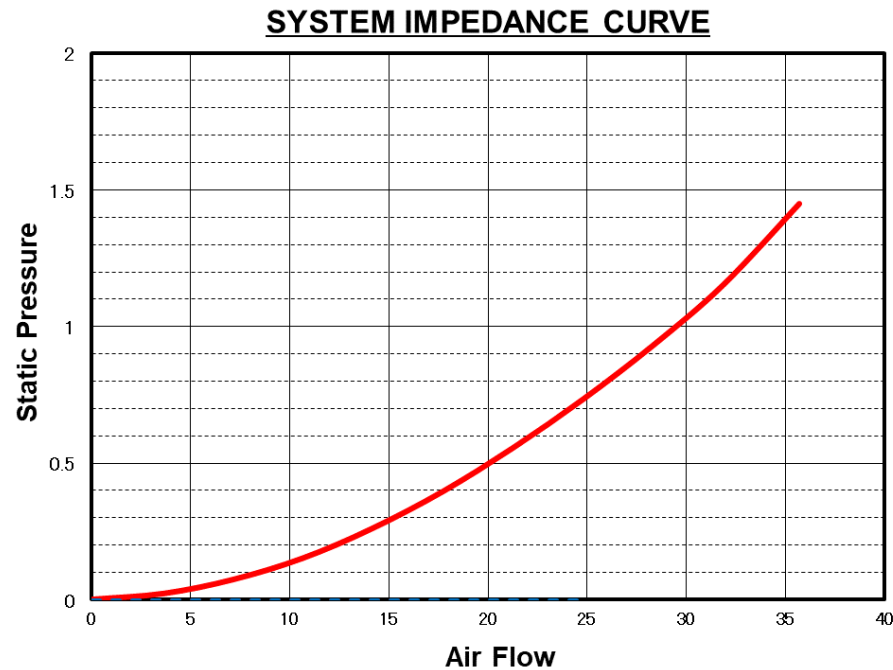


Technical Center Support Case 2: Selecting the Best Fan in a System

- 1) Measuring impedance in system.
- 2) Determine what airflow is required.
- 3) Layout airflow-static pressure curve onto system impedance.
- 4) Finalize different fan options.
- 5) Measuring vibration and sound. (Optional)
- 6) Additional support.

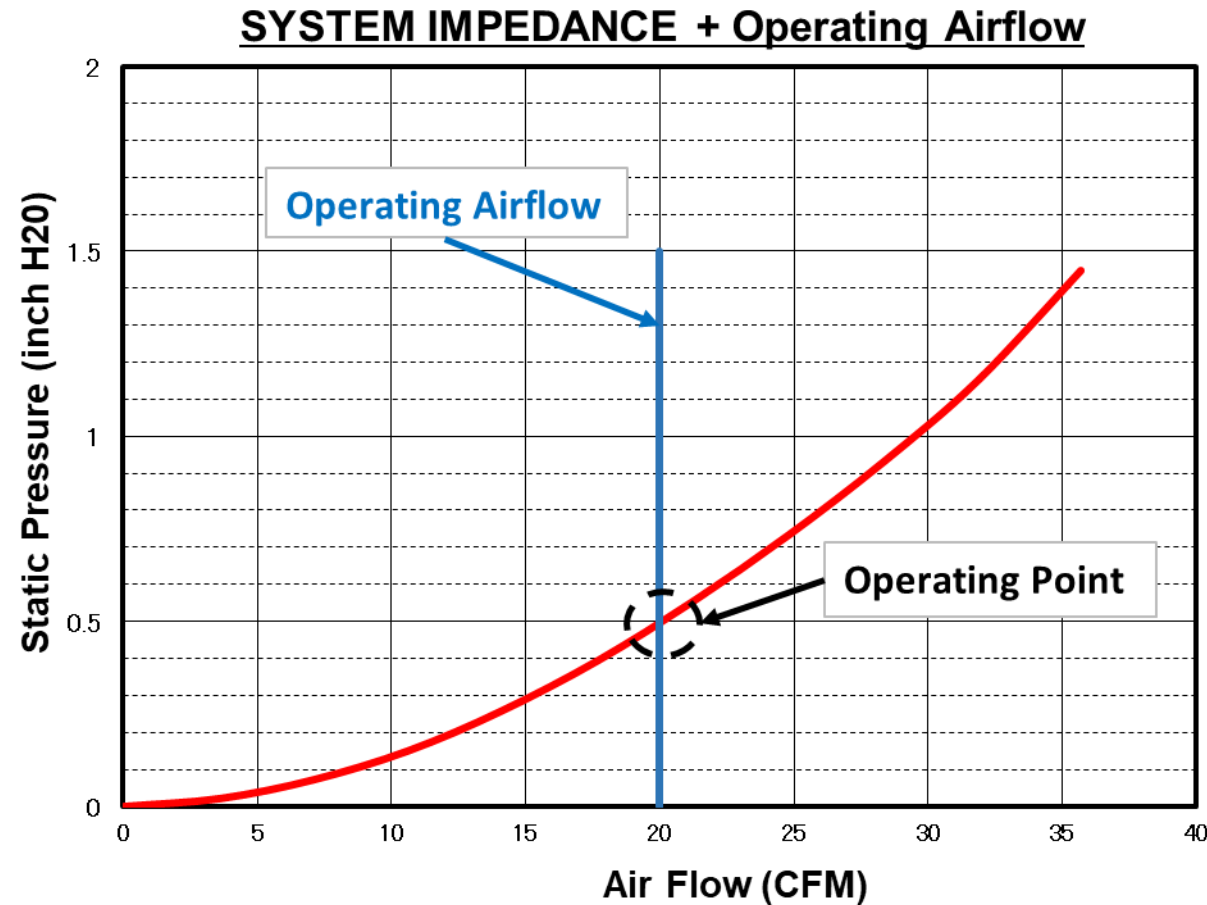
1) Measuring “System Impedance”

- Key information to figure out how much pressure is required to meet system’s airflow.
- Generally represented as a linear/parabolic curve.
- We offer either the double chamber or portable air flow tester to measure.



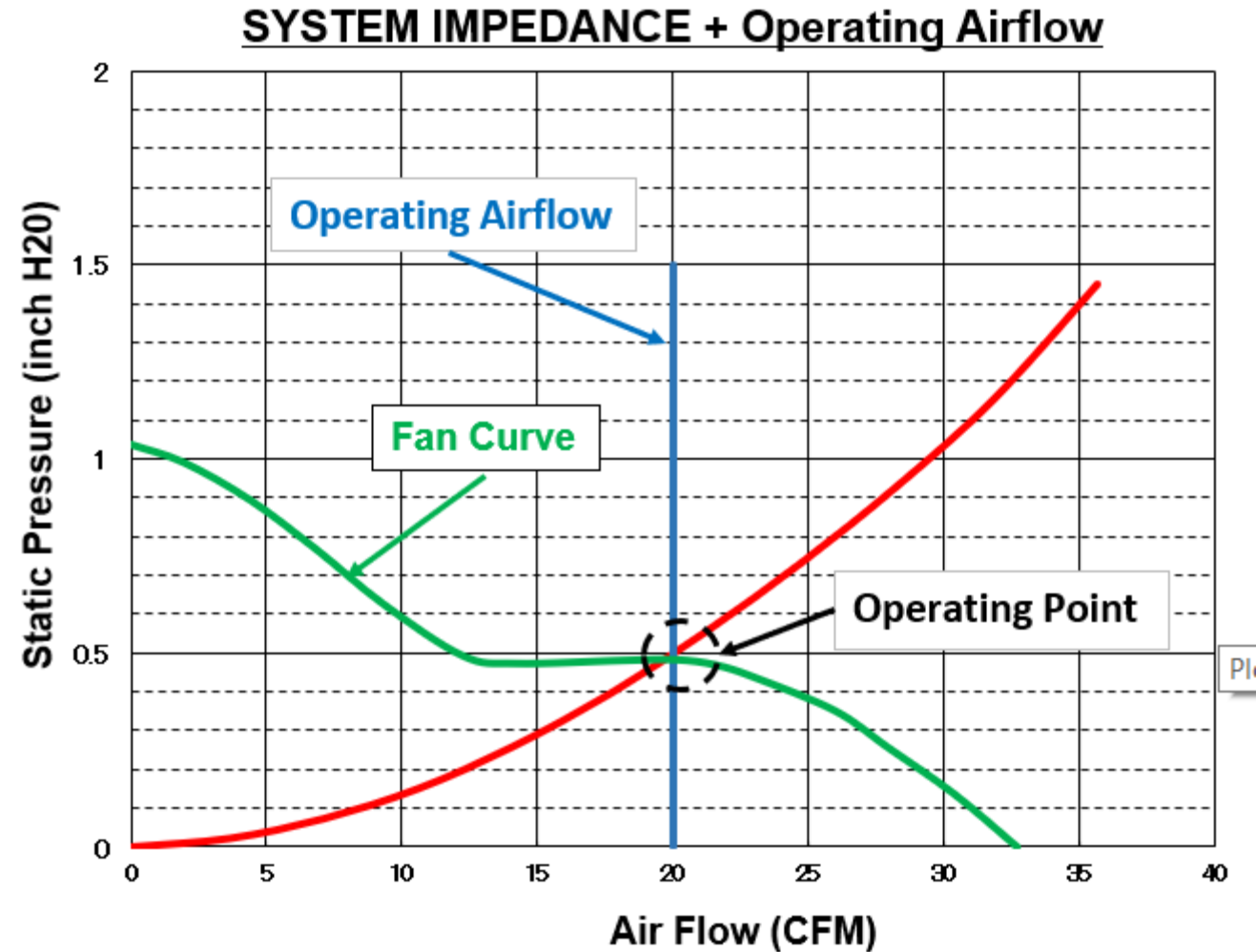
2) Determine airflow requirement

- Method can vary per customer's system and type of request
 - Dependent variable: Temperature, Pressure, Airflow
- Approximate airflow requirement solidifies the required **“Operating Point”**



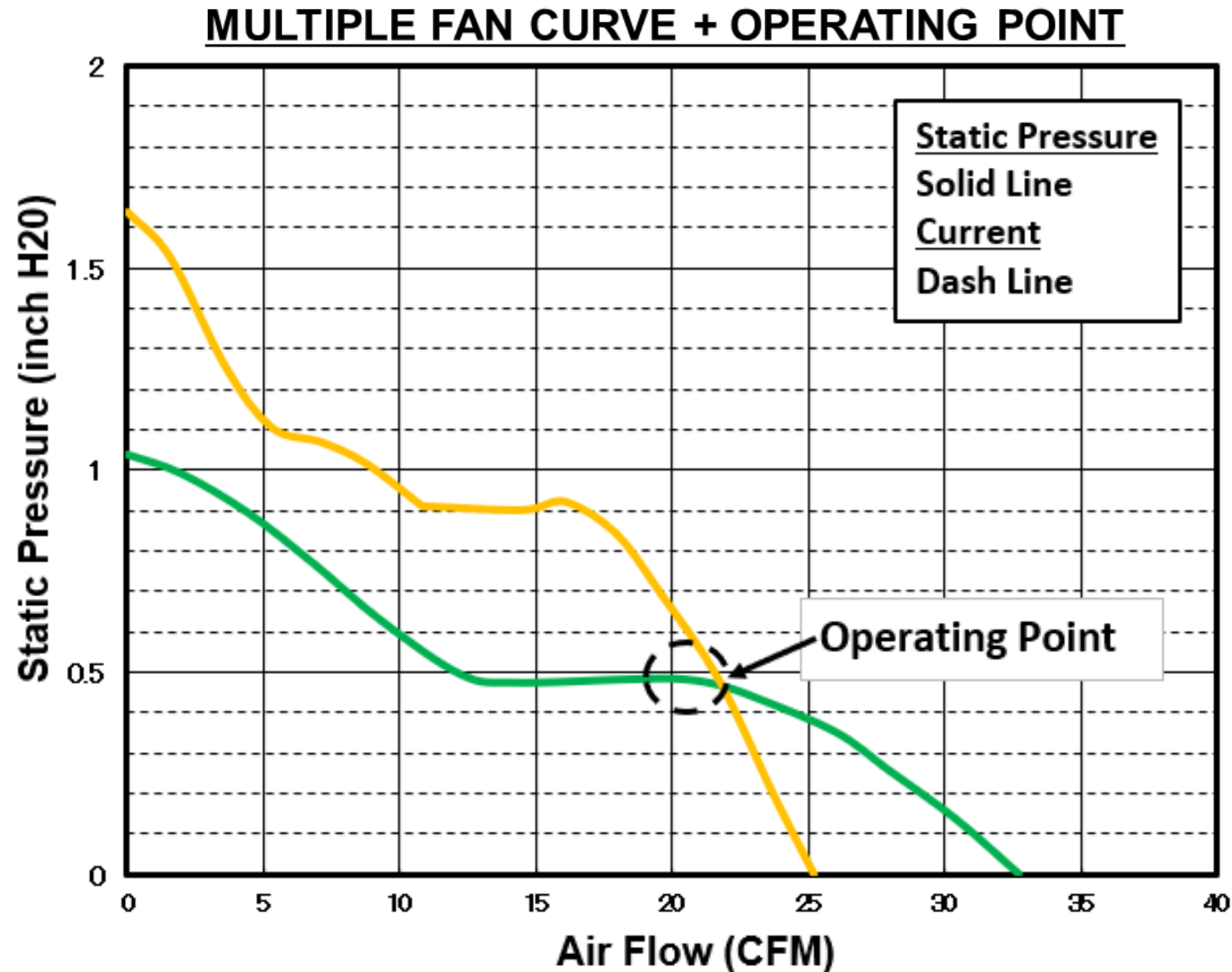
3) Layout PQ curve

- Operating Point can filter down to few fan selection along with the condition of Fan's Size, Voltage, PWM option.



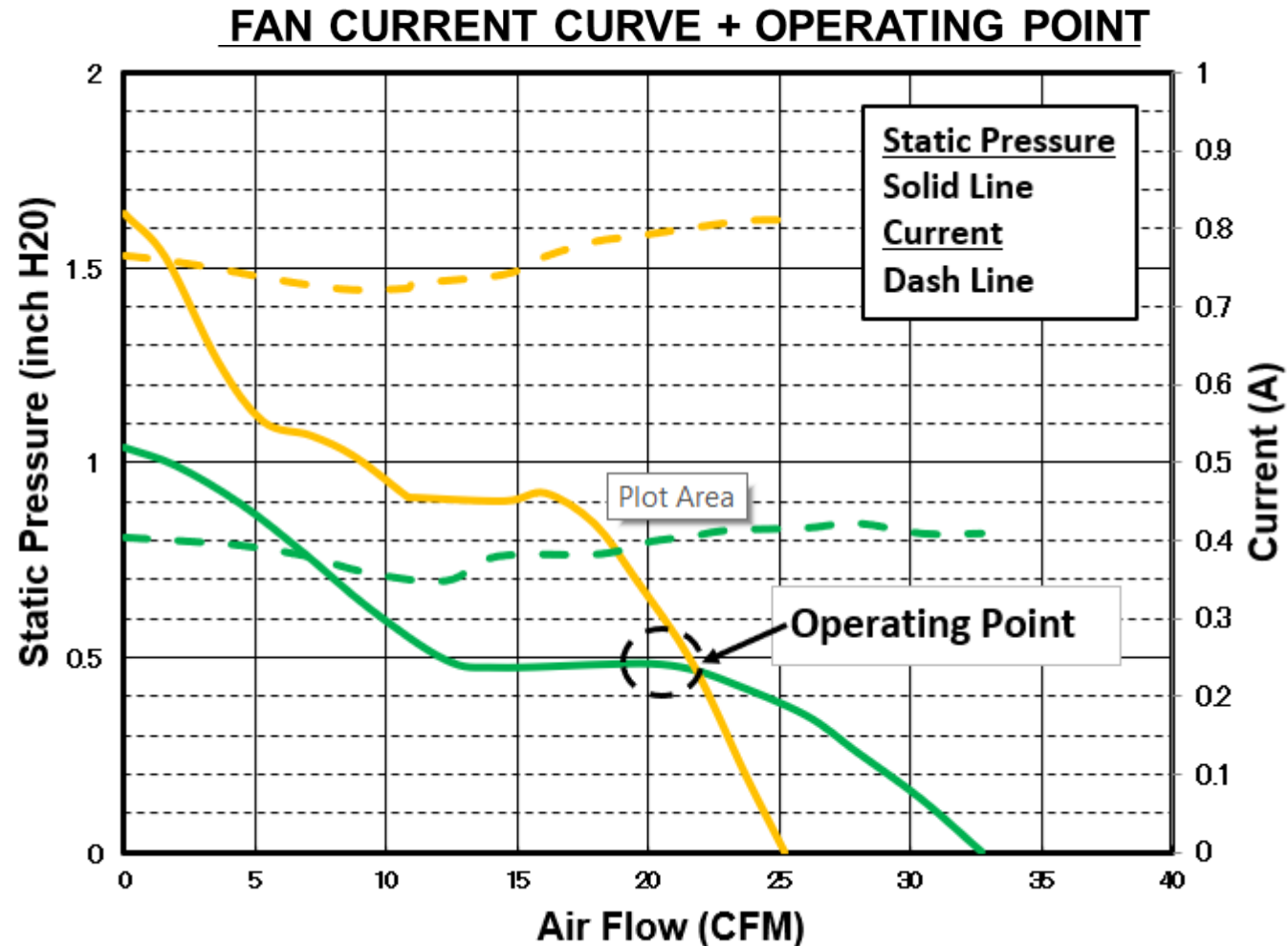
4) Finalize fan options available

- Two fan curve listed that meets the operation point.



4) Finalize fan options available (cont.)

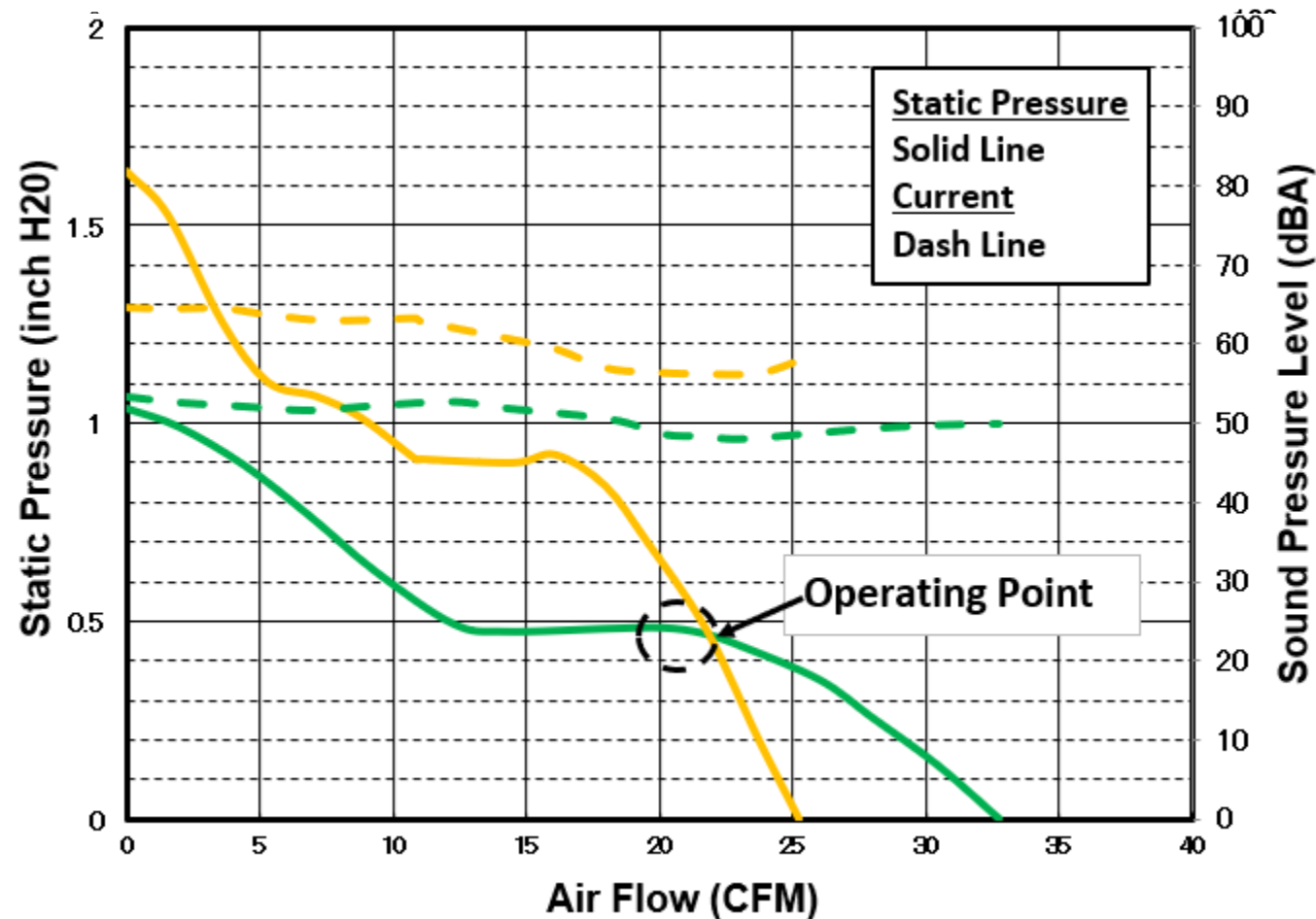
- Current curve added to fan options.
 - Fan 1: 0.4A at operation point.
 - Fan 2: 0.8A at operation point.



4) Finalize fan options available (cont.)

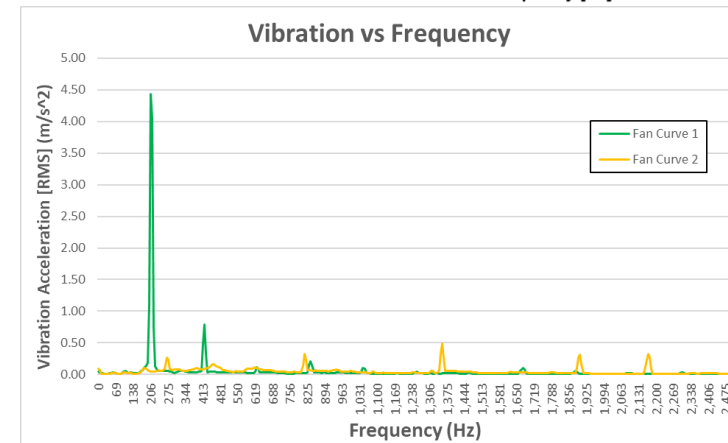
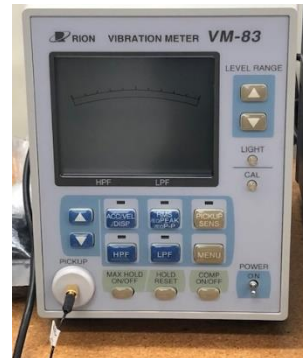
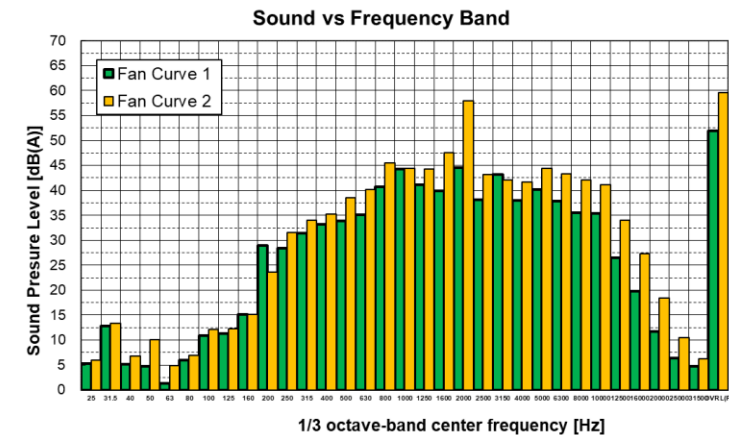
- Sound curve added to fan options.
 - Fan 1: 50dBA at operation point.
 - Fan 2: 56dBA at operation point.

FAN SOUND CURVE + OPERATING POINT



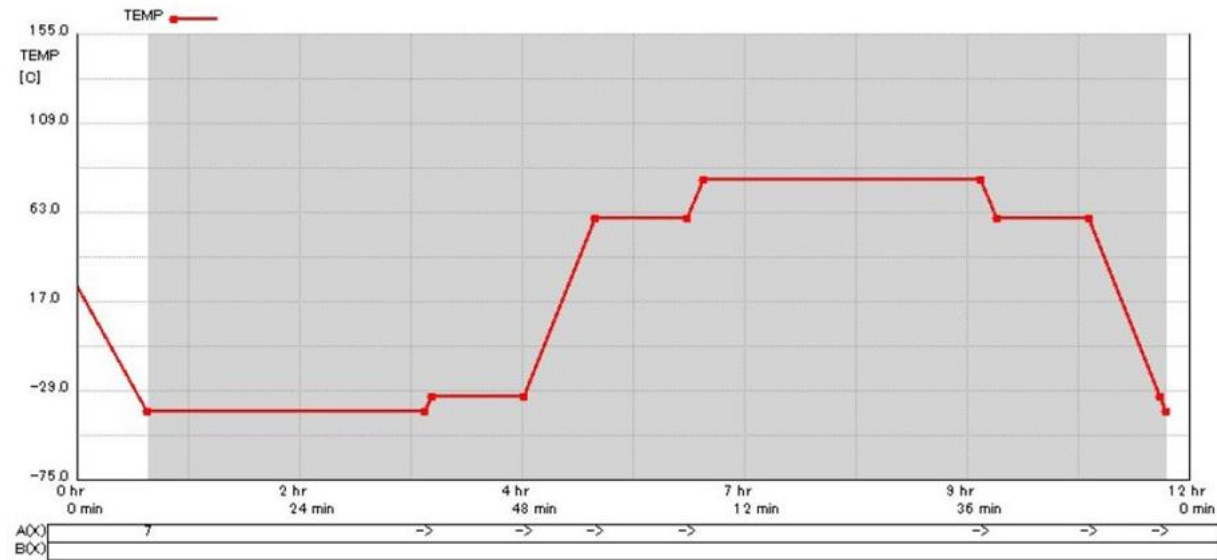
5) In-depth Vibration/Sound option

- If required, fan options can be further filtered down for evaluating vibration and sound characteristics.
- Options we offer in Sanyo Denki America Technical Center:
 - Overall value of vibration and sound.
 - Frequency break-down of vibration and sound.



6) Additional technical support

- Temperature related evaluation using thermal chamber
 - Heat/Cold shock and/or soak test
 - Programmable routine of temperature ramp rate/time phase.
 - Internal system to power on the system at specific routine.



7) Additional technical support

- Various support using 3D printer capabilities.
 - Ex: nozzle design, simulation of impedance effect on fan

