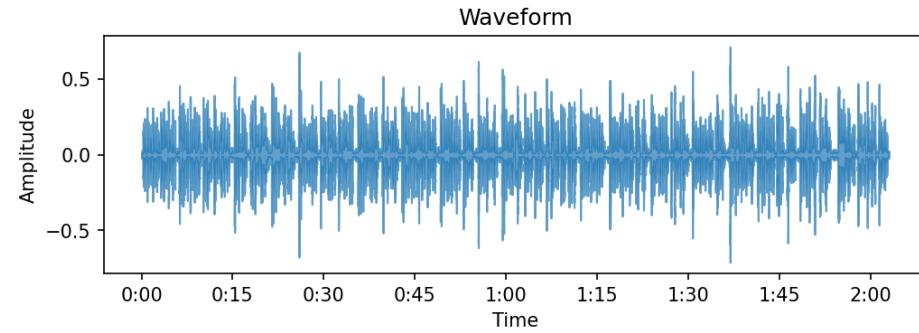
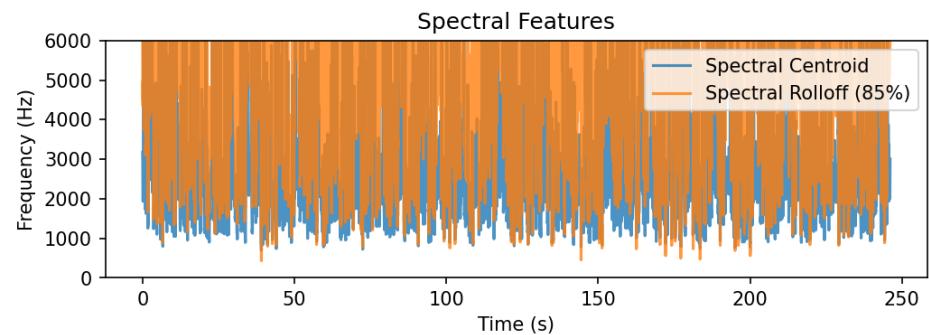
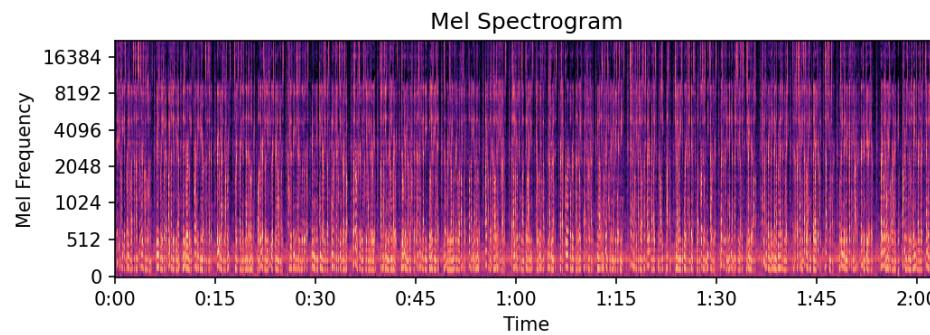
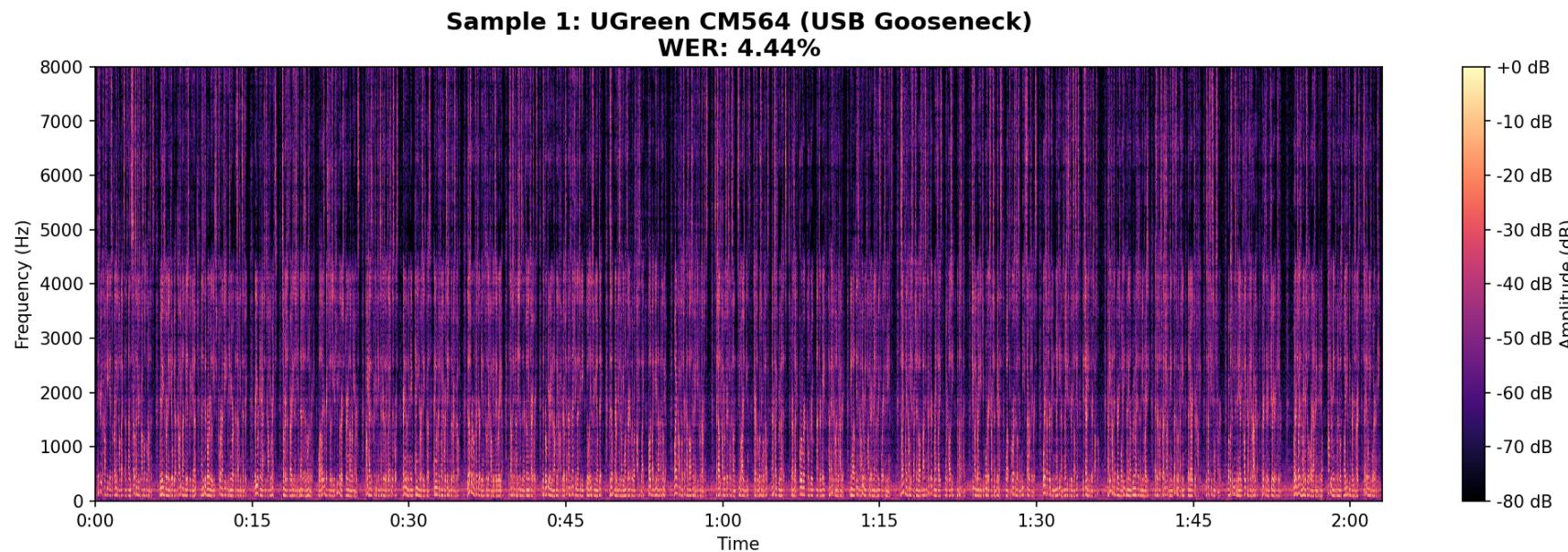


Sample 1: UGreen CM564 / 30cm



Key Audio Characteristics:

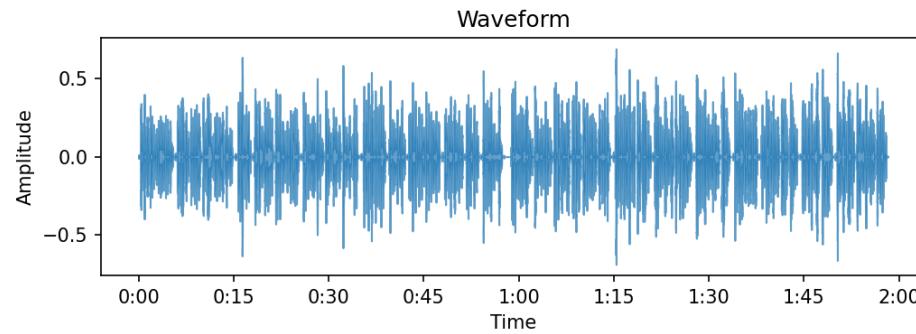
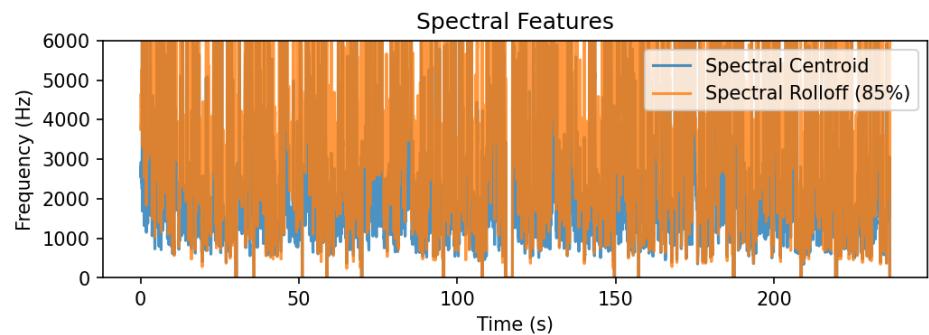
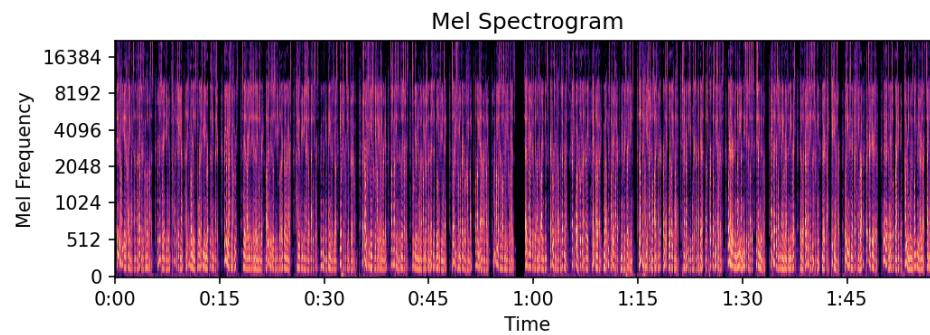
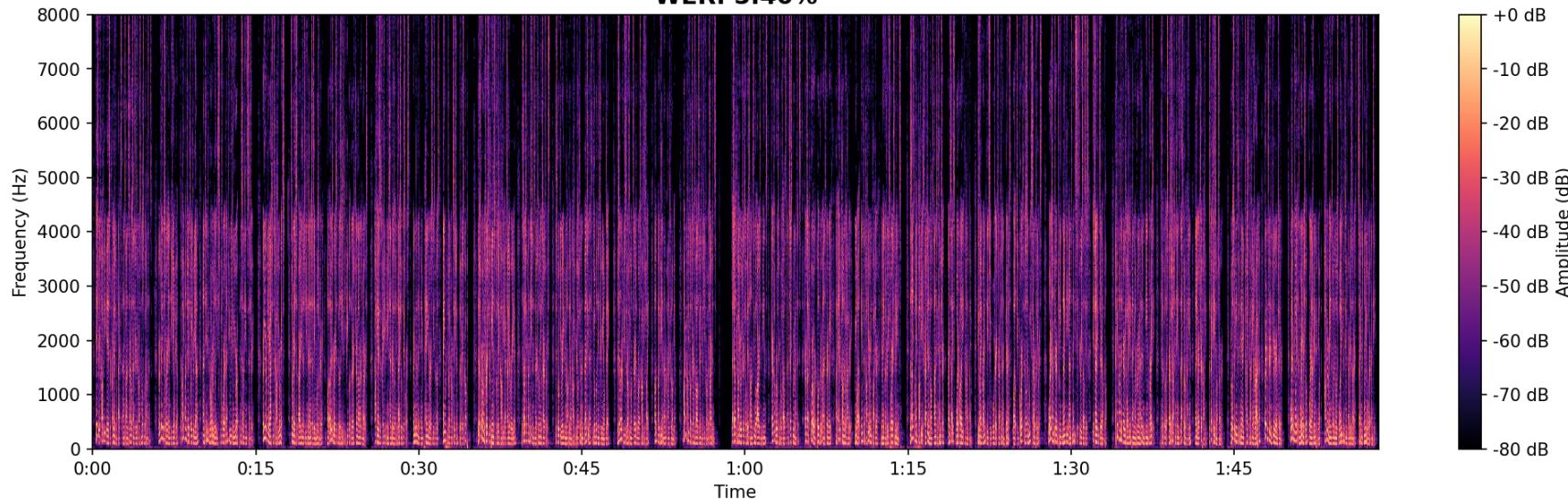
- Spectral Centroid: 2892.7 Hz
- Spectral Rolloff: 5601.3 Hz
- Spectral Bandwidth: 3198.2 Hz
- Zero Crossing Rate: 0.0680
- RMS Energy: 0.0447
- Harmonic Ratio: 0.548

Speech Band Energy:

- Fundamental (85-300Hz): 20.3%
- Formants (300-3400Hz): 46.0%
- High Freq (3400-8kHz): 20.4%
- Total Speech (85-8kHz): 86.7%

Sample 2: Samson Q2U / 30cm

Sample 2: Samson Q2U (Dynamic USB/XLR)
WER: 5.40%



Key Audio Characteristics:

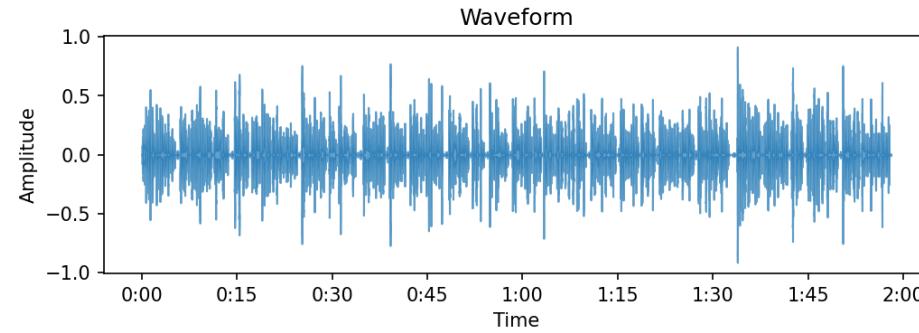
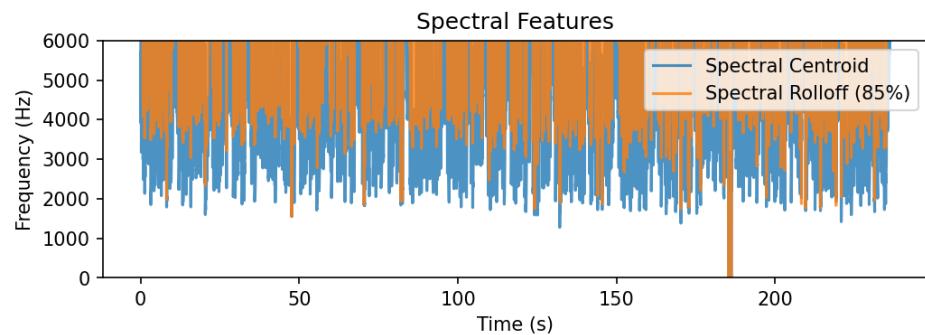
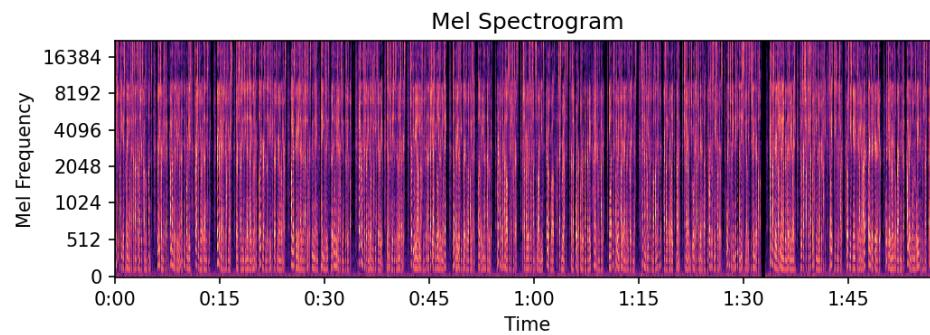
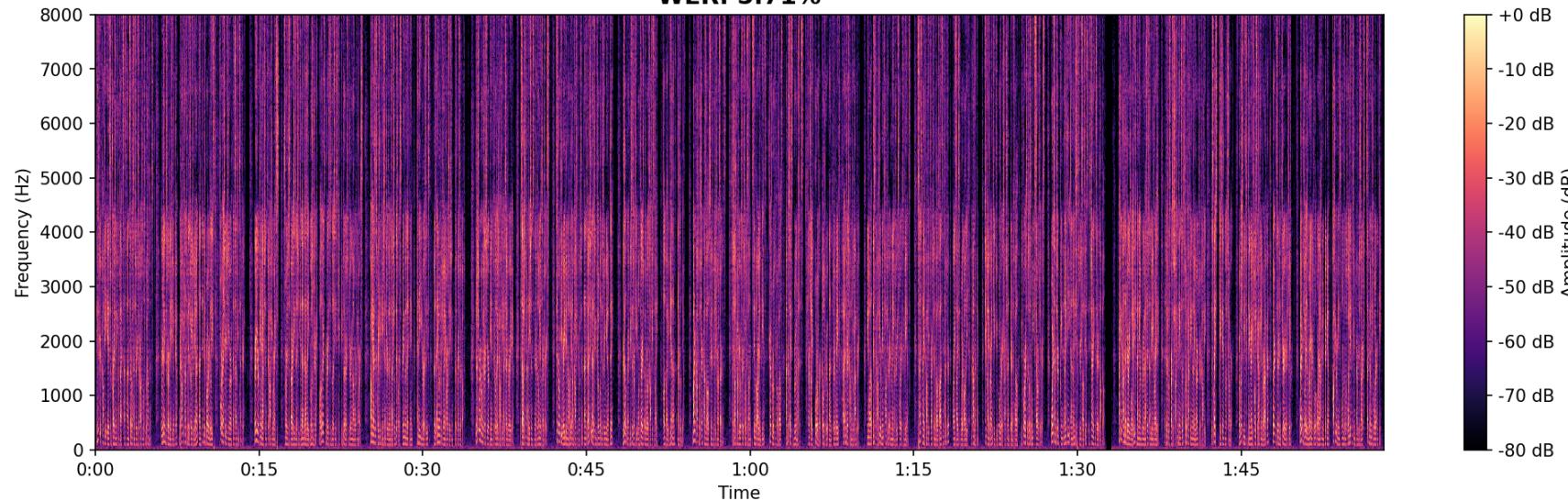
- Spectral Centroid: 2348.2 Hz
- Spectral Rolloff: 4264.5 Hz
- Spectral Bandwidth: 2267.1 Hz
- Zero Crossing Rate: 0.0665
- RMS Energy: 0.0436
- Harmonic Ratio: 0.487

Speech Band Energy:

- Fundamental (85-300Hz): 20.1%
- Formants (300-3400Hz): 52.5%
- High Freq (3400-8kHz): 19.8%
- Total Speech (85-8kHz): 92.5%

Sample 3: Logitech H390

Sample 3: Logitech H390 (USB Headset)
WER: 5.71%



Key Audio Characteristics:

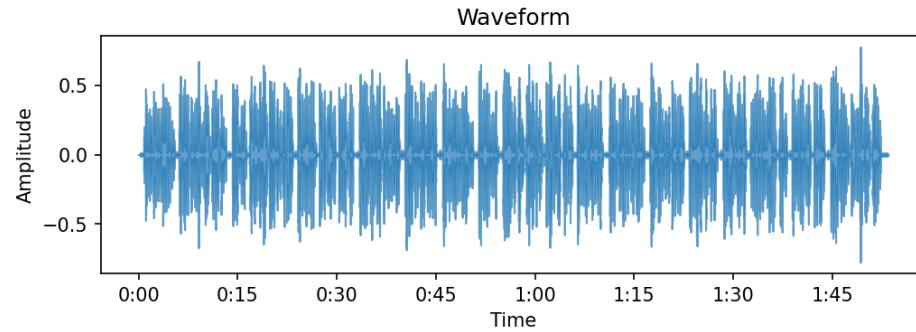
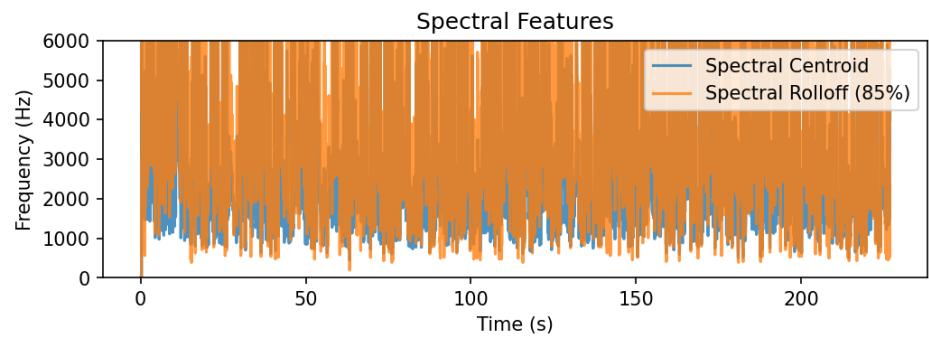
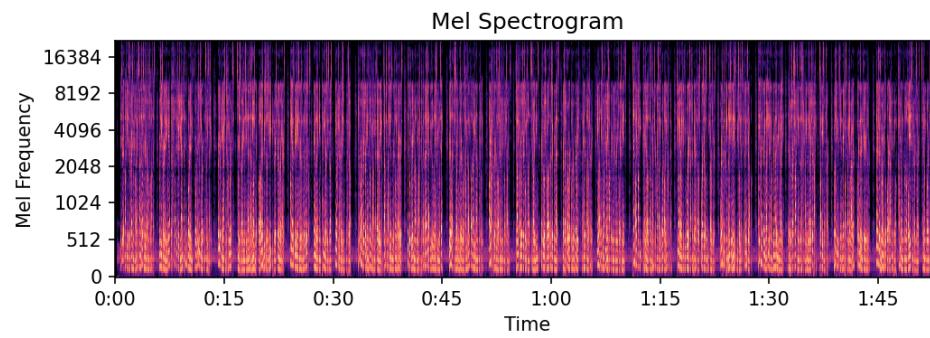
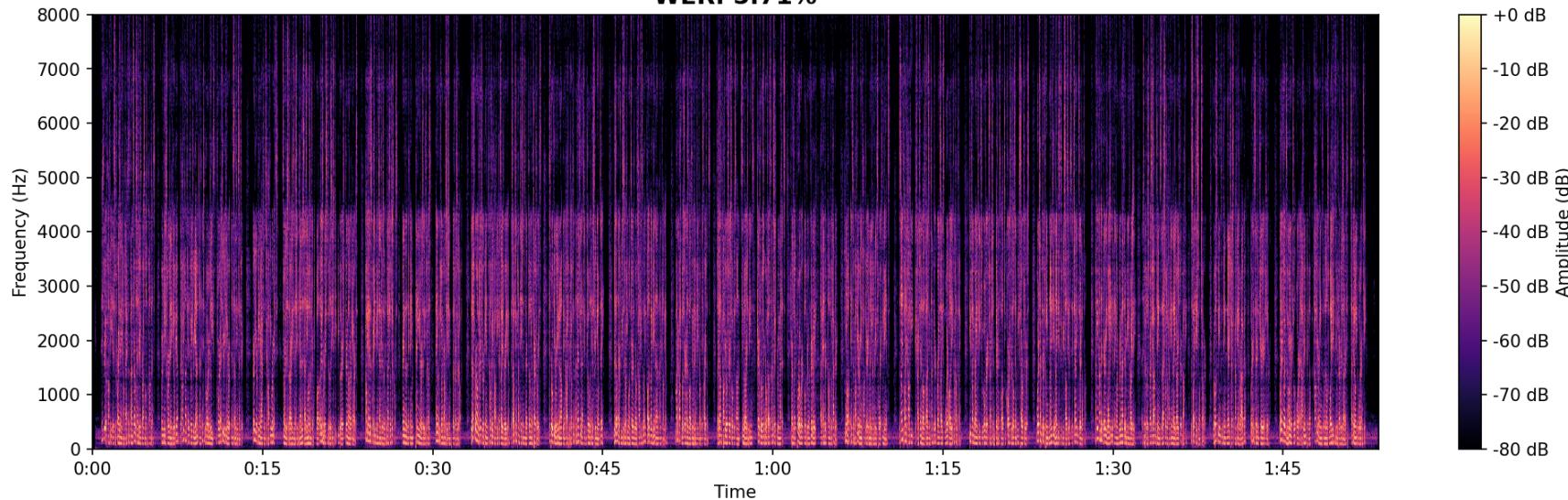
- Spectral Centroid: 4463.4 Hz
- Spectral Rolloff: 8020.3 Hz
- Spectral Bandwidth: 3905.4 Hz
- Zero Crossing Rate: 0.1235
- RMS Energy: 0.0291
- Harmonic Ratio: 0.112

Speech Band Energy:

- Fundamental (85-300Hz): 4.6%
- Formants (300-3400Hz): 44.0%
- High Freq (3400-8kHz): 30.3%
- Total Speech (85-8kHz): 78.9%

Sample 4: OnePlus Nord 3 5G / ASR HQ

Sample 4: OnePlus Nord 3 5G (Smartphone built-in)
WER: 5.71%



Key Audio Characteristics:

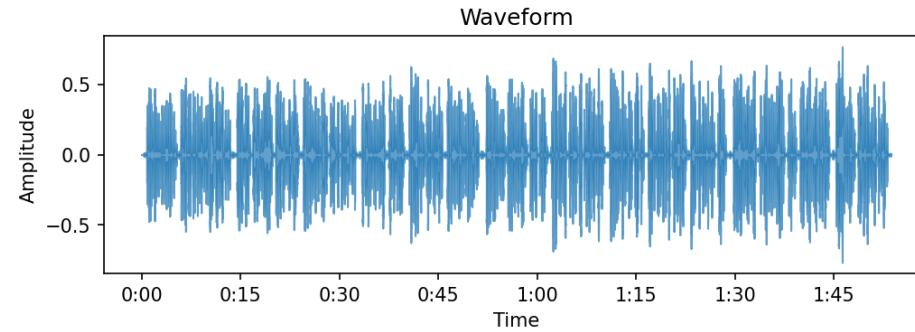
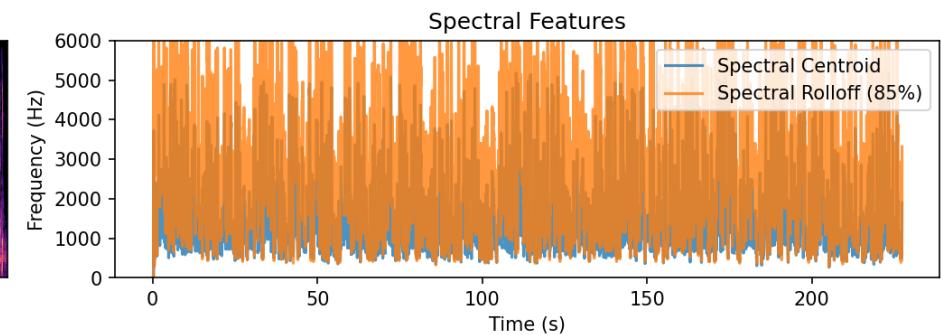
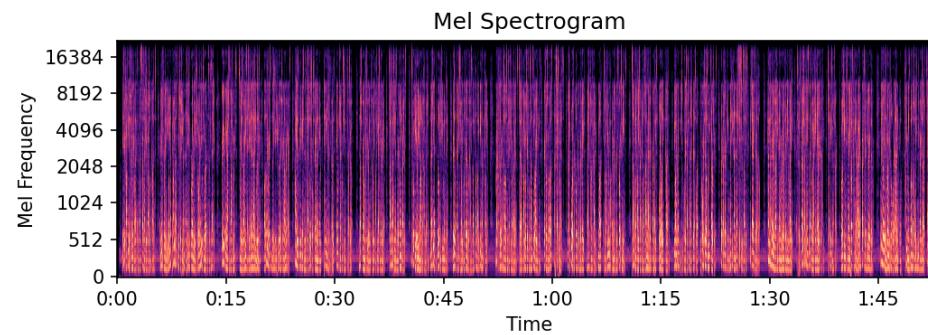
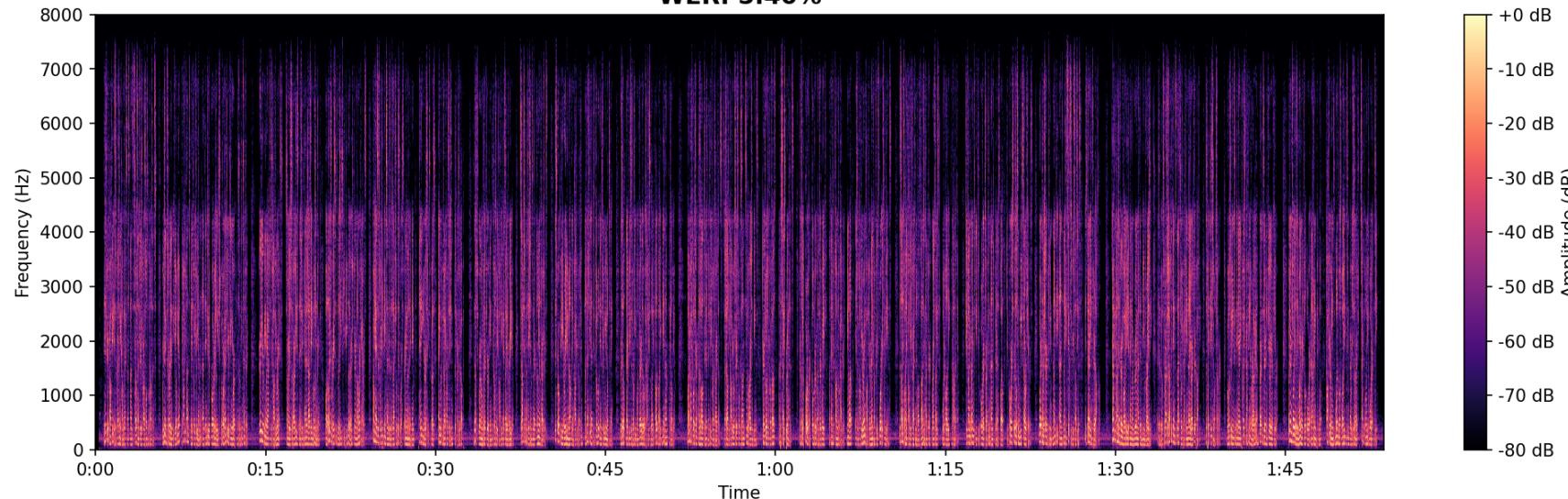
- Spectral Centroid: 2776.6 Hz
- Spectral Rolloff: 5020.1 Hz
- Spectral Bandwidth: 3674.3 Hz
- Zero Crossing Rate: 0.0605
- RMS Energy: 0.0700
- Harmonic Ratio: 0.607

Speech Band Energy:

- Fundamental (85-300Hz): 20.6%
- Formants (300-3400Hz): 56.3%
- High Freq (3400-8kHz): 14.0%
- Total Speech (85-8kHz): 90.9%

Sample 5: OnePlus Nord 3 5G (assumed) / Voicenotes (MP3)

Sample 5: OnePlus Nord 3 5G (assumed) (Smartphone built-in)
WER: 5.40%



Key Audio Characteristics:

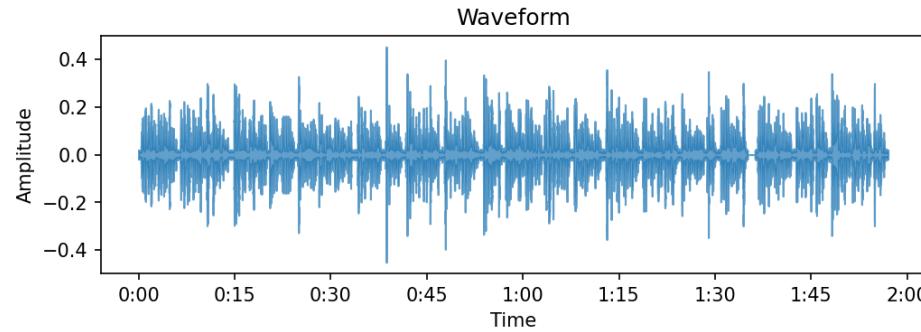
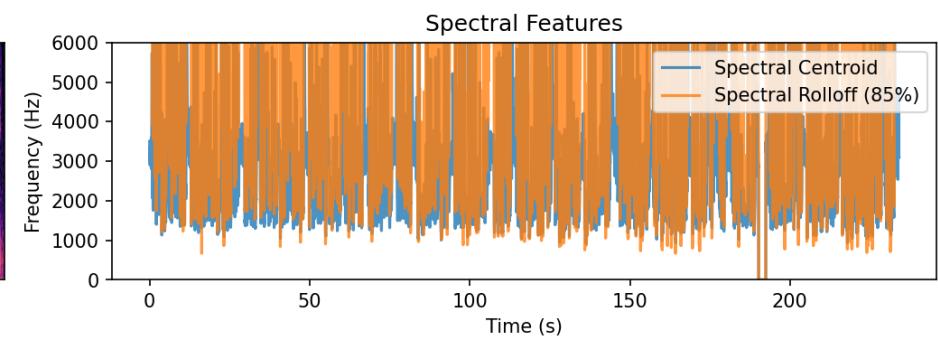
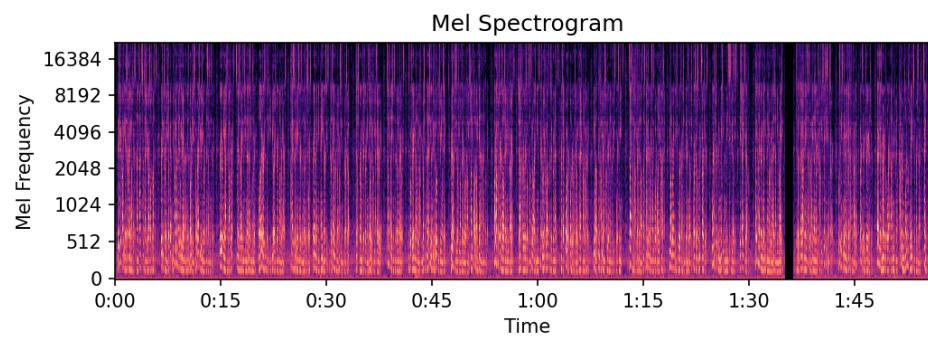
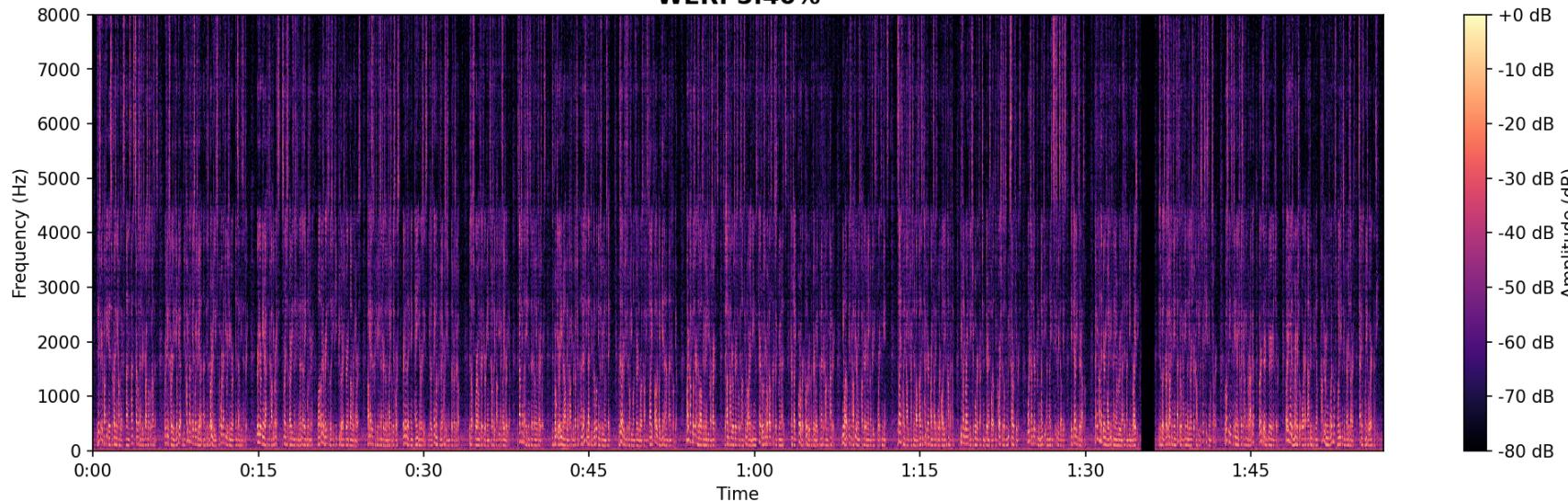
- Spectral Centroid: 1526.3 Hz
- Spectral Rolloff: 2883.6 Hz
- Spectral Bandwidth: 1428.1 Hz
- Zero Crossing Rate: 0.0459
- RMS Energy: 0.0644
- Harmonic Ratio: 0.545

Speech Band Energy:

- Fundamental (85-300Hz): 23.1%
- Formants (300-3400Hz): 62.0%
- High Freq (3400-8kHz): 14.2%
- Total Speech (85-8kHz): 99.3%

Sample 6: Audio-Technica ATR4697 / 30cm

Sample 6: Audio-Technica ATR4697 (Boundary Microphone)
WER: 5.40%



Key Audio Characteristics:

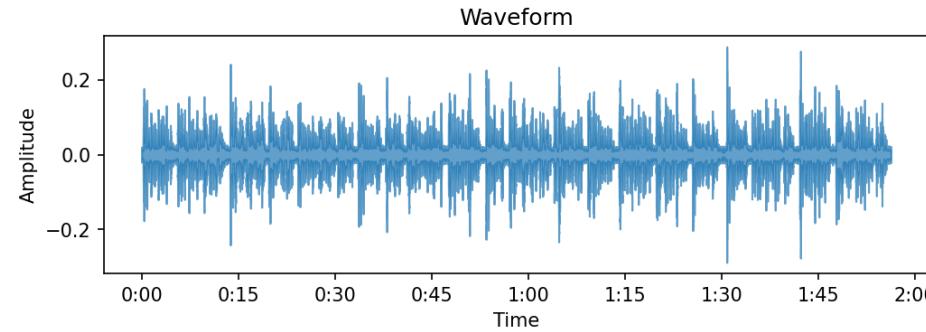
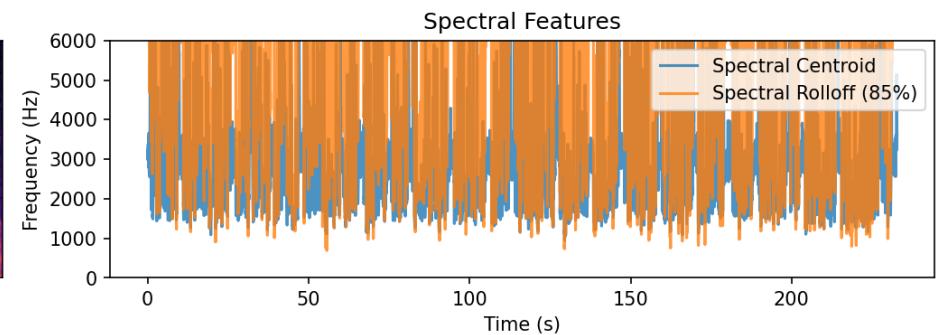
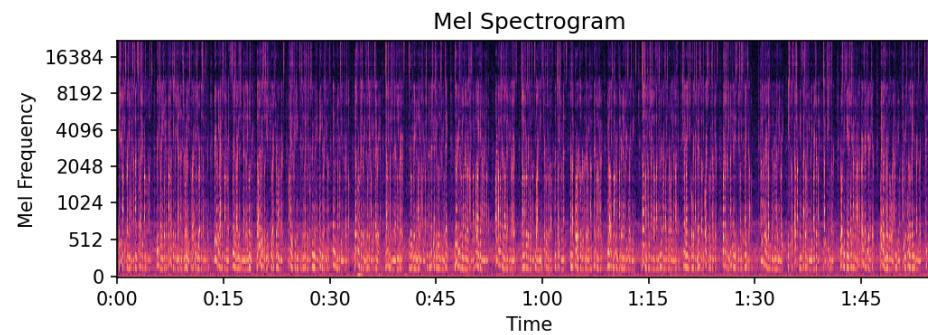
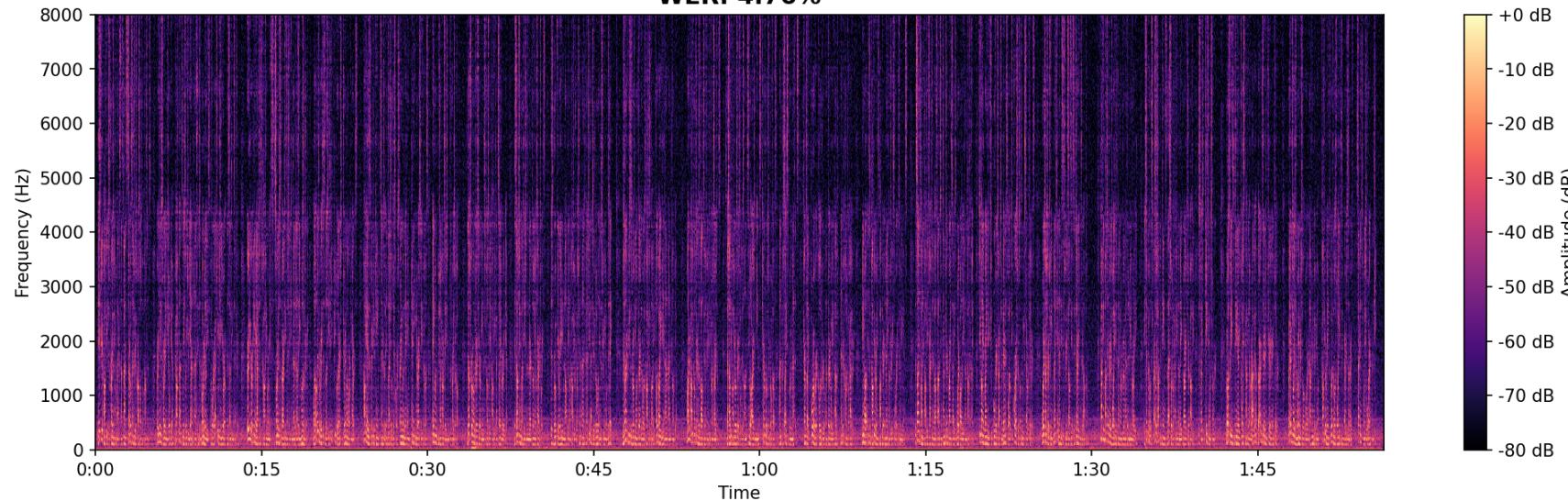
- Spectral Centroid: 2826.4 Hz
- Spectral Rolloff: 5660.5 Hz
- Spectral Bandwidth: 3893.4 Hz
- Zero Crossing Rate: 0.0460
- RMS Energy: 0.0284
- Harmonic Ratio: 0.554

Speech Band Energy:

- Fundamental (85-300Hz): 17.9%
- Formants (300-3400Hz): 47.7%
- High Freq (3400-8kHz): 14.6%
- Total Speech (85-8kHz): 80.2%

Sample 7: Audio-Technica ATR4697 / 80cm (long throw)

Sample 7: Audio-Technica ATR4697 (Boundary Microphone)
WER: 4.76%



Key Audio Characteristics:

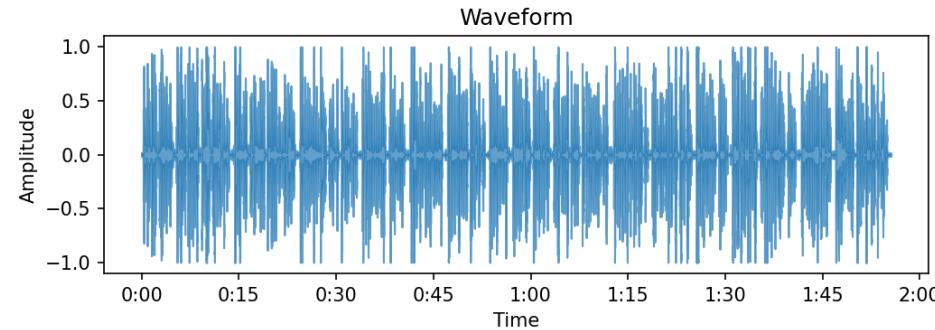
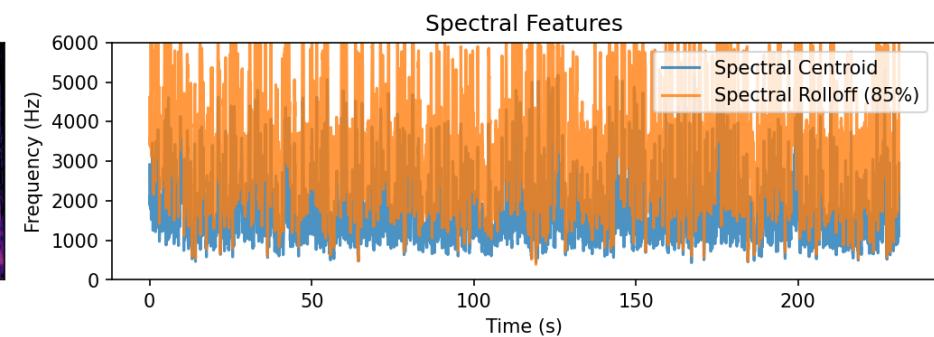
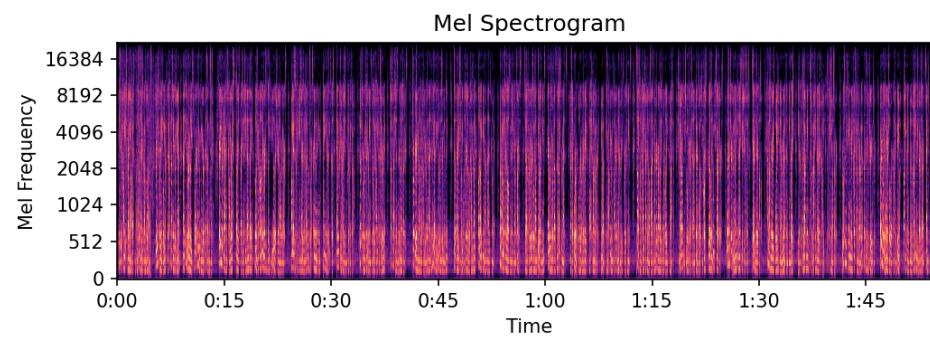
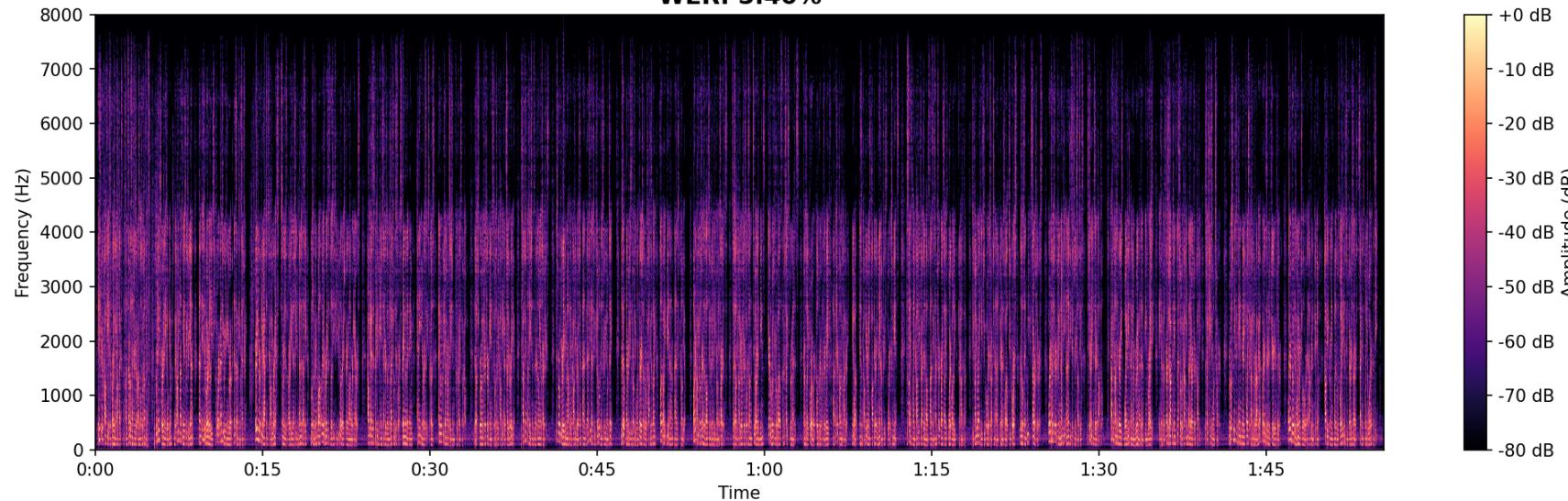
- Spectral Centroid: 2849.7 Hz
- Spectral Rolloff: 5916.2 Hz
- Spectral Bandwidth: 4200.6 Hz
- Zero Crossing Rate: 0.0405
- RMS Energy: 0.0209
- Harmonic Ratio: 0.667

Speech Band Energy:

- Fundamental (85-300Hz): 22.7%
- Formants (300-3400Hz): 40.0%
- High Freq (3400-8kHz): 13.9%
- Total Speech (85-8kHz): 76.6%

Sample 8: Jabra Speak 510

Sample 8: Jabra Speak 510 (USB Speakerphone)
WER: 5.40%



Key Audio Characteristics:

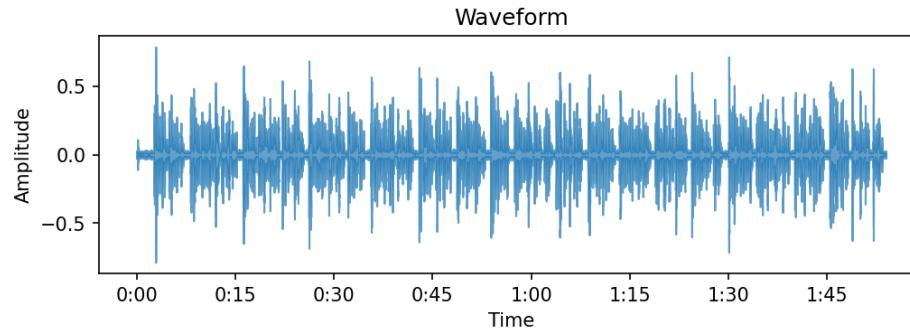
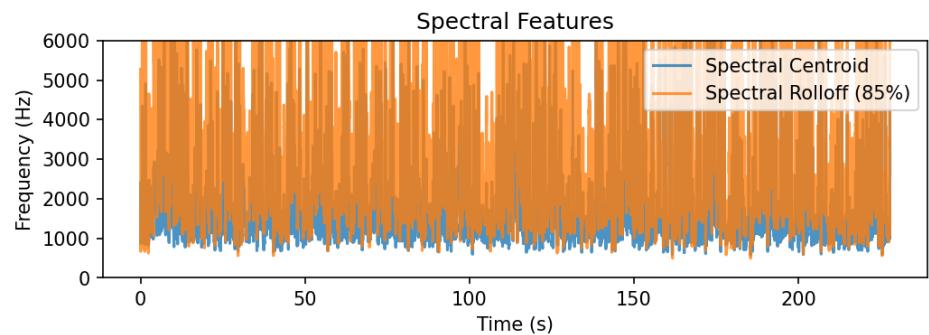
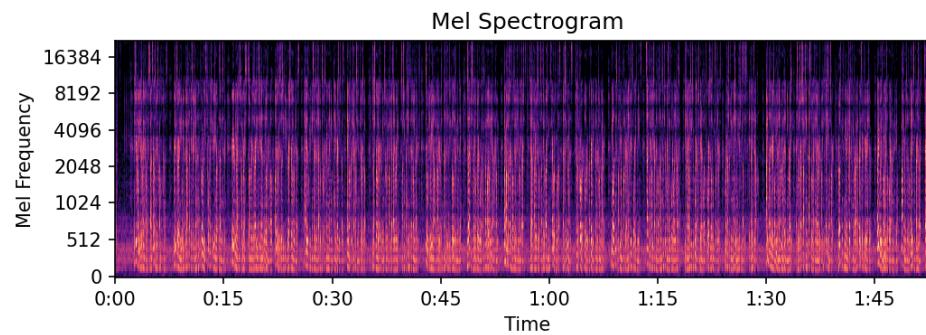
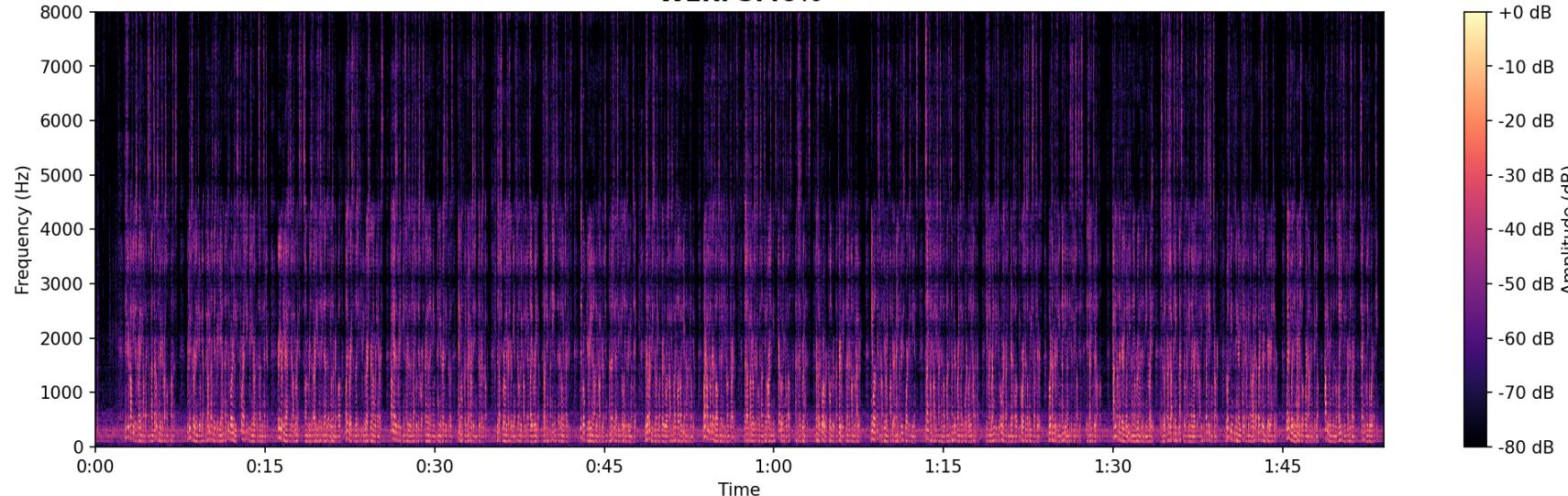
- Spectral Centroid: 1736.8 Hz
- Spectral Rolloff: 3262.7 Hz
- Spectral Bandwidth: 1536.5 Hz
- Zero Crossing Rate: 0.0584
- RMS Energy: 0.0872
- Harmonic Ratio: 0.525

Speech Band Energy:

- Fundamental (85-300Hz): 17.5%
- Formants (300-3400Hz): 64.8%
- High Freq (3400-8kHz): 16.9%
- Total Speech (85-8kHz): 99.1%

Sample 9: Logitech C925e / 30cm

Sample 9: Logitech C925e (Webcam built-in)
WER: 5.40%



Key Audio Characteristics:

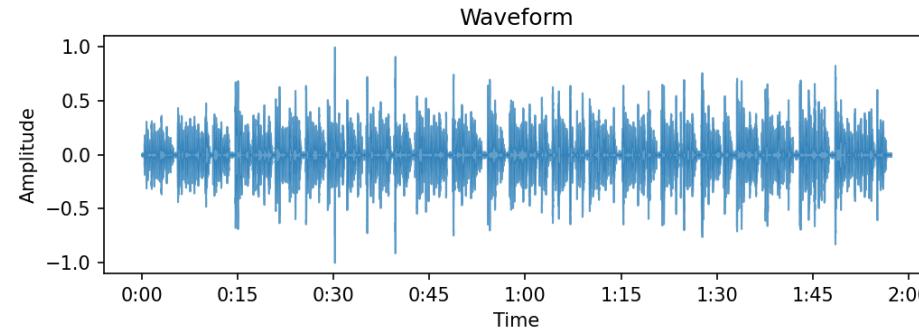
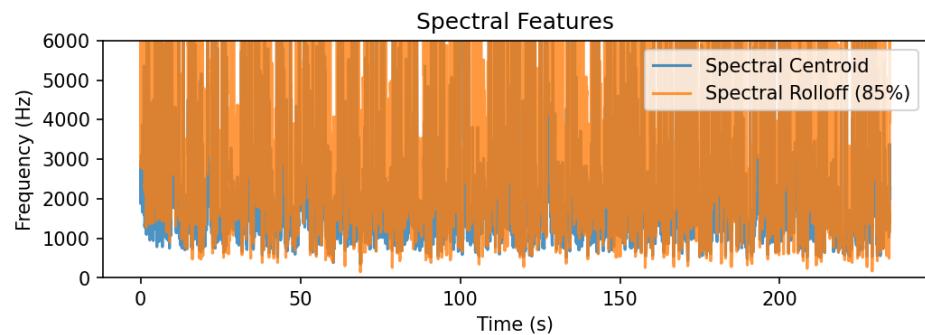
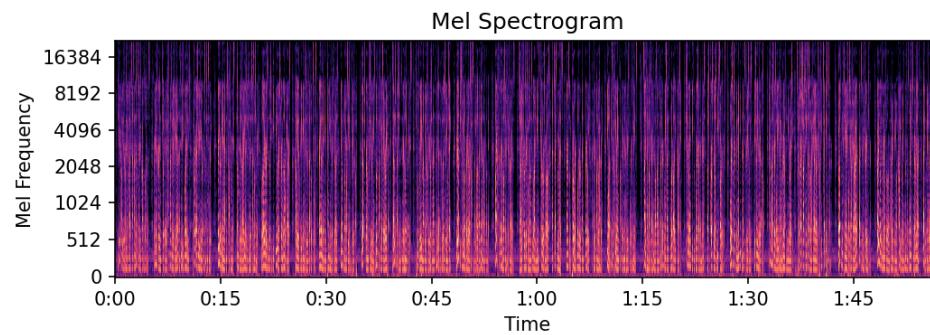
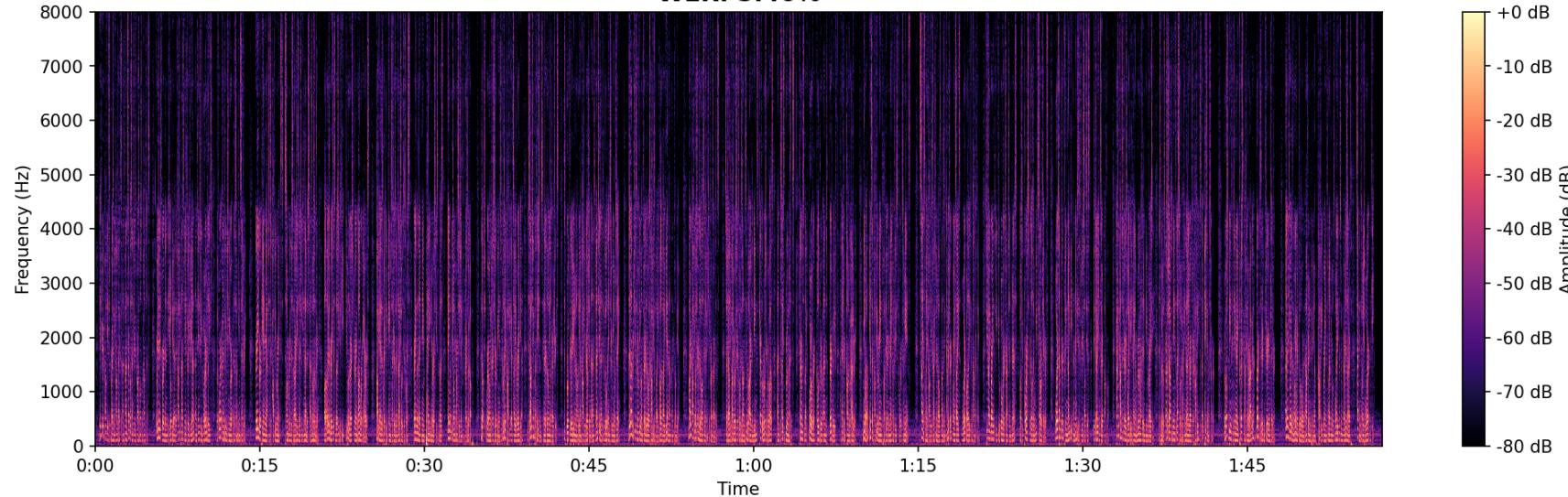
- Spectral Centroid: 1864.1 Hz
- Spectral Rolloff: 3458.7 Hz
- Spectral Bandwidth: 2221.5 Hz
- Zero Crossing Rate: 0.0463
- RMS Energy: 0.0473
- Harmonic Ratio: 0.590

Speech Band Energy:

- Fundamental (85-300Hz): 20.3%
- Formants (300-3400Hz): 61.6%
- High Freq (3400-8kHz): 13.6%
- Total Speech (85-8kHz): 95.6%

Sample 10: Maono Elf

Sample 10: Maono Elf (Lavalier)
WER: 5.40%



Key Audio Characteristics:

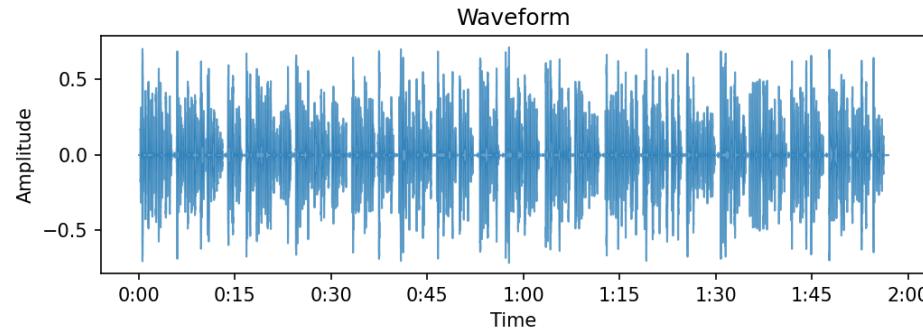
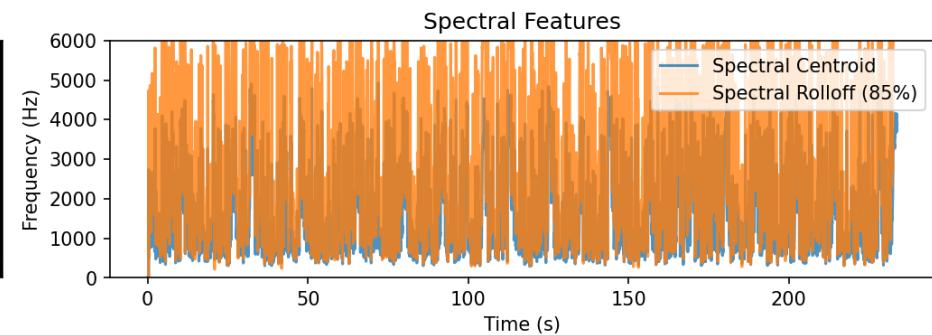
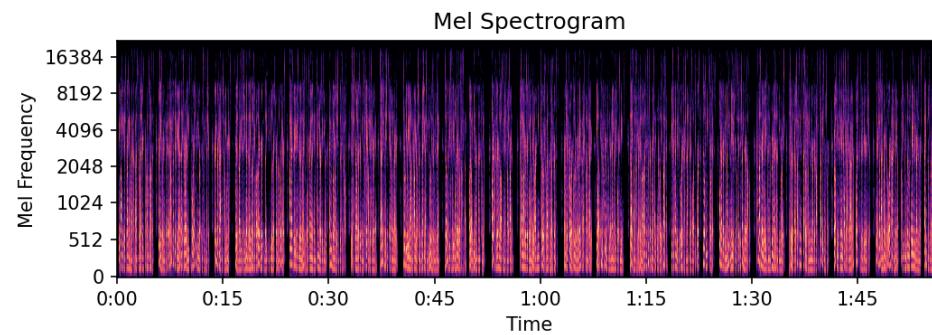
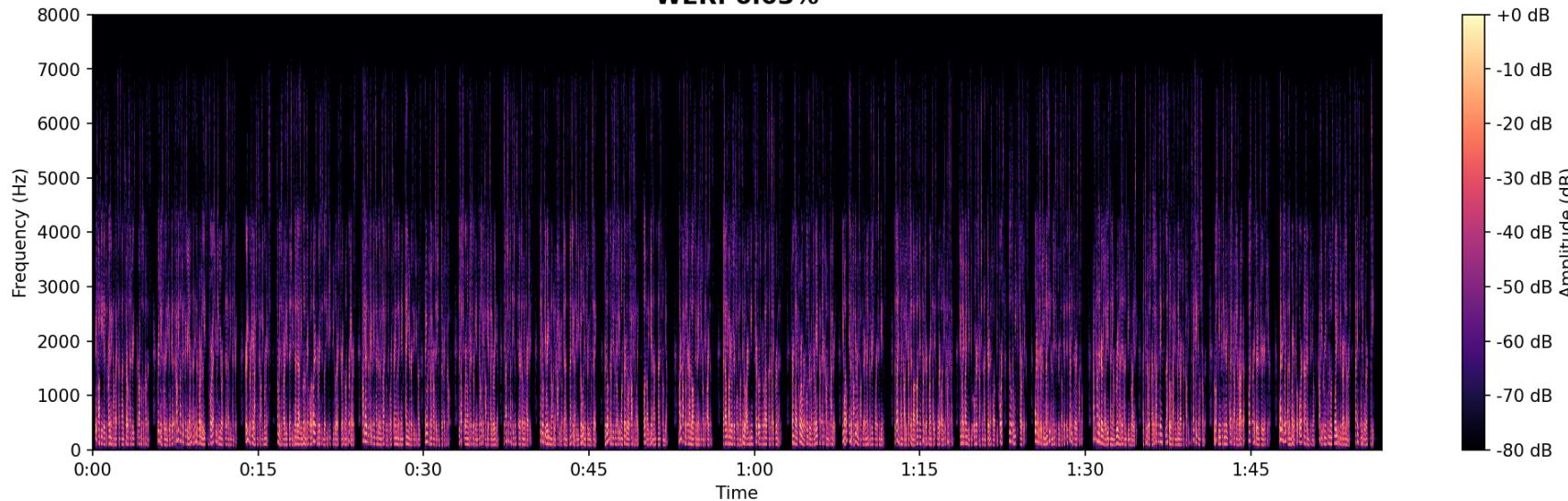
- Spectral Centroid: 2301.9 Hz
- Spectral Rolloff: 4184.4 Hz
- Spectral Bandwidth: 2870.2 Hz
- Zero Crossing Rate: 0.0510
- RMS Energy: 0.0547
- Harmonic Ratio: 0.460

Speech Band Energy:

- Fundamental (85-300Hz): 21.1%
- Formants (300-3400Hz): 53.9%
- High Freq (3400-8kHz): 13.7%
- Total Speech (85-8kHz): 88.8%

Sample 11: Yealink BH72 / BT51 dongle

Sample 11: Yealink BH72 (Wireless Headset)
WER: 6.03%



Key Audio Characteristics:

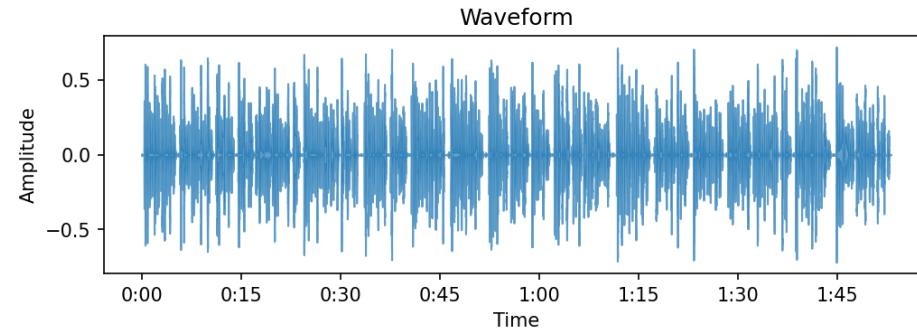
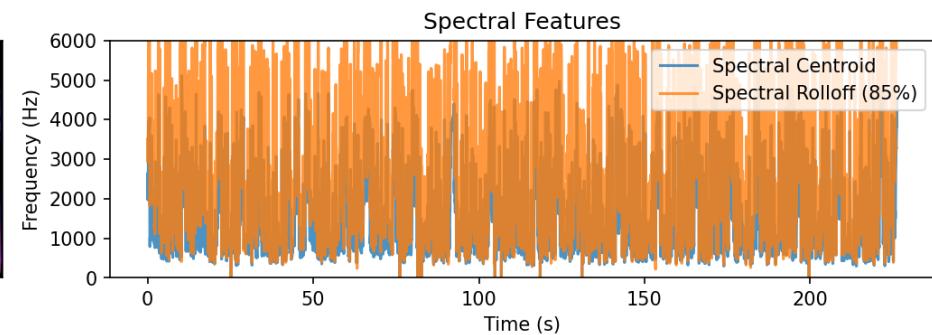
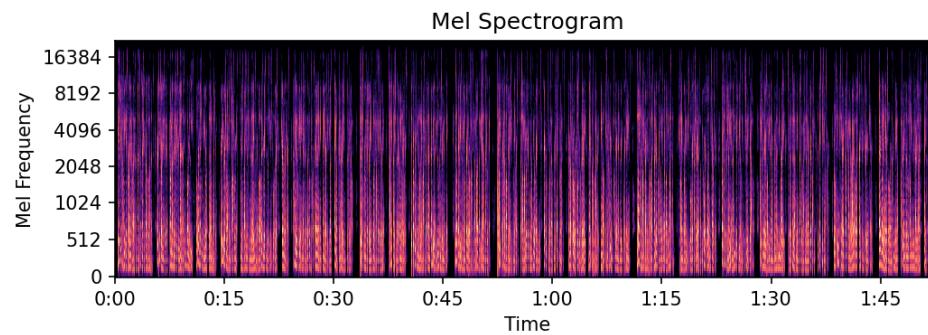
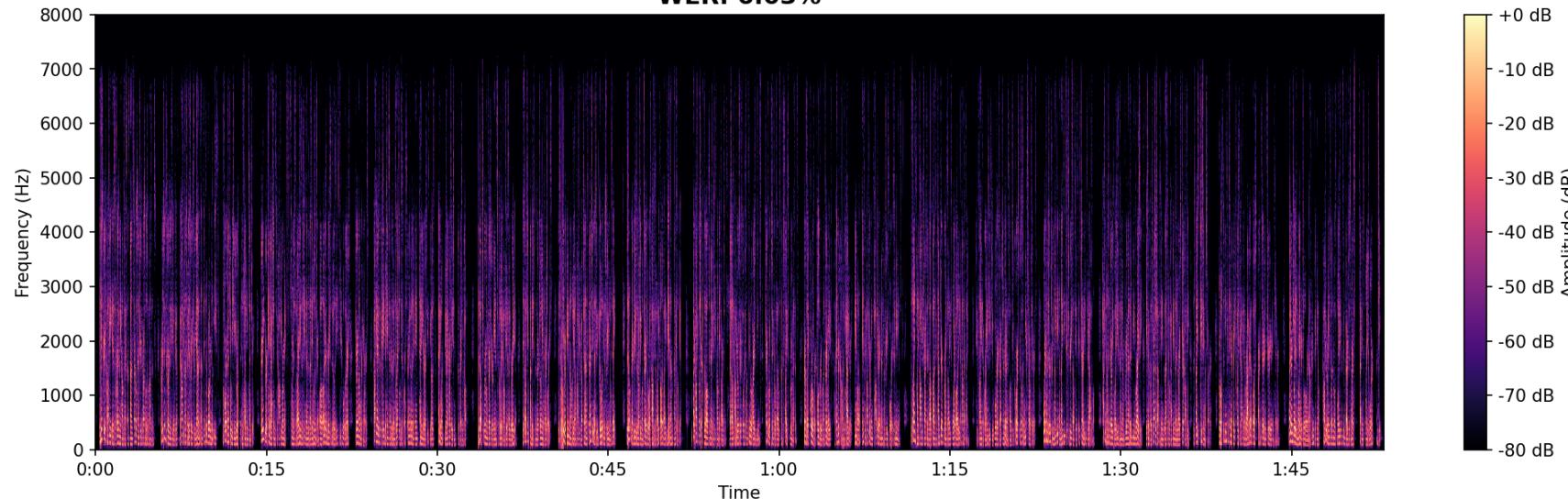
- Spectral Centroid: 1525.6 Hz
- Spectral Rolloff: 2658.2 Hz
- Spectral Bandwidth: 1583.4 Hz
- Zero Crossing Rate: 0.0453
- RMS Energy: 0.0450
- Harmonic Ratio: 0.413

Speech Band Energy:

- Fundamental (85-300Hz): 21.7%
- Formants (300-3400Hz): 72.7%
- High Freq (3400-8kHz): 5.1%
- Total Speech (85-8kHz): 99.5%

Sample 12: Yealink BH72 / TP-Link BT

Sample 12: Yealink BH72 (Wireless Headset)
WER: 6.03%



Key Audio Characteristics:

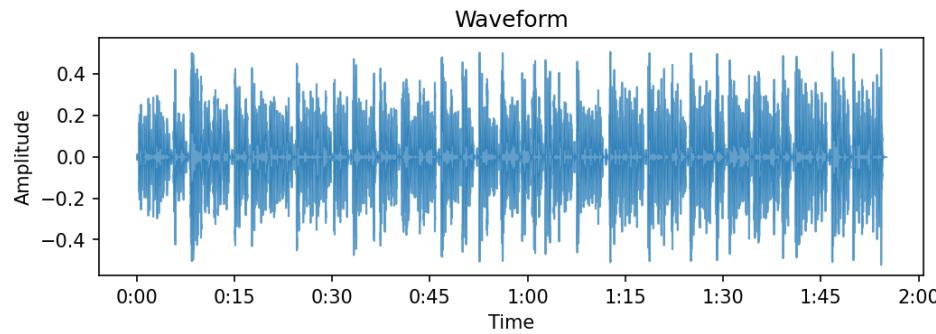
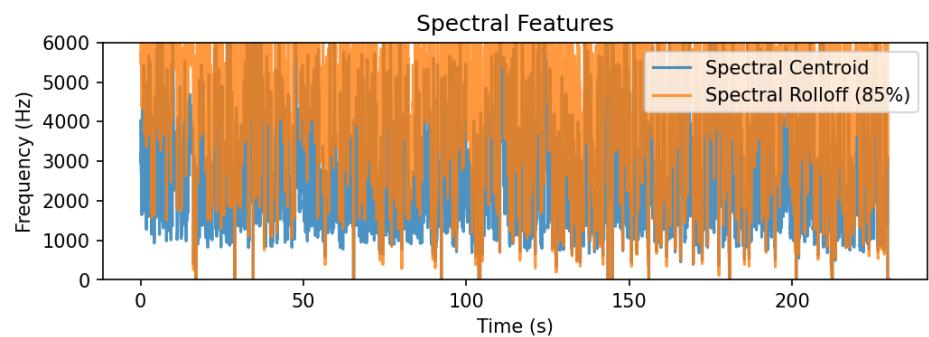
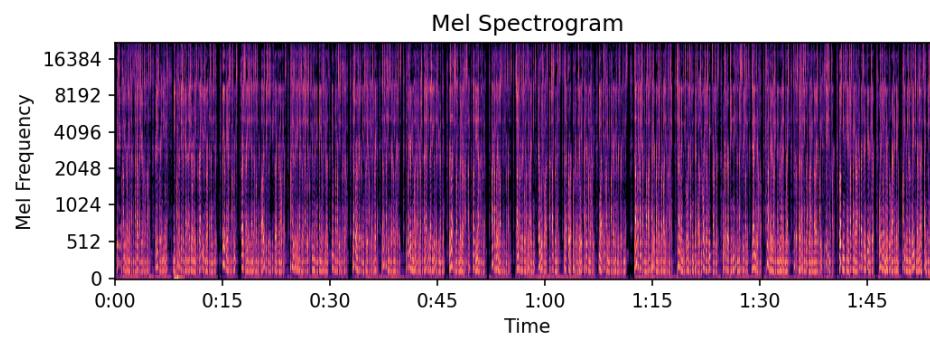
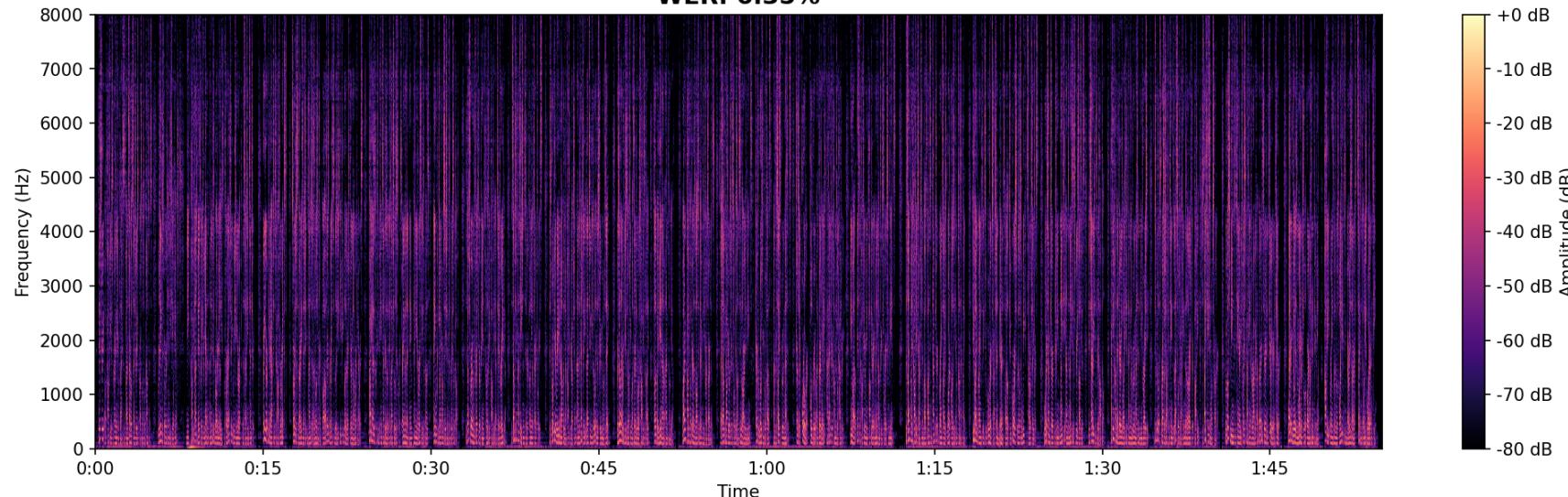
- Spectral Centroid: 1531.7 Hz
- Spectral Rolloff: 2670.4 Hz
- Spectral Bandwidth: 1598.9 Hz
- Zero Crossing Rate: 0.0451
- RMS Energy: 0.0427
- Harmonic Ratio: 0.366

Speech Band Energy:

- Fundamental (85-300Hz): 21.9%
- Formants (300-3400Hz): 72.0%
- High Freq (3400-8kHz): 5.5%
- Total Speech (85-8kHz): 99.4%

Sample 13: Audio-Technica ATR4750-USB

Sample 13: Audio-Technica ATR4750-USB (Condenser Gooseneck)
WER: 6.35%



Key Audio Characteristics:

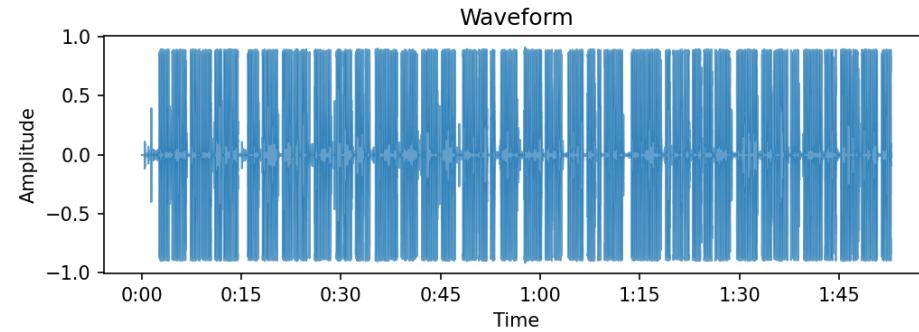
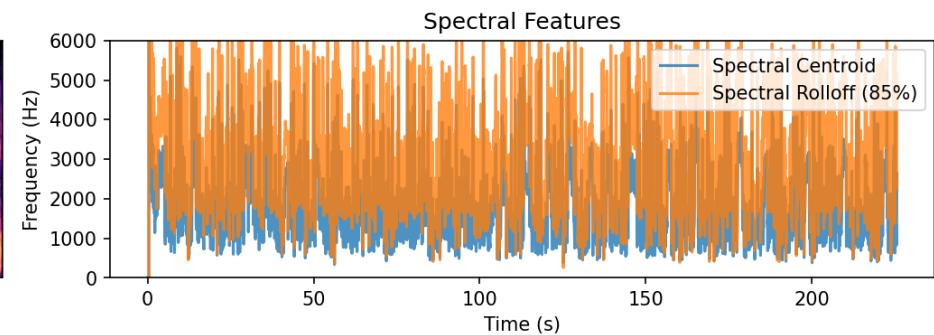
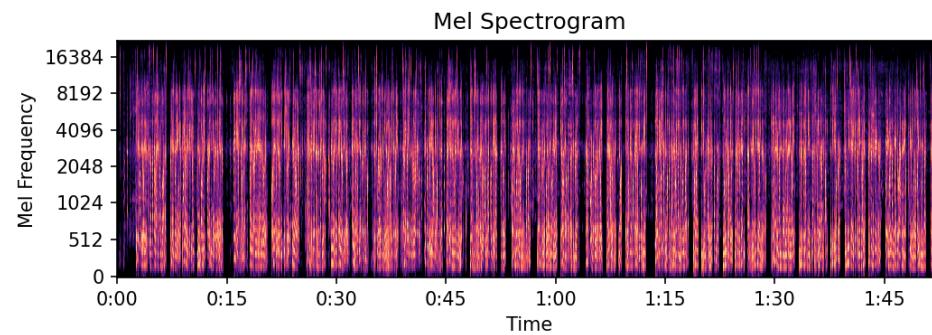
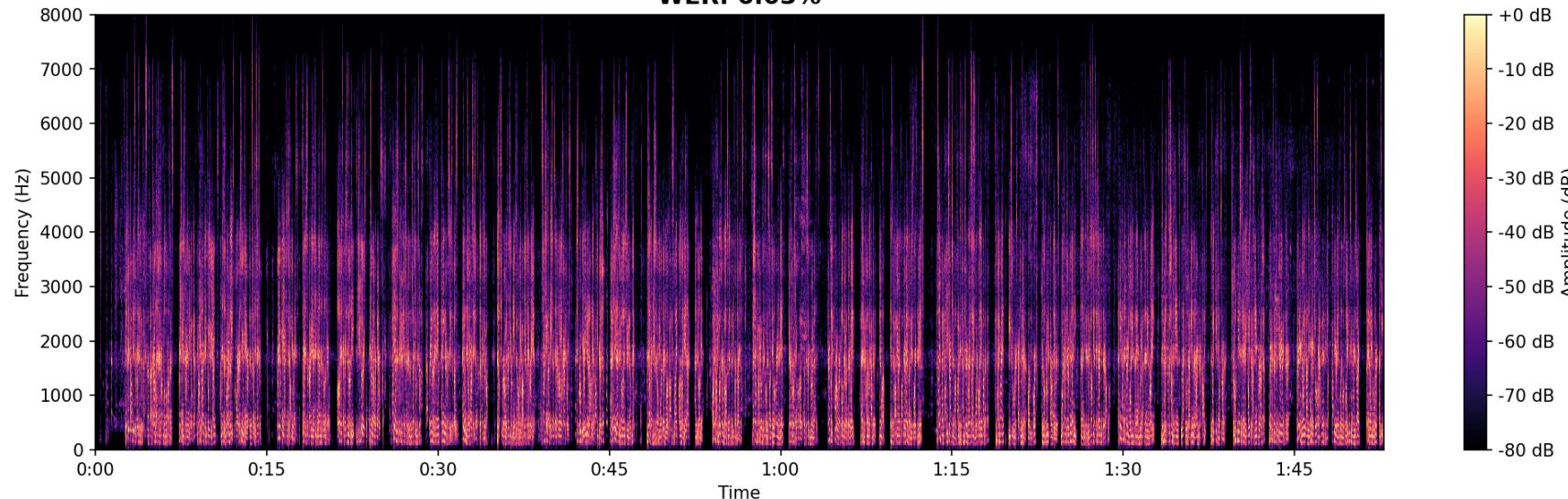
- Spectral Centroid: 2555.0 Hz
- Spectral Rolloff: 4632.3 Hz
- Spectral Bandwidth: 2164.1 Hz
- Zero Crossing Rate: 0.0758
- RMS Energy: 0.0436
- Harmonic Ratio: 0.485

Speech Band Energy:

- Fundamental (85-300Hz): 16.2%
- Formants (300-3400Hz): 41.0%
- High Freq (3400-8kHz): 36.7%
- Total Speech (85-8kHz): 93.9%

Sample 14: OnePlus Nord 3 5G / Noisy (Mahane Yehuda)

Sample 14: OnePlus Nord 3 5G (Smartphone built-in)
WER: 6.03%



Key Audio Characteristics:

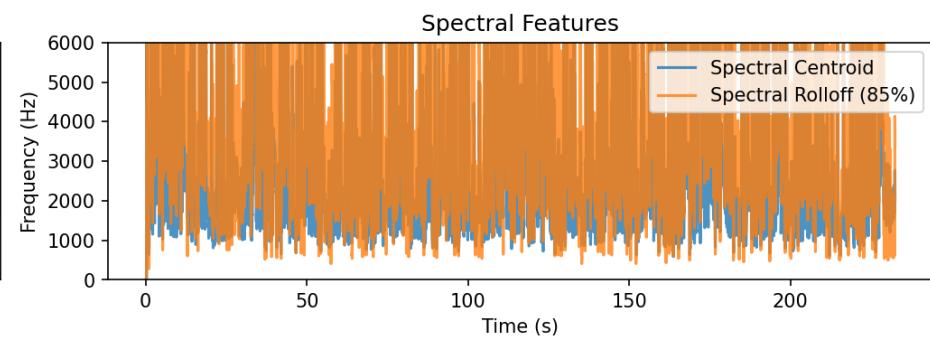
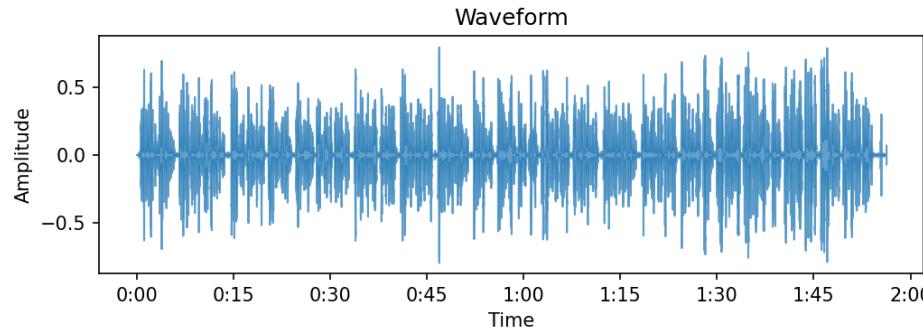
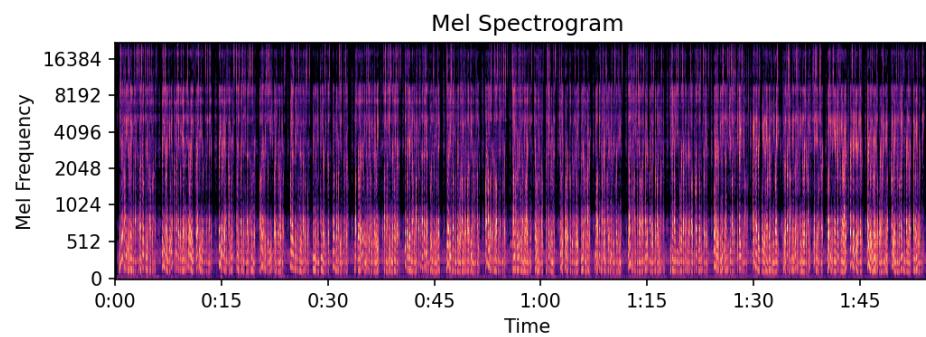
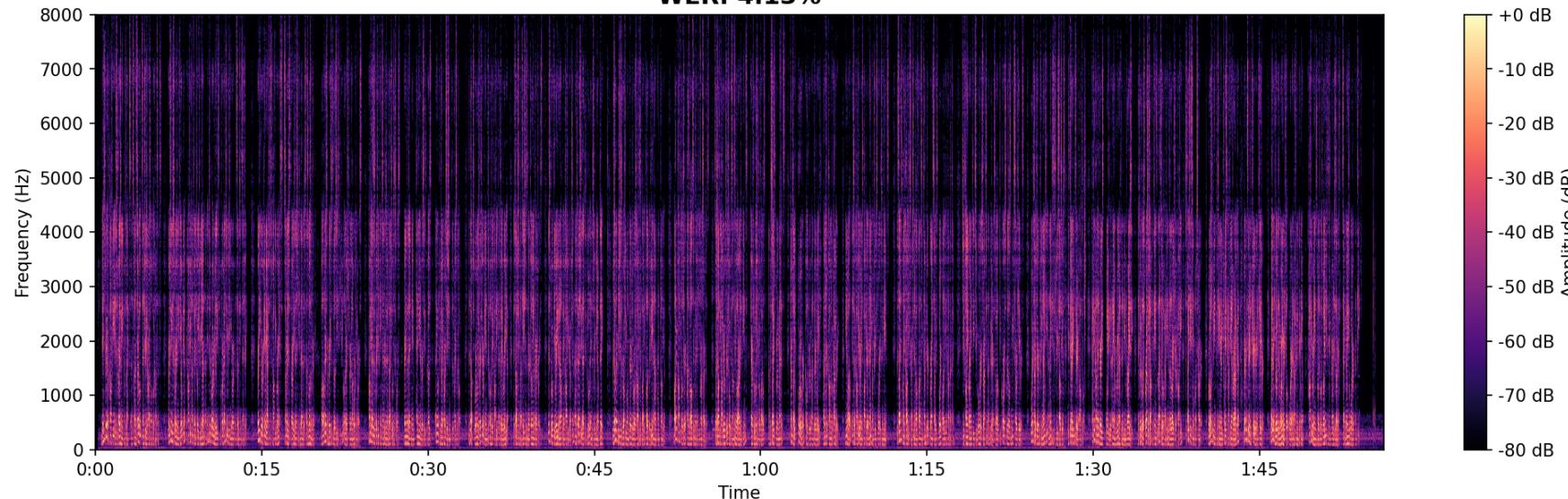
- Spectral Centroid: 1804.9 Hz
- Spectral Rolloff: 2906.1 Hz
- Spectral Bandwidth: 1361.9 Hz
- Zero Crossing Rate: 0.0687
- RMS Energy: 0.1642
- Harmonic Ratio: 0.384

Speech Band Energy:

- Fundamental (85-300Hz): 12.3%
- Formants (300-3400Hz): 77.9%
- High Freq (3400-8kHz): 9.6%
- Total Speech (85-8kHz): 99.8%

Sample 15: OnePlus Nord 3 5G / Quiet (home office)

Sample 15: OnePlus Nord 3 5G (Smartphone built-in)
WER: 4.13%



Key Audio Characteristics:

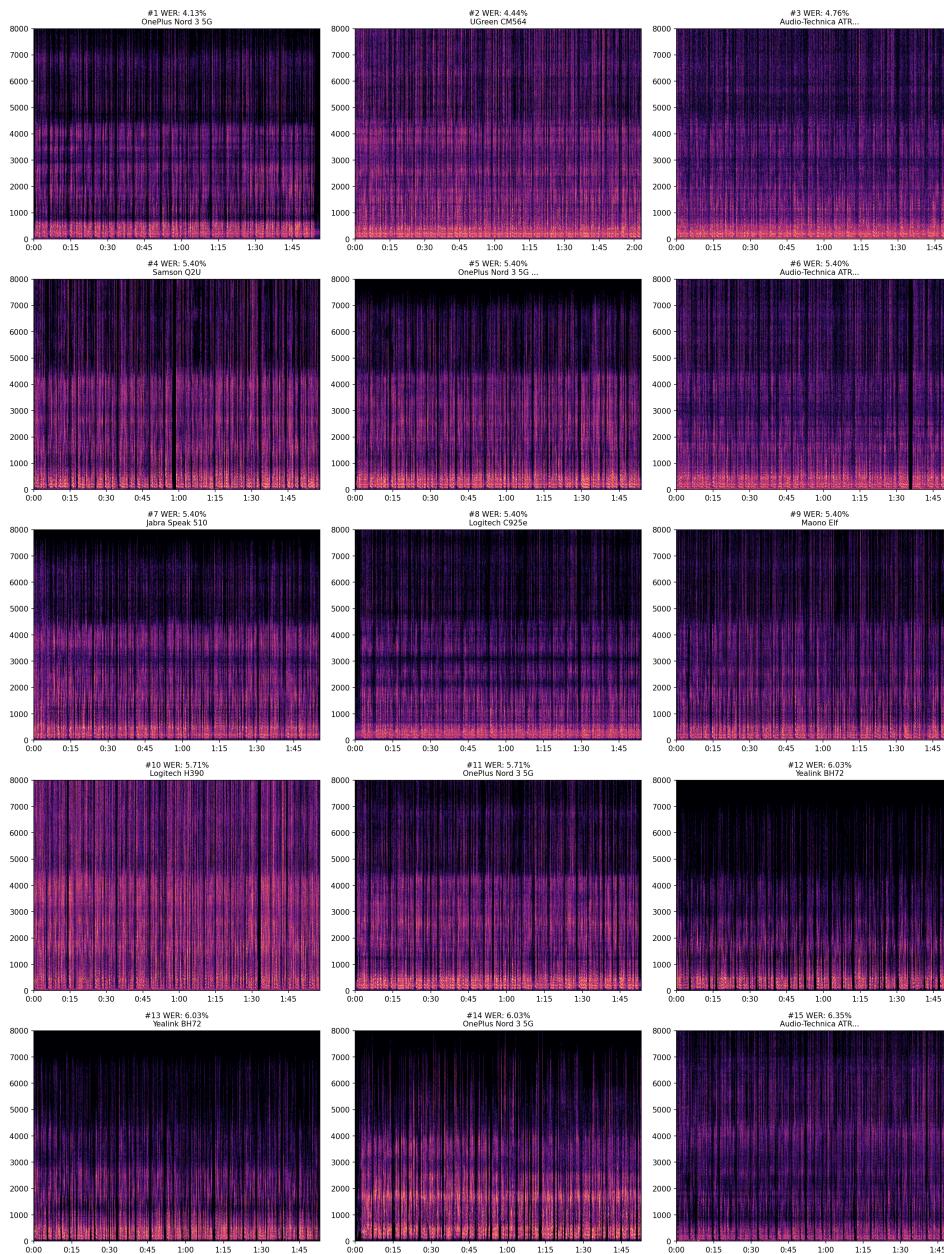
Spectral Centroid: 2639.5 Hz
Spectral Rolloff: 4674.8 Hz
Spectral Bandwidth: 3565.5 Hz
Zero Crossing Rate: 0.0582
RMS Energy: 0.0551
Harmonic Ratio: 0.532

Speech Band Energy:

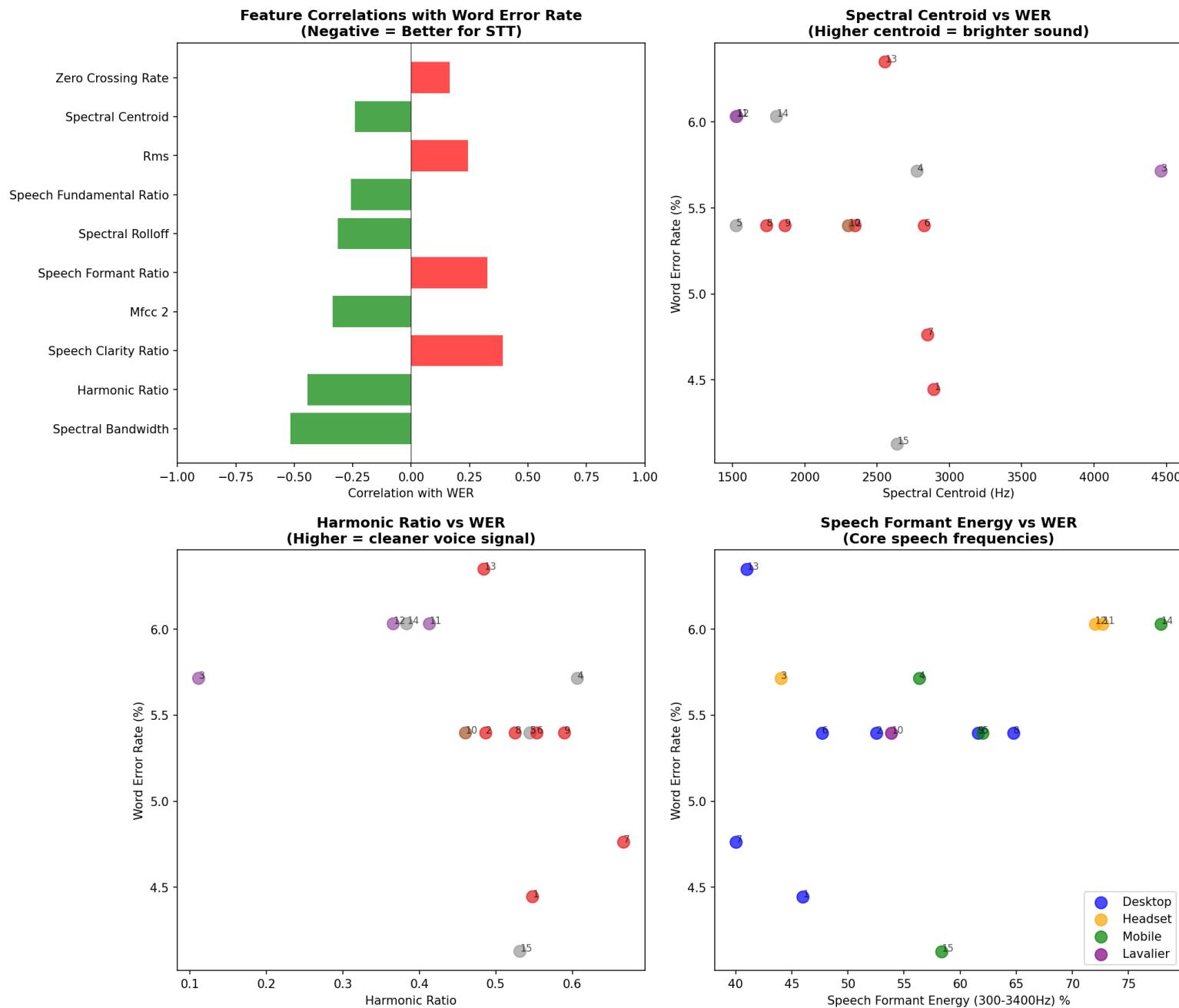
Fundamental (85-300Hz): 18.8%
Formants (300-3400Hz): 58.4%
High Freq (3400-8kHz): 15.1%
Total Speech (85-8kHz): 92.2%

All Spectrograms Ranked by Word Error Rate

Spectrograms Ranked by Word Error Rate (Lower = Better)
All samples untreated raw recordings



Audio Feature Correlations with WER



Price vs Word Error Rate Analysis

