Measurement summary

Full analysis demonstration - synthetic

Report ID: FT-1E55A72F

Nov 5, 2026 4:11:45 PM

Software-generated sample data, not a real measurement.

Measurement object: Software-generated multisensor demonstration

Measurement point: Offline reference fixture

Duration: 10.000 s

Vibration RMS: 0.30179 m/s²

Peak: 2.2885 m/s²

Dominant frequency: 3.1250 Hz

A Leq: -23.737 dBFS

Event count: 7

For relative comparison; not fault, safety or liability assessment.

Object, conditions & setup

Measurement object: Software-generated multisensor demonstration

Measurement point: Offline reference fixture

Scenario: Quick sound measurement

Channel: BOTH

Equipment: Software fixture / Android native exporter

Capture chain: synthetic-pcm48k-motion100-v1

Requested duration: 10.000 s

Countdown: 3.0000 s

Notes: Synthetic PCM and motion frames, not a physical measurement. Native Android analysis/export verification.

Notes: —

Tags: —

Measurement profiles: Synthetic profile example

Sensor / device: Synthetic sensors

Serial number (optional): —

Evidence level: Unverified

Checking / calibration provider: —

Certificate number: —

证书文件: —

SHA-256: —

Expanded uncertainty (%): —

Lower Hz: —

Upper Hz: —

Notes: Software fixture only; no calibration claim.

Measurement chain & quality

Equipment: Software fixture / Android native exporter

Capture chain: synthetic-pcm48k-motion100-v1

Audio sample rate: 48000 Hz

Requested sample rate: 100.00 Hz

Actual sample rate: 100.00 Hz

Mean sample interval: 0.010000 s

Median sample interval: 0.010000 s

P95 sample jitter: 8.8818e-16 s

Largest sample gap: 0.010000 s

Estimated missing-frame ratio: 0.0000 %

Motion frame count: 1000

Audio frame count: 235

Retained audio coverage: 10.000 s

Audio discontinuities: 0

Gyroscope: Usable

Attitude sensor: Usable

Raw audio: Not retained

Reference calibration: No reference calibration

Interpretation gates and scenario observations

Retest

Capture integrity · Pass

9.99 s

Timing · Caution

Timing evidence is incomplete, or rate, jitter, gaps, or synchronization need review.

Placement evidence · Caution

No placement snapshot retained; consistent mounting and direction cannot be assumed.

Method and evidence · Caution

Device, clock basis, or record fingerprint is incomplete.

Measurement profiles · Limitation

Complete valid traceable evidence is missing; relative measurement only.

Review measurement conditions

Retest under the same conditions.

Note retest conditions

Note the state and changes.

Dominant direction

X · RMS 0.299 m/s²

Main frequency

3.13 Hz · 不代表具体故障。

Transient events

2

Repeatability assessment

At least 3 runs needed

Matching records: 0

Excluded records: 1

Latest RMS change: — %

Acceleration · time & events

RMS: 0.30179 m/s²

Peak: 2.2885 m/s²

P95: 0.30178 m/s²

Standard deviation: 0.21139 m/s²

Crest factor: 7.5831

RMS by axis: 0.29896 / 0.035355 / 0.021213 m/s²

Peak-to-peak by axis: 2.5879 / 0.10000 / 0.059882 m/s²

Vector peak-to-peak: 2.5905 m/s²

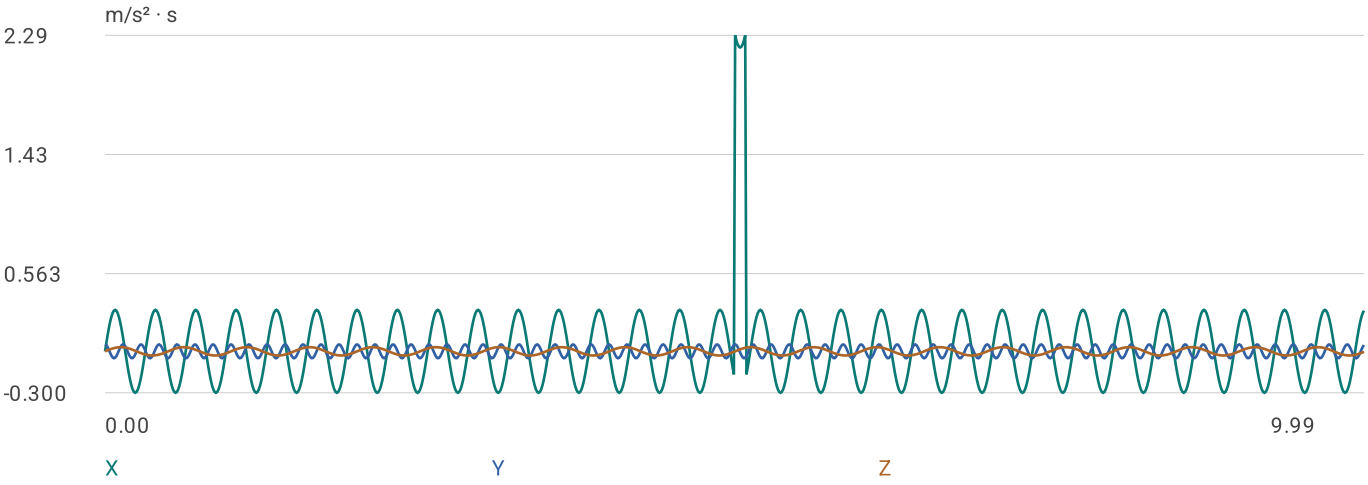
Energy share by axis: 98.133 / 1.3725 / 0.49410 %

Kurtosis: 27.813

Impulse factor: 10.838

Shape factor: 1.4265

Windowed RMS coefficient of variation: 0.55760



Acceleration · frequency

Dominant axis: X

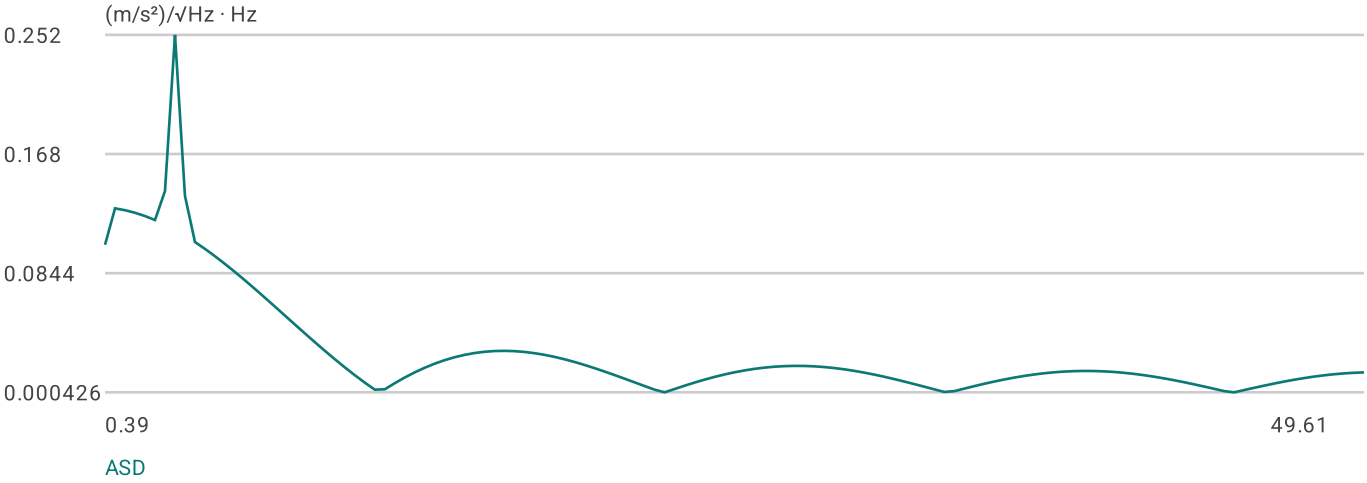
Spectrum method: Welch RMS amplitude spectral density · Hann · 50% overlap

Sample rate: 100.00 Hz

FFT length: 256

Window count: 6

Frequency resolution: 0.39063 Hz



P1: 3.1250 Hz · 0.25245 (m/s²)/√Hz

P2: 0.7813 Hz · 0.13014 (m/s²)/√Hz

P3: 16.0156 Hz · 0.029661 (m/s²)/√Hz

3.1250 Hz · Local prominence 6.22 dB

Spectral centroid: 4.8438 Hz

Spectral entropy: 0.64542

Prominent frequencies describe measured features, not fault codes.

Gyroscope & orientation

RMS: 0.015807 rad/s

Peak: 0.020000 rad/s

P95: 0.020000 rad/s

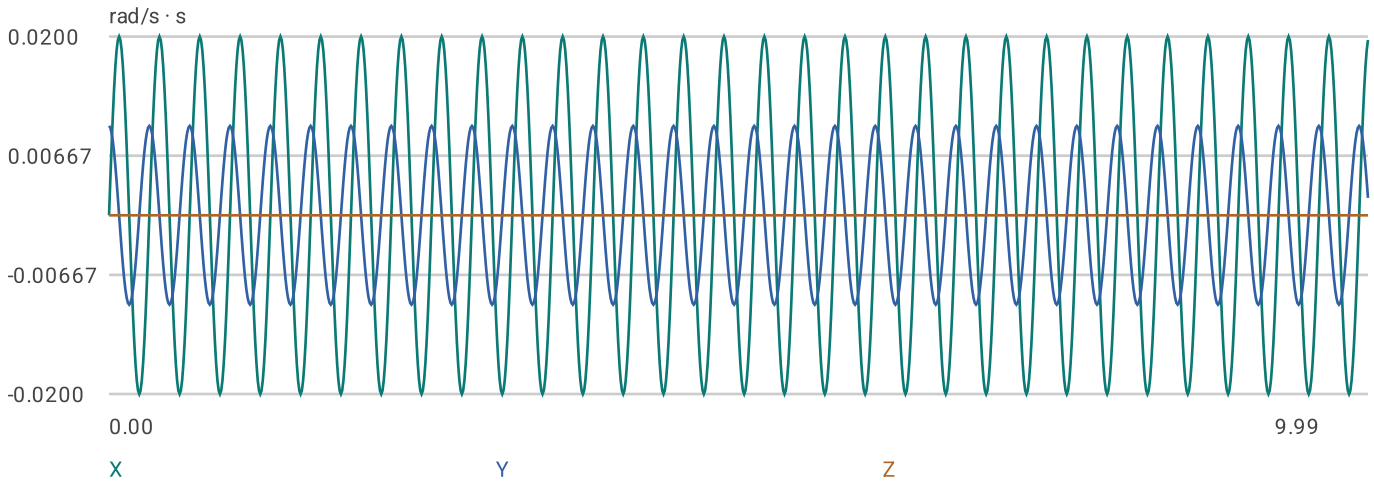
Standard deviation: 0.0034984 rad/s

Crest factor: 1.2653

RMS by axis: 0.014135 / 0.0070746 / 0.0000 rad/s

Peak-to-peak by axis: 0.040000 / 0.020000 / 0.0000 rad/s

Vector peak-to-peak: 0.044721 rad/s



Dominant axis: X

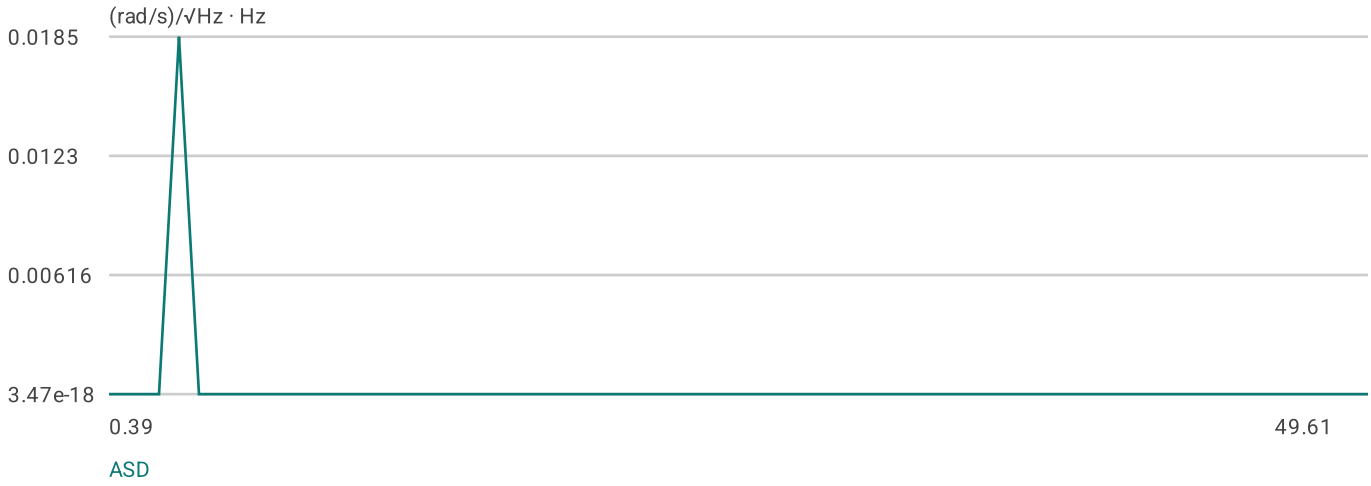
Spectrum method: Welch RMS amplitude spectral density · Hann · 50% overlap

Sample rate: 100.00 Hz

FFT length: 256

Window count: 6

Frequency resolution: 0.39063 Hz



P1: 3.1250 Hz · 0.018475 (rad/s)/√Hz

P2: 27.3438 Hz · 3.7434e-17 (rad/s)/√Hz

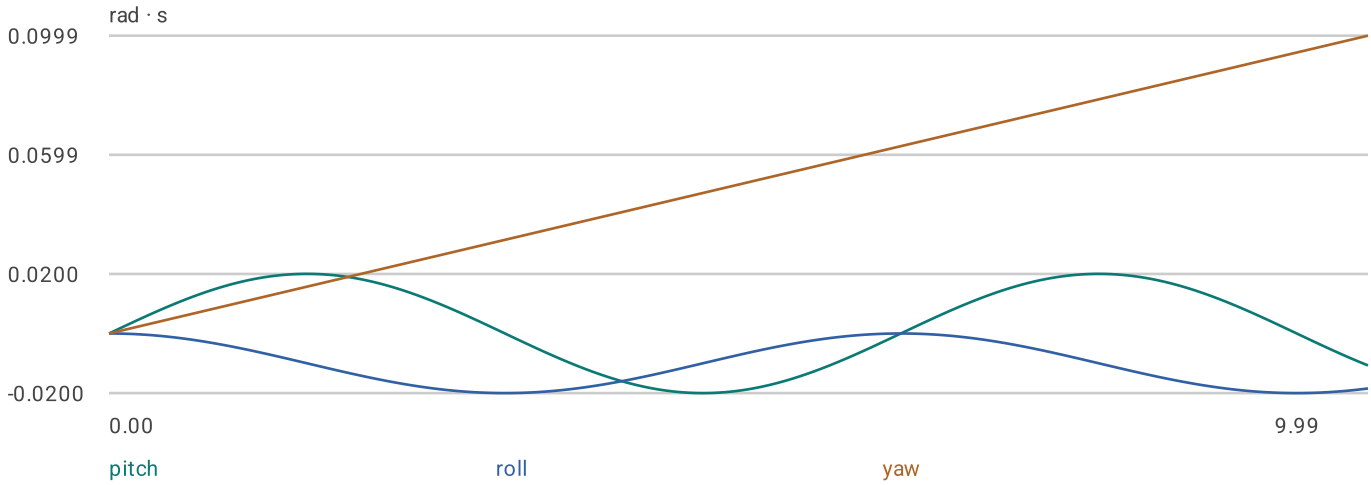
P3: 46.8750 Hz · 3.2969e-17 (rad/s)/√Hz

3.1250 Hz · Local prominence 205.33 dB

Maximum relative attitude change: 0.10215 rad

Final relative attitude change: 0.10215 rad

Attitude range by axis: 0.040000 / 0.020000 / 0.099900 rad



Attitude is relative to the first frame; crossings of ±π use the shortest angular difference.

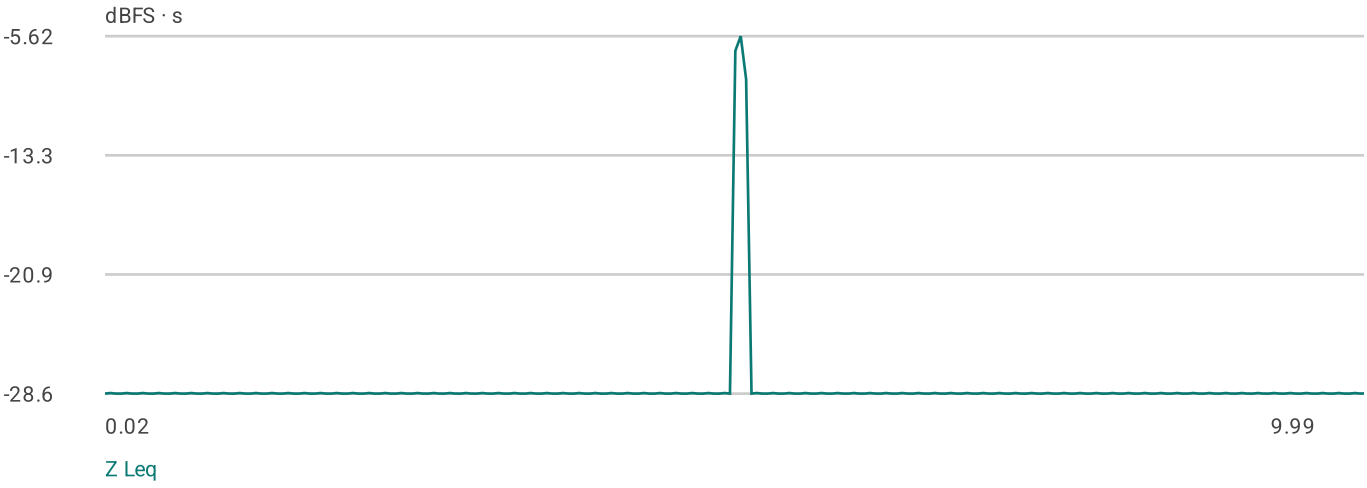
Audio · energy & bands

Relative equivalent level: -23.870 dBFS(Z)

PCM waveform peak: -1.9559 dBFS

Clipped samples: 0

Clipping ratio: 0.0000 %



Spectrum method: Hann FFT power; fractional bin-cell third-octave integration; base10 edges; Z ; v1

FFT length: 32768

Window count: 19

Dominant frequency: 999.98 Hz

Spectrum time window: 9.0–9.682666666666666 s



Spectrum shows the last complete window. Maxima cover complete session windows, not the ti me selection.

Spectral centroid: 1121.3 Hz

Spectral flatness: 2.1017e-06

85% spectral rolloff: 1008.1 Hz

1007.81 Hz · Leq -25.00 dBFS · max -6.73 dBFS · 100.0 %

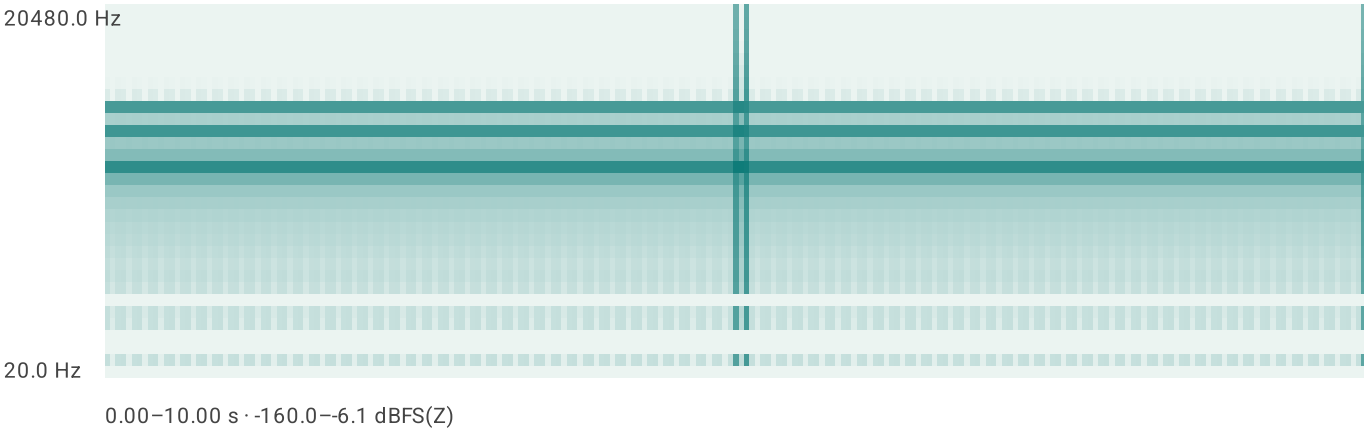
1992.19 Hz · Leq -35.46 dBFS · max -17.19 dBFS · 100.0 %

3000.00 Hz · Leq -40.90 dBFS · max -22.59 dBFS · 100.0 %

Candidate fundamental: 1007.8 Hz

Matched orders: 1, 2, 3

Component energy share: 100.00 %



Duration-weighted band energy

20.0 Hz · -160.00 dBFS

25.2 Hz · -66.81 dBFS

31.7 Hz · -160.00 dBFS

40.0 Hz · -160.00 dBFS

50.4 Hz · -66.80 dBFS

63.5 Hz · -66.78 dBFS

80.0 Hz · -160.00 dBFS

100.8 Hz · -66.75 dBFS

127.0 Hz · -63.68 dBFS

160.0 Hz · -66.61 dBFS

201.6 Hz · -63.50 dBFS

254.0 Hz · -61.52 dBFS

320.0 Hz · -61.18 dBFS

403.2 Hz · -59.38 dBFS

508.0 Hz · -57.42 dBFS

640.0 Hz · -54.78 dBFS

806.3 Hz · -48.47 dBFS

1015.9 Hz · -24.09 dBFS

1280.0 Hz · -53.40 dBFS

1612.7 Hz · -67.04 dBFS

2031.9 Hz · -34.54 dBFS

2560.0 Hz · -64.79 dBFS

3225.4 Hz · -40.54 dBFS

4063.7 Hz · -67.13 dBFS

5120.0 Hz · -71.53 dBFS

6450.8 Hz · -75.10 dBFS

8127.5 Hz · -78.07 dBFS

10240.0 Hz · -80.86 dBFS

12901.6 Hz · -83.21 dBFS

16255.0 Hz · -84.97 dBFS

20480.0 Hz · -85.89 dBFS

Levels, time responses and exposure

A Leq: -23.737 dBFS

A L10 / L50 / L90: -28.413 / -28.416 / -28.459 dBFS

A F Lmax: -8.0927 dBFS

A F L10 / L50 / L90: -28.139 / -28.431 / -28.435 dBFS

A S Lmax: -15.527 dBFS

A S L10 / L50 / L90: -19.345 / -27.869 / -30.364 dBFS

A I Lmax: -4.1883 dBFS

A I L10 / L50 / L90: -6.9503 / -17.982 / -23.703 dBFS

C Leq: -23.892 dBFS

C L10 / L50 / L90: -28.566 / -28.602 / -28.602 dBFS

C F Lmax: -8.2403 dBFS

C F L10 / L50 / L90: -28.294 / -28.590 / -28.594 dBFS

C S Lmax: -15.679 dBFS

C S L10 / L50 / L90: -19.499 / -28.028 / -30.523 dBFS

C I Lmax: -4.5639 dBFS

C I L10 / L50 / L90: -7.2837 / -18.338 / -25.446 dBFS

Z Leq: -23.870 dBFS

Z L10 / L50 / L90: -28.544 / -28.579 / -28.581 dBFS

Z F Lmax: -8.2174 dBFS

Z F L10 / L50 / L90: -28.272 / -28.568 / -28.572 dBFS

Z S Lmax: -15.656 dBFS

Z S L10 / L50 / L90: -19.476 / -28.006 / -30.500 dBFS

Z I Lmax: -4.5311 dBFS

Z I L10 / L50 / L90: -7.2628 / -18.306 / -25.398 dBFS

B Leq: -23.885 dBFS

B L10 / L50 / L90: -28.558 / -28.589 / -28.599 dBFS

B F Lmax: -8.2355 dBFS

B F L10 / L50 / L90: -28.287 / -28.583 / -28.585 dBFS

B S Lmax: -15.675 dBFS

B S L10 / L50 / L90: -19.492 / -28.020 / -30.515 dBFS

B I Lmax: -4.5554 dBFS

B I L10 / L50 / L90: -7.2660 / -18.329 / -25.142 dBFS

468 Leq: -22.602 dBFS

468 L10 / L50 / L90: -27.277 / -27.279 / -27.331 dBFS

468 F Lmax: -6.9529 dBFS

468 F L10 / L50 / L90: -27.007 / -27.297 / -27.303 dBFS

468 S Lmax: -14.390 dBFS

468 S L10 / L50 / L90: -18.209 / -26.735 / -29.230 dBFS

468 I Lmax: -2.4529 dBFS

468 I L10 / L50 / L90: -5.2156 / -16.295 / -21.399 dBFS

Audio shows relative recording level in dBFS, not environmental sound level in dBA.

Multisensor events

Temporal coincidence does not establish causation.

E1 · Single-axis energy bias · 0.000–0.000 s

0.98133 ratio · Threshold 0.72000 ratio

E2 · Sustained high vibration · 4.750–5.500 s

0.96719 m/s² RMS · Threshold 0.36690 m/s² RMS

E3 · Sustained shaking · 4.750–5.500 s

0.76862 m/s² RMS · Threshold 0.39787 m/s² RMS

E4 · Cross-sensor coincidence · 5.000–5.080 s

0.0000 s · Threshold 0.20000 s

E5 · Audio energy surge · 4.992–5.120 s

-5.6212 dBFS(Z) · Threshold -22.579 dBFS(Z)

E6 · Short impact · 5.000–5.080 s

2.2885 m/s² · Threshold 1.0265 m/s²

E7 · Transient band anomaly · 5.077–5.120 s

110.88 dB · Threshold 8.0000 dB

5120.0 Hz

Evidence identity & meaning

Report ID: FT-1E55A72F

Record ID: 1e55a72f-66e9-4d77-abf9-0f9889e6e04a

SHA-256: dc6f9d1547774e993f972d34092ce69f99c86f374ed168f0895cf4f3496a3343

Analysis method: Android retained-evidence analysis 1; iOS 3.2 formula baseline

Data version: 1

Report format: Android Measurement Report 2 · A4

Equipment: Software fixture / Android native exporter

Capture chain: synthetic-pcm48k-motion100-v1

The record fingerprint identifies original evidence; reanalysis does not alter retained capture fra mes.

Hardware capabilities absent from older records are not treated as verified.

Methods, terms & limits

RMS = √mean(x²); P95 = nearest-rank index round((N−1)·0.95); crest = peak/RMS.

Welch: dominant axis, per-segment detrend, periodic Hann, 50% overlap, one-sided PSD = 2|FFT|²/(fs·Σw²), ASD = √mean(PSD). 0.2–min(fs/2,50) Hz.

Impact: median + max(0.35 m/s²,7 MADσ), ≤0.30 s; angular max(0.08 rad/s,7 MADσ), ≤0.40 s; separation ≥0.35 s.

Elevated/jitter: 0.50 s RMS windows, 50% overlap; median + max(floor,5 MADσ,0.55 median), ≥0.75 s; floors 0.15/0.08 m/s². Jitter subtracts ±0.20 s moving average.

Audio surge: Z-frame Leq > median + max(6 dB,6 MADσ). Band transient: own baseline + max(8 dB,6 MADσ). Coincidence interval separation ≤0.20 s.

A/B/C/468 continuous minimum-phase FIR; sample-energy F 125 ms / S 1 s / I 35–1500 ms. 468 frequency curve only, not quasi-peak. No IEC instrument certification.

For relative comparison; not fault, safety or liability assessment.

Prominent frequencies describe measured features, not fault codes.