

**Expert Audio Analysis**

**Riverside CLP Draft Expert Report of John Watkinson in the matter of a Sound**

**Recording received by Audrey White**

**23 Jan. 2017**

I, John Ronald Watkinson, of XXXXXXXX will say as follows:

## **INDEX**

Curriculum Vitae.....	3
1) Executive summary.....	9
2) The Recording .....	9
3) My Instructions.....	9
4) Analysis.....	10
5) Conclusions.....	13

### **Curriculum Vitae**

John Watkinson

B. Hull, 29/3/1950

Listed in "Who's Who in the World", "The Writers Directory",  
"Contemporary Authors" and by the American Biographical Institute.

Education:

Hymers College, Hull

Southampton University: BSc(Hons) Electronic Engineering 1971

Southampton University: MSc Sound and Vibration 1972

Employment:

Southampton University: Research officer 1973-1976

Digital Equipment Corporation: Senior Instructor 1976-1982

Sony Broadcast: Lecturer 1982-1983

Ampex GB Ltd: Training Manager 1983-1988

Run Length Limited: Founder and Director 1988-2016

Run Length Limited was a consultancy offering a wide range of services related to audio, video recording, production and broadcasting especially in digital techniques. Extensive experience as an expert witness including investigations, preparation of affidavits and expert reports, liasing with the other side's expert, Counsel and Leading Counsel, giving evidence in Court.

Fields include psycho-optics, psychoacoustics, human perception, simulators, optical disk physics, mastering, pressing, coding, error correction, mechatronics, avionics, servo mechanisms, Laser and Doppler speed measurement and radio control.

Litigation experience includes:

- a) Intellectual property actions on: The Walkman, Compact Discs and mastering apparatus, including extremely detailed analysis of Laser and diffraction limited optics. Channel coding and error correction. Forensic audio and video recording. Digital video broadcasting.
- b) Prosecutions regarding: Noise nuisance, Gatsometer and LTI 20.20 evidence, Cruel sports. Robbery with violence. Death by dangerous driving.

Audio and video compression systems including DVB and MPEG are a speciality. Training courses and seminars presented on high technology subjects. Technology courses for management, legal and intellectual property personnel. Maintenance courses for technicians. Customers include major TV broadcasters worldwide. Won National Training Award 1990 for training UK commercial television studios on the introduction of NICAM stereo TV sound.

Director Campus AV 1990-1996

Co-founder and director of acoustic research, Celtic Audio Limited

1994-2010

Celtic Audio Ltd is a research-intensive manufacturer of state-of-the-art active loudspeakers incorporating precision signal processing and frequency division.

Affiliations:

Member of Audio Engineering Society since 1982.

Elected Fellow of AES 1991.

Chartered Information Systems Practitioner

Member of British Computer Society

Civil Helicopter Pilot PP/275870J/H

Former Member of Society of Expert Witnesses

Patent Applications:

With R.S. Snell "Advanced moving image portrayal system" (1994)

With R.J. Salter "Loudspeaker"

Publications:

Books:

Published by Focal Press:

The Art of Digital Audio (1988, 2nd Edn 1993)

"Once in a while someone writes a technical book which becomes the definitive work or industry bible. John Watkinson has done that with

The Art of Digital Audio" - New Scientist

Selected as one of the American Library Association's CHOICE magazine's outstanding academic books.

- Translated into Norwegian and Spanish.

The Art of Digital Video (1990, 2nd Edn 1994, 3rd Edn. 2000)

"A masterly analysis of everything relating to digitally encoding pictures, from conversion of analogue signals into digital code, through to recording, editing and processing". – New Scientist.

-Translated into Spanish

Coding for Digital Recording (1990)

The D-2 DVTR (1990)

RDAT (1991)

The D-3 DVTR (1992)

Digital Interface Handbook (With F.J. Rumsey) (1993)

- Translated into Spanish and French

Introduction to Digital Audio (1994, 2nd Edn. 2002)

Introduction to Digital Video (1994, 2nd Edn. 2001)

- Translated into Japanese and Spanish

The Art of Data Recording (1994)

The Digital Video Tape Recorder (1994)

Compression in Video and Audio (1995)

- Translated into Spanish and French

Audio for Television (1997)

Television Fundamentals (1996)

The Art of Sound Reproduction (1998)

MPEG-2 (1999)

Convergence (2001)

MPEG Handbook (2001, 2004)

Published by Elsevier:

The Art of the Helicopter (2004)

Published by the American Institute of Aeronautics and Astronautics:

The Art of Flight (2016)

Contributions to multiple author books:

Magnetic Recording, McGraw Hill (Denis Mee and Eric Daniel, Eds.)

Chapter on digital audio recording.

Magnetic Recording Handbook, McGraw Hill: Chapter on digital audio recording

The History of Magnetic Recording, McGraw Hill: Chapter on History of Digital Audio.

The Loudspeaker and Headphone Handbook, Focal Press, (John Borwick, Ed.): Chapter on Drive unit design.

The Digital Interface Handbook, co-written with Francis Rumsey

Periodicals:

Regular Columns published in:

Studio Sound (UK)

Resolution(UK)

Audio Media (UK)

Broadcast Hardware (UK)

TV Technology (USA)

Electronics and Wireless World (UK)

The Register (UK)

The Broadcast Bridge(USA)

Numerous papers delivered at conferences of AES, SMPTE, IEE, ITS,

IOA, WinHEC, etc.

### **1. Executive summary**

This matter concerns a sound recording (“The Recording”) a copy of which has come into the possession of one Audrey White (“White”). The Recording appears to relate to a

“phone-in” programme on local radio in which White participated. I have analysed this recording and have concluded that it is highly probable that it is not a true record of what White said at the time. Instead The Recording may have been manipulated in such a way that White appears to state something that is not true.

## **2. The Recording**

The Recording as sent to me by White is in the form of a compressed digital file which she tells me is an exact copy of what she received from an anonymous source. The sound it contains is a recording of a radio broadcast in which the presenter of the programme has a telephone conversation with a lady caller. The topic is political and the presenter wants to know the lady’s involvement.

## **3. My Instructions**

I have been instructed to consider the evidence contained in The Recording supplied to me to see if it has been modified in any way. The technologies involved in this matter are all within my experience and I consider myself competent to carry out these instructions. Prior to these instructions I had no knowledge of or dealings with White and confirm that I have no conflict of interest in this matter.

## **4. Analysis**

The Recording is of a radio program to which listeners contribute by telephone. As far as sound quality is concerned, there are two weak links in the chain. The Recording has

been digitally compressed, in the sense that the bit rate has been reduced, and this has reduced intelligibility as well as removing any background sounds. White's voice is further impaired by the telephone: the program presenter's voice is reproduced much more clearly and sibilance is audible, whereas White's voice is impaired by the limited bandwidth of the telephone and no sibilance can be heard on her voice. A further difficulty is that the presenter interrupts and speaks over White quite often and White has to repeat herself.

I am told The Recording was received from an anonymous source, which means it is of unknown provenance. The number of stages the recording has passed through is unknown. One common test for modification of recordings is to analyse them for clicks and crackles that might reveal inept edits, but in this case any clicks could have innocent causes, such as from the telephone line or, if the recording was made off the air, from radio interference. There is little chance that technical evidence of any edit would have survived the use of compression and the analysis here will have to concentrate on other factors.

Fortunately The Recording is quite long and there is plenty of opportunity to study how White speaks in the parts of The Recording that are uncontested so that comparisons can be made with the contested area. These comparisons include the timing of White's speech and her use of stress in different parts of sentences.

I used an equaliser on The Recording and listened through a high quality loudspeaker in order to extract the maximum intelligibility from White's voice.

White claims to be the lady caller in the recording. The presenter introduces her as “Audrey”. I have personally spoken to White by telephone and recognise her voice so I believe that to be true. The recording mentions one Eddie Loyden (1923-2003), who was a Labour MP. I am told by White that her father was Loyden’s agent. The crux of this matter is where that topic arises in the radio broadcast. White has told me that what she said was “My dad was Eddie Loyden’s agent.” The presenter interrupts over the second word, so White repeats herself. What I believe is on the recording is as follows:

“My dad was Eddie - Eddie Loyden” and then “Remember Eddie Loyden?” “I know the name, Yeah.” “Remember Eddie?”

More careful listening reveals a number of unusual things in that area of the recording. If the way White speaks throughout the whole recording is considered, it is possible to see the way that she regularly and consistently pauses between sentences. Just one example is where White says “I was a party member when I was about fourteen”. The pause after that sentence is clearly audible.

Yet at the point in question after she appears to say “My Dad was Eddie - Eddie Loyden”, there is no such pause.

Listening to the whole of what White says also allows the listener to learn the way that she uses stress in different parts of sentences. In most cases the amount of stress on the last word of a sentence is typically reduced. When White says: “Remember Eddie Loyden?” the stress goes down on the last word as might be expected. When White says: “My Dad was Eddie - Eddie Loyden”, the stress does not go down, suggesting that there should be another word that will end the sentence.

White uses the word “remember” twice in the area in question. The first time is immediately after “My Dad was Eddie - Eddie Loyden”, the second is “Remember Eddie?”.

To my ears, it seems that in the first instance, the beginning of “remember” is missing or impaired, so what is heard seems like “member” or “emember”, whereas in the second instance the word is clear.

## **5 Conclusions**

Whilst the recording is of poor quality which would tend to conceal any changes, there are nevertheless three different reasons for concern, all of which occur in the same place. The usual pause employed by White is absent, the use of stress throughout the sentence is atypical and finally the beginning of the word “remember” is indistinct. Whilst one could think of innocent reasons for each occurring in isolation, I believe that for all three anomalies to occur simultaneously by chance is highly improbable. These anomalies are found in a sentence in which, on the face of it, White claims that Eddie Loyden was her father, which I am told is untrue. The possibility must therefore exist that this recording is not in the form in which it was originally made.