



Transformer Recording Process

1 Overview

In order to obtain **relevant insights** into transformers, acoustic recordings need to be obtained and associated with the transformer qualities that are being assessed.

2 Recording Process

2.1 Long-Duration Recording

The recording process uses long-duration recording devices to capture the transformer acoustics at a high level of fidelity. We use 384 kHz and 16-bit PCM depth. Due to the data size, these devices must be mailed back to Bellwether, LLC for uploading and processing.

2.2 iPhone Recording

For short-duration recordings (< 10 minute), an iPhone app can be used that allows for immediate uploading to the cloud for further review. This app can be made available upon request.

3 Transformer Qualities

3.1 Power Qualities

All power qualities should be provided to as fine a granularity as is available (regarding decimal place and how frequently it is measured). However, our request is for data to be provided at one-minute intervals. In addition, a note should be provided that explains whether the readings are instantaneous readings or average readings (over an observation period).

It is understood that not all of this information is available; Bellwether would appreciate as much of it as possible.

Table 1: Power Qualities

Quality	Notes
High voltage (kV)	Measured high voltage side; provided to the single volt
Low voltage (kV)	Measured low voltage side; provided to the single volt
Loading (kW)	Provided to the single watt
Impedance (Ω)	Only if loading is unavailable
Power factor	-
Frequency (Hz)	Provided to the thousandths place
Harmonic presence	Qualitative assessment of current harmonics (screenshot will suffice)
Observation style	“Instantaneous” or “average”
Observation period	e.g., readings every 1 minute, 30 seconds, 5 minutes

3.2 Transformer Metadata

The following qualities capture the requisite metadata:

Table 2: Transformer Metadata

Quality	Notes
Manufacturer	-
Class	-
Insulation type	-
Installation date	-
Known issues	-
Historical issues	-