



**STATE OF CONNECTICUT, DEPARTMENT OF PUBLIC SAFETY-
INVESTIGATION REPORT (DPS-302-E) (REVISED 2/3/06)**

Report #: 1200704559 - 00182028

Report Type: Initial Report: Prosecutors Report: Supplement: Re-open: Assist: Closing:

Attachments: Statements: Teletype: Photos: Sketchmap: Evidence: Other:

CFS NO 1200704559	INCIDENT DATE 12/14/2012	TIME 09:41	INCIDENT DATE 12/14/2012	TIME	PRIMARY OFFICER JEWISS, DANIEL E.	BADGE NO 0336	INVESTIGATING OFFICER PETERS, ALISON A.	BADGE NO 0816
INCIDENT ADDRESS 00012 Dickinson Dr/ Newtown 06482					APARTMENT NO	TOWN CD	TYPE OF EXCEPTIONAL CLEARANCE Not Applicable	CASE STATUS Active

ACTION TAKEN: On 08/02/13 at 1010 hours, Troop A Evidence Officer TFC Mo received, via FedEx, the final recorded gunshot analysis report and four CD recordings from Paul Ginsberg of Professional Audio Laboratories, NJ. One of the recordings was entered into evidence as Exhibit # 000369A: Revised analysis of gunshots. Exhibit # 000369A is the final draft of Exhibit # 000369. The other three recordings were relabeled as working copies. An additional working copy of the recording was made and labeled, for a total of four working copies that are attached to this report (SEE ATTACHED CDs AND COMPLETE GINSBERG REPORT).

In the final report of the recorded gunshots heard during the three 911 calls and the Newtown police officer's dash camera , Paul Ginsberg was able to isolate what was believed to be gunshots heard on those recordings. Ginsberg was able to determine that the following number of gunshots per recording can be heard:

- 04** call: 13 gunshots
- 04** call: 8 gunshots
- Thorne's call: 9 gunshots
- Chapman's video: 8 gunshots

Ginsberg informed me that he was able to determine that what was thought to be gunshots heard on **04**'s call was dispatch radio interference. In his report, Ginsberg provided the times of the gunshots. Those times given were the elapsed times from the beginning of the play of the audio files. In order to have a visual, side by side, plot of all the gunshots, I created a word document that is attached. I placed the names of the files that contain the gunshots in the sequential order of the placement of the call. I then took the elapsed time of the gunshot and added it to the start time of the call (which is noted in parenthesis) to get a relative time that the gunshot occurred. I found these times to be consistent and within the times

THE UNDERSIGNED, AN INVESTIGATOR HAVING BEEN DULY SWORN DEPOSES AND SAYS THAT: I AM THE WRITER OF THE ATTACHED POLICE REPORT PERTAINING TO THIS INCIDENT NUMBER. THAT THE INFORMATION CONTAINED THEREIN WAS SECURED AS A RESULT OF (1)MY PERSONAL OBSERVATION AND KNOWLEDGE; OR (2)INFORMATION RELAYED TO ME BY OTHER MEMBERS OF MY POLICE DEPARTMENT OR OF ANOTHER POLICE DEPARTMENT;OR (3)INFORMATION SECURED BY MYSELF OR ANOTHER MEMBER OF A POLICE DEPARTMENT FROM THE PERSON OR PERSONS NAMED OR IDENTIFIED THEREIN, AS INDICATED IN THE ATTACHED REPORT. THAT THE REPORT IS AN ACCURATE STATEMENT OF THE INFORMATION SO RECEIVED BY ME.				
INVESTIGATOR SIGNATURE: TFC ALISON A PETERS/ <i>[Signature]</i>	INVESTIGATOR I.D.#: 0816	REPORT DATE: 08/27/2013 03:32 pm 02248	SUPERVISOR SIGNATURE: <i>[Signature]</i>	SUPERVISOR I.D.#: 150



STATE OF CONNECTICUT, DEPARTMENT OF PUBLIC SAFETY-
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noted by me while listening to the 911 calls initially. On the chart, the two final gunshots, recorded are designated by an "*" indicating what is believed to be first shot from the handgun (*) and the suicide shot of the shooter (**). Refer to word document.

CASE STATUS: This case will remain pending further investigation.

THE UNDERSIGNED, AN INVESTIGATOR HAVING BEEN DULY SWORN DEPOSES AND SAYS THAT: I AM THE WRITER OF THE ATTACHED POLICE REPORT PERTAINING TO THIS INCIDENT NUMBER. THAT THE INFORMATION CONTAINED THEREIN WAS SECURED AS A RESULT OF (1)MY PERSONAL OBSERVATION AND KNOWLEDGE: OR (2)INFORMATION RELAYED TO ME BY OTHER MEMBERS OF MY POLICE DEPARTMENT OR OF ANOTHER POLICE DEPARTMENT:OR (3)INFORMATION SECURED BY MYSELF OR ANOTHER MEMBER OF A POLICE DEPARTMENT FROM THE PERSON OR PERSONS NAMED OR IDENTIFIED THEREIN, AS INDICATED IN THE ATTACHED REPORT. THAT THE REPORT IS AN ACCURATE STATEMENT OF THE INFORMATION SO RECEIVED BY ME.

INVESTIGATOR SIGNATURE: TFC ALISON A PETERS/ <i>[Signature]</i>	INVESTIGATOR I.D.#: 0816	REPORT DATE: 08/27/2013 03:32 pm 02249	SUPERVISOR SIGNATURE: <i>[Signature]</i>	SUPERVISOR I.D.#: 130
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CHART OF RECORDED GUNSHOTS AT SANDY HOOK ELEMENTARY SCHOOL

THORNE	04	04	CHAPMAN
(09:36:13)	(09:38:00)	(09:38:43)	(09:37:39)
09:39:22	09:39:22		
09:39:24			
09:39:25	09:39:25	09:39:25.14	
		09:39:25.78	
09:39:26		09:39:26	
09:39:27			
09:39:28			
	09:39:29.01		09:39:29.31
	09:39:29.93		09:39:29.93
		09:39:30	
		09:39:31	09:39:31
09:39:33	09:39:33	09:39:33	09:39:33
		09:39:34	09:39:34
			09:39:35
	09:39:36	09:39:36	
	09:39:38	09:39:38	
			09:39:39
09:39:40		09:39:40.10	09:39:40
		09:39:40.98	
*09:39:59	*09:39:59	*09:39:59	
		**09:40:03	

*= First shot from the handgun

** = Suicide shot of the shooter

PROFESSIONAL AUDIO LABORATORIES

*311 Chelsea Manor
Park Ridge, NJ 07656*

*PAUL GINSBERG
PRESIDENT*

www.proaudiolabs.com

*(201) 664-8333
fax (201) 746-0695*

August 1, 2013

State of Connecticut
Dept of Emergency Services and Public Protection
Western District Major Crimes Squad
Attn: Detective Alison Peters

Re: Sandy Hook elementary School Shooting, CFS-12-00704559 P.O. No. 31634
 Analysis of Audio Recorded Gunshots

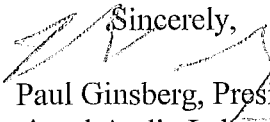
Dear Detective Peters,

Enclosed you will find four updated CDs containing files where all voices have been muted, and my report describing procedures used to download files and isolate gunshots, complete with charts and plots.

In addition to plots of the full files, I have prepared expanded plots to assist in identifying the gunshots. Also, the charts contain precise elapsed times for each observed gunshot.

Note that the CDs containing muted voice and noise are in WAV file format, compatible with PC and laptop computers using Windows Media Player software. The files can be played while viewing the corresponding plots, to assist the listener.

Please call if there are any questions, or if there are additional recordings to be examined.


Sincerely,

Paul Ginsberg, President
Professional Audio Laboratories, Inc.

**Sandy Hook, Connecticut
Analysis of Gunshots
Recorded on 911 calls and Dash-Cam**

By

**Paul Ginsberg, President
Professional Audio Laboratories, Inc.**

INTRODUCTION

Professional Audio Laboratories specializes in the enhancement, forensic examination, and presentation of audio and video taped evidentiary material. The company has been in existence for 38 years with Paul Ginsberg as its president.

During the past 38 years Professional Audio Laboratories has analyzed, enhanced and supervised the courtroom presentation of thousands of taped conversations including telephone calls, consensual meetings, video-taped meetings, as well as room bugs and body recordings recorded in various formats including Nagra, KEL, SME, Dash-cam, cassette, micro-cassette, reel, aircraft black-box, and digital recorders designed for law enforcement surveillance.

We have been court-qualified as expert, and have rendered expert testimony on 175 occasions in 35 Federal districts as well as in Canada. We have testified for prosecution, as well as defense.

ITEMS RECEIVED FOR EXAMINATION

Five CDs and one DVD were received for examination and analysis. They were labeled, as follows:

Connecticut State Police Western District Major Crimes Squad Ex. #349 Working Copy, CFS-12-00704559 Newtown School Shooting Item #2 Time (9:36:00) 04
[REDACTED] (Room #9) call to CSP

Connecticut State Police Western District Major Crimes Squad Ex. #349 Working Copy, CFS-12-00704559 Newtown School Shooting Item #7 Time (9:38:00) 04
[REDACTED]s (Room #1) 911 call to CSP

Connecticut State Police Western District Major Crimes Squad Ex. #336 Working Copy, CFS-12-00704559 Newtown School Shooting 911 trunk #1 (0:35:39) 04
[REDACTED] (Nurse's Office) 911 call to CSP

Connecticut State Police Western District Major Crimes Squad Ex. #349 Working Copy, CFS-12-00704559 Newtown School Shooting Item #1 time (9:35:43) Custodian Rick Thorne's 911 call to CSP

Connecticut State Police Western District Major Crimes Squad Ex. #336 Working Copy, CFS-12-00704559 Newtown School Shooting Trunk 3 (9:36:13) Custodian Rick Thorne's 911 call transferred to Newtown from CSP

All CDs bore the insignia of the Connecticut State Police.

SCOPE OF WORK

Five CDs and one DVD were furnished for examination. The aim was to locate recorded gunshots, identify the exact times, prepare files with only gunshots and no other voices or background noise, prepare a chart of the number of gunshots and exact elapsed times of each, and to prepare a written report.

PROCEDURE

Initially each of the CDs and the DVD were examined to determine their contents. A chart was prepared of the length of each recording, the type of file, and ultimately the number of gunshots located on each recording. SEE "RECORDINGS" CHART.

All of the audio files from 911 calls were converted to high-resolution WAV files for examination. The DVD Dash-Cam file audio portion was separated and converted to a high-resolution WAV file as well. Only the initial 5 minutes of this file was studied, as per notes supplied from officers who had reviewed the files before delivery.

The files were examined for discontinuities in recording. There was no evidence of erasures, breaks, over-recordings or erasures. All received files were observed to be authentic.

The files were played repeatedly, and digitally slowed to assist in identification of gunshots. A tabulation was prepared for each recording, indicating the number of gunshots, as well as their exact elapsed time in their respective files, to an accuracy of one ten-thousandth of a second. SEE "RECORDED GUNSHOT CHART".

Next, precision editing was performed to produce audio files containing only the gunshots, digitally muting all recorded voices and background sounds between gunshots. In the case of speech coincident with a gunshot, only the part of the speech that overlaps the gunshot is saved.

Plots were made of the files showing the gunshots, along with plots of the original files. In each case, for the sake of clarity, once all of the sounds in between gunshots were muted, the gunshot levels were increased, for visibility.

In each case, the upper plot is the file with only gunshots indicated. The lower file is the original file, with no editing. Refer to the "Recorded Gunshot Chart" for exact

times of gunshots. Expanded plots were made, (SEE PLOTS 1-A through 5-A) and it was determined that the noises in [REDACTED] 04 [REDACTED] call were not gun-related. It is included for comparison. Note the width of these noises as compared to the narrow gunshot sounds on the other plots.

Finally, CDs were produced containing the gunshot-only files. They are included with this report.

NOTES

Please note that most of the recordings are made using a telephone. The telephone instrument was designed as a close-talking instrument. As such, the output drops off dramatically from sounds that are remote. As a result the gunshot amplitude is not very loud on the 911 calls. Added to this are intervening doors, clothing, position and direction of the handset instruments at the times of the calls, and distance from the guns. Nevertheless I believe that we have located the gunshots recorded on these files. Please review and make corrections using any external information, if it is available.

CONCLUSIONS

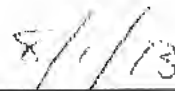
1. All files submitted for examination were observed to be authentic and continuous.
2. Multiple gunshot sounds were detected on five recordings.
3. The times of the gunshots were able to be determined to a precision of one-tenthousandth of a second.
4. Gunshot-only files were produced, and transferred to CD
5. Plots of gunshot-only and original files were created.
6. Charts of observed elapsed times of gunshots were produced.

Signed



Paul Ginsberg, President
Professional Audio Laboratories, Inc.

Dated



**SANDY HOOK ELEMENTARY SCHOOL
RECORDED GUNSHOTS**

1. [REDACTED] 04 911 Call - Machine Time 14:36:00 (See PLOT 1)

03:25.1454
03:25.7892
03:26.8081
03:30.6039
03:31.7205
03:33.6887
03:34.7441
03:36.0762
03:38.3623
03:40.1027
03:40.9883
03:59.5128
04:03.1034

2. [REDACTED] 04 911 Call - Machine Time 14:37:18 (See PLOT 2)

02:04.6531
02:07.2164
02:11.0149
02:11.9316
02:15.7275
02:18/1018
02:20.4897
02:41.5861

3. [REDACTED] 04 911 Call - Machine Time 09:35:39 (See PLOT 3)

N/A

4. Richard Thorne's 911 Call – Machine Time 09:36:13 (See PLOT 4)

03:09.2088
03:11.6996
03:12.5021
03:13.5241
03:14.2852
03:15.3116
03:20.1401
03:27.7071
03:46.1696

5. Officer William Chapman Vehicle Dashcam (See PLOT 5)

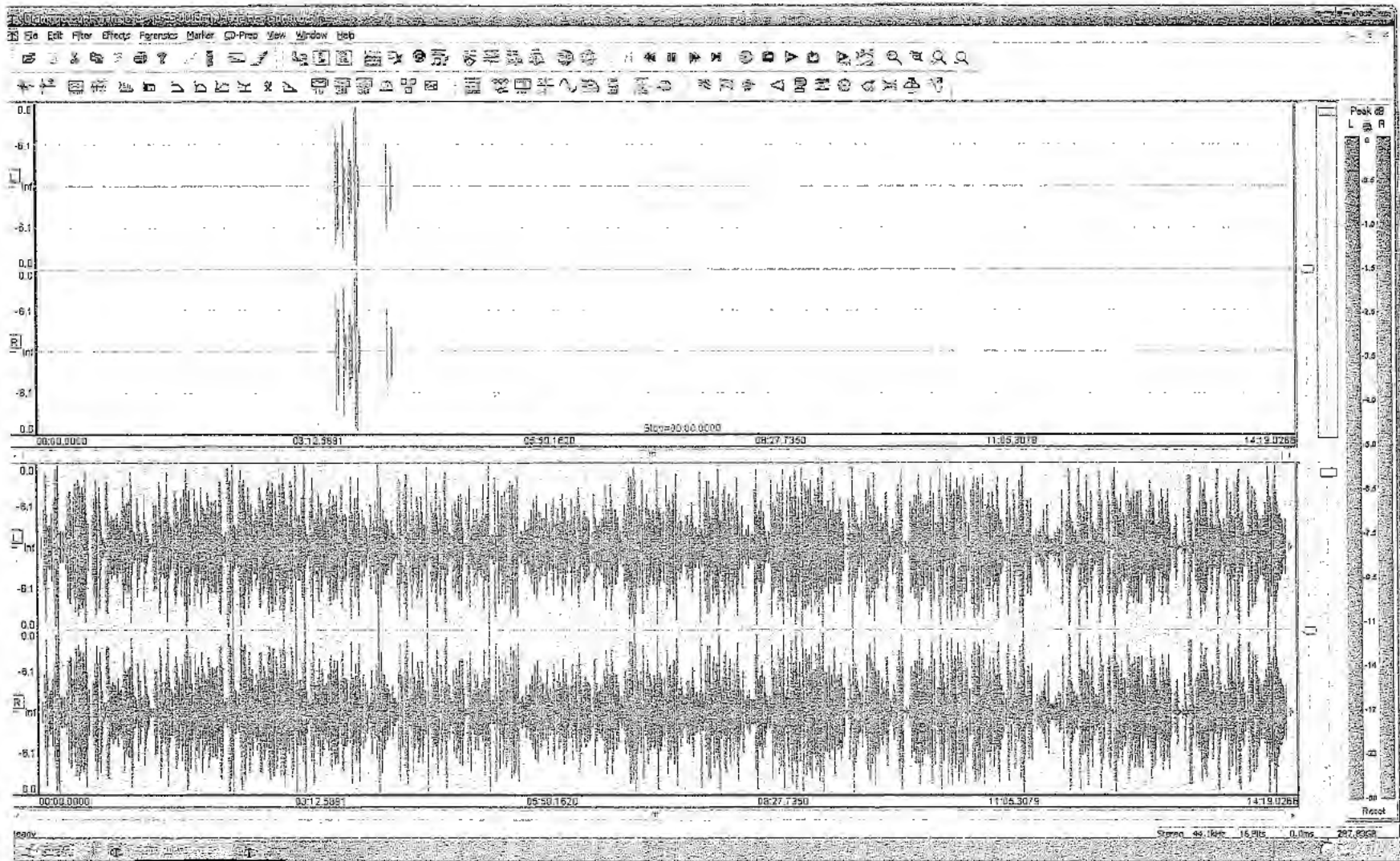
01:50.3199
01:50.9352
01:52.0367
01:54.2292
01:55.2449
01:56.6314
02:00.1877
02:01.5199

Note: All Gunshot Times Are Elapsed Times from Beginning of File

SANDY HOOK ELEMENTARY SCHOOL RECORDINGS

Individual	Length	No. of Gunshots	Format
██████ 04 ██████	14:19	13	Audio CD File
██████ 04 ██████	03:24	8	Audio CD File
██████ 04 ██████	00:24	0	Audio WAV File
Richard Thorne	06:29	0	Audio CD File
Richard Thorne	14:43	9	Audio WAV File
Officer Chapman	05:00 **	8	Video TS File

** Downloaded Initial 5 minutes only



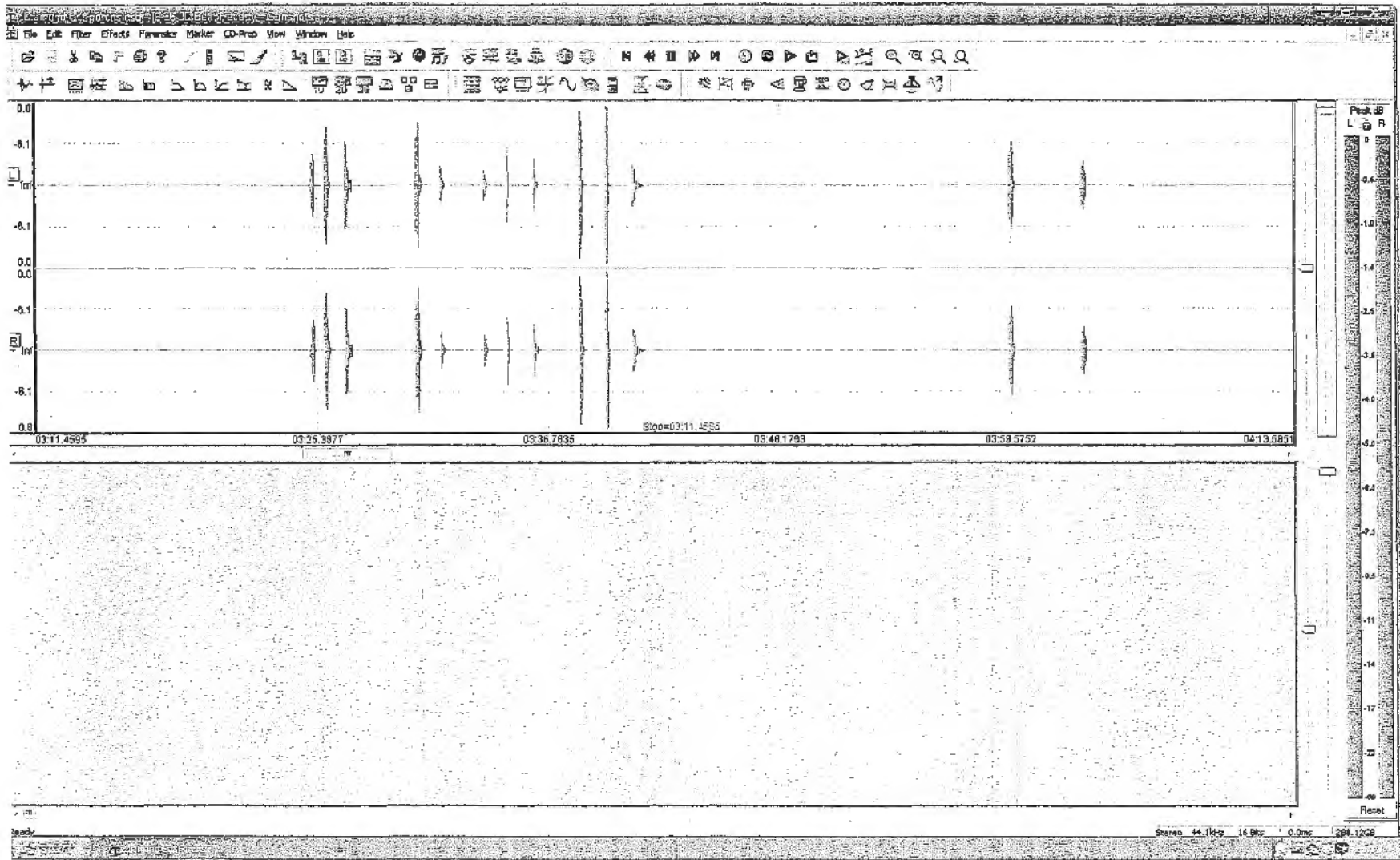
PLOT 1

04

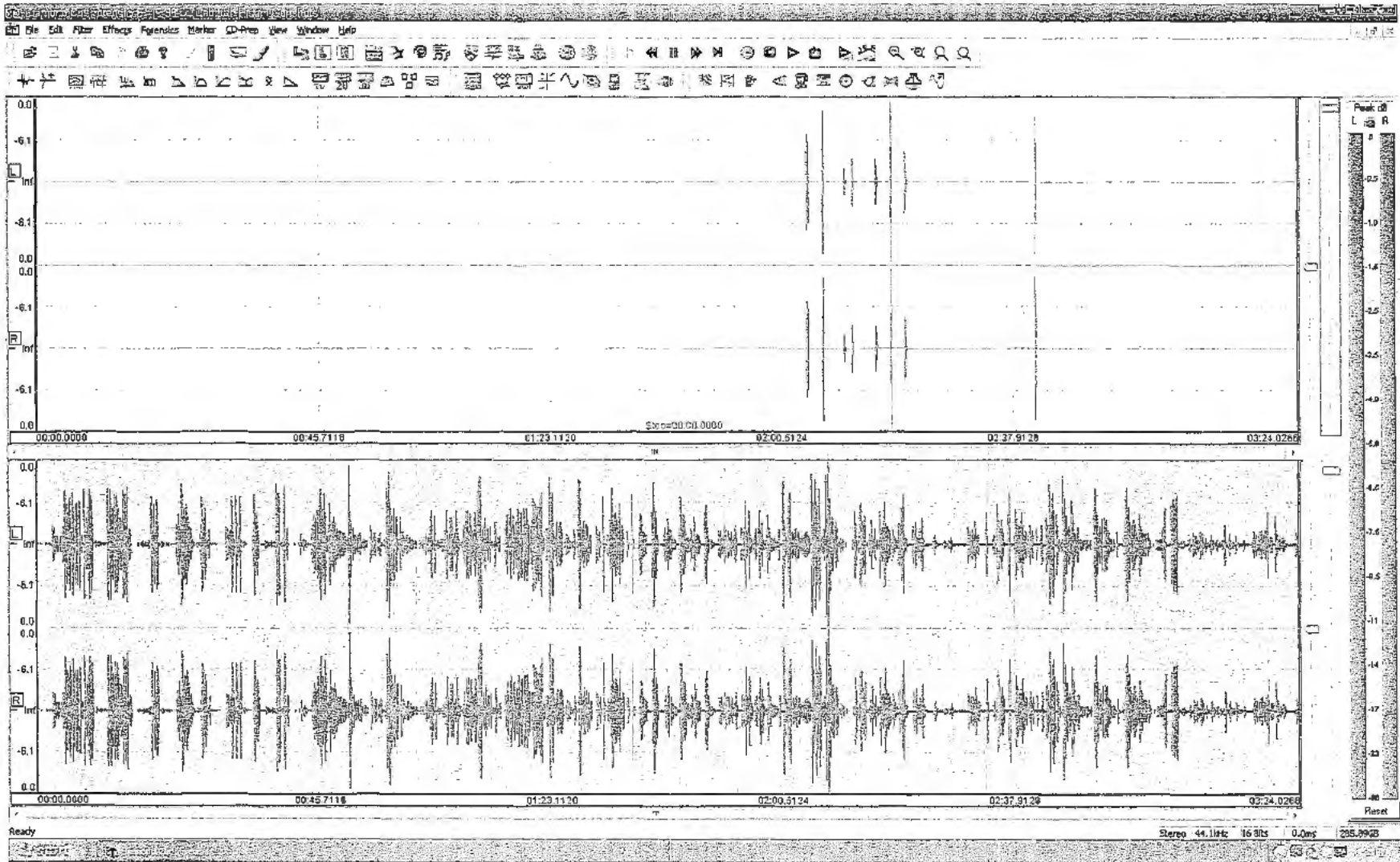
911 Call

Upper Plot - Gunshots

Lower Plot - Original Recording



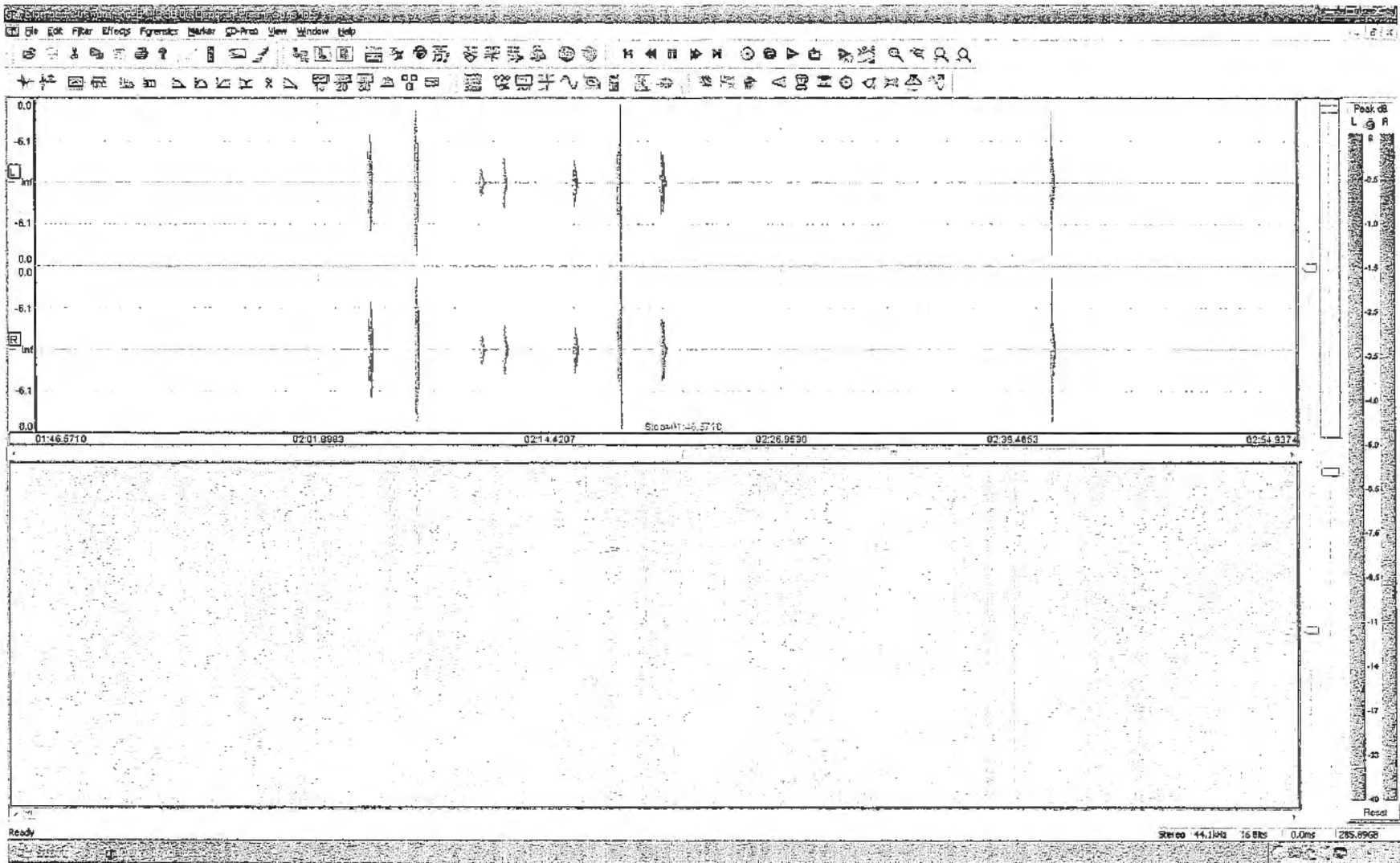
PLOT 1-A 04 911 Call - Gunshots - Expanded



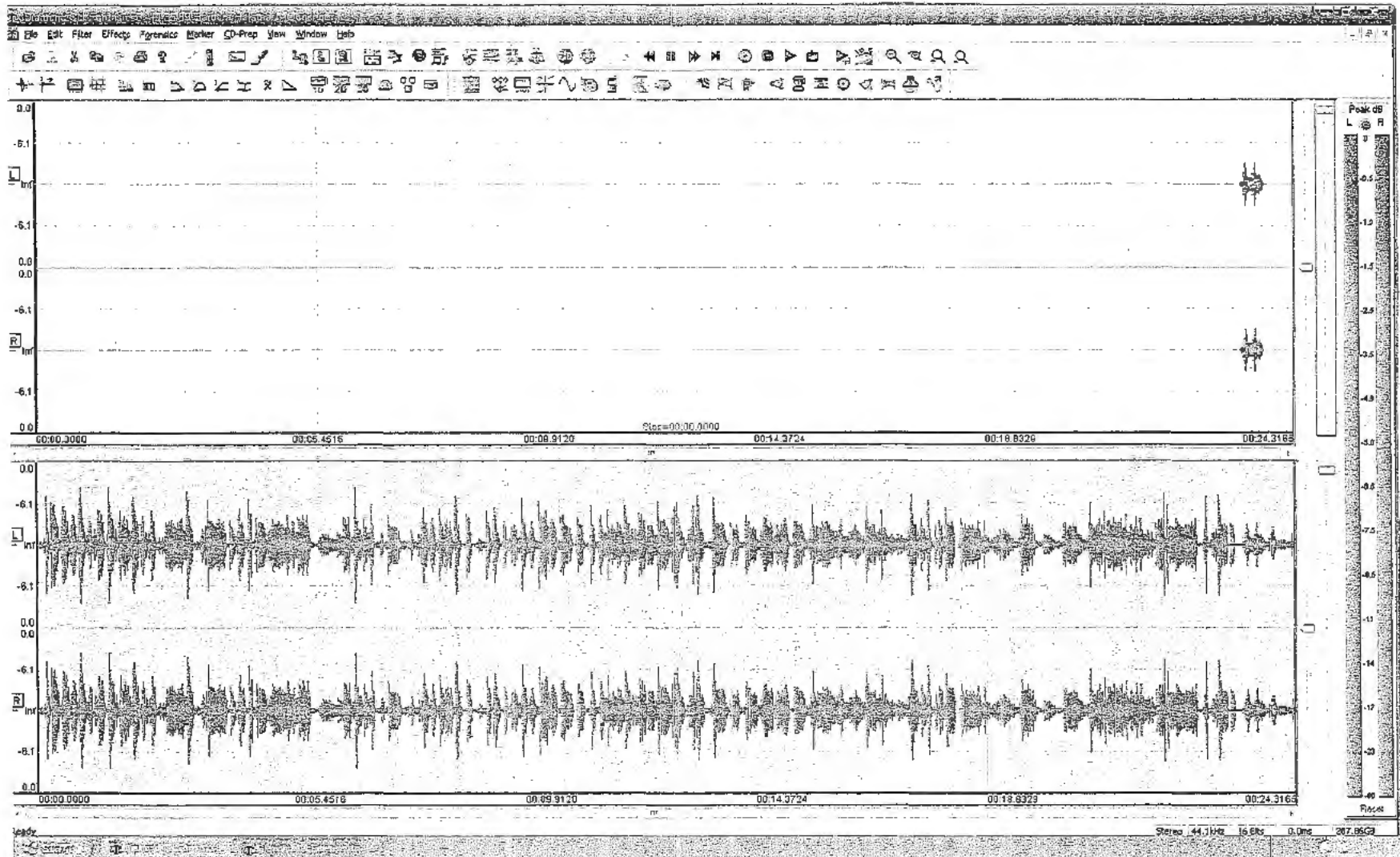
PLOT 2 04 911 Call

Upper Plot - Gunshots

Lower Plot - Original Recording



PLOT 2-A 04 - Gunshots - Expanded



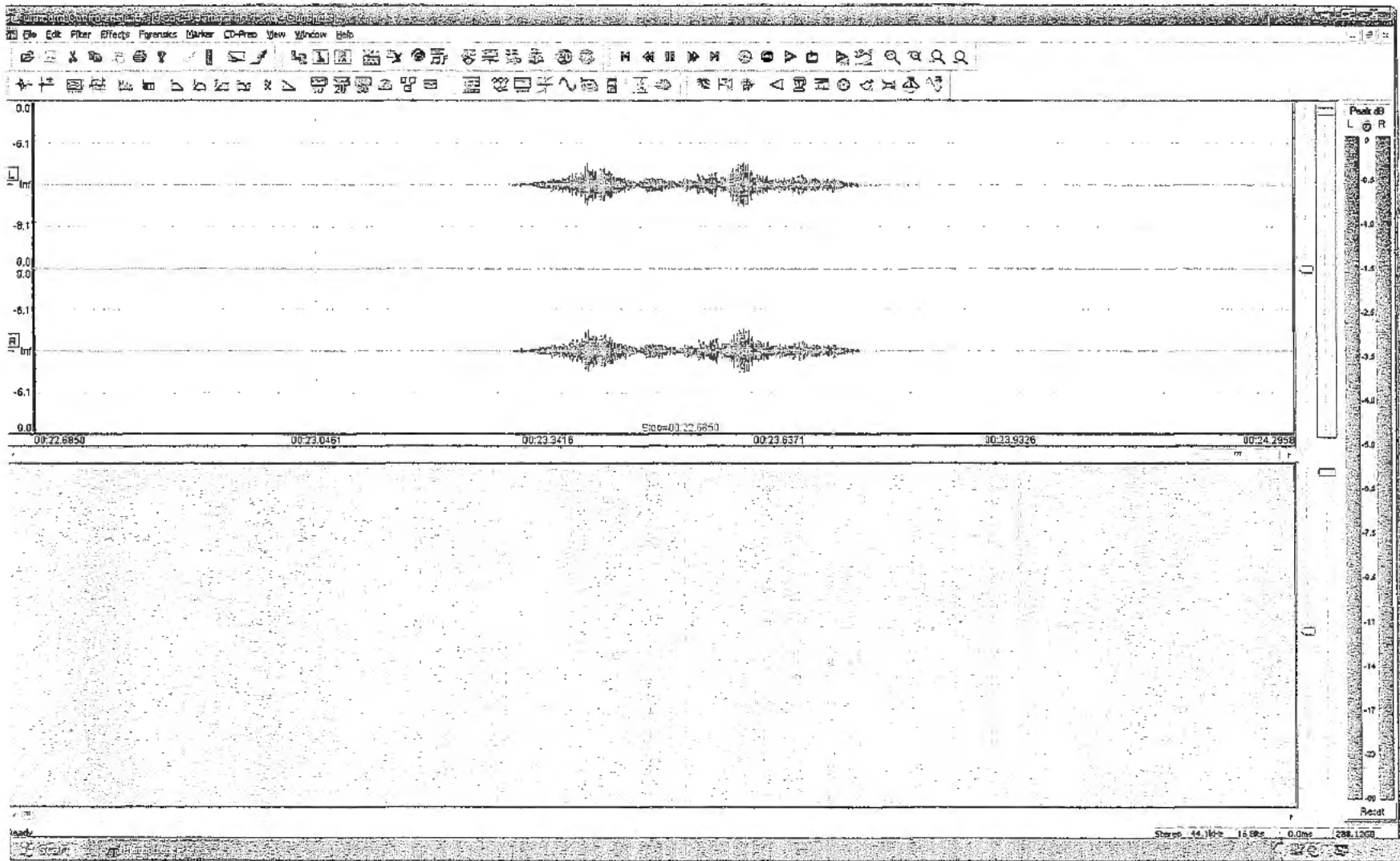
PLOT 3

04

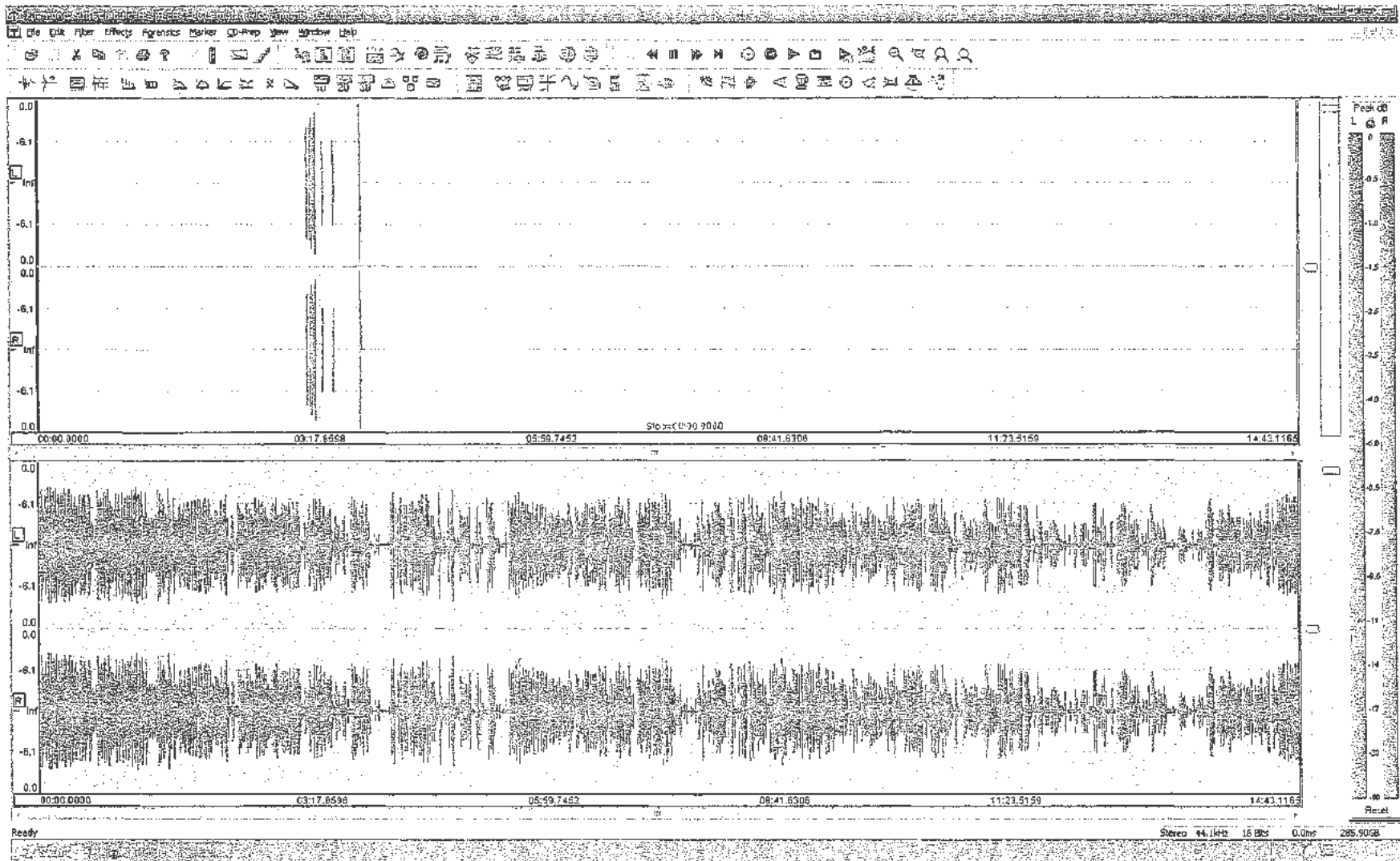
911 Call

Upper Plot - Noises

:Lower Plot - Original Recording



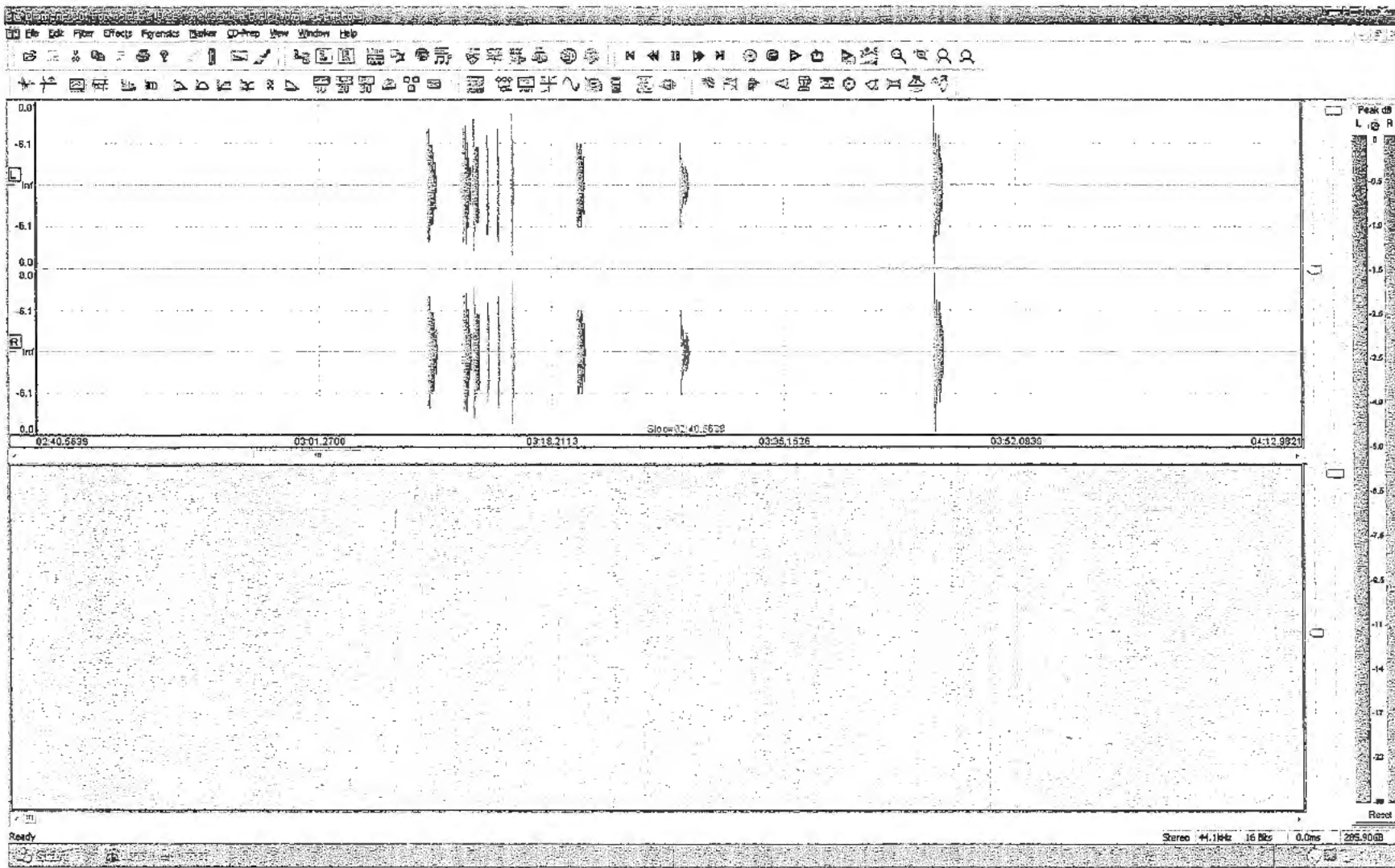
PLOT 3-A 04 - Noises - Expanded



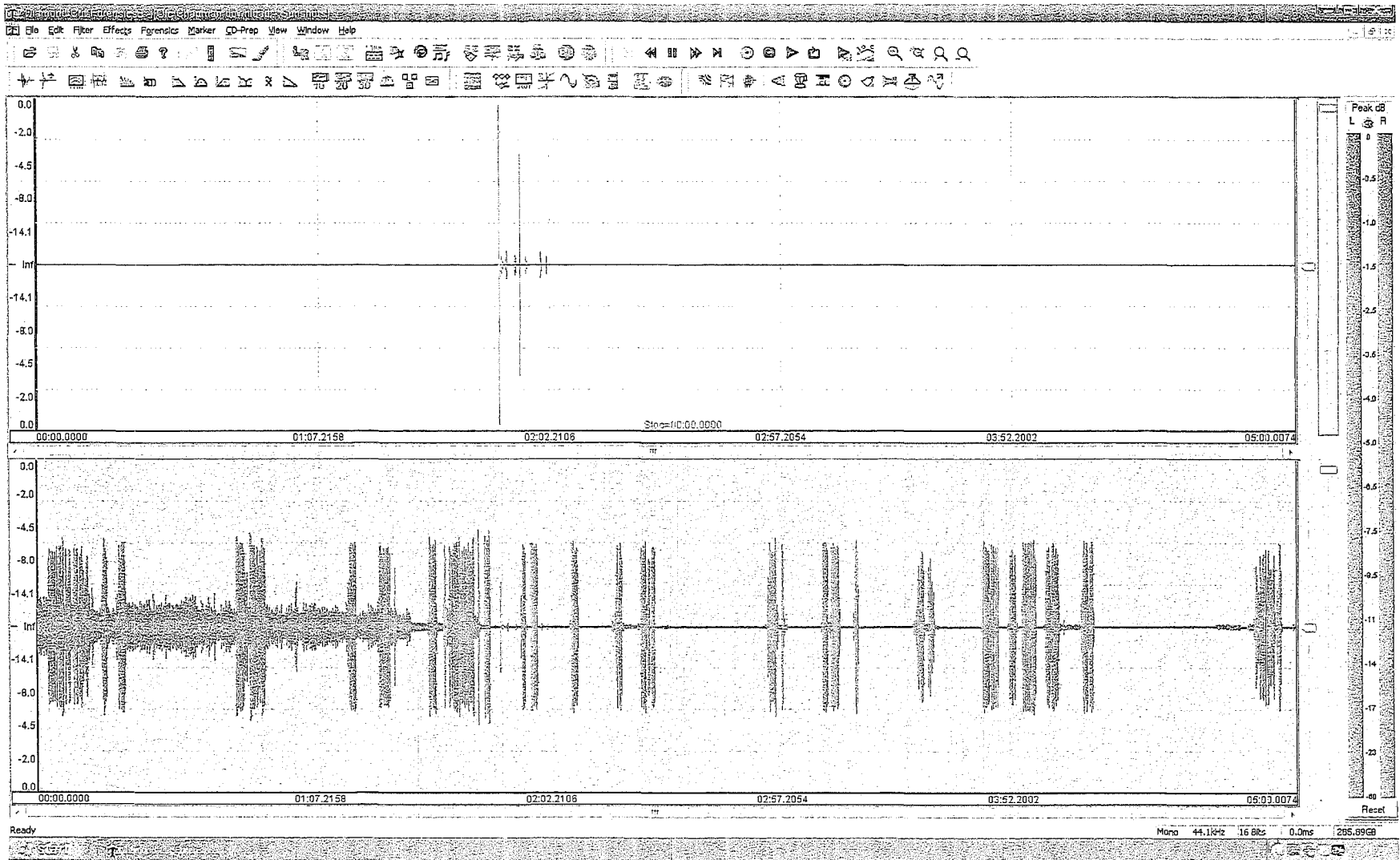
PLOT 4 Richard Thorne 911 Call

Upper Plot - Gunshots

Lower Plot - Original Recording



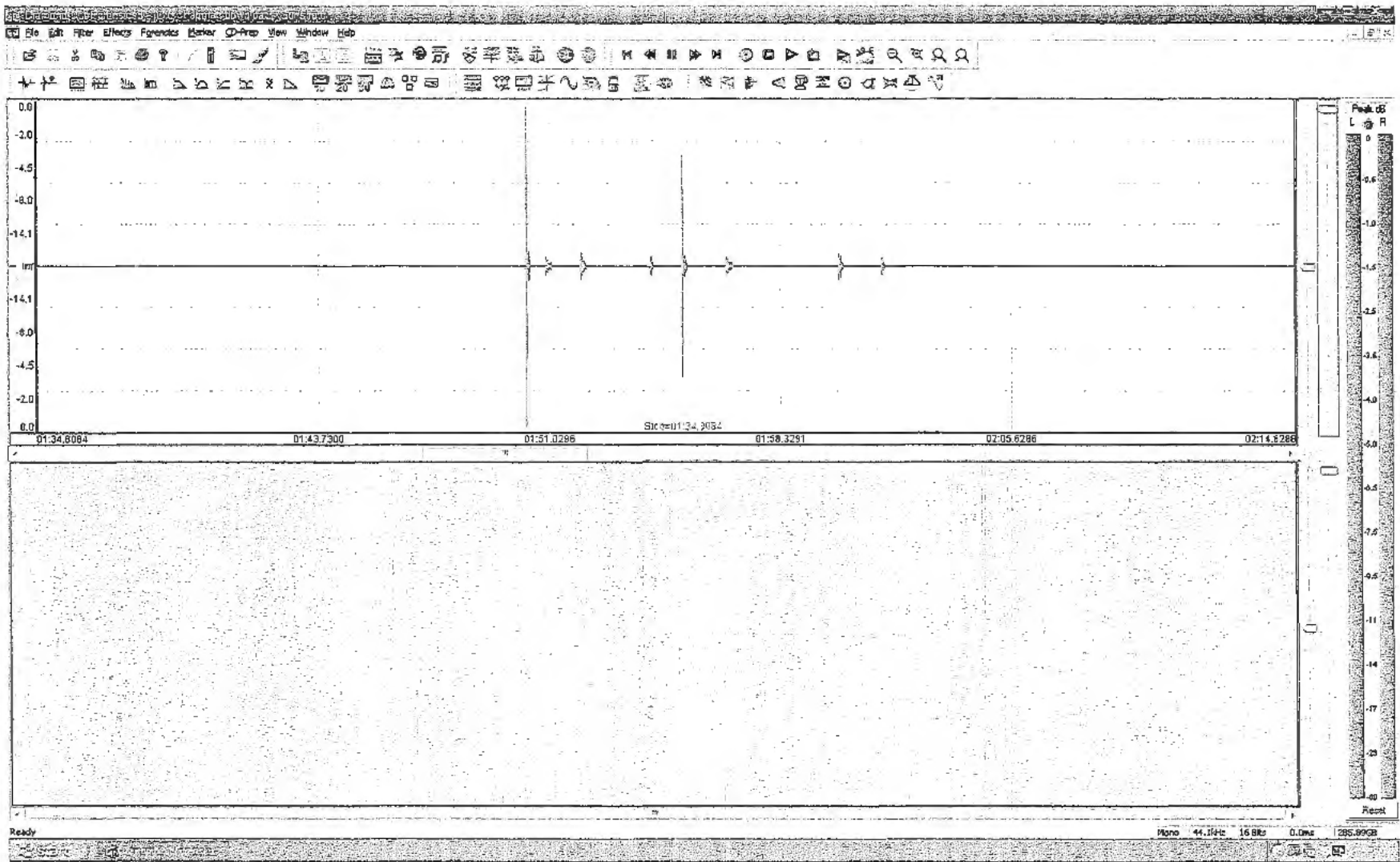
PLOT 4 - A Rick Thorne - Gunshots - Expanded



PLOT 5 Officer William Chapman Vehicle

Upper Plot - Gunshots

Lower Plot - Original Recording



PLOT 5 – A Officer Chapman – Gunshots - Expanded

Paul Ginsberg

PERSONAL:

Born [REDACTED] 03; Married, four children

EDUCATION:

Received Master's Degree (Electrical Engineering) in 1969 from College of the City of New York.

Received Bachelor's Degree (Electrical Engineering) in 1968 from College of the City of New York.

Participated in Seminars in Signal Processing Techniques sponsored by Massachusetts Institute of Technology and Bell Telephone Laboratories. Lectured for National Technical Investigators' Association, and various U.S. Department of Justice offices in New York, New Jersey, Texas, Florida, Pennsylvania, Illinois, Connecticut, and California.

PUBLICATIONS:

Authored booklets entitled, "*A Prosecutor's Guide to the Use of Audio Taped Evidentiary Material*", and "*An Agent's Guide to the Use of Audio Taped Evidentiary Material*", magazine articles entitled "*Recorded Evidence*" Prosecutor Magazine January – March, 2009, "*Recorded Evidence for the Private Investigator*", Private Investigator Magazine October 2009.

PROFESSIONAL SOCIETIES:

Institute of Electrical and Electronic Engineers, Society of Broadcast Engineers, Audio Engineering Society, and American Board of Forensic Examiners

JOB-RELATED EXPERIENCE:

1974-Present President of Professional Audio Laboratories, Inc. a corporation specializing in enhancement, forensic examination, authentication, duplication, transcription, and courtroom presentation of audio and video taped evidence

Has been retained as consultant by all Federal investigative agencies including Central Intelligence Agency, Federal Bureau of Investigation, U.S. Customs, Drug Enforcement Administration, Bureau of Alcohol, Tobacco and Firearms, U.S. Secret Service, Department of Homeland Security, Securities and Exchange Commission, U.S. State Department, U.S. Senate, Senate Committee on Investigations, as well as the intelligence community. Cleared for TOP SECRET clearance.

1968-1974 Consultant with all three major broadcasting networks and 25 news gathering agencies and studios designing, constructing and maintaining sophisticated electronic processing equipment.

COURT-RELATED
EXPERIENCE

Court-qualified expert in the areas of audio and video tapes, enhancement, authentication, transcription and all areas relating to electronic tape recorded evidence

Has participated in over 1,750 trials in 36 Federal districts and in Canada, and has been Court-qualified and rendered expert testimony on 175 occasions