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April 2nd, 2025

Josh Cavitt
Sonoco
Memphis, TN

Josh,

The following is a summary of findings from the quarterly vibration survey performed at your facility on 03/28/25. Please let us know if there are any questions or comments.

QualiTest® uses a four step rating system for defects.

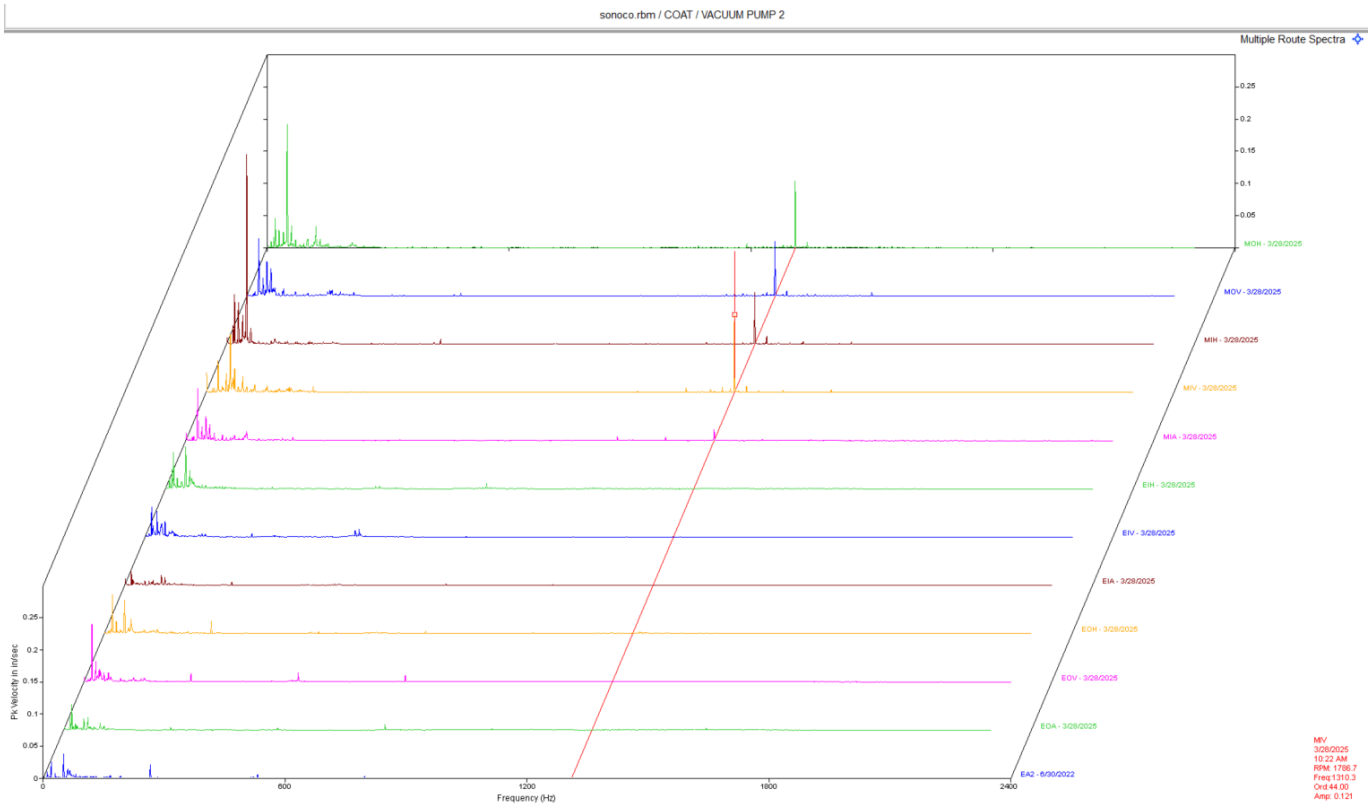
Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

Class II: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

Class III; Defect (s) present that may cause failure in short term (less than 2 months). This should be addressed as soon as practical, with a high maintenance priority. Increase monitoring frequency.

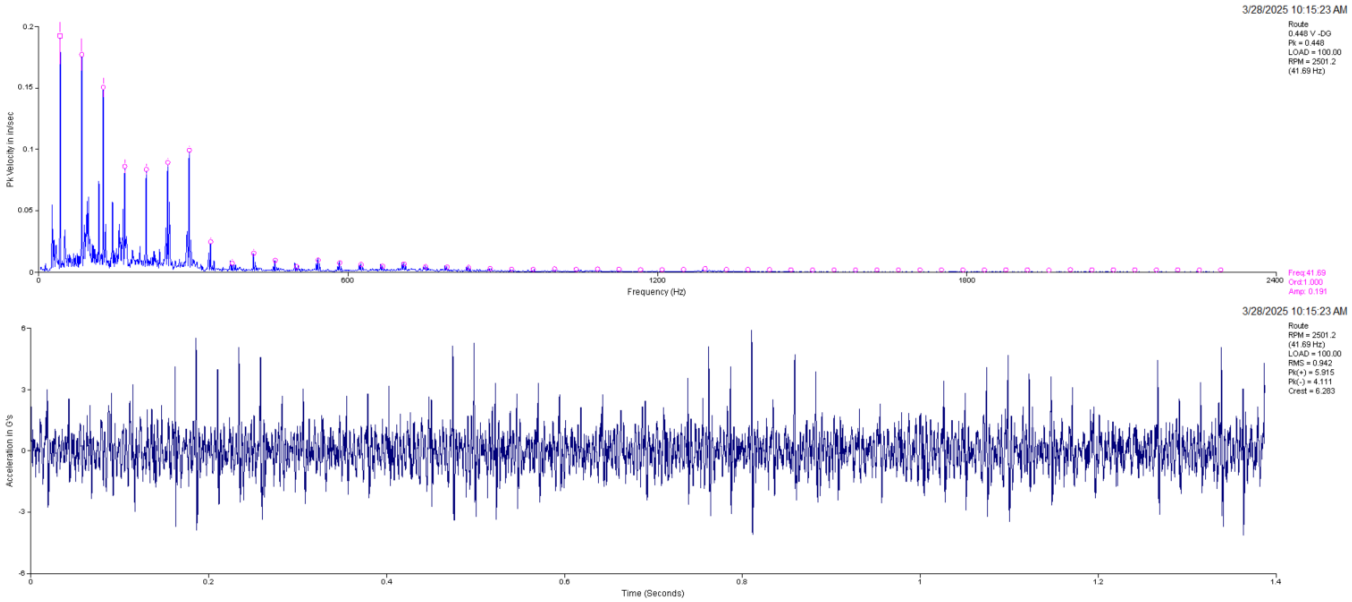
Class IV; Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs

Defects



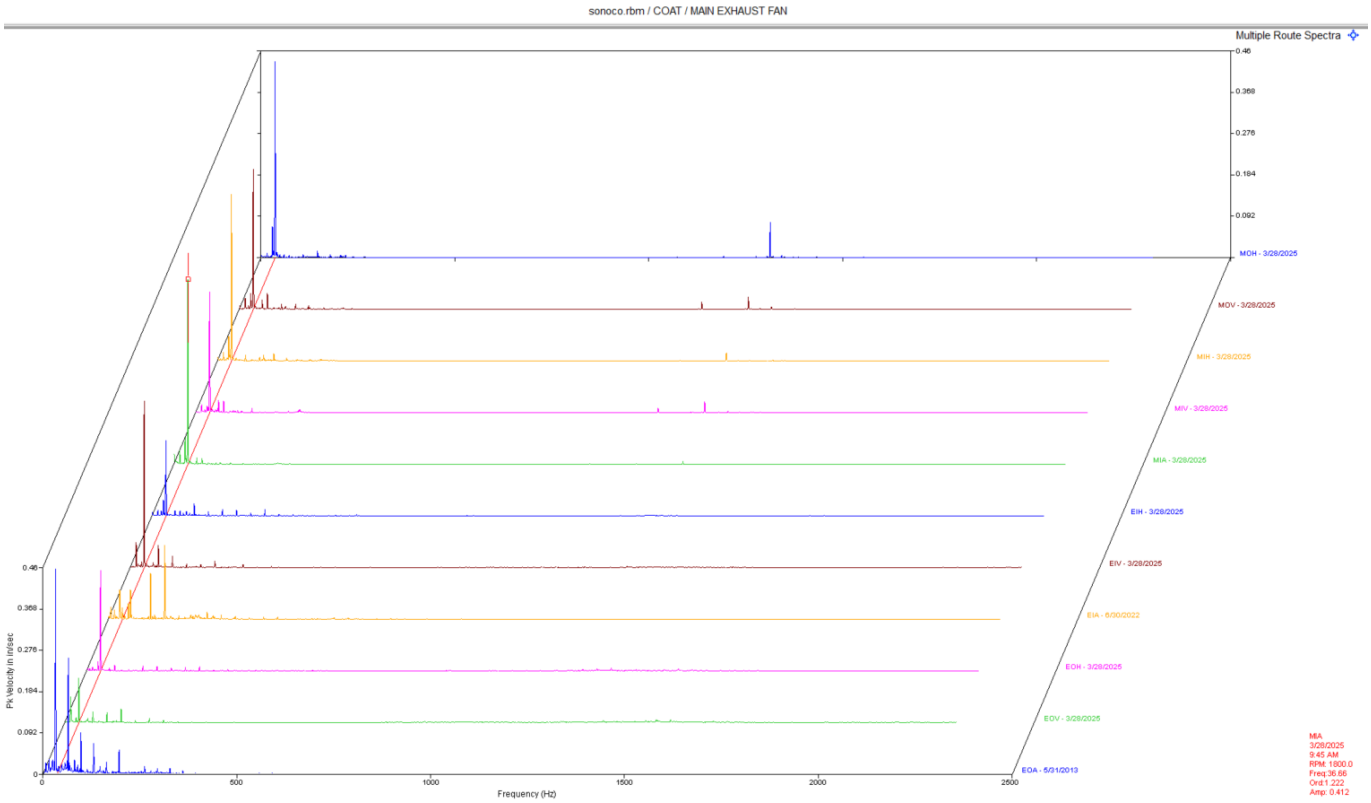
CLASS I Vacuum Pump #2 MOTOR

Multi-point spectra above is the motor and pump. Motor data shows a peak at 44 orders of motor rpm that is growing in amplitude. This peak is likely associated with rotor bar frequency. This is indication of possible rotor faults. This will be monitored closely in the upcoming surveys.



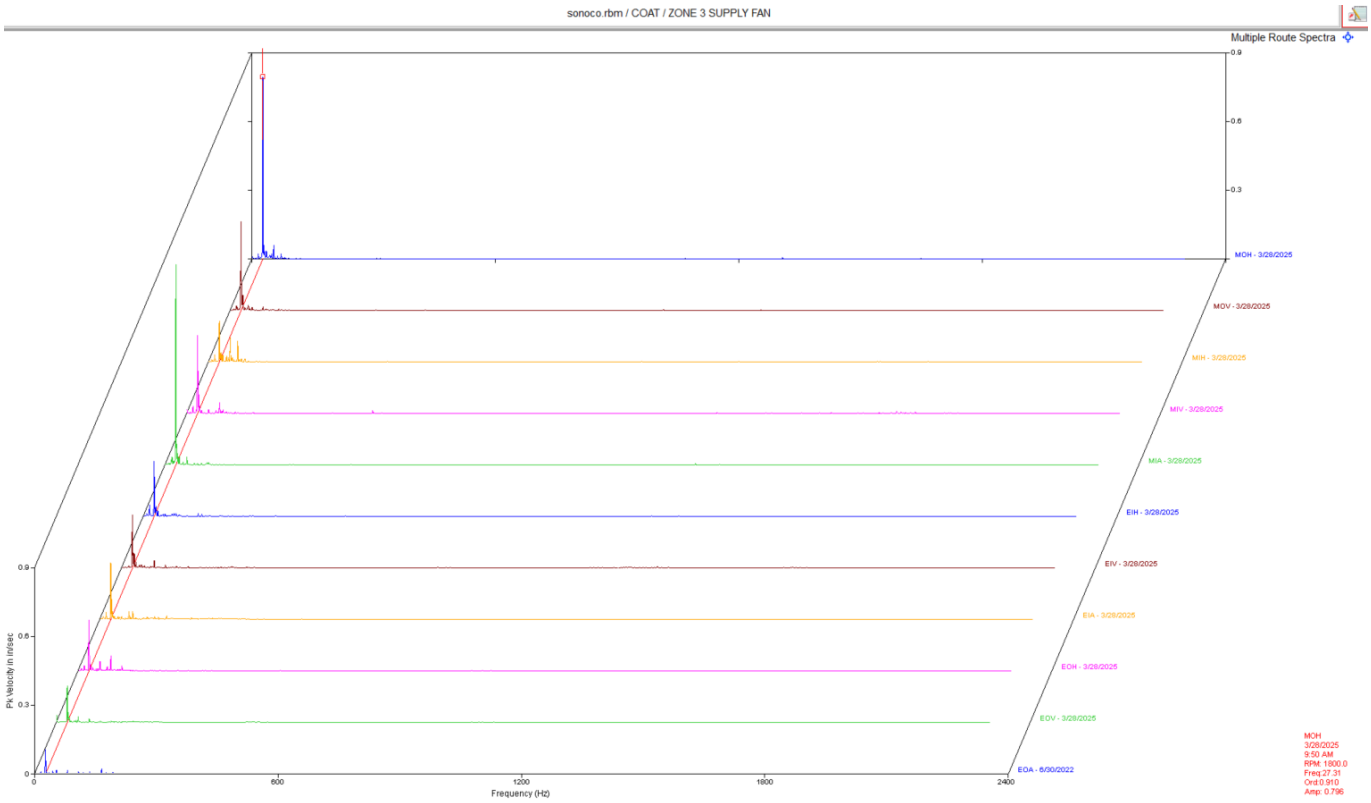
CLASS II P9 Oven Fan

DE axial fan data shows impacting with rpm harmonics. This is indication of mechanical fit looseness and or likely axial thrusting of the fan bearing. One bearing should be set to float and one fan bearing should be set fixed. This allows for axial thermal expansion of the fan shaft. If beairngs are not set properly, then axial thrusting can occurr and cause premature failure. It is recommended to check bearings ensuring they are set propely and check bearings for looseness.



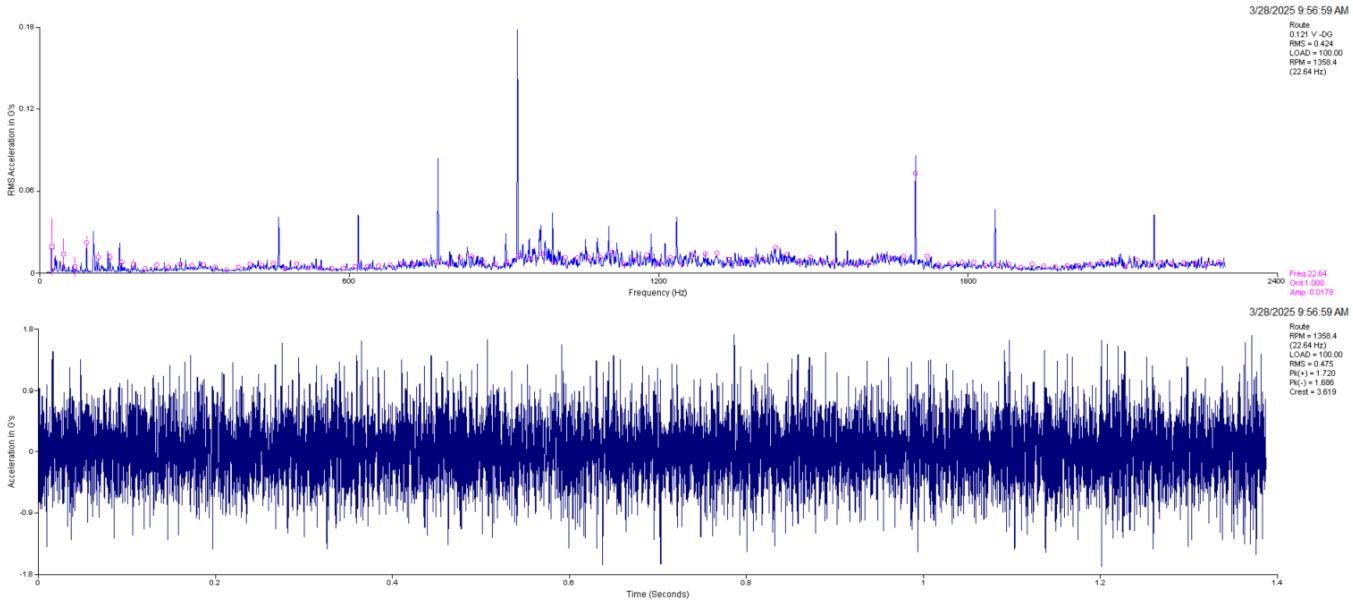
CLASS II Main Exhaust Fan

Motor/fan data shows a dominant vibration at 36 HZ. in the motor and the fan with the motor having highest amplitude. This frequency is fan speed. For now, ensure motor/fan base fasteners are tight. Ensure sheaves are properly aligned with minimal face run out.



CLASS II Zone 3 Supply Fan

Motor has sub-synchronous vibration that may be associated with belt frequency. Check belts and sheaves and ensure check all motor base fasteners as time allows.



CLASS II Zone 5 Supply Fan

Fan inboard (DE) bearing data shows non-synchronous harmonics in the spectrum. This is an indication of bearing defects. Inspect fan bearings for defects and wear as scheduling allows.

Abbreviated Last Measurement Summary

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Database: sonoco.rbm
Station: COATER

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
VACPUMP1 - VACUUM PUMP 1	(28-Mar-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.102 In/Sec	.397 G-s
MOV	.186 In/Sec	.621 G-s
MIH	.102 In/Sec	.422 G-s
MIV	.151 In/Sec	.358 G-s
MIA	.231 In/Sec	.158 G-s
EIH	.100 In/Sec	.136 G-s
EIV	.063 In/Sec	.162 G-s
EIA	.042 In/Sec	.133 G-s
EOH	.063 In/Sec	.174 G-s
EOV	.052 In/Sec	.163 G-s
EOA	.031 In/Sec	.260 G-s
VACPUMP2 - VACUUM PUMP 2	(28-Mar-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.254 In/Sec	1.524 G-s
MOV	.170 In/Sec	1.534 G-s
MIH	.384 In/Sec	1.289 G-s
MIV	.204 In/Sec	1.951 G-s
MIA	.127 In/Sec	.483 G-s
EIH	.123 In/Sec	.174 G-s
EIV	.100 In/Sec	.091 G-s
EIA	.049 In/Sec	.137 G-s
EOH	.110 In/Sec	.261 G-s
EOV	.119 In/Sec	.146 G-s
EOA	.068 In/Sec	.256 G-s
CTPUMP1 - COOLING TOWER PUMP 1	(28-Mar-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.070 In/Sec	.143 G-s
MOV	.120 In/Sec	.169 G-s
MIH	.101 In/Sec	.059 G-s
MIV	.067 In/Sec	.102 G-s
MIA	.066 In/Sec	.098 G-s
CTPUMP2 - COOLING TOWER PUMP 2	(28-Mar-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.030 In/Sec	.293 G-s
MOV	.068 In/Sec	.264 G-s
MIH	.030 In/Sec	.163 G-s
MIV	.052 In/Sec	.057 G-s
MIA	.059 In/Sec	.242 G-s
P9OVENFAN - P9 OVEN FAN	(28-Mar-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.210 In/Sec	.069 G-s
MOV	.169 In/Sec	.067 G-s
MIH	.247 In/Sec	.112 G-s
MIV	.152 In/Sec	.122 G-s
MIA	.100 In/Sec	.043 G-s
EIH	.380 In/Sec	.977 G-s
EIV	.254 In/Sec	.806 G-s
EIA	.448 In/Sec	.352 G-s
EOH	.163 In/Sec	.928 G-s
EOV	.176 In/Sec	.836 G-s
P11OVENFAN - P11 OVEN FAN	(28-Mar-25)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.162 In/Sec	.043 G-s

MOV	.100 In/Sec	.092 G-s
MIH	.253 In/Sec	.073 G-s
MIV	.237 In/Sec	.070 G-s
MIA	.098 In/Sec	.084 G-s
EIH	.265 In/Sec	.527 G-s
EIV	.321 In/Sec	.406 G-s
EIA	.503 In/Sec	.234 G-s
EOH	.185 In/Sec	.770 G-s
EOV	.274 In/Sec	.486 G-s

MAINXHAUST - MAIN EXHAUST FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.480 In/Sec	1.552 G-s
MOV	.340 In/Sec	.522 G-s
MIH	.402 In/Sec	.467 G-s
MIV	.291 In/Sec	.540 G-s
MIA	.446 In/Sec	.304 G-s
EIH	.193 In/Sec	.452 G-s
EIV	.406 In/Sec	.738 G-s
EOH	.242 In/Sec	.554 G-s
EOV	.141 In/Sec	1.084 G-s

ZONE1FAN - ZONE 1 SUPPLY FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.156 In/Sec	.449 G-s
MOV	.352 In/Sec	.458 G-s
MIH	.158 In/Sec	.789 G-s
MIV	.178 In/Sec	.539 G-s
MIA	.314 In/Sec	.287 G-s
EIH	.141 In/Sec	.305 G-s
EIV	.105 In/Sec	.287 G-s
EIA	.171 In/Sec	.180 G-s
EOH	.102 In/Sec	.265 G-s
EOV	.111 In/Sec	.303 G-s

ZONE2FAN - ZONE 2 SUPPLY FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.285 In/Sec	.232 G-s
MOV	.263 In/Sec	.720 G-s
MIH	.145 In/Sec	.208 G-s
MIV	.287 In/Sec	.162 G-s
MIA	.293 In/Sec	.183 G-s
EIH	.191 In/Sec	.215 G-s
EIV	.175 In/Sec	.209 G-s
EIA	.218 In/Sec	.237 G-s

ZONE3FAN - ZONE 3 SUPPLY FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.823 In/Sec	.166 G-s
MOV	.414 In/Sec	.132 G-s
MIH	.258 In/Sec	.234 G-s
MIV	.375 In/Sec	.557 G-s
MIA	.908 In/Sec	.149 G-s
EIH	.270 In/Sec	.431 G-s
EIV	.267 In/Sec	.519 G-s
EIA	.291 In/Sec	.333 G-s
EOH	.256 In/Sec	.513 G-s
EOV	.185 In/Sec	.365 G-s

ZONE4FAN - ZONE 4 SUPPLY FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.268 In/Sec	.118 G-s
MOV	.244 In/Sec	.134 G-s
MIH	.249 In/Sec	.128 G-s
MIV	.305 In/Sec	.161 G-s
MIA	.246 In/Sec	.026 G-s
EIH	.268 In/Sec	.110 G-s
EIV	.059 In/Sec	.113 G-s
EIA	.308 In/Sec	.035 G-s
EOH	.126 In/Sec	.156 G-s

EOV	.157 In/Sec	.115 G-s	

ZONE5FAN - ZONE 5 SUPPLY FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.092 In/Sec	.145 G-s
MOV	.130 In/Sec	.200 G-s
MIH	.122 In/Sec	.243 G-s
MIV	.173 In/Sec	.276 G-s
MIA	.207 In/Sec	.155 G-s
EIH	.121 In/Sec	1.706 G-s
EIV	.070 In/Sec	1.806 G-s
EIA	.148 In/Sec	.854 G-s

ZONE6FAN - ZONE 6 SUPPLY FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.326 In/Sec	.066 G-s
MOV	.562 In/Sec	.055 G-s
MIH	.199 In/Sec	.065 G-s
MIV	.443 In/Sec	.081 G-s
MIA	.248 In/Sec	.030 G-s
EIH	.136 In/Sec	.196 G-s
EIV	.305 In/Sec	.311 G-s
EIA	.213 In/Sec	.180 G-s
EOH	.177 In/Sec	.163 G-s
EOV	.318 In/Sec	.184 G-s

EXHAUSTFAN - EXHAUST FAN (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.438 In/Sec	.118 G-s
MOV	.272 In/Sec	.113 G-s
MIH	.461 In/Sec	.136 G-s
MIV	.319 In/Sec	.128 G-s

COOLFAN A - COOLING FAN A (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.108 In/Sec	.305 G-s
MOV	.379 In/Sec	.262 G-s
MIH	.109 In/Sec	.289 G-s
MIV	.367 In/Sec	.265 G-s
MIA	.241 In/Sec	.147 G-s
EIH	.137 In/Sec	.192 G-s
EIV	.137 In/Sec	.182 G-s
EIA	.128 In/Sec	.064 G-s
EOH	.138 In/Sec	.172 G-s
EOV	.189 In/Sec	.196 G-s

502SPNBLWR - 502 SPENCER BLOWER (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.093 In/Sec	.257 G-s
MOV	.108 In/Sec	.343 G-s
MIV	.121 In/Sec	.267 G-s

ALNESNCBLW - A LINE SPENCER BLOWER (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.134 In/Sec	.063 G-s
MOV	.071 In/Sec	.065 G-s
MIV	.080 In/Sec	.018 G-s

CLNESNCBLW - C LINE SPENCER BLOWER (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.105 In/Sec	.092 G-s
MOV	.040 In/Sec	.120 G-s
MIV	.065 In/Sec	.024 G-s

DLNESNCBLW - D LINE SPENCER BLOWER (28-Mar-25)

	OVERALL LEVEL	1 - 20 KHz
MOH	.251 In/Sec	.086 G-s
MOV	.231 In/Sec	.070 G-s
MIH	.199 In/Sec	.100 G-s
MIV	.203 In/Sec	.103 G-s

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   Clarification Of Vibration Units:
      Acc       -->  G-s       RMS
      Vel       -->  In/Sec    PK
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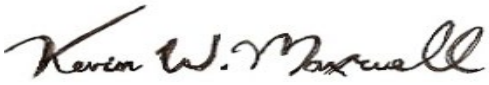
As always, it has been a pleasure to serve Sonoco. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



Senior Reliability Specialist
ISO Certified Vibration Analyst, Category III

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