to
4 have copied from the final mixed version of "I Gotta Feeling" because it has "extra
5 layering", including "low notes", "extra notes" and a "Guitar Brut (Cycle)" layer
6 that do not appear in "Take a Dive" (Dance Version). (*See, e.g., Pringle Decl.* ¶¶
7 121-130, 138-139, 144.) While it is true that the *final mixed version* of "I Gotta
8 Feeling" has additional instrumentation that is not present in "Take a Dive" (Dance
9 Version), none of that additional instrumentation is present in the "I Gotta Feeling"
10 *guitar twang stem* that was available on Beatport.com. As discussed in my
11 November 14, 2011 Declaration, Mr. Pringle's isolated guitar twang is made up of
12 electronic copies of portions of the Beatport guitar twang stem, with no additional
13 layering or instrumentation. In other words, while there may have been other guitar
14 sounds and layers on the final mixed version of "I Gotta Feeling", the isolated
15 Beatport guitar twang stem did not contain any of those other sounds or layers. And
16 it is that Beatport guitar twang stem that Mr. Pringle could have copied in creating
17 "Take a Dive" (Dance Version).

18 **IX. Mr. Pringle's NRG File is Not a Sound Recording of "Take a Dive"**
19 **(Dance Version)**

20 46. Mr. Pringle claims that the separate instrument tracks on his NRG file
21 are the equivalent of a mixed sound recording of "Take a Dive" (Dance Version)
22 that he filed with the Copyright Office in 2010. (*See, e.g., Pringle Decl.* ¶¶ 159-163,
23 165, 168, 170-171.) While it is *possible* to re-create a mixed sound recording from
24 Mr. Pringle's NRG file that sounds like the deposit copy of "Take a Dive" (Dance
25 Version)—assuming one knows how to operate an ASR-10 and has Mr. Pringle's
26 instructions as to which instrument file must be loaded into which ASR-10 track
27 slot—there is no guarantee that loading the NRG file into an ASR-10 will yield a
28

1 sound recording that is the same as the deposit copy of “Take Dive” (Dance
2 Version) without Mr. Pringle’s instructions. Without Mr. Pringle’s step-by-step
3 instructions, it is possible to load the instrument files into the ASR-10 track slots in
4 any number of different combinations, each of which would result in a different
5 mixed sound recording. Mr. Pringle appears to recognize this when he says the
6 instrument files in his NRG file must be loaded “properly” into the ASR-10 in order
7 to hear “Take a Dive” (Dance Version). (*See, e.g.*, Pringle Decl. ¶¶ 165, 170.)

8 47. For the same reason, Pringle’s argument that playing “Take a Dive”
9 (Dance Version) from his NRG file is similar to pressing “play” on a reel-to-reel
10 magnetic tape is flawed. (*See* Pringle Decl. ¶¶ 167-170.) Mr. Pringle is not clear as
11 to whether he is referring to a reel-to-reel tape recorder intended to play back mixed
12 works, or a multi-track recorder that would require a mixer and other sound
13 processing gear to hear a proper mix. To the extent he is referring to the former,
14 that would not be similar to Mr. Pringle’s NRG file, because a reel-to-reel tape
15 mixed sound recording is intended to play back a single mixed version of a musical
16 work whereas Mr. Pringle’s NRG file is intended to maintain the flexibility to create
17 any number of different mixed sound recordings, depending how processing and
18 wavesamples are assigned in the ASR-10. Depending on how the data on the NRG
19 file is manually loaded into the ASR-10, radical changes can occur, such as
20 assigning a musical part intended for a guitar to be played back with the sound of a
21 drum set, and parts can later be added and deleted. To the extent Mr. Pringle is
22 instead referring to a multi-track recording, that recording is also in a flexible state
23 and can be used to create any number of mixed sound recording, as could Pringle’s
24 NRG file.

25 48. Mr. Pringle also implies that my description of the difficulty involved
26 in re-creating “Take a Dive” (Dance Version) from the NRG file means that I was
27 not able to do so. (*See, e.g.*, Pringle Decl. ¶¶ 171-177.) That is not correct. I was
28

1 able to load the NRG file into the ASR-10 to hear “Take a Dive” (Dance Version),
2 but only by following Mr. Pringle’s instructions as to which instrument files must be
3 loaded into which slot in the ASR-10.

4 **X. Mr. Pringle’s Criticisms of Mr. Riesterer’s “I Gotta Feeling” Creation**
5 **Files Do Not Affect My Analysis**

6 49. Mr. Pringle raises a number of alleged “inconsistencies” in Mr.
7 Riesterer’s music creation files for “I Gotta Feeling.” (*See, e.g.*, Pringle Decl. ¶¶
8 234-245.) Although it is difficult to determine what conclusion Mr. Pringle draws
9 from these alleged “inconsistencies,” none of them affect my analysis of Mr.
10 Riesterer’s “I Gotta Feeling” creation files nor my conclusion that Mr. Riesterer
11 used the MIDI file representation in his Logic session file to create the guitar twang
12 sequence heard in “I Gotta Feeling” without sampling from Mr. Pringle. In fact my
13 conclusions are entirely based on forensic analysis of sound recordings and does not
14 rely in any way on computer file creation dates. I have used file dates only to
15 indicate which files I am referring to.

16 50. Mr. Pringle first states that various files within Mr. Riesterer’s Logic
17 session file—“Clave Percussion Loop 01.caf”, Guitar Bass 1.aif”, “GTRR Lead
18 1.aif”,⁶ “loop kick.aif”, “0.6s_Snare Hall.SDR”—have creation dates before Mr.
19 Riesterer copied those files onto an external hard drive. (*See, e.g.*, Pringle Decl. ¶¶
20 235-236, 244.) However, with the exception of “GTRR Lead 1.aif”, none of those
21 files relate to the guitar twang sequence in “I Gotta Feeling,” which was the focus of
22 my analysis. Thus, none of them are relevant to my analysis. In addition, the fact
23 that these other files have creation dates from before Mr. Riesterer began working
24 on “I Gotta Feeling” is likely because Mr. Riesterer used samples that he had used in
25

26 ⁶ Mr. Pringle cites a file named “Guitar Lead 1.aif” in paragraph 235 of his
27 declaration, but as Exhibit 3 to his declaration shows, that file is actually “GTRR
28 Lead 1.aif.”

1 other earlier projects, which is common in creating electronic music. Moreover, I
2 note that “GTRR Lead 1” itself has a creation date of October 17, 2008—the date
3 Mr. Riesterer testified he began working on “I Gotta Feeling.”

4 51. Mr. Pringle next asserts that several of Mr. Riesterer’s individual
5 files—including “_VEE Electro Loop 003.wav” and “_VEH3 Claps 001.wav”—
6 have creation dates after “I Gotta Feeling” was released in 2009. (*See, e.g.*, Pringle
7 Decl. ¶¶ 238-239.) However, as with the files discussed above, none of these files
8 are related to the guitar twang sequence, and thus they do not affect my analysis. In
9 addition, the fact that these files have creation dates from after “I Gotta Feeling”
10 was released is likely the result of Mr. Riesterer having opened and used those files
11 in connection with newer music projects, thus building from an older project, which
12 is also common when creating electronic music.

13 52. Mr. Pringle next asserts that a file named “documentData” within Mr.
14 Riesterer’s Logic session file contains a reference to a “Motu 828mk3 Hybrid
15 Firewire/USB Audio Interface” which was not sold until January 2011. (Pringle
16 Decl. ¶¶ 240-242.) However, this does not raise any questions as to whether Mr.
17 Riesterer’s Logic session file was used to create the music for “I Gotta Feeling.”
18 That is because the Logic session file has the ability to log whichever external MIDI
19 interfaces are connected to the computer. I understand that Mr. Riesterer did
20 acquire a the Motu 828mk3 Hybrid Firewire/USB Audio Interface referenced above
21 in the spring of 2011, and that he had that device connected to his computer when he
22 opened the Logic session file to confirm it was the correct file before it was
23 produced in the litigation. Thus, the reference to the 828mk3 Hybrid Audio Interface
24 in the Logic file does not mean that Mr. Riesterer did not use the Logic session file
25 to create the music for “I Gotta Feeling” in 2008, but merely reflects the fact that the
26 equipment that was connected to Mr. Riesterer’s computer system in 2011 and was
27 logged before the file was produced in the litigation.
28

1 53. In addition, I note that, when I open Mr. Riesterer’s Logic session file
2 to play the guitar twang sequence using the Logic Pro software, I was not prompted
3 to connect an 828mk3 audio interface, but rather different audio interfaces—a
4 Unitor 8 and AMT8 MIDI—both of which have been available since 2000⁷. Thus,
5 there is no indication that the hardware Mr. Riesterer used to create the music for “I
6 Gotta Feeling” was not available in October 2008 when Mr. Riesterer testified to
7 having begun creating the music.

8 I declare under penalty of perjury that the foregoing is true and correct.
9 Executed this 9th day of January, 2012.

10
11
12 

13
14

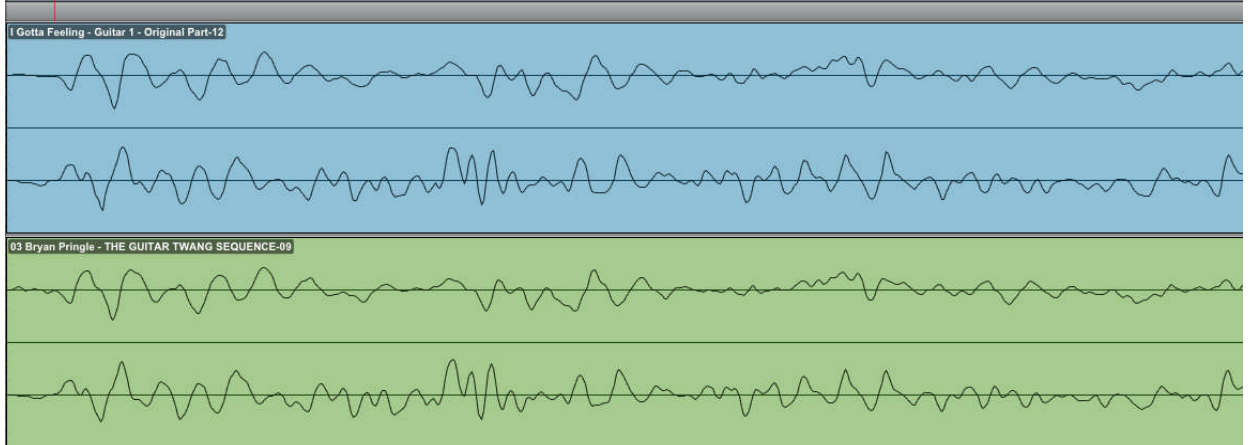
Paul Geluso

15
16
17
18
19
20
21
22
23
24
25
26
27

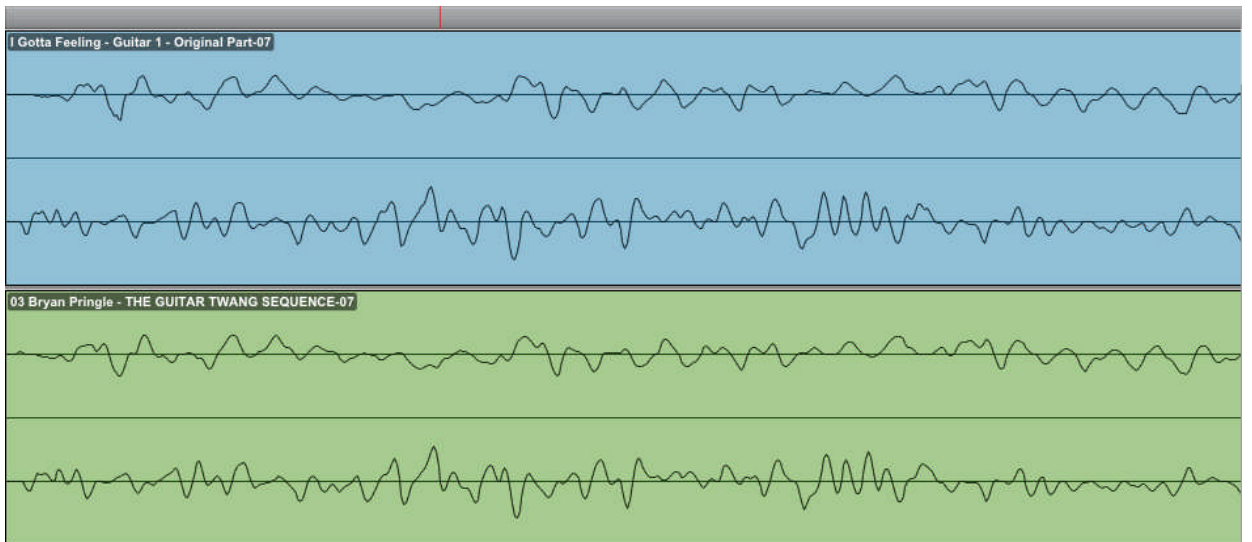
⁷www.soundonsound.com/sos/apr98/articles/unitor8.html

28 www.soundonsound.com/sos/jan00/articles/emagicamt8.htm

Exhibit A

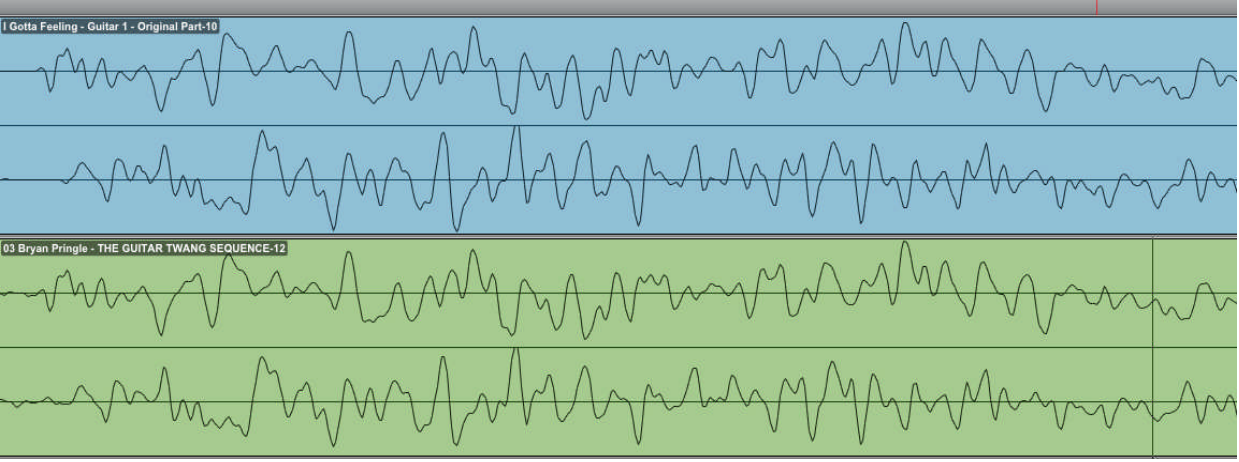


Waveform Analysis: 10 millisecond comparison of the first isolated guitar twang chord in “I Gotta Feeling” from Beatport (top two) and the first guitar twang chord of “Bryan Pringle - isolated guitar twang sequence” (Exhibit 3 to Rubel Report) (bottom two)



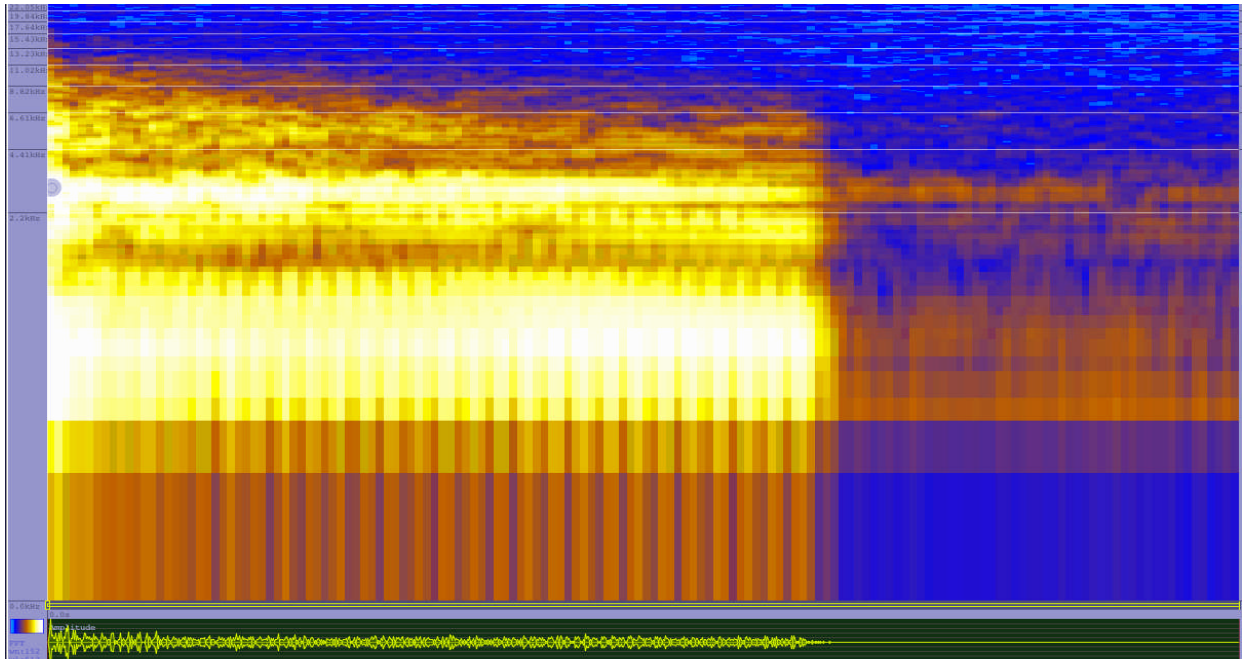
Waveform Analysis: 10 millisecond comparison of the second isolated guitar twang chord in “I Gotta Feeling” from Beatport (top two) and the second guitar twang chord of “Bryan Pringle - isolated guitar twang sequence” (Exhibit 3 to Rubel Report) (bottom two)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



Waveform Analysis: 10 millisecond comparison of the third isolated guitar twang chord of “I Gotta Feeling” from Beatport (top two) and the third guitar twang chord of “Bryan Pringle - isolated guitar twang sequence” (Exhibit 3 to Rubel Report) (bottom two)

Exhibit B



These screenshots represent a Spectral analysis of the first chord of the isolated guitar twang stem. The vertical axis is frequency from 0 to 20Khz, the horizontal axis is time from 0 to 0.45 seconds, and the colors represent energy bands. Above is from the Beatport “I Gotta Feeling” remix competition, below is Bryan Pringle’s isolated guitar twang sample.

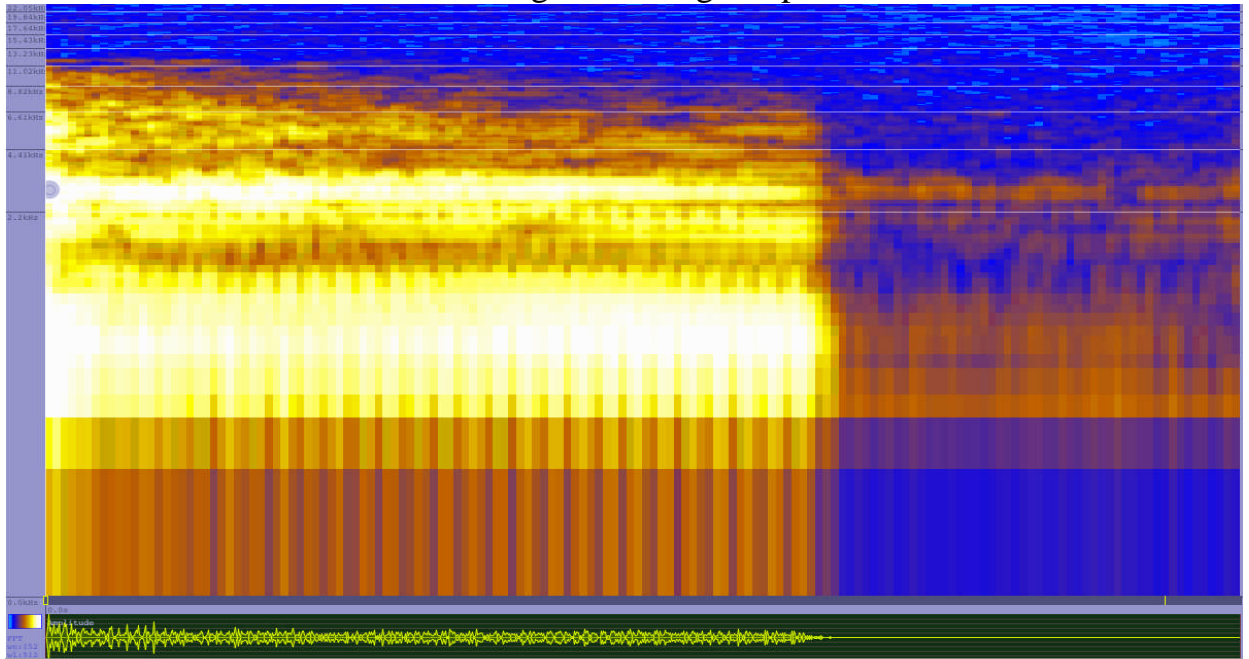
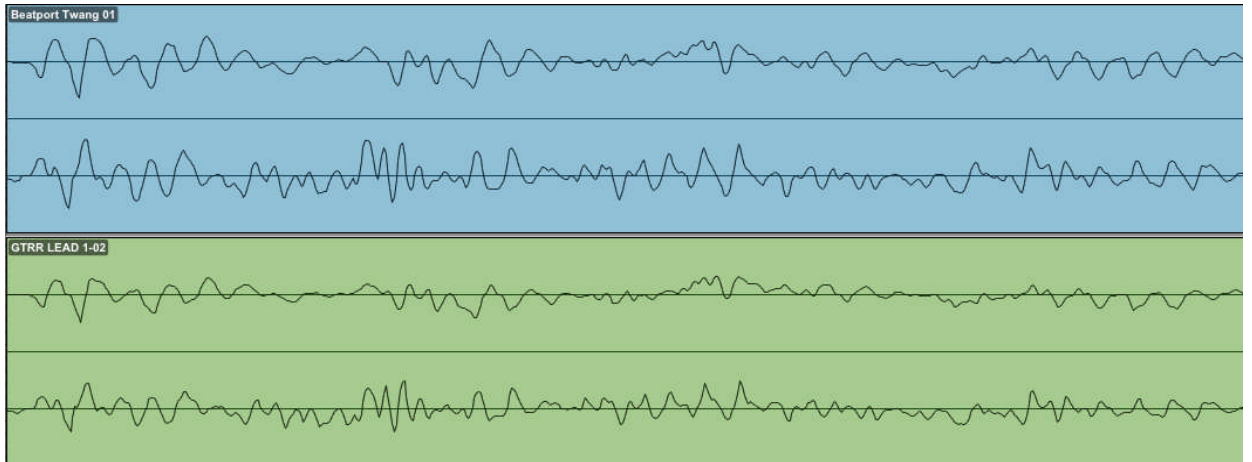


Exhibit C



Waveform Analysis: first 12 milliseconds of the Beatport “I Gotta Feeling” guitar twang stem (top two) and first 12 milliseconds of “GTRR Lead 1” (bottom two) from Defendants’ “David Pop Guitar” Logic session audio files folder. The sound recording for the guitar twang sequence in “I Gotta Feeling” is a copy of Mr. Riesterer’s “GTRR Lead 1” sound recording.

Exhibit D: AUDIO FILES

Track 01

The 320Kbs isolated guitar twang sequence from “I Gotta Feeling” I downloaded from <http://letitbit.net/download4.php> on January 2, 2012 titled “10-the_black_eyed_peas-i_gotta_feeling_-_guitar_1_(original_part)-epicfail.mp3”

Track 02

A sequence of guitar chords to aid the evaluation of fidelity loss between the “I Gotta Feeling” guitar twang sequence available as an isolated track on Beatport.com to Bryan Pringle’s guitar twang sequence in rapid succession:

a) The first chord from Beatport followed by the first chord of Bryan Pringle’s guitar twang sequence.

b) The second chord from Beatport followed by the second chord of Bryan Pringle’s guitar twang sequence.

c) The third chord from Beatport followed by the third chord of Bryan Pringle’s guitar twang sequence.

Track 03

GTRR Lead 1 - the rendering of the guitar twang sequence with processing as it appears in “I Gotta Feeling” taken from the files associated with Mr. Riesterer’s “David Pop Guitar” Logic session.

Curriculum Vitae : Paul Geluso

Academic Degrees

Masters of Music in Music Technology - New York University (1999)

Bachelor of Science in Electrical Engineering - New Jersey Institute of Technology (1988)

Work Experience

Full-Time Master Teacher, Chief Recording Engineer - New York University (2011)

Adjunct Faculty - New York University (1992 to 2011)

Visiting Professor - The Peabody Institute (2008-2009)

Visiting Professor of Music and Sound Recording - Bard College (2007)

Full Time Lecturer - State University of New York at Oneonta (2003-2005)

Chief Sound Engineer - Studio PASS Harvestworks Digital Media Arts (1993 – present)

Sound Editor and Mixer - outpost Digital, Radical Media, HBO, Miramax, MTV II (2002-2003)

Free-Lance Audio Engineer (1992 – present) (see discography below)

Expert Testimony (last 4 years)

Deposition testimony in *Kernel Records OY v. Mosley*, Case No. 09 Civ. 21597 (S.D. Fla.)

Awards

2004 James E Robison Foundation - Special Artists Grant, Composition

2004 Faculty Initiated Research Grant - SUNY Oneonta

2002 James E Robison Foundation - Special Artists Grant, Composition

2003 Meet The Composer - Performance Grant

2001 New York State Council For The Arts - Individual Artist Grant

Discography

2011 *Manorexia "Dinoflaellate Blooms"* (JG Thirwell) Octopic, 5.1 DVD mixer

2011 *I Night* (Dominatrix re-mix) Opelic Records, co-producerr, mix engineer

2011 *Manhattan Camerata* (Manhattan Camerata), recording and mix engineer

2011 *Don't Wake Me* (A Taut Line & Hong Kong In The 60s) Disktopia, remixer

2010 *Christmas From The Blue Note* (Various Artists) Half Note Records, enginner

2010 *The World Below G and Beyond* (Mari Kimura) Mutable Music, engineering

2010 *Nord* (Ike Yard) Desire Records, production and engineering

2010 *Complete String Quartets* (Iannis Xanakis) Mode Records, 5.1 DVD mixer

2010 *Ost* (Ike Yard) Phisteria Records, recording and mix engineer

2009 *Plastic Materials* (Marina Rosenfeld) Room40, mastering
2009 *Out Of My Hands* (Christopher O'Riley) White Tie Classics, producer and engineer
2009 *Sourmash* (George Lewis and Marina Rosenfeld) Innova, mixing and mastering
2009 *Faulty* (Andea Parkins) Important Records, engineering
2009 *Seven Sounds Seven Circles* (Lothar Baumgarten) Kunsthous Bregenz, mixer, mastering
2009 *Now Then After* (Various Artists) Tellus , 5.1 DVD mixer
2008 *Comic Tales of Tragic Heartbreak* (Robert Whaley) producer and engineer
2008 *Sonogram* (Gamelan Son Of Lion) INNOVA, recorded, mixed and mastered
2008 *City Of A Gods Son , A Hip Hop Opera* (Kenzo) mastering
2008 *Lock and Load* (Gambler Nun Radio) Vurse, producer and engineer
2007 *Bloodwine* (Gambler Nun Radio) Vurse, producer and engineer
2007 *15:15* (Bai Kamara Jr) Bang Records, mastering
2006 *Freddie And Me* (Little Annie) Durtro, bass
2006 *Iva* (Iva) Vurse, co – producer/engineer, bass
2006 *1980-92 Collected* (Ike Yard) Acute Records, re-mastering engineer
2006 *Songs From The Coal Mine Canary* (Little Annie) Durtro Jnana, bass
2006 *Pac-Man Mission* (Paul Geluso) Greeting Cats Music, composer and producer
2005 *Fernando Landeros* (Fernando Landeros) Forte Records, recordist and mix engineer
2005 *Sound Bites* (John Davey) Lil' Pumkin Records, engineering and mixing
2005 *Two Novels: Gaze / In the Cochlea* Crónica 012~2004 (o.blaat), engineering and mixing
2005 *Perles Noises* (Sunny Murray) Eremite Records, engineering
2004 *Meditations For Piano* (Borah Bergman) Tzadik, engineering and editing
2004 *Prismatic Hearing* (David Simons) Tzadik, engineering and mixing
2004 *The Bi Conical Of The Rammellzee* (Rammellzee) Goma, bass, engineering and mixing
2004 *DCC America* (Death Commit Crew) Troubleman, engineering and mixing
2004 *This Is Riphop* (Death Commit Crew) Troubleman, engineering and mixing
2004 *Don't Stop Remix* (Tussle) Troubleman, Re-Mix engineering and mixing
2004 *And the Black Moths Play the Grand* (Dean Roberts) Staubgold, engineering
2003 *The Birth of George* (Simons Carrer Band) Tellus Media, engineering and mixing
2003 *Sonic Images* (Society of Composers Inc) Capstone, mastering
2003 *Hea-Yanomami Recordings* (Stephen Vitiello) Cartier Foundation, mixing
2003 *The Open Rhythm Section* (The Beat Kids) Freestylus Records, engineering and mixing
2003 *Borah Bergman and Thomas Chapin* (Bergman) Boxholder Records, eng
2003 *What is it Like To Be A Bat* (Brazelton/Naphtali) Tzadik, live electronics
2002 *Underwater Adventure Hop Secret Treasure* (Secret Frequency Crew), mixing
2002 *Bending The Gending* (Gamelon Son of Lion) GSOL Records, engineering and mixing

- 2002 *Alan Silva & The Sound Visions Orchestra* (Alan Silva) Erimite, engineering
- 2001 *Raincoat In The River* (William Parker) Eremita Records, mixing
- 2001 *I Fell in Love With A Dead Boy* (Antony and the Johnsons), recordist
- 2001 *Deep Blue* (Secret Frequency Crew) Counterflow Recordings, mastering
- 2001 *Of Silver Sleep* (Backworld) Harbinger House, bass
- 2001 *Home Wreckcordings* (Rebecca Moore) Knitting Factory Records, mastering
- 2001 *Dance Manatee* (Avey Tare, Panda Bear & Geologist) Catsup Plate, mastering
- 2001 *Bright And Dusty Things* (Stephen Vitiello) New Albion Records, engineering
- 2001 *The Fourth Wall* (Backworld) World Serpent UK, bass
- 2001 *Anymore* (Children in Adult Jails) BWJ records, drums, producer
- 2001 *Radio Guitar* (Peggy Ahwesh/Barbara Ess) Ecstatic Peace!, mastering
- 2001 *Borah Bergman & Roscoe Mitchell* (Bergman) Soul Note, engineering and editing
- 2000 *A Sun Came* (Sufjan Stevens) Asthmatic Kitty, mastering (original release)
- 2000 *Anthems From Pleasure Park* (Backworld) World Serpent UK, bass
- 2000 *NU: Cultural Alchemy* (Singe and Verb) Soundlab, bass
- 2000 *Scratchy Marimba* (Stephen Vitiello) Beggar's Banquet/Sulphur, bass, engineering and mixing
- 2000 *Night and Day II* (Joe Jackson) SONY, MIDI technician
- 2000 *Attention 2001 State of the Union* (Toni Dove) EMF, engineering
- 2000 *Joe The King* (feature film) movie soundtrack, bass and mixing
- 1999 *Radiance* (Susie Ibarra Trio) Hopscotch Records, mixing
- 1999 *Anthems from The Pleasure Park* (Backworld) Harbinger House, bass
- 1999 *World Trade Center Recordings* (Stephen Vitiello), mixing
- 1999 *Uitti/Vitiello* (Frances-Marie Uitti/Stephen Vitiello) JDK, engineering and mixing
- 1999 *The Hollow World* (Assif Tshar) Hopscotch Records, mastering
- 1999 *Absolute Ensemble* (Adams/Schoenberg) CCnC Records, recordist and mixing
- 1999 *A New Organization* (Lake, Bergman) Black Saint/Soul Note, editing and mixing
- 1999 *World of Darkness* (Stephen Vitiello) Postmasters Gallery, engineering
- 1998 *Matrikamantra* (Lydia Lunch) Cripple Dick Hot Wax, mastering
- 1998 *B/Side* (Ikue Mori) Tzadik, recording and mixing
- 1998 *Isles of the Blessed* (Backworld) Harbinger House, mastering
- 1998 *Emergency Music* (Judy Dunaway) CRI, engineering and mixing
- 1998 *Light of Falling Cars* (Stephen Vitiello) JDK Productions, bass, engineering and mixing
- 1998 *Salsa Strut* (Rick Davies) MSR, engineering and mixing
- 1998 *Vadim Ghin piano* (Liszt/Ginatera/Mussorgsky) Forte Records, recordist and mixing
- 1997 *The Short Form* (Raphe Malik) Eremita Records, mastering

- 1997 *Ikosa Mura* (Frode Gjersted Quartet) Cadence Jazz Records, mixing and editing
- 1997 *Every Screaming Era* (Dr. Nerve) Cuneiform Records, engineering and mixing
- 1997 *The Computer and the Computer Age* (Larry Austin) Centaur, engineering
- 1997 *Exhilaration* (Bergman/Brotzman/Cyrille) Soul Note, engineering
- 1997 *Monsters From The Deep* (Ned Sublette) Qbadisc Records, engineering
- 1997 *Binky Boy* (Nick Didkovski) Punos Music, engineering and mixing
- 1997 *Blue Zoo* (Borah Bergman) Konnex Records, mixing and editing
- 1997 *Bergman/Braxton/Brotzman* (Borah Bergman) Mixtery Records, mixing and editing
- 1997 *Eight By Three* (Anthony Braxton, Borah Bergman), mixing and editing
- 1997 *The Aquartet* (Mateen, Schmoyer, Lopez, Geluso) Riveting Music Works, bass
- 1996 *FINland* (Christopher Cauley) Eremite Records, mixing and mastering
- 1996 *Urban Archaeology* (The Far East Side Band) VICTO, mastering
- 1996 *Spasm* (Michael Lowenstein) New World Records, engineering
- 1996 *The Short Form* (Raphe Malik) Eremite, mastering
- 1995 *Stone House* (Borah Bergman, Hamid Drake) Black Saint, mixing and editing
- 1995 *The First Meeting* (Bergman, Roscoe Mitchel) Knitting Factory, mixing and editing
- 1995 *Ride Into The Blue* (Bergman, Brotzmann, Borgman) Konnex, mixing and editing
- 1993 *In The Dark* (Dopey Dummy/5chin400) New World Of Sound, bass
- 1992 *Hey God Stop Pushing* (5chin400) Earl Footlong Records, bass

Film / Video

- 2007 *Falling Away* (feature film) 5.1 mixer
- 2007 *Tea and Justice* (documentary) mixer
- 2005 *Charming Augustine* (experimental film) mixer
- 2004 *The Time We Killed* (feature film by Jennifer Reeves) mixer
- 2004 *Kill Bill Vol II* (Miramax TV spot) mixer
- 2004 *Ella Enchanted* (Miramax TV spot) mixer
- 2004 *Battle Grounds* (MTV II series) mixer
- 2004 *Not A Good Look* (MTV series) mixer
- 2003 *Company K* (feature film) mixer
- 2000 *Joe The King* (feature film) music production, bass
- 2000 *God on Their Side* (feature film) audio post
- 2000 *Bleach* (feature film) mixer
- 1998 *Daughters of the Troubled* (documentary) music mixer
- 1998 *Darling International* (feature film by Jennifer Reeves) mixer
- 1996 *Big Jim Folsom; The Two Faces of Populism* (documentary) mixer

1995 *Wild Style* (hip-hop cult-classic feature film) audio post for re-release

Interactive and Sound Installation

- 2011 *Blue Morph* by Victoria , Interactive Sound and Video system design and interactive programming. Govenors Island NYC
- 2011 *Nidus Vitreo* by Josely Carvalho , Interactive Sound and Video system designer, Museu Nacional de Belas Artes, Rio de Janeiro
- 2010 *Cannons*, performance and sound installation commissioned by the Faster Than Sound Festival created for Marina Rosenfeld presented at Aldenburg Music, Suffolk UK
- 2007 *The Luminists*, a 5.1 sound installation made in collaboration with Melanie Crean
- 2007 *Desencantando Salmu*, Sound design for installation by Josely Cravalho.
- 2006 *Homage to a Site*, a solo sound installation the Space Gallery, London
- 2005 *Sound Canvas*, a multi-channel sound installation created for the DUMBO Arts festival
- 2004 *Inside Out*, a site specific 5.1 sound installation at the Roxbury Arts Group

Music Composition Dance

- 2010 *Drawing the Body*, a sound score created and performed live for Molly Davies at North Hampton gallery.
- 2005 *Dancing by Numbers*, a live sound score created and performed live for Polly Motley performed St. Marks Church reviewed by the New York Times
- 2005 *Drawing the Body*, a sound score created and performed live for Molly Davies at Smith College
- 2004 *VARIABLE CITY*, a sound and music score commissioned by Julia Mandle Performance presented at the VanEllen Institute
- 2003 *FEAST*, sound and music sound score commissioned by Julia Mandle Performance installed at The Stable
- 2001 *RETURN*, a music and sound score commissioned by Julia Mandle Performance presented at Gale Gates et al
- 1999 *SIX SQUARES*, a music and sound score commissioned by Julia Mandle Performance at Vito Acconci's Storefront for Art and Architecture
- 1999 *WHEN*, a music score commissioned by Julia Mandle Performance performed at The New Museum of Contemporary Art