Audio Forensic Analysis Report

Report ID:	REP-20250923-203956
Analysis Date:	2025-09-23 20:40:35
Report Type:	Comprehensive Audio Forensic Analysis
System Version:	Audio Forensics v2.0

Executive Summary

Analysis Component	Result	Confidence	Status
Voice Matching	Different Speaker	0.019	✗ NO MATCH
AI Synthetic Detection	real	1.0000	✓ AUTHENTIC
Transcript Similarity	13.5% Match	N/A	✗ LOW
Spectrogram Analysis	172615 Anomalies	Automated	✗ HIGH RISK

File Information & Metadata

Property	Value	Technical Details
Audio Duration	12.9 seconds	≈ 0.2 minutes
Sample Rate	16,000 Hz	Standard Quality
Channel Count	1 (Mono)	Audio configuration
File Size	412,988 bytes	≈ 0.39 MB
Bit Depth	16-bit (estimated)	Standard PCM encoding
SHA256 Hash	5c41ff9afe27ae64ef41c040...	Digital fingerprint (truncated)

1. Voiceprint Comparison Analysis

Speaker Identity Match: False

Similarity Score: 0.019062 (Range: 0.0 - 1.0)

Confidence Level: Low

Methodology: Advanced acoustic feature extraction and speaker recognition using MFCC coefficients, spectral features, and prosodic characteristics for biometric voice identification.

2. Artificial Intelligence Synthesis Detection

Classification Result: real

Detection Confidence: 0.999985

Risk Assessment: Low Risk - Appears Authentic

Technology: Deep learning neural network trained on thousands of synthetic and authentic voice samples, detecting artifacts from TTS systems, voice cloning, and deepfake audio generation.

3. Environmental Audio Analysis

Comprehensive analysis of background acoustic environment and noise characteristics:

Environmental Metric	Measured Value	Score	Forensic Significance
File1 Features	{'mean_rms': 0.00300...	0.0%	Audio characteristic measure

4. Linguistic Content Analysis

Content Similarity: 13.50% match

Original Transcript Length: 19 characters (5 words)

Suspected Transcript Length: 144 characters (24 words)

Word Count Difference: 19 words

Original Audio Transcript:

" 1, 2, 3, mic test."

Suspected Audio Transcript:

" Hello my name is Prathamesh, I am from the computer department GEC Goa. I am currently second year pursuing BIT-E from Goa Engineering College."

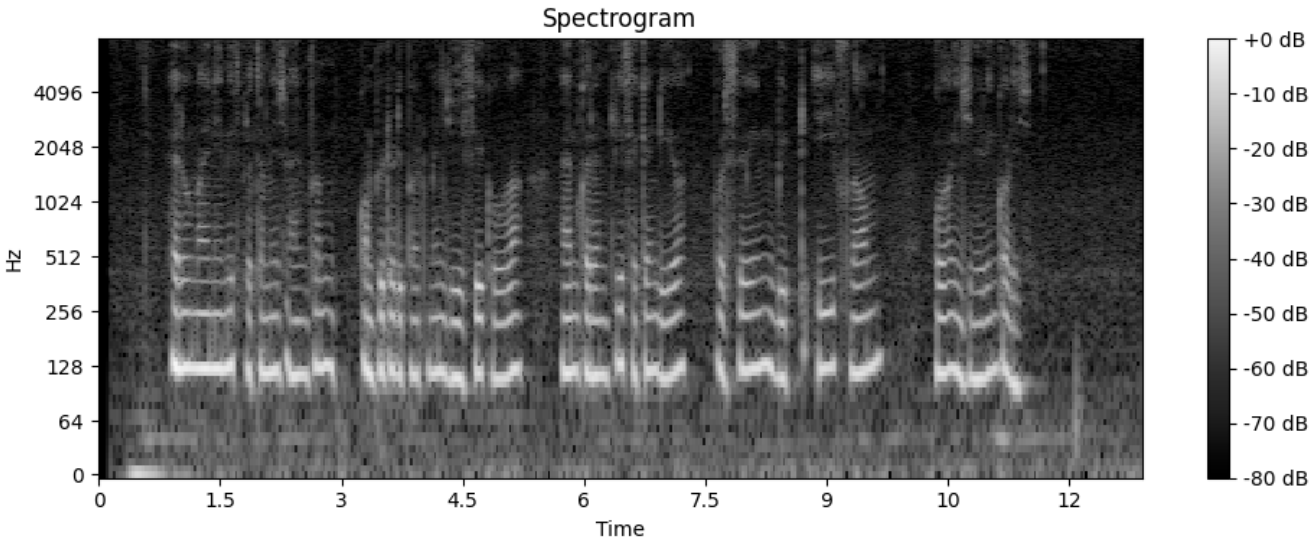
5. Advanced Spectrogram Forensic Analysis

Professional forensic spectrogram analysis with automated anomaly detection and quantitative metrics:

Forensic Metric	Measured Value	Forensic Interpretation	Status
Peak Intensity	255	Maximum signal strength detected	✓ Normal
Average Intensity	147.45	Overall signal level consistency	✓ Stable
Noise Floor	0	Background noise baseline	✓ Clean
Intensity Variation	97.93	Signal stability measure	✓ Consistent
Anomaly Detection	172615	Suspicious artifacts found	✗ High Risk

■ **HIGH RISK ASSESSMENT:** Significant spectral anomalies detected. This pattern is consistent with synthetic voice generation, heavy audio editing, or post-processing artifacts. Recommend additional verification.

Forensic Spectrogram with Anomaly Highlighting:



Professional Spectrogram Analysis Legend:

• **Red Rectangles:** Computer-detected anomalies indicating possible synthetic generation or editing artifacts

• **Bright Yellow/White Areas:** High-energy frequency components (vocal formants, harmonics)

• **Dark Blue/Black Areas:** Low-energy regions (silence, background noise)

• **Vertical Axis:** Frequency spectrum (Hz) - human voice typically 85-255 Hz fundamental

- **Horizontal Axis:** Time progression of audio sample
- **Detection Threshold:** Intensity > 200 (out of 255 maximum) triggers anomaly flag

6. Report Authentication & Verification

This report includes multiple layers of authentication to ensure integrity and prevent tampering:

Authentication Method	Value	Purpose
Digital Signature	SHA256 Hash Verification	File integrity validation
Report ID	REP-20250923-203956	Unique document identifier
Generation Timestamp	2025-09-23 20:40:35 UTC	Temporal verification
Analysis System	Audio Forensics Analysis	Software identification
QR Code	Embedded verification data	Quick authentication check

Scan the QR code below to verify this report's authenticity and access verification portal:

Complete File Hash (SHA256):

`5c41ff9afe27ae64ef41c0407fd83b91de23c94d1f370859add4a0836bab4575`

7. Final Assessment & Recommendations

Overall Risk Assessment:

HIGH RISK - Multiple indicators suggest potential audio manipulation or synthesis

Risk Score: 8/10

Risk Factors Identified:

• Voice patterns do not match reference sample

• Low transcript content similarity

• High number of spectral anomalies detected

Professional Recommendation:

REJECT - Do not accept this audio as authentic. Multiple forensic indicators suggest manipulation, synthesis, or forgery.

End of Report