

ACFE SA PROFESSIONAL STANDARDS FOR
FORENSIC PRACTITIONERS IN SOUTH AFRICA:

FORENSIC SPEAKER
RECOGNITION/
COMPARISON
EXAMINER



ACFE[®]

Association of Certified Fraud Examiners

South Africa Chapter

TABLE OF CONTENTS

SECTION A5

1. OVERVIEW OF THE FORENSIC STANDARD FORUM5

2. THE ACFE.....5

2.1 Background on The ACFE SA Chapter5

2.2 The preamble of the ACFE SA6

2.3 Applicability of Code6

2.4 Standards of Professional Conduct.....6

2.5 Standards of Examination.....8

2.6 Standards of Reporting.....9

3. ACFE CODE OF ETHICS9

SECTION B10

1. PREAMBLE10

2 DESCRIPTION OF FORENSIC DATA ANALYST SERVICES10

3. DESCRIPTION OF A FORENSIC DATA ANALYST10

4. PROCESS.....10

4.1 Data Preparation11

4.2 Data Storage11

4.3 Data Analysis11

4.4 Data Security11

5. TECHNOLOGY14

6. OUTPUTS12

6.1 Data Analysis Reports12

6.1 Data Analysis Artifacts12

6.1 Data Analysis Evidence12

6.1 Data Analysis Reports12

7. ROLES OF THE FORENSIC DATA ANALYST16

7.1 System Administrator16

7.1 Database Administrator16

7.1 Cloud Asset Administrator16

7.1 Data Scientist16

7.1 Business Intelligence Analyst.....16

7.1 Information Security Expert16

8. QUALIFICATIONS AND EXPERIENCE17

8.1 Forensic Data Analyst Qualifications16

8.2 *Forensic Data Analyst Experience*.....16

9. **CONSIDERATIONS FOR DATA ANALYSIS AND FORENSICS**.....18

10. **PROFESSIONAL VALUES, ETHICS AND ATTITUDES**18

10.1 *Integrity*.....16

10.2 *Objectivity*16

10.2 *Confidentiality*16

10.2 *Competence*.....16

10.2 *Ethical Conduct*.....16

11. **CONCLUSION**.....16

Version number

V01

Version date

May 2026

RECORD MANAGEMENT

Entity: ACFE SA

Document Name: Professional Standards for Forensic Voice Recognition/Comparison/ Examiner
_V01

Document Path: <https://www.acfesa.co.za/ACFESA-Resources-anti-fraud>

Version Number	Date Published	Editor	Approval
V01			ACFE SA Forensic Standards Forum

SECTION A

1. INTRODUCTION: THE FORENSIC STANDARD FORUM

The aim of the Forensic Standard Forum under the auspices of the ACFE SA is to standardise methodologies employed in the course of forensic investigations, which are carried out in conjunction with criminal or civil legislation. Such investigations include almost all disciplines and practices involved.

It is instrumental to lead the way in terms of setting standards in all the disciplines of forensics applied during any given investigation and although there are well known and international standards in most of the disciplines, some changes may be required in order to address the situation in South Africa and Africa in the context of our own environments and applicable legislation and/or legal systems and frameworks.

Forensic scientists and criminal investigators need to be guided with acceptable standards and procedures for carrying out such examinations. Although the ACFE refers to “certified fraud examiners” it recognises the fact that a strong association exists with forensic examiners and practitioners. All forensic disciplines will accordingly be included in the Forensic Standard Forum.

2. THE ACFE

2.1 *Background on The ACFE SA Chapter*

The need to raise the standard of fraud examination in South Africa and for a professional body which was not limited to a specific profession such as accounting, or law resulted in the establishment of a local chapter with the mission to provide a community environment in which local forensic examination practitioners can associate. Local membership provides a number of benefits including a network of experienced professionals; a training framework for practitioners with "how to" guidance technical updates and ethical standards; regular discussion forums on issues relevant to the local environment; annual workshops on fraud examinations; and a video library with case studies. This chapter is a collection of individuals in South Africa from all industries and professionals, who all have a single goal mind, the reduction of white-collar crime in South Africa.

(ACFE Professional Standards – www.acfesa.co.za)

2.2 The preamble of the ACFE SA

The Association of Certified Fraud Examiners is an association of professionals committed to performing at the highest level of ethical conduct. Members of the Association pledge themselves to act with integrity and to perform their work in a professional manner.

Members have a professional responsibility to their clients, to the public interest and each other; a responsibility that requires subordinating self-interest to the interests of those served.

These standards express basic principles of ethical behaviour to guide members in the fulfilling of their duties and obligations. By following these standards, all Certified Fraud Examiners shall be expected, and all Associate members shall strive to demonstrate their commitment to excellence in service and professional conduct.

2.3 Applicability of Code

The CFE Code of Professional Standards shall apply to all members and all Associate members of the Association of Certified Fraud Examiners. The use of the word “member” or “members” in this Code shall refer to Associate members as well as regular members of the Association of Certified Fraud Examiners.

2.4 Standards of Professional Conduct

a. Integrity and Objectivity

- Members shall conduct themselves with integrity, knowing that public trust is founded on integrity. Members shall not sacrifice integrity to serve the client, their employer, or the public interest.
- Prior to accepting the fraud examination, members shall investigate for potential conflicts of interest. Members shall disclose any potential conflicts of interest to prospective clients who retain them or their employer.
- Members shall maintain objectivity in discharging their professional responsibilities within the scope of the engagement.
- Members shall not commit discreditable acts and shall always conduct themselves in the best interests of the reputation of the profession.
- Members shall not knowingly make a false statement when testifying in a court of law or

other dispute resolution forum. Members shall comply with lawful orders of the courts or other dispute resolution bodies. Members shall not commit criminal acts or knowingly induce others to do so.

b. Professional Competence

- Members shall be competent and shall not accept assignments where this competence is lacking. In some circumstances, it may be possible to meet the requirement for professional competence by use of consultation or referral.
- Members shall maintain the minimum programme of continuing professional education required by the Association of Certified Fraud Examiners. A commitment to professionalism combining education and experience shall continue throughout the member's professional career. Members shall continually strive to increase the competence and effectiveness of their professional services.

c. Due Professional Care

- Members shall exercise due professional care in the performance of their services. Due professional care requires diligence, critical analysis, and professional scepticism in discharging professional responsibilities.
- Conclusions shall be supported with evidence that is relevant, competent, and sufficient.
- Members' professional services shall be adequately planned. Planning controls the performance of a fraud examination from inception through completion and involves developing strategies and objectives for performing the services.
- Work performed by assistants on a fraud examination shall be adequately supervised. The extent of supervision required varies depending on the complexities of the work and the qualifications of the assistants.

d. Understanding with Client or Employer

- At the beginning of a fraud examination, members shall reach an understanding with those retaining them (client or employer) about the scope and limitations of the fraud examination and the responsibilities of all parties involved.
- Whenever the scope or limitations of a fraud examination or the responsibilities of the parties change significantly, a new understanding shall be reached with the client or employer.

e. Communication with Client or Employer

- Members shall communicate to those who retained them (client or employer) significant findings made during the normal course of the fraud examination.

f. Confidentiality

- Members shall not disclose confidential or privileged information obtained during the course of the fraud examination without the express permission of proper authority or order of a court. This requirement does not preclude professional practice or investigative body reviews as long as the reviewing organisation agrees to abide by the confidentiality restrictions.

2.5 Standards of Examination**a. Fraud Examinations**

- Fraud examinations shall be conducted in a legal, professional, and thorough manner. The fraud examiner's objective shall be to obtain evidence and information that is complete, reliable, and relevant.
- Members shall establish predication and scope priorities at the outset of a fraud examination and continuously re-evaluate them as the examination proceeds. Members shall strive for efficiency in their examination.
- Members shall be alert to the possibility of conjecture, unsubstantiated opinion and bias of witnesses and others. Members shall consider both exculpatory and inculpatory evidence.

b. Evidence

- Members shall endeavour to establish effective control and management procedures for documents. Members shall be cognisant of the chain of custody including origin, possession and disposition of relevant evidence and material. Members shall strive to preserve the integrity of relevant evidence and material.
- Members' work product may vary with the circumstances of each fraud examination. The extent of documentation shall be subject to the needs and objectives of the client or employer.

2.6 Standards of Reporting

a. General

- Members' reports may be oral or written, including fact witness and/or expert witness testimony, and may take many different forms. There is no single structure or format that is prescribed for a member's report; however, the report should not be misleading.

b. Report Content

- Members' reports shall contain only information based on data that are sufficient and relevant to support the facts, conclusions, opinions and/or recommendations related to the fraud examination. The report shall be confined to subject matter, principles, and methodologies within the member's area of knowledge, skill, experience, training, or education.
- No opinion shall be expressed regarding the legal guilt or innocence of any person or party.

3. ACFE CODE OF ETHICS

All Certified Fraud Examiners must meet the rigorous criteria for admission to the Association of Certified Fraud Examiners. Thereafter, they must exemplify the highest moral and ethical standards and must agree to abide by the bylaws of the ACFE and the Certified Fraud Examiner Code of Professional Ethics.

- An ACFE Member shall, at all times, demonstrate a commitment to professionalism and diligence in the performance of his or her duties.
- An ACFE Member shall not engage in any illegal or unethical conduct or any activity which would constitute a conflict of interest.
- An ACFE Member shall, always, exhibit the highest level of integrity in the performance of all professional assignments and will accept only assignments for which there is a reasonable expectation that the assignment will be completed with professional competence.
- An ACFE Member will comply with lawful orders of the courts and will testify to matters truthfully and without bias or prejudice.
- An ACFE Member, in conducting examinations, will obtain evidence or other documentation to establish a reasonable basis for any opinion rendered. No opinion shall

be expressed regarding the guilt or innocence of any person or party.

- An ACFE Member shall not reveal any confidential information obtained during a professional engagement without proper authorisation.
- An ACFE Member will reveal all material matters discovered during an examination which, if omitted, could cause a distortion of the facts.
- An ACFE Member shall continually strive to increase the competence and effectiveness of professional services performed under his or her direction.

SECTION B

1. PREAMBLE

Members of the ACFE SA are dedicated professionals committed to the highest ethical conduct. This standard outlines the minimum qualifications, professional memberships, experience, and ethical standards required for members to perform forensic speaker recognition/comparison examinations.

2. FORENSIC SPEAKER RECOGNITION/COMPARISON DISCIPLINE OVERVIEW

The field of forensic speaker recognition/comparison is an emerging and highly specialised domain within forensic science, requiring both linguistic expertise and technical competency in digital audio analysis.

The purpose of this document is to establish the minimum professional and ethical standards required for individuals conducting forensic speaker recognition/comparison examinations in South Africa, ensuring alignment with international benchmarks.

Internal SOPs and validation documents for forensic speaker recognition/comparison used by organisations (e.g. SAPS FSL, private labs, university labs) must be drafted and be adhered to.

2.1 Definition:

- 2.1.1 Forensic speaker recognition/comparison is the scientific process of comparing speech samples to evaluate whether they are from the same or different speakers, providing expert opinions to aid judicial processes. This includes auditory phonetic analysis, acoustic phonetic analysis, semi-automatic and automatic speaker recognition/comparison, and combined human-automatic methods.
- 2.1.2 Speaker Recognition/Comparison is a methodology that utilises software that can identify an

individual speaking in an audio clip. The human voice has unique characteristics that can be associated with an individual. Speaker Recognition/Comparison can recognise speakers by comparing the unique voice characteristics of two or more voice clips. This enables us to compare two or more voices to determine if there is a match. We can where possible identify voices of persons of interest where verified voice samples exist.

2.2 *Limitations*

2.2.1 Speaker recognition/comparison is a probabilistic process and cannot identify an individual with absolute certainty. Quality of recordings, channel effects, and environmental noise can significantly affect reliability. The voice report would form part of the broader investigation.

2.3 *Purpose:*

To contribute reliable, objective, and scientifically sound expert evidence in criminal, civil, and disciplinary proceedings.

2.4 *Scope:*

- Analysis of audio recordings for speaker identity recognition/comparison
- Presentation of expert evidence in courts and hearings.

2.5 *Scientific Foundation¹*

2.5.1 Forensic speaker recognition/comparison is grounded in the principles of forensic phonetics and signal processing. Examiners must understand how speech is produced, transmitted, and digitally represented.

2.5.2 Statistical models are commonly used by software platforms to perform speaker and voice recognition/comparison to produce similarity or likelihood scores.

3. **LEGISLATIVE AND REGULATORY FRAMEWORK**

Examiners must comply with:

- Constitution of the Republic of South Africa Act 86/1996
- Criminal Procedure Act 51 of 1977
- Protection of Personal Information Act (POPI)
- Cybercrimes Act 19 of 2020 (for handling of digital evidence)

- Electronic Communications and Transactions Act 25 of 2002
- Other applicable national and international legislation and forensic guidelines.

4. ETHICS IN FORENSIC SPEAKER RECOGNITION/COMPARISON²

- 4.1 Examiners must adhere to principles of scientific integrity, impartiality, and transparency.
- 4.2 They must ensure that methods are reproducible, results are verifiable, and that testimony is based solely on data-derived conclusions.
- 4.3 Ethical conduct extends to data storage, chain of custody, and secure deletion of sensitive material post-proceedings.
- 4.4 Members agree to:
 - Behave honestly and with integrity.
 - Conduct examinations lawfully and professionally.
 - Avoid conflicts of interest, disclosing any unavoidable conflicts.
 - Treat clients and stakeholders with respect and professionalism.
 - Protect confidential information and use it only for authorised purposes.
 - Submit detailed, clear, and unbiased reports.
 - Provide expert testimony based on sound scientific principles only.
 - No personal data is processed by the Speaker Recognition/Comparison service.
- 4.5 Confidentiality and Data Handling
 - 4.5.1 Maintain secure custody of all recordings and derived data.
 - 4.5.2 Use anonymisation or pseudonymisation when possible.
 - 4.5.3 Comply with Section 15 of POPIA and ISO/IEC 27001 standards on information security.

5. MINIMUM KNOWLEDGE, SKILLS, AND TRAINING REQUIREMENTS

5.1 *Formal Education:*

- Minimum Grade 12 or equivalent.
- Specialised forensic speaker recognition/comparison training at a recognised institution for at least 2 years or 5 years relevant experience with a documented portfolio.

5.2 Obtain and maintain vendor certification of the tool sets used in voice recognition/comparison.

²

5.3 *Knowledge Base:*

- Fundamentals of speech production and perception.
- Phonetic transcription and phonology.
- Digital signal processing and feature extraction.
- Statistics and likelihood ratio interpretation.
- Principles of forensic report writing and expert evidence.

5.4 *Technical Skills:*

- Proficiency in auditory phonetic analysis and acoustic phonetic analysis.
- Competency in the use of specialised software for speaker recognition/comparison.
- Ability to interpret and present likelihood ratios and other conclusion frameworks.

5.5 *Experience:*

- At least 1 year post-training practical experience.
- Continuous professional education/development in the voice recognition/comparison field.
- Experience providing expert testimony in legal settings..

6. **RECOMMENDED BEST PRACTICE METHODOLOGIES**

Examiners shall employ internationally accepted methodologies.

6.1 *Interpretation Frameworks:*

- Use appropriate conclusion frameworks including binary decisions, probability scales, likelihood ratios (verbal or numerical), UK Position Statement, and support statements.
- Avoid discredited methods such as voice printing.

6.2 *Quality Assurance & Peer Review*

- All analyses must be subject to independent technical review prior to report finalisation.
- Maintain detailed case notes, ensuring full traceability of data, settings, and reasoning.
- Where automated systems are used, maintain model transparency and document calibration data.

6.3 *Report Content:*

- Reports shall be clear, accurate, and confined to the examiner's area of expertise.
- Opinions/facts on speaker identity must be expressed probabilistically and not as categorical guilt or innocence.

7. OPERATIONAL PROCEDURES AND REPORTING STANDARDS

7.1 *Case Handling and Chain of Custody*³

7.1.1 All audio evidence shall be received, logged, and stored in accordance with recognised digital forensic procedures.

7.1.2 A complete chain of custody record must be maintained from receipt to return or destruction of evidence, documenting:

- The source of the material.
- Each transfer of custody (person, date, purpose).
- The analytical steps performed and by whom.

7.1.3 Any alteration, extraction, or enhancement of audio material must be fully documented, with the original data preserved and securely backed up.

7.1.4 Examiners must ensure all equipment and software used are calibrated and validated, with version control and audit logs maintained.

7.2 *Conduct of the Examination*

7.2.1 The examiner shall determine whether the task involves speaker identification (comparison between a known and unknown sample).

7.2.2 Examinations shall be conducted using methods validated within the forensic community (Auditory Phonetic, Acoustic Phonetic, Semi-Automatic, Automatic).

7.2.3 Examiners must document all procedural steps, including:

- Pre-processing (noise reduction, channel equalisation).
- Segment selection and exclusion rationale.
- Analytical approach used.
- Comparison results and degree of similarity/difference.

7.2.4 The examiner's role is to report findings based on facts and measurable evidence, not on assumptions or the desired outcome of the client.

- 7.2.5 All opinions expressed must be objective, scientifically justified, and within the examiner's scope of competence.

7.3 Reporting Requirements

- 7.3.1 Reports must be in written format and capable of being submitted as evidence in judicial proceedings.
- 7.3.2 Reports must be comprehensive, transparent, and reproducible, including:
- Case reference and description of materials received.
 - Chain of custody summary.
 - Methods used (with references to validation and standards).
 - Equipment and software details (version and calibration).
 - Analytical findings, expressed factually.
 - Conclusion framed in terms of likelihood or exclusion/inconclusive, not categorical guilt.
 - Signature, date, and examiner credentials.
- 7.3.3 Reports must not contain recommendations, opinions on legal matters, or interpretations beyond the scope of the forensic findings.
- 7.3.4 All findings must reflect the factual outcome of the analysis, regardless of whether it aligns with the client's expectations.

7.4 Expert Testimony

- 7.4.1 Examiners providing expert testimony must do so as independent experts, owing their duty to the court or disciplinary tribunal.
- 7.4.2 Testimony must:
- Accurately reflect the written report.
 - Avoid speculation or commentary on evidence outside the examiner's remit.
 - Clearly explain scientific methods and limitations in layman's terms when addressing the court.
- 7.4.3 Examiners must retain neutrality at all times and refrain from aligning with either prosecution or defense interests.
- 7.4.4 Notes, recordings, and case files must be retained securely for a period consistent with legal and institutional requirements (e.g., 5–7 years), to allow review or re-examination.

7.5 *Preservation and Disposal of Evidence*

- 7.5.1 Original recordings and derived copies must be securely stored during and after the investigation.
- 7.5.2 Evidence disposal must occur only after written authorisation from the instructing authority and in compliance with applicable data protection laws.
- 7.5.3 All copies or processed data must be securely destroyed following the retention period.

8. QUALITY ASSURANCE AND ACCREDITATION

- 8.1 Examiners and laboratories should operate within an accredited quality management system aligned to ISO/IEC 17025:2017.
- 8.2 Routine proficiency testing and inter-laboratory comparisons should be conducted annually to ensure consistency and reliability.

9. LIMITATIONS AND FUTURE DEVELOPMENTS

- 9.1 The field of speaker recognition/comparison is rapidly evolving with advancements in artificial intelligence and deep learning.
- 9.2 Examiners must stay abreast of new developments, biases in AI models, and ethical implications of algorithmic decision-making.
- 9.3 Research into explainability, fairness, and transparency of AI-based methods should be encouraged.

Document Compiled by and date:

Document Approved by and date: ACFE SA Forensic Standards Forum, 2025