Power Quality Disturbance Analysis Report

Event Metadata

Parameter	Value
Location	Main LT Panel (Incoming Feeder)
Sampling Frequency	10 kHz
Nominal Voltage	230 V
Event Type	Voltage Swell
Event Time	2025-06-21 14:27:55
Event Duration	140 ms
Amplitude Increase	230 V → 335 V
Recovery Time	160 ms

Summary

At 14:27:55 on June 21, 2025, a voltage swell was detected on the Main LT Panel (Incoming Feeder). The voltage increased from 230 V to 335 V, lasting for 140 milliseconds, and recovered within 160 milliseconds.

Technical Analysis

- **Swell Severity**: Moderate
- **Voltage Deviation**: Approximately 45.7% increase
- **Likely Causes**:
  - Sudden load reduction
  - Capacitor bank switching
  - Downstream fault clearing
- **System Impact**:
  - Potential damage to sensitive equipment due to overvoltage stress
  - Possible insulation breakdown in electrical components
- **Standards Compliance**:
  - Evaluate against IEEE Std 1159 recommended limits for swell duration and magnitude.

Recommendations

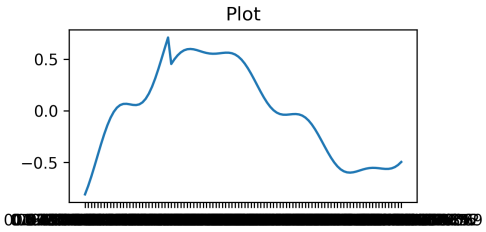
Immediate Actions

- Monitor the feeder for recurrence.
- Investigate any sudden load reductions or capacitor bank operations.
- Check for any recent fault clearing events in the downstream network.

Preventive Measures

- Consider installing surge protection devices (SPDs) or a voltage regulator.
- Evaluate capacitor bank switching practices.
- Ensure proper grounding and bonding throughout the electrical system.

Graphical Snapshot



AI Remarks

The disturbance was moderate and transient. While it is not expected to cause immediate critical failures, continued monitoring is advised to ensure power system stability and avoid potential equipment stress or downtime. Pay close attention to equipment sensitivity to overvoltage conditions.