# Measurement summary

## HUAWEI SEA-AL10 physical capture

Report ID: FT-3DBB2A86

Nov 6, 2026 12:43:27

Measurement object: HUAWEI SEA-AL10 physical capture

Measurement point: Location not recorded

Duration: 30.097 s

Vibration RMS: 1.1486 $m/s^2$

Peak: 11.452 $m/s^2$

Dominant frequency: 2.3438 Hz

A Leq: -47.685 dBFS

Event count: 40

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

# Object, conditions & setup

Measurement object: HUAWEI SEA-AL10 physical capture

Measurement point: Location not recorded

Scenario: Physical sound and motion capture

Channel: BOTH

Equipment: HUAWEI SEA-AL10 · Android 10

Capture chain: HUAWEI/SEA-AL10|15|SEA-AL10|48000|mono|6|pcm16-v1

Requested duration: 30.000 s

Countdown: 0.0000 s

Placement snapshot time: Nov 6, 2026 12:43:27

Snapshot samples: 100

Stability: 0.35835 $m/s^2$

Angular velocity RMS: 0.0084044 rad/s

Pitch: 0.036082 rad

Roll: 0.052717 rad

Yaw: 0.016946 rad

Environment: Actual environment of the connected physical phone

Power: USB connected

Acoustic calibration: None

Mounting: Requested stable placement; not independently verified

Notes: Physical phone microphone and motion sensors, not an emulator or synthetic signal. USB connected. Sound source, location and mounting were not independently verified. Uncalibrated levels are dBFS, not environmental dB SPL. No raw audio retained. English translation of test metadata only; all sensor samples and timestamps are unchanged. Source record fingerprint: df25b1c63c149228e68b3045c446b34acdacfbd69cf64ded9abd9919e5f11206. This translated presentation has its own fingerprint; the original record is preserved.

Notes: —

Tags: —

# Measurement chain & quality

Equipment: HUAWEI SEA-AL10 · Android 10

Capture chain: HUAWEI/SEA-AL10|15|SEA-AL10|48000|mono|6|pcm16-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: 6.2500e-06 s

Largest sample gap: 0.010058 s

Estimated missing-frame ratio: 0.0000 %

Motion frame count: 3008

Audio frame count: 700

Retained audio coverage: 29.824 s

Audio discontinuities: 0

Gyroscope: Usable

Attitude sensor: Usable

Sensor 10: linear Acceleration · huawei · v1 · resolution=0.009576807 · range=78.4532 · minDelay=10000 µs

Sensor 1: accelerometer-bmi160 · bosch · v1 · resolution=9.576806E-6 · range=78.4532 · minDelay=4000 µs

Sensor 4: gyroscope-bmi160 · bosch · v1 · resolution=1.7453292E-5 · range=34.906586 · minDelay=4000 µs

Sensor 11: rotation Vector · huawei · v1 · resolution=5.9604645E-8 · range=1.0 · minDelay=10000 µs

Raw audio: Not retained

Reference calibration: No reference calibration

# Interpretation gates and scenario observations

## Facts only

**Capture integrity · Pass**

30.07 s

**Timing · Pass**

100.00 Hz · 10.06 ms

**Placement evidence · Fail**

Significant relative orientation change detected during capture.

**Method and evidence · Pass**

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**Measurement profiles · Limitation**

No measurement profile. Relative comparison requires the same device and conditions.

**Limited data quality**

Retest under the same conditions.

**Phone moved**

Secure the phone and retest.

**Note retest conditions**

Note the state and changes.

**Dominant direction**

Z · RMS 0.892 $m/s^2$

**Main frequency**

2.34 Hz · Does not identify a fault.

## Repeatability assessment

At least 3 runs needed

Matching records: 0

Excluded records: 0

Latest RMS change: — %

# Acceleration · time & events

RMS: 1.1486 m/s²

Peak: 11.452 m/s²

P95: 2.6951 m/s²

Standard deviation: 0.97919 m/s²

Crest factor: 9.9704

RMS by axis: 0.55292 / 0.46758 / 0.89164 m/s²

Peak-to-peak by axis: 8.9776 / 9.5793 / 18.692 m/s²

Vector peak-to-peak: 22.842 m/s²

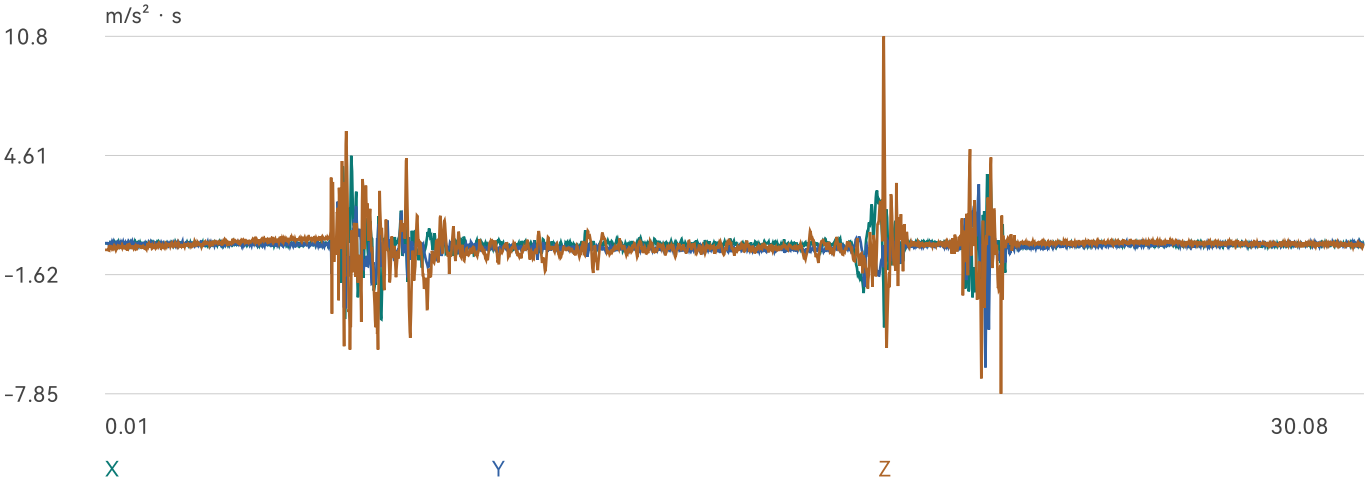
Energy share by axis: 23.172 / 16.571 / 60.257 %

Kurtosis: 32.953

Impulse factor: 26.484

Shape factor: 2.1343

Windowed RMS coefficient of variation: 1.2091



# Acceleration · frequency

Dominant axis: Z

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

Sample rate: 100.00 Hz

FFT length: 512

Window count: 10

Frequency resolution: 0.19531 Hz




P1: 2.3438 Hz · 0.47831 (m/s²)/√Hz

P2: 3.5156 Hz · 0.32937 (m/s²)/√Hz

P3: 0.9766 Hz · 0.29567 (m/s²)/√Hz

Spectral centroid: 7.9129 Hz

Spectral entropy: 0.82227

Prominent frequencies describe measured features, not fault codes.

# Gyroscope & orientation

RMS: 0.80187 rad/s

Peak: 8.7045 rad/s

P95: 1.3709 rad/s

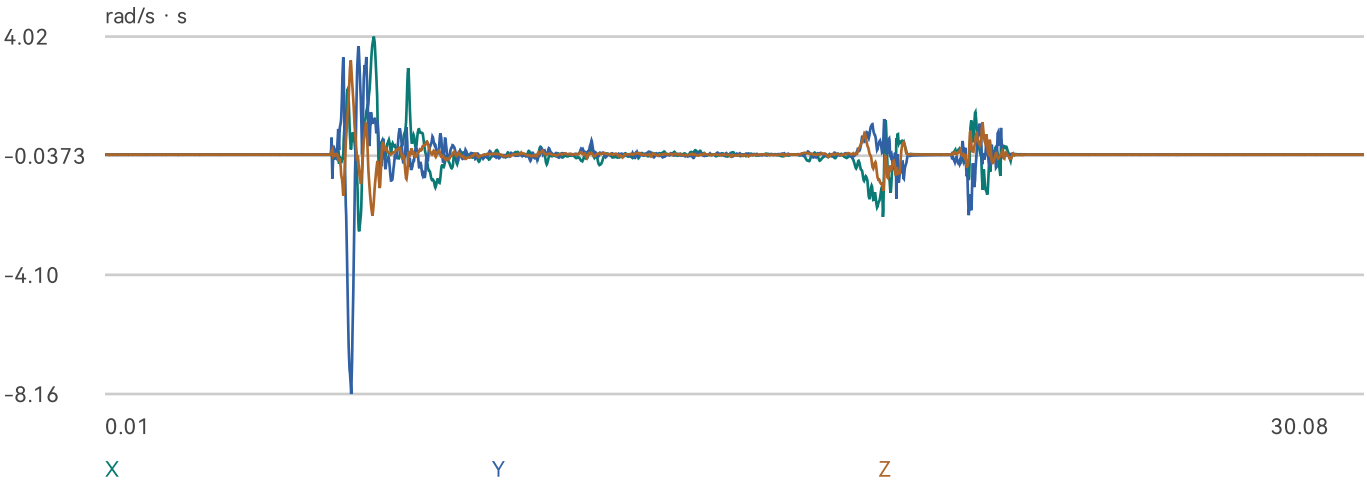
Standard deviation: 0.75713 rad/s

Crest factor: 10.855

RMS by axis: 0.44436 / 0.60898 / 0.27330 rad/s

Peak-to-peak by axis: 6.6402 / 11.851 / 5.2977 rad/s

Vector peak-to-peak: 14.581 rad/s




Dominant axis: Y

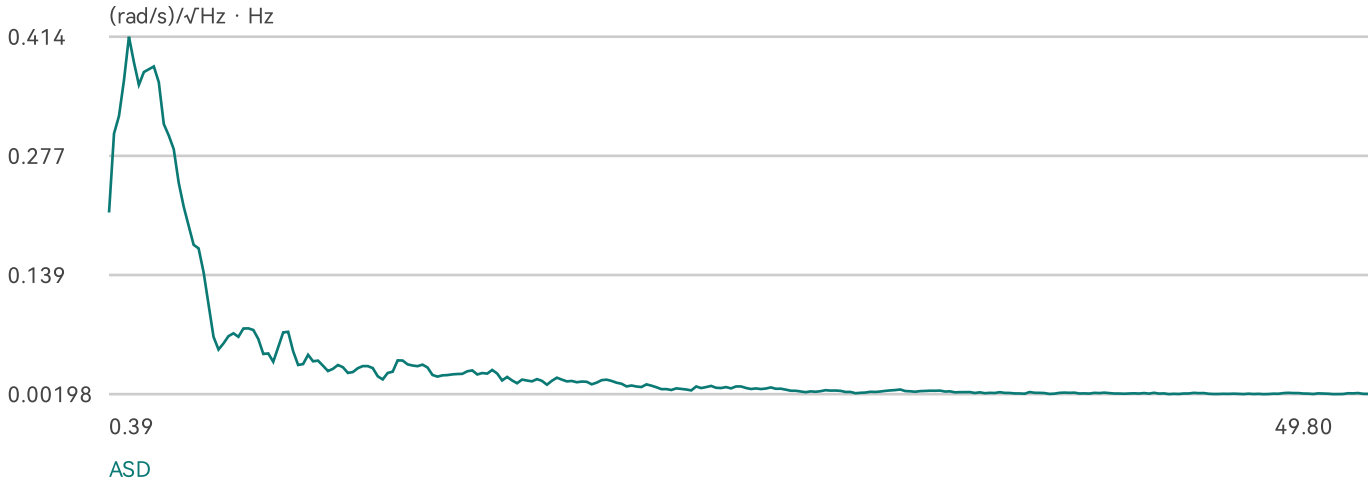
Spectrum method: Welch RMS amplitude spectral density · Hann · 50% overlap

Sample rate: 100.00 Hz

FFT length: 512

Window count: 10

Frequency resolution: 0.19531 Hz




P1: 1.1719 Hz · 0.41378 (rad/s)/√Hz

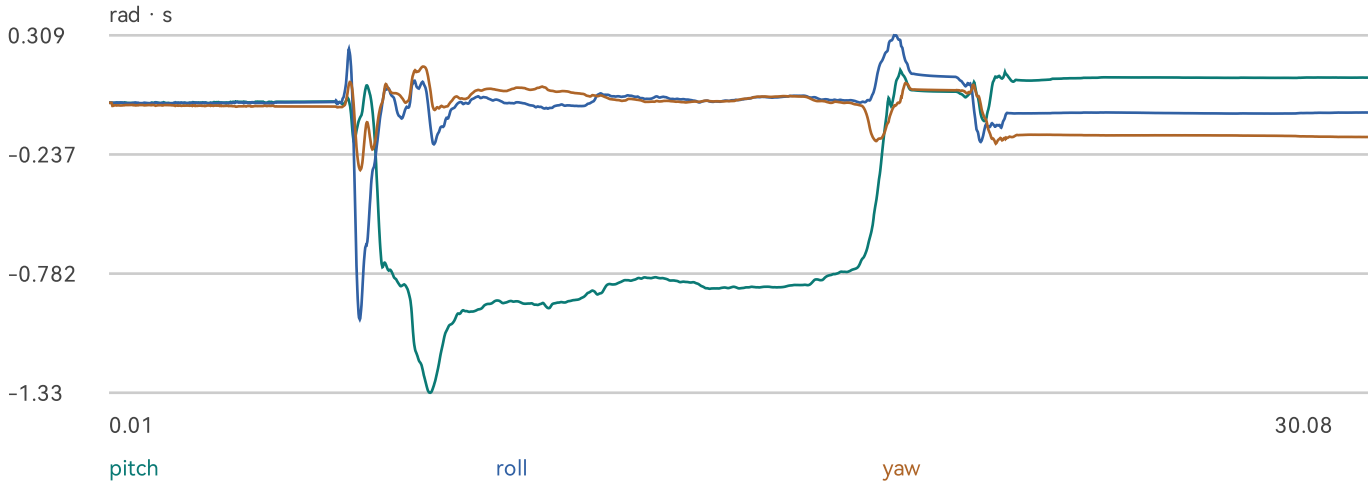
P2: 2.1484 Hz · 0.37951 (rad/s)/√Hz

P3: 5.8594 Hz · 0.077758 (rad/s)/√Hz

Maximum relative attitude change: 1.3323 rad

Final relative attitude change: 0.19945 rad

Attitude range by axis: 1.4766 / 1.3003 / 0.47359 rad




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

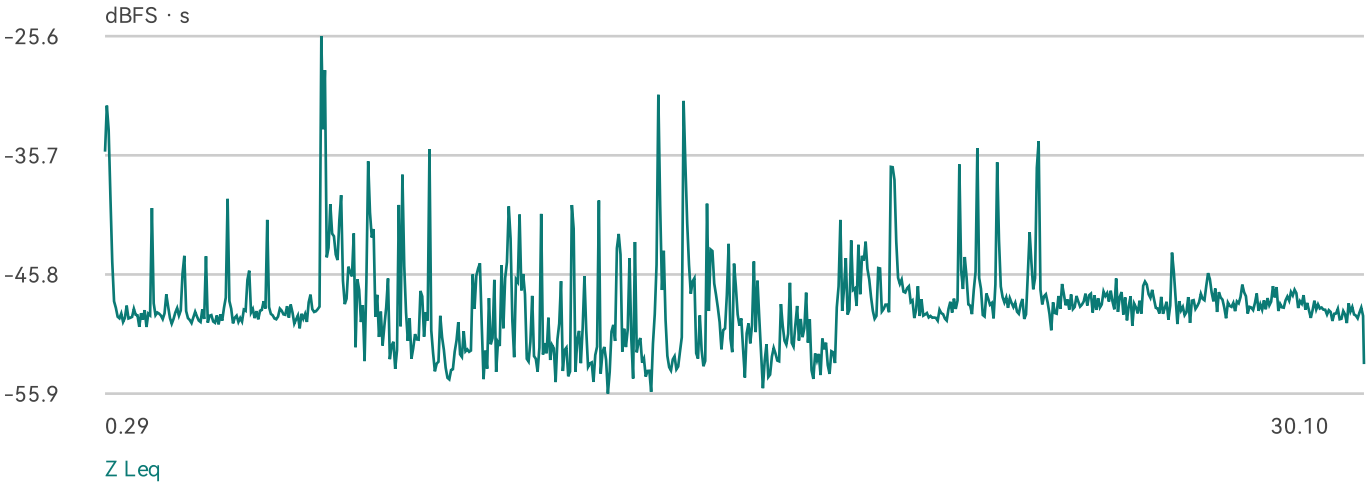
# Audio · energy & bands

Relative equivalent level: -44.973 dBFS(Z)

PCM waveform peak: -5.2694 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: 59

Dominant frequency: 100.12 Hz

Spectrum time window: 29.273116146–29.955782812666666 s




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

Spectral centroid: 850.96 Hz

Spectral flatness: 0.017782

85% spectral rolloff: 1461.5 Hz

96.00 Hz · Leq -52.86 dBFS · max -38.49 dBFS · 79.7 %

59.38 Hz · Leq -60.09 dBFS · max -43.58 dBFS · 22.6 %

148.08 Hz · Leq -65.83 dBFS · max -43.23 dBFS · 6.4 %

536.69 Hz · Leq -67.18 dBFS · max -40.97 dBFS · 7.2 %

200.08 Hz · Leq -68.33 dBFS · max -45.31 dBFS · 12.3 %

292.92 Hz · Leq -68.34 dBFS · max -46.49 dBFS · 14.6 %

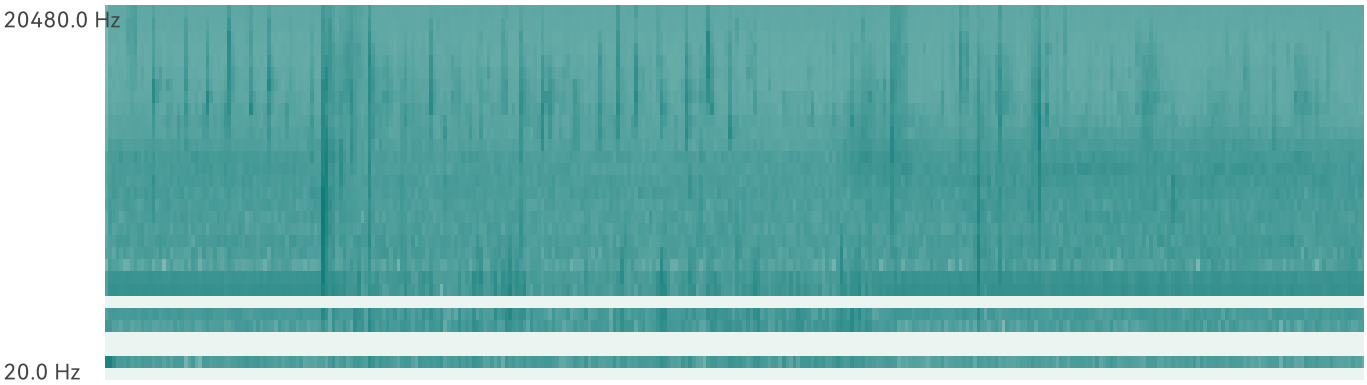
734.93 Hz · Leq -69.42 dBFS · max -48.63 dBFS · 24.5 %

976.75 Hz · Leq -69.44 dBFS · max -47.98 dBFS · 15.3 %

Candidate fundamental: 59.376 Hz

Matched orders: 1, 2, 3, 5

Component energy share: 90.454 %




## Duration-weighted band energy

20.0 Hz · -160.00 dBFS

25.2 Hz · -58.98 dBFS

31.7 Hz · -160.00 dBFS

40.0 Hz · -160.00 dBFS

50.4 Hz · -60.65 dBFS

63.5 Hz · -58.59 dBFS

80.0 Hz · -160.00 dBFS

100.8 Hz · -54.15 dBFS

127.0 Hz · -54.74 dBFS

160.0 Hz · -59.99 dBFS

201.6 Hz · -58.75 dBFS

254.0 Hz · -58.21 dBFS

320.0 Hz · -57.99 dBFS

403.2 Hz · -57.11 dBFS

508.0 Hz · -57.26 dBFS

640.0 Hz · -57.33 dBFS

806.3 Hz · -59.03 dBFS

1015.9 Hz · -58.61 dBFS

1280.0 Hz · -59.27 dBFS

1612.7 Hz · -60.26 dBFS

2031.9 Hz · -61.20 dBFS

2560.0 Hz · -60.72 dBFS

3225.4 Hz · -58.50 dBFS

4063.7 Hz · -61.09 dBFS

5120.0 Hz · -61.88 dBFS

6450.8 Hz · -64.56 dBFS

8127.5 Hz · -65.47 dBFS

10240.0 Hz · -66.94 dBFS

12901.6 Hz · -67.51 dBFS

16255.0 Hz · -70.73 dBFS

20480.0 Hz · -72.49 dBFS

# Levels, time responses and exposure

A Leq: -47.685 dBFS

A L10 / L50 / L90: -48.328 / -54.526 / -58.344 dBFS

A F Lmax: -32.132 dBFS

A F L10 / L50 / L90: -45.192 / -52.474 / -56.507 dBFS

A S Lmax: -39.874 dBFS

A S L10 / L50 / L90: -44.029 / -50.130 / -52.945 dBFS

A I Lmax: -26.136 dBFS

A I L10 / L50 / L90: -29.714 / -35.833 / -44.348 dBFS

C Leq: -45.725 dBFS

C L10 / L50 / L90: -45.399 / -49.195 / -53.347 dBFS

C F Lmax: -29.845 dBFS

C F L10 / L50 / L90: -44.174 / -48.491 / -51.312 dBFS

C S Lmax: -37.110 dBFS

C S L10 / L50 / L90: -43.465 / -47.663 / -49.255 dBFS

C I Lmax: -23.592 dBFS

C I L10 / L50 / L90: -29.737 / -36.226 / -42.164 dBFS

Z Leq: -44.973 dBFS

Z L10 / L50 / L90: -44.537 / -48.769 / -52.590 dBFS

Z F Lmax: -29.769 dBFS

Z F L10 / L50 / L90: -43.052 / -48.046 / -50.465 dBFS

Z S Lmax: -37.008 dBFS

Z S L10 / L50 / L90: -42.640 / -46.754 / -48.163 dBFS

Z I Lmax: -23.509 dBFS

Z I L10 / L50 / L90: -29.240 / -35.131 / -41.293 dBFS

B Leq: -47.015 dBFS

B L10 / L50 / L90: -47.349 / -51.802 / -55.826 dBFS

B F Lmax: -30.456 dBFS

B F L10 / L50 / L90: -45.230 / -50.652 / -54.148 dBFS

B S Lmax: -37.888 dBFS

B S L10 / L50 / L90: -44.122 / -49.501 / -51.520 dBFS

B I Lmax: -24.310 dBFS

B I L10 / L50 / L90: -30.056 / -36.549 / -43.770 dBFS

468 Leq: -41.088 dBFS

468 L10 / L50 / L90: -42.355 / -51.936 / -55.309 dBFS

468 F Lmax: -25.958 dBFS

468 F L10 / L50 / L90: -37.120 / -47.747 / -53.652 dBFS

468 S Lmax: -32.561 dBFS

468 S L10 / L50 / L90: -37.438 / -42.900 / -49.093 dBFS

468 I Lmax: -18.529 dBFS

468 I L10 / L50 / L90: -23.319 / -28.303 / -38.646 dBFS

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

# Multisensor events

Temporal coincidence does not establish causation.

**E1 · Audio energy surge · 0.273–0.401 s**

-31.437 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E2 · Sustained shaking · 5.011–7.761 s**

3.5190 m/s² RMS · Threshold 0.99672 m/s² RMS

**E3 · Sustained high vibration · 5.261–6.761 s**

3.6485 m/s² RMS · Threshold 2.4884 m/s² RMS

**E4 · Cross-sensor coincidence · 5.393–5.521 s**

0.0000 s · Threshold 0.20000 s

**E5 · Transient band anomaly · 5.393–5.436 s**

35.715 dB · Threshold 21.694 dB

320.0 Hz

**E6 · Audio energy surge · 5.393–5.521 s**

-25.550 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E7 · Short impact · 5.411–5.431 s**

3.9051 m/s² · Threshold 2.0080 m/s²

**E8 · Angular spike · 5.421–5.451 s**

0.83572 rad/s · Threshold 0.17932 rad/s

**E9 · Measurement point movement · 5.731–5.731 s**

0.25257 rad · Threshold 0.25000 rad

**E10 · Short impact · 5.951–5.961 s**

2.1473 m/s² · Threshold 2.0080 m/s²

**E11 · Short impact · 6.341–6.341 s**

2.1789 m/s² · Threshold 2.0080 m/s²

**E12 · Cross-sensor coincidence · 6.422–6.422 s**

0.16176 s · Threshold 0.20000 s

**E13 · Audio energy surge · 6.502–6.545 s**

-36.161 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E14 · Short impact · 6.811–6.811 s**

2.0436 m/s² · Threshold 2.0080 m/s²

**E15 · Short impact · 7.191–7.241 s**

4.4988 m/s² · Threshold 2.0080 m/s²

**E16 · Short impact · 7.631–7.661 s**

2.4112 m/s² · Threshold 2.0080 m/s²

**E17 · Audio energy surge · 7.953–7.996 s**

-35.140 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E18 · Cross-sensor coincidence · 8.093–8.093 s**

0.19491 s · Threshold 0.20000 s

**E19 · Angular spike · 8.191–8.361 s**

0.55078 rad/s · Threshold 0.17932 rad/s

**E20 · Angular spike · 8.621–8.641 s**

0.21701 rad/s · Threshold 0.17932 rad/s

**E21 · Angular spike · 9.181–9.201 s**

0.19862 rad/s · Threshold 0.17932 rad/s

**E22 · Angular spike · 10.151–10.181 s**

0.21862 rad/s · Threshold 0.17932 rad/s

**E23 · Angular spike · 10.541–10.621 s**

0.33599 rad/s · Threshold 0.17932 rad/s

**E24 · Angular spike · 11.361–11.431 s**

0.30127 rad/s · Threshold 0.17932 rad/s

**E25 · Angular spike · 11.781–11.891 s**

0.36241 rad/s · Threshold 0.17932 rad/s

**E26 · Transient band anomaly · 13.372–13.414 s**

38.936 dB · Threshold 33.833 dB

3225.4 Hz

**E27 · Audio energy surge · 13.372–13.414 s**

-30.519 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E28 · Audio energy surge · 13.969–14.054 s**

-31.038 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E29 · Transient band anomaly · 14.524–14.566 s**

35.086 dB · Threshold 8.0000 dB

12901.6 Hz

**E30 · Angular spike · 16.761–16.841 s**

0.24163 rad/s · Threshold 0.17932 rad/s

**E31 · Sustained shaking · 17.761–19.261 s**

3.5446 m/s² RMS · Threshold 0.99672 m/s² RMS

**E32 · Short impact · 18.031–18.041 s**

2.1494 m/s² · Threshold 2.0080 m/s²

**E33 · Sustained high vibration · 18.261–19.011 s**

3.8347 m/s² RMS · Threshold 2.4884 m/s² RMS

**E34 · Short impact · 18.411–18.551 s**

3.3422 m/s² · Threshold 2.0080 m/s²

**E35 · Short impact · 18.771–18.801 s**

2.8402 m/s² · Threshold 2.0080 m/s²

**E36 · Cross-sensor coincidence · 18.876–18.961 s**

0.0000 s · Threshold 0.20000 s

**E37 · Audio energy surge · 18.876–18.961 s**

-36.635 dBFS(Z) · Threshold -37.240 dBFS(Z)

**E38 · Sustained shaking · 20.261–21.761 s**

3.0602 m/s² RMS · Threshold 0.99672 m/s² RMS

**E39 · Angular spike · 20.281–20.331 s**

0.31023 rad/s · Threshold 0.17932 rad/s

**E40 · Cross-sensor coincidence · 20.497–20.540 s**

0.0000 s · Threshold 0.20000 s

# Evidence identity & meaning

Report ID: FT-3DBB2A86

Record ID: 3dbb2a86-3f12-4e02-ad05-805fea5b493f

SHA-256: f50483f26c0203e6bb8b4dba9a62077e0df88b5d7f575f2cdbea15f7e0ee4dda

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

Data version: 1

Report format: Android Measurement Report 2 · A4

Equipment: HUAWEI SEA-AL10 · Android 10

Capture chain: HUAWEI/SEA-AL10|15|SEA-AL10|48000|mono|6|pcm16-v1

The record fingerprint identifies original evidence; reanalysis does not alter retained capture fr ames.

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

# Methods, terms & limits

RMS = √mean($x^2$); 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.