HI-SPEED INDUSTRIAL SERVICE QualiTest® Diagnostics

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July 19, 2024

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Tracy,

The following is a summary of findings from the July 2024 vibration survey that was performed on July 16, 2024.

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.

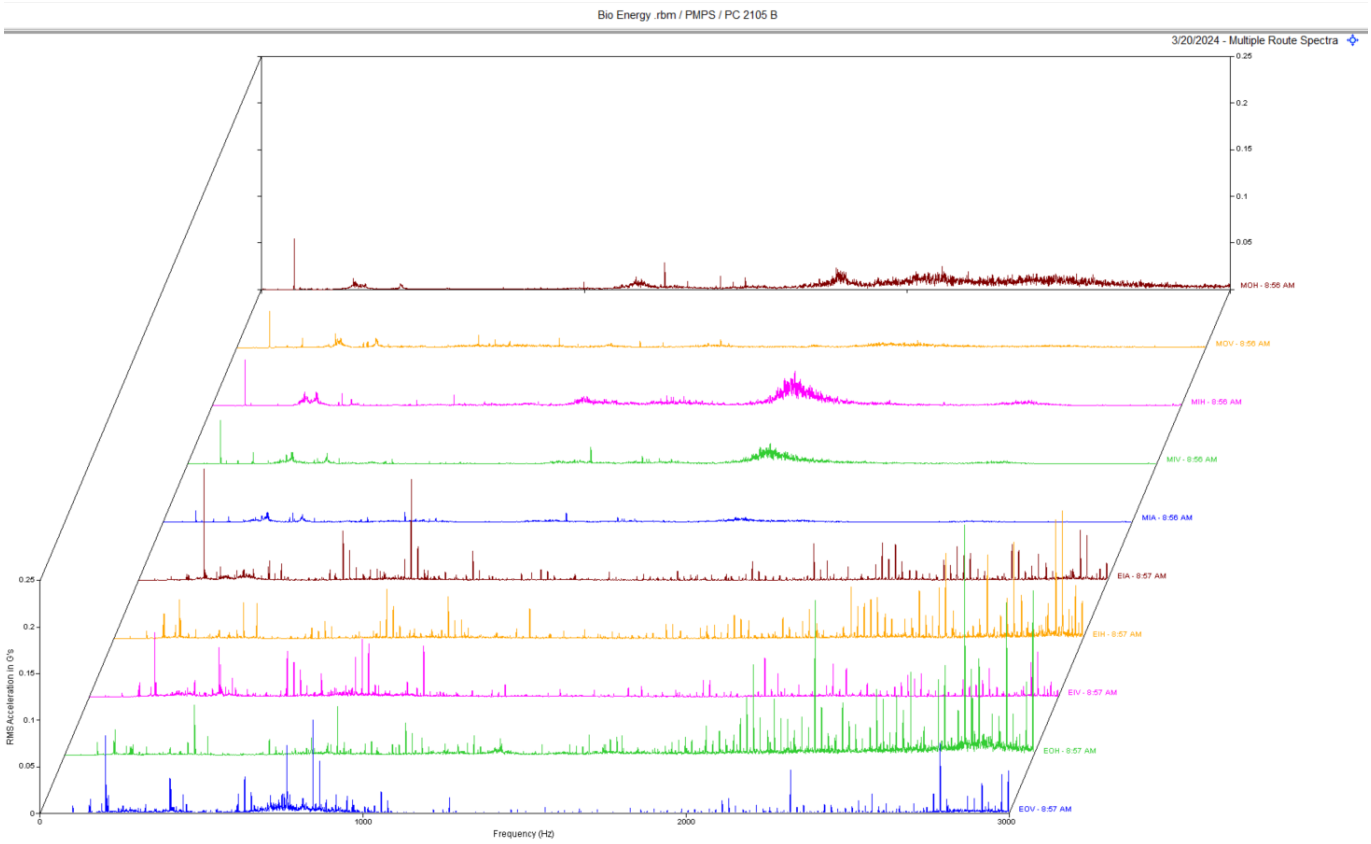
CLASS II: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

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

Defect Summary

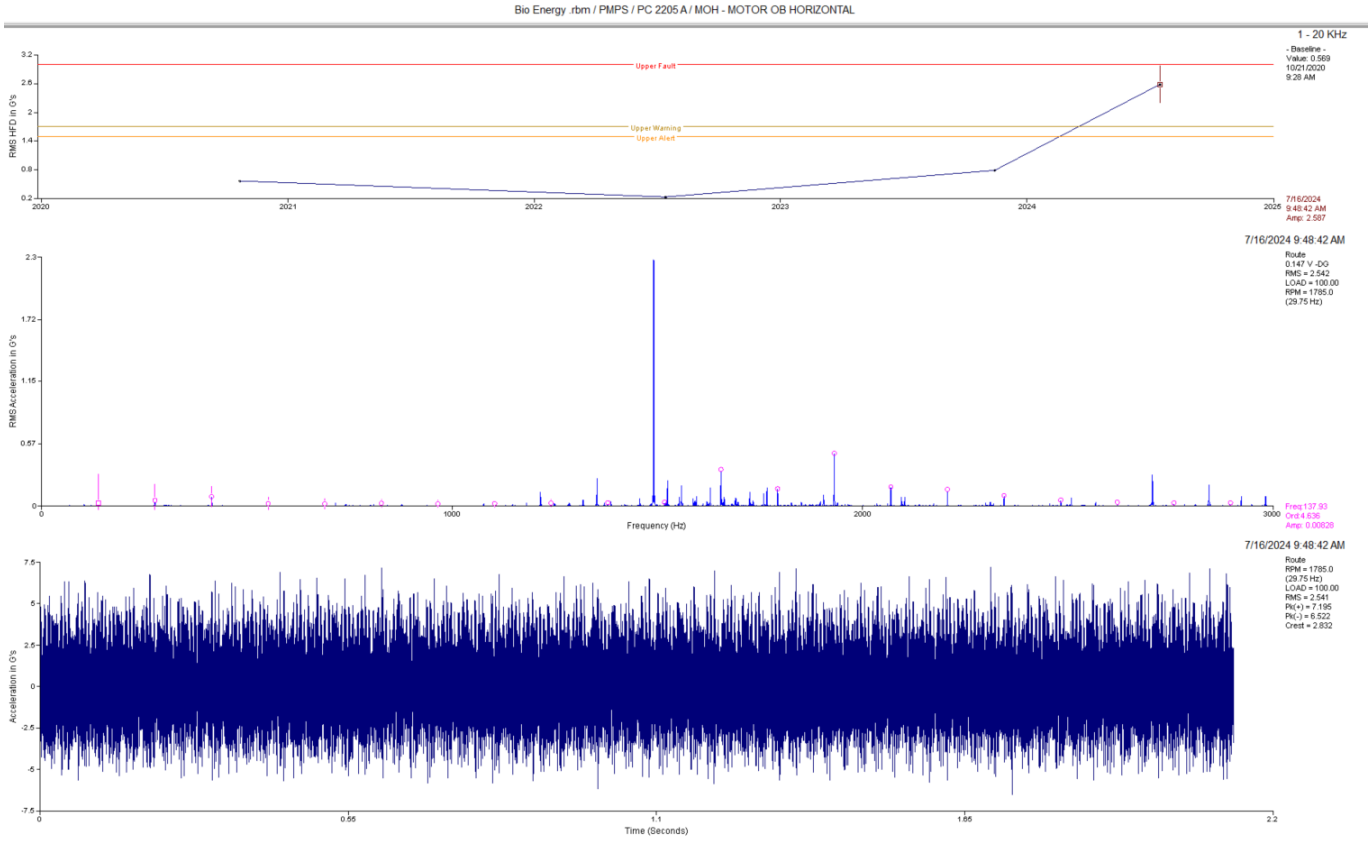
PC 2105 B CLASS II



Observation:
Data above is the multi-point spectra of the motor and pump. Pump data shows non-synchronous peaks throughout the pump spectra.

Recommendation:
Pump data shows defects in pump bearings. Replace pump as scheduling allows.

PC 2205 A CLASS II



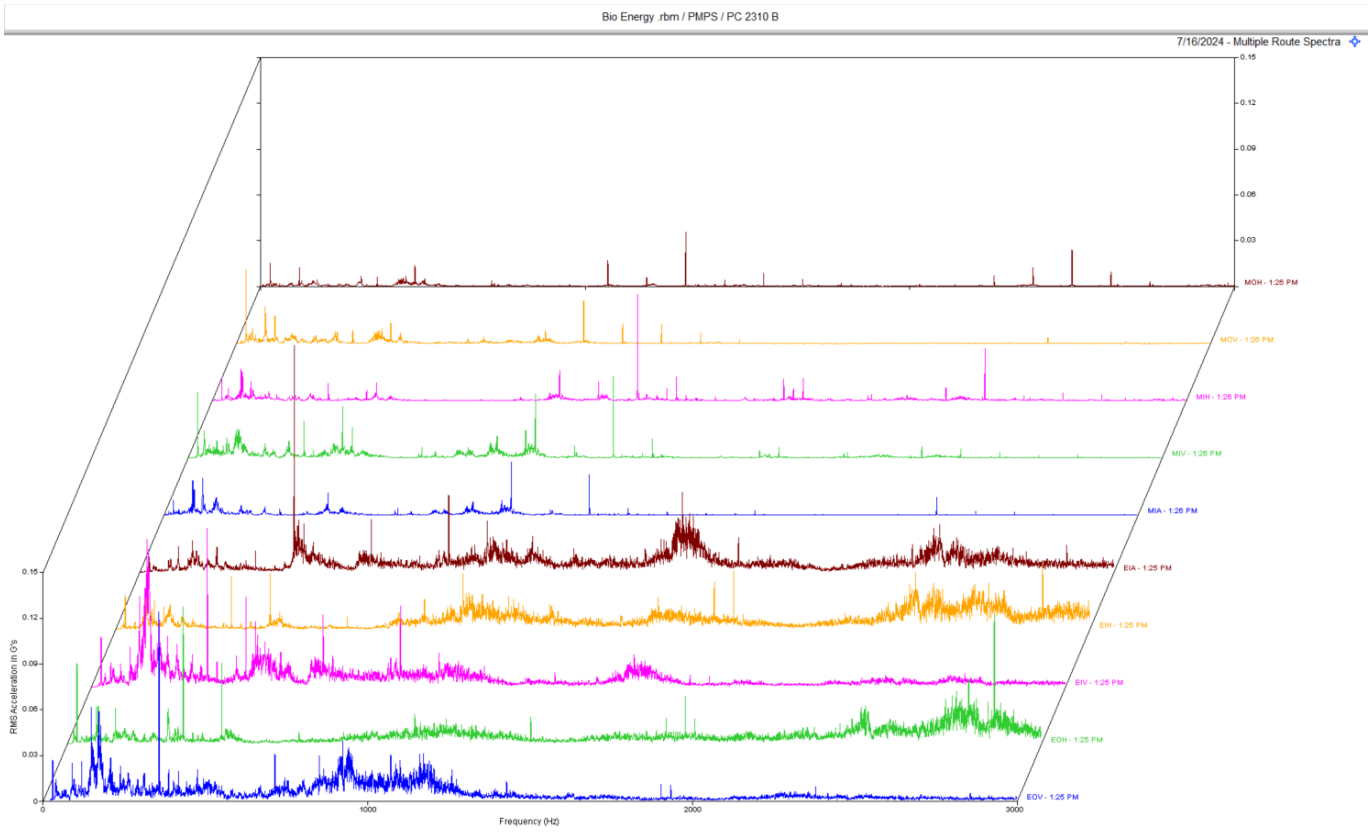
Observation:

Data above motor outboard horizontal. Peaks marked in spectrum are non-synchronous peaks that are harmonics of 4.36 orders of rpm.

Recommendation:

Data suggests bearing issues in the motor. Check motor for bearing defects/we as scheduling allows.

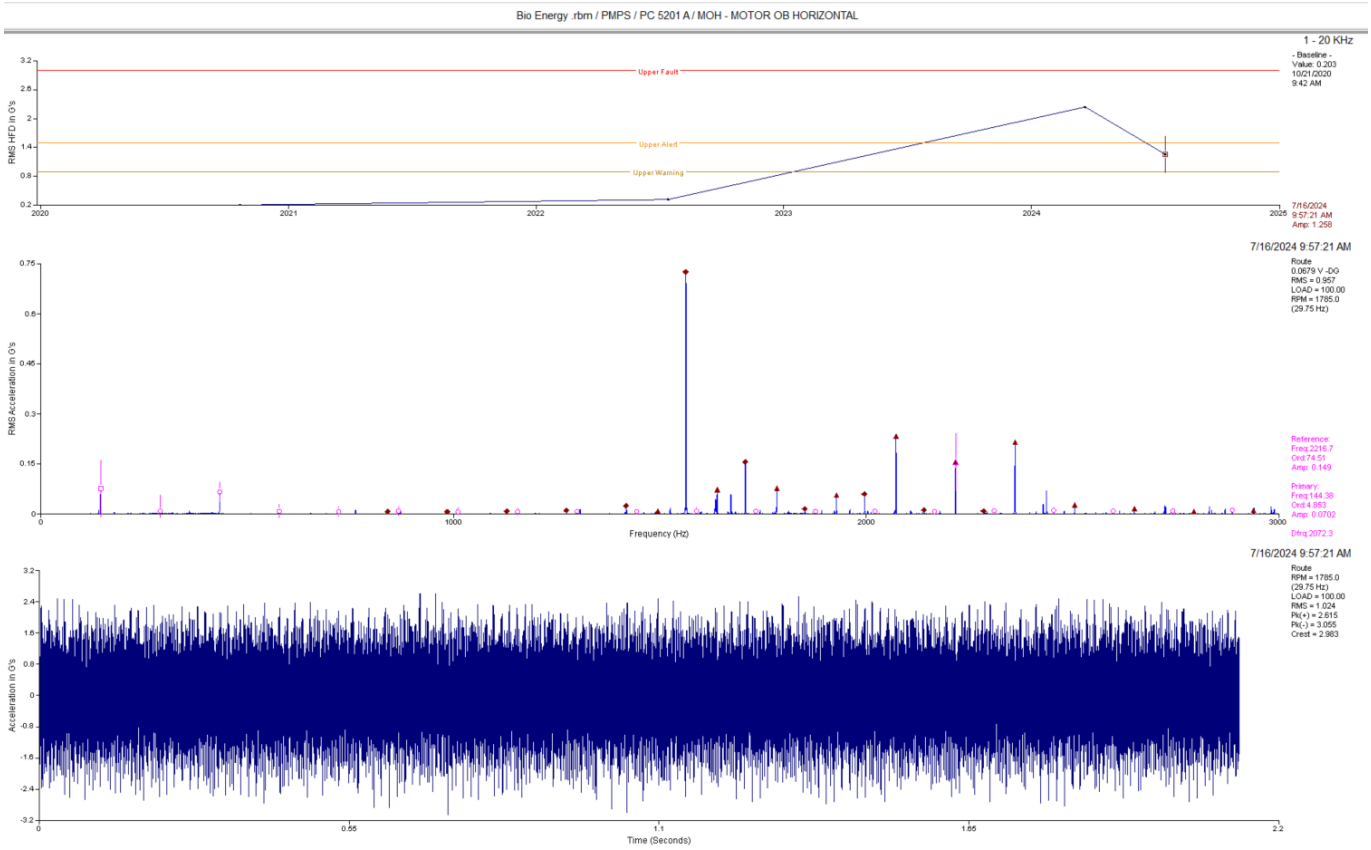
PC 2310 B



Observation:
Above is a spectral waterfall of the motor and pump. Pump data shows signs of either pump wear or cavitation of the pump.

Recommendation:
Ensure pump is not cavitating. Perform an inspection of the pump and replace pump if needed. Inspect impeller as well.

PC 5201 A CLASS II



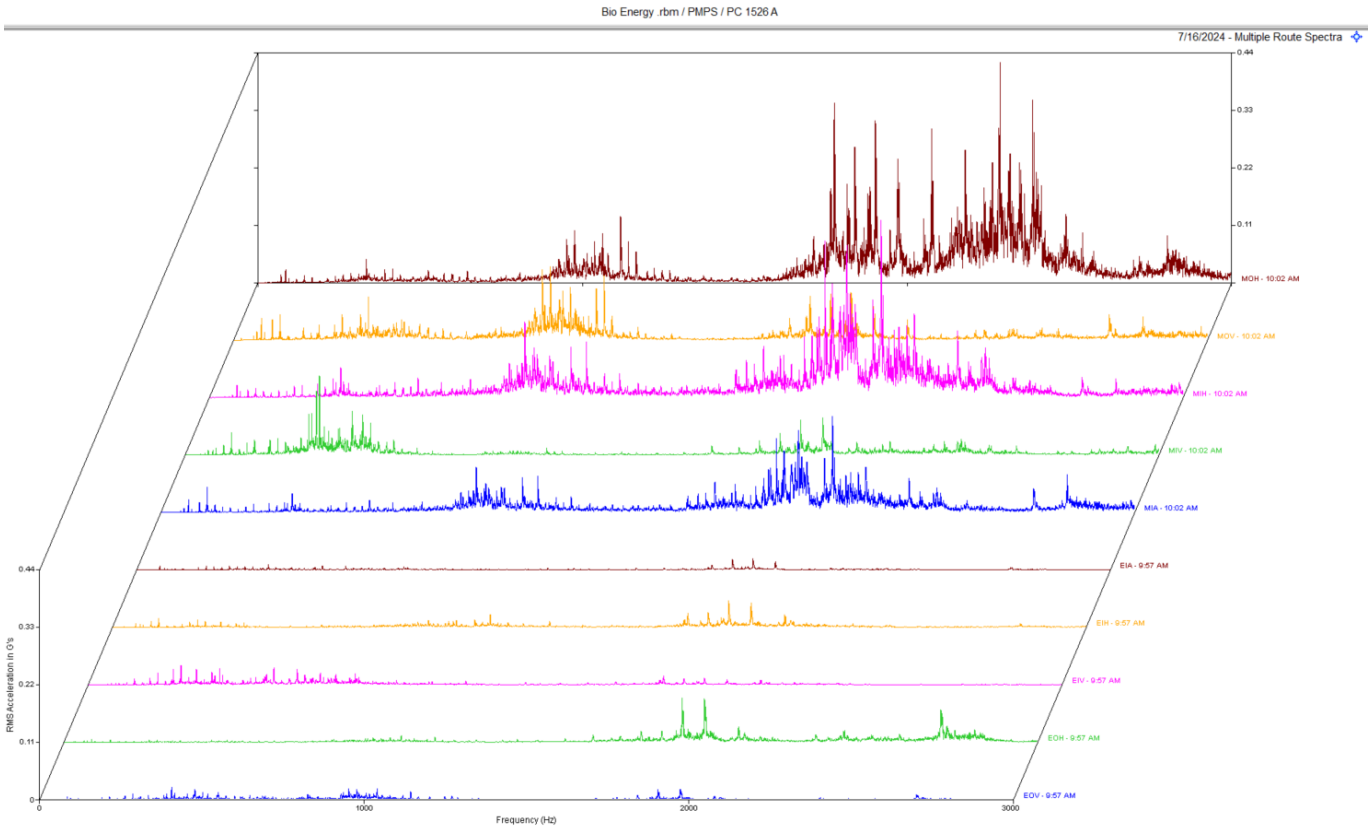
Observation:

Data above motor outboard horizontal. Peaks marked in spectrum are non-synchronous peaks that are harmonics of 144.47 Hz.(likely bearing race defect frequency). There are also sidebands of this frequency around a dominant frequency that also appears to be non-synchronous.

Recommendation:

Data suggests bearing issues. This is very likely fluting of the bearing races if motor is operated by a VFD. Inspect motor as time allows.

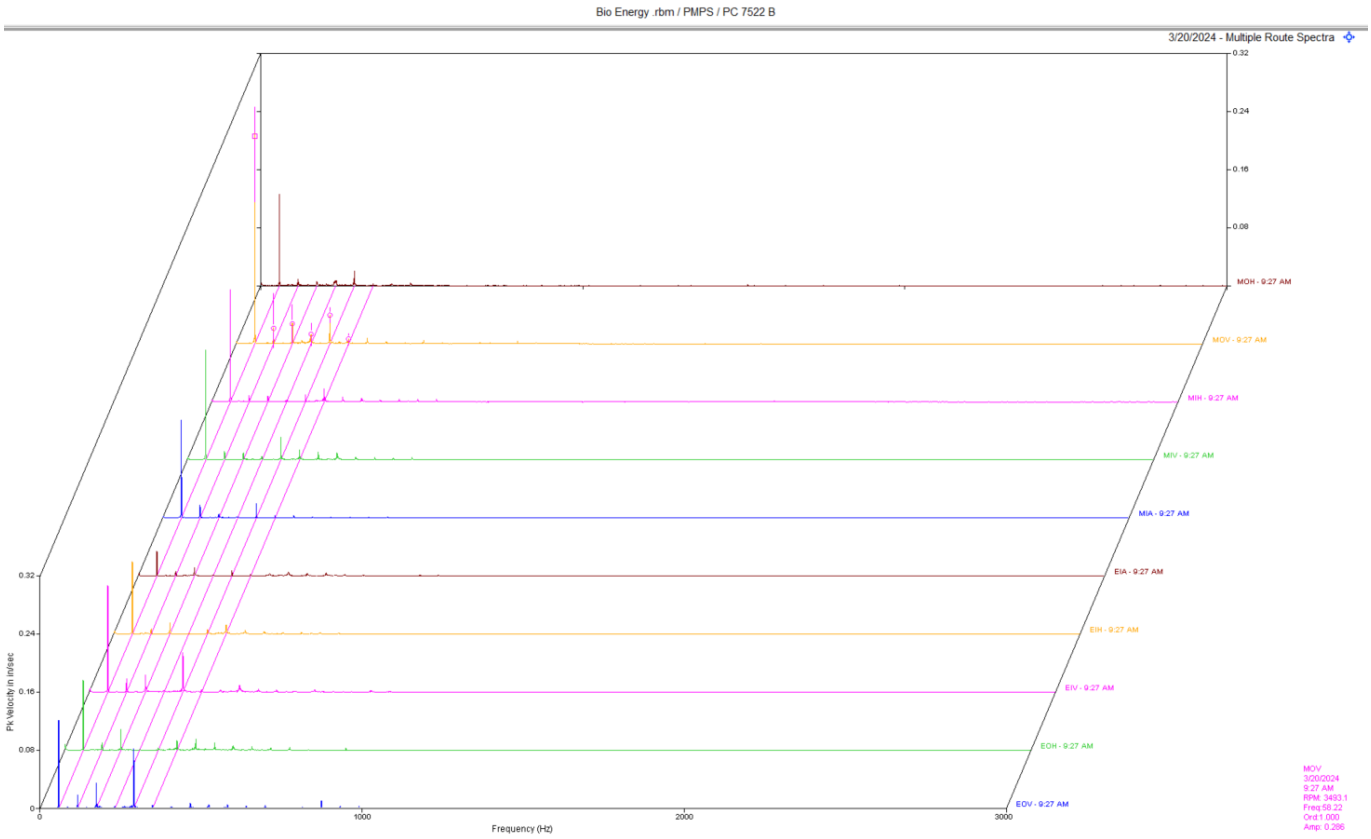
PC 1526A CLASS III



Observation:
Multi-point spectra of the motor and pump shows a significant amount of non-synchronous vibration according to motor data.

Recommendation:
The non-synchronous peaks are very likely race defect frequencies of the motor bearings. Motor should be replaced soon.

PC 9006 B CLASS II



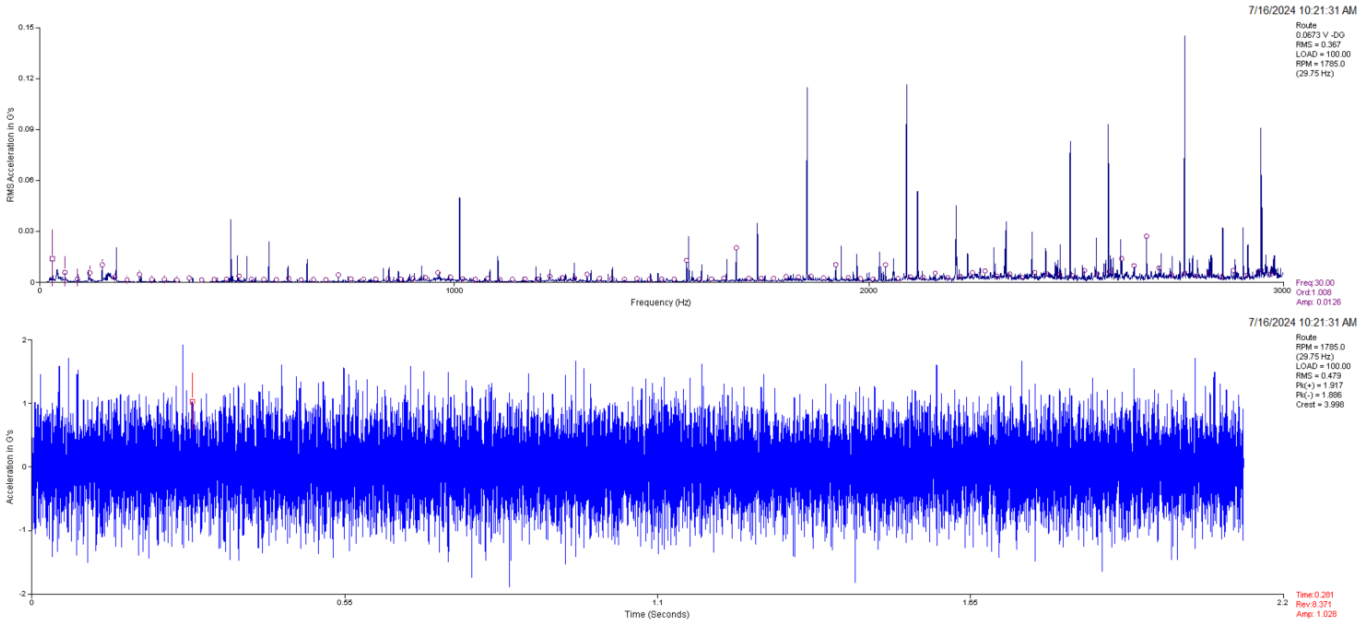
Observation:

Multi-point spectra of the motor and pump shows high 1 x rpm vibration present especially at motor inboard axial. Pump data also shows signs of internal defects/wear.

Recommendation:

Data suggests a coupling/alignment issue. Ensure couplings are in good shape and motor is properly aligned. Inspect pump for defects/wear.

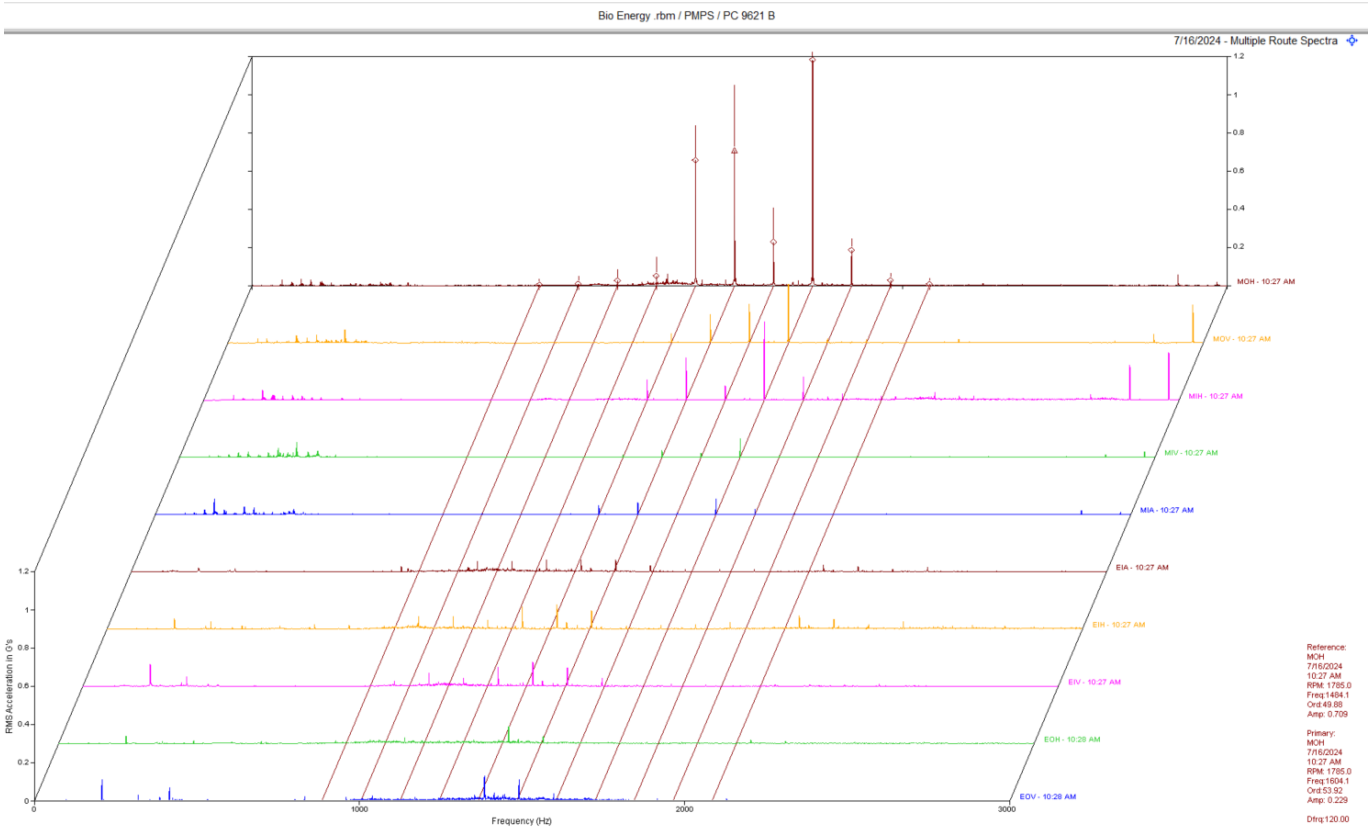
PC 9520 A CLASS II



Observation:
Motor data shows several non-synchronous peaks present in spectral data.

Recommendation:
Motor data has good indications of bearing issues in motor. Motor needs to be inspected as scheduling allows.

PC 9621 B CLASS II



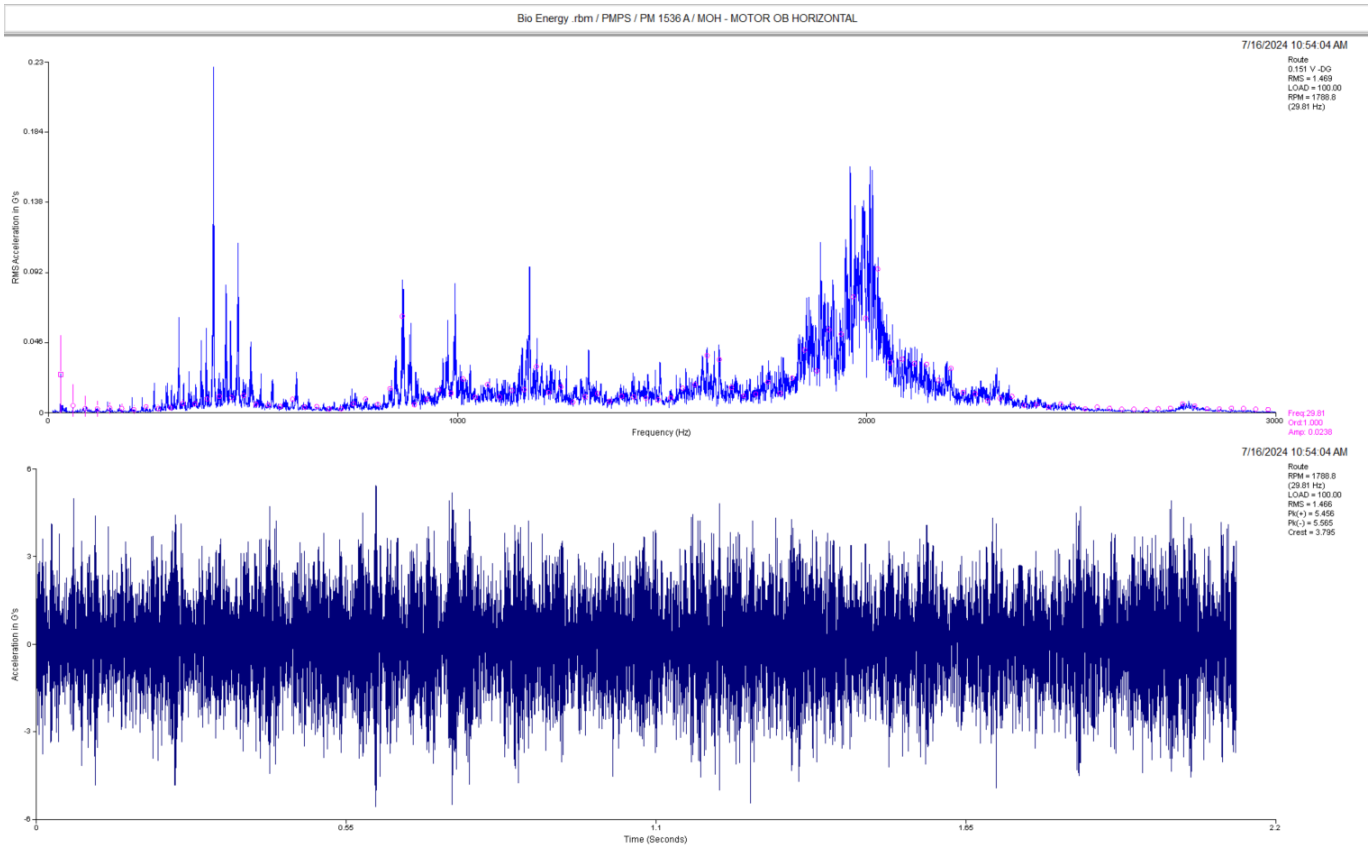
Observation:

Motor data shows electrical vibrations present in the motor. Sidebands of 120 HZ. can be seen around a dominant electrical peak.

Recommendation:

Motor data shows indication of an internal air gap issue possibly caused by motor soft foot. Check motor for soft foot condition and realign motor to pump.

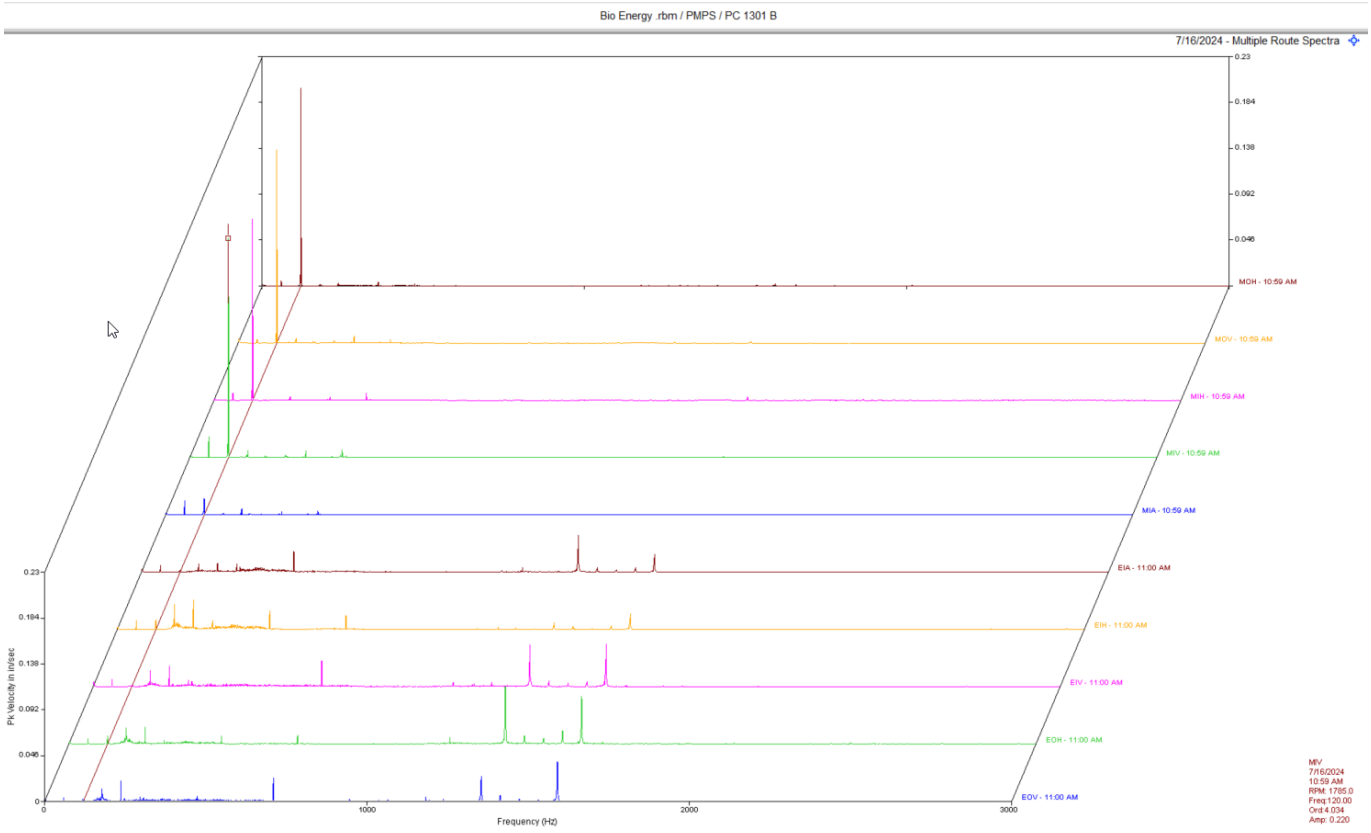
PM 1536 A CLASS II



Observation:
Motor outboard horizontal data shows signs of defects. Waveform has amplitude of 10 G's peak to peak.

Recommendation:
Motor data shows indication of bearing defects. Motor will likely need attention soon.

PC 1301 B CLASS II



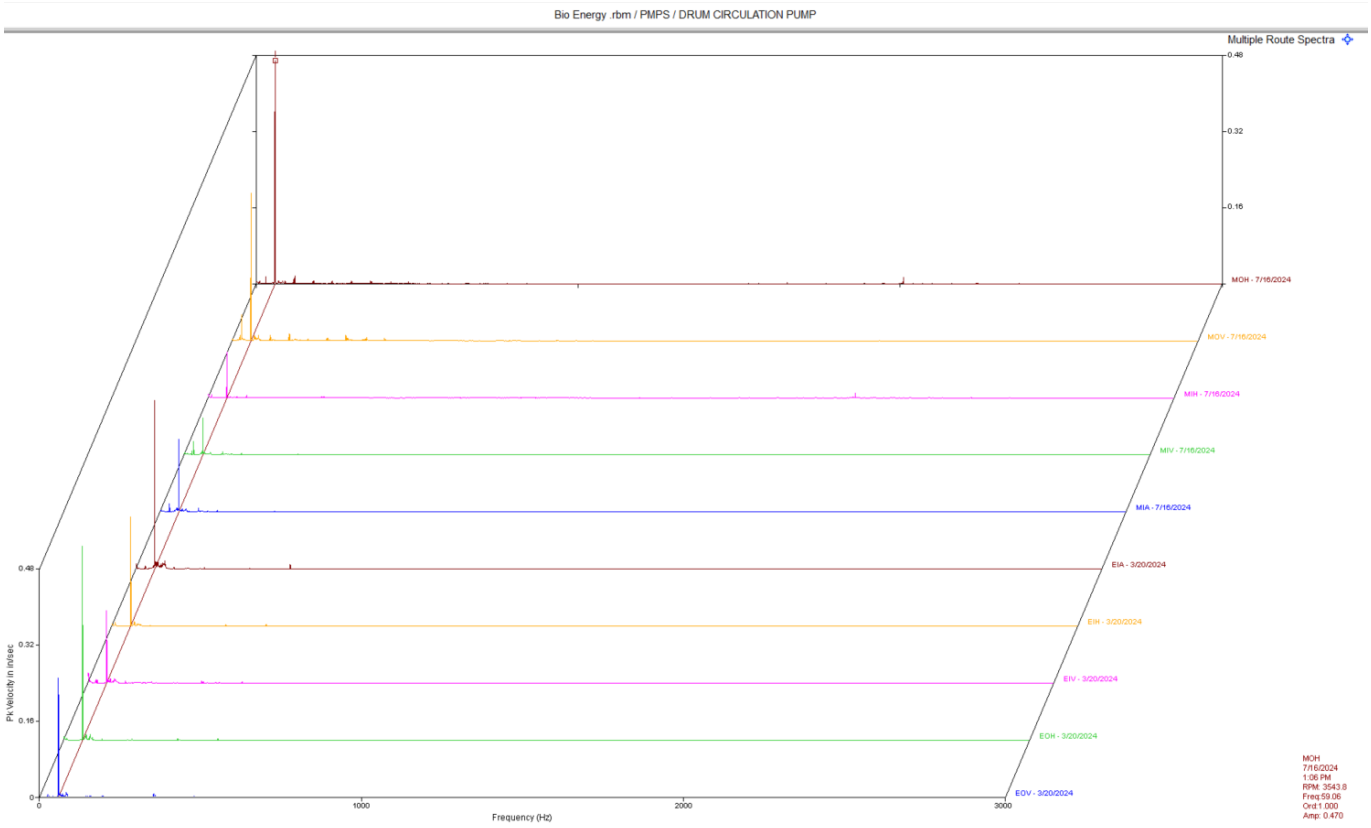
Observation:

Motor data shows electrical vibrations present in the motor. Dominant 120 HZ. vibration can be seen in motor spectra

Recommendation:

Motor data shows indication of an internal air gap issue possibly caused by motor soft foot. Check motor for soft foot condition and realign motor to pump.

Drum Circulation Pump CLASS III



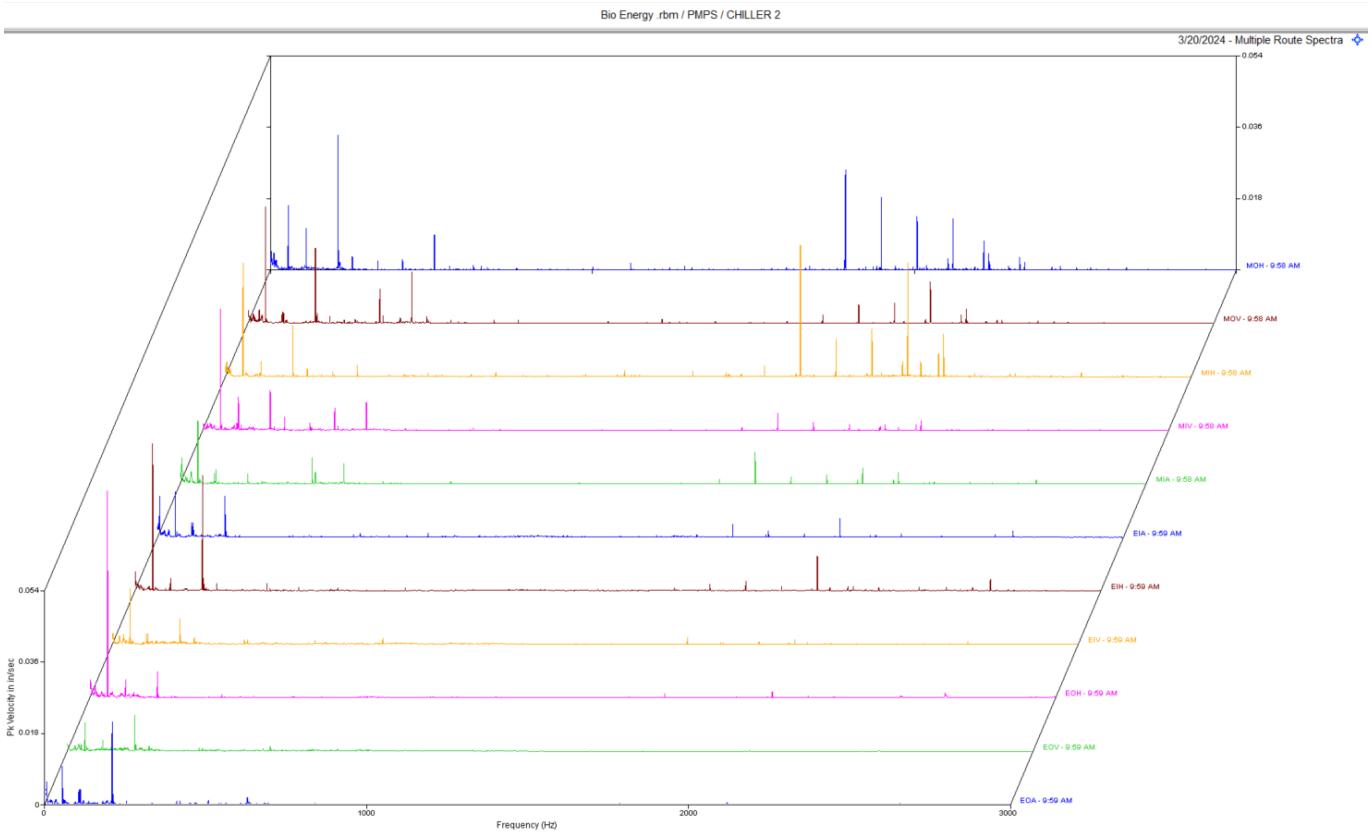
Observation:

Multi-point spectra above are the motor and pump. Data shows a dominant 1 x rpm vibration in motor and pump.

Recommendation:

Either pump impeller is out of balance, motor shaft bent, or the fact that the motor is not anchored to the base is likely cause of 1 x rpm vibration. Inspect pump impeller and check motor shaft if possible. The motor is flange mounted but also may need to be mounted to the base. Shim motor to fill gap between motor foot and base. This should lower 1 x rpm vibration.

Chiller 2 CLASS I



Observation:

Multi point spectra shows some low level non-synchronous peaks in motor outboard. Both outboard and inboard motor data show some electrical vibrations that may be associated with rotor eccentricity/ air-gap variation in motor.

Recommendation:

The motor has evidence of bearing and electrical vibrations, but amplitudes are very low. We will continue to monitor this closely.

Abbreviated Last Measurement Summary

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Database: Bio Energy .rbm
Station: Pumps

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
4125 B - PC 4125 B	(16-Jul-24)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.029 In/Sec	.063 G-s
MOV	.047 In/Sec	.054 G-s
MIH	.024 In/Sec	.114 G-s
MIV	.028 In/Sec	.087 G-s
MIA	.013 In/Sec	.063 G-s
EIA	.025 In/Sec	.056 G-s
EIH	.034 In/Sec	.245 G-s
EIV	.031 In/Sec	.067 G-s
EOH	.026 In/Sec	.288 G-s
EOV	.025 In/Sec	.062 G-s
2106 - PC 2106	(16-Jul-24)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.018 In/Sec	.094 G-s
MOV	.037 In/Sec	.023 G-s
MIH	.020 In/Sec	.283 G-s
MIV	.040 In/Sec	.051 G-s
MIA	.019 In/Sec	.027 G-s
EIA	.028 In/Sec	.073 G-s
EIH	.071 In/Sec	.261 G-s
EIV	.043 In/Sec	.105 G-s
EOH	.062 In/Sec	.312 G-s
EOV	.039 In/Sec	.046 G-s
7210 A - PC 7210 A	(16-Jul-24)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.028 In/Sec	.301 G-s
MOV	.046 In/Sec	.164 G-s
MIH	.024 In/Sec	.238 G-s
MIV	.048 In/Sec	.098 G-s
MIA	.052 In/Sec	.136 G-s
EIA	.037 In/Sec	.181 G-s
EIH	.050 In/Sec	.853 G-s
EIV	.059 In/Sec	.148 G-s
EOH	.078 In/Sec	1.700 G-s
EOV	.053 In/Sec	.215 G-s
7240 B - PC 7240 B	(16-Jul-24)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.030 In/Sec	.099 G-s
MOV	.033 In/Sec	.034 G-s
MIH	.032 In/Sec	.089 G-s
MIV	.034 In/Sec	.051 G-s
MIA	.013 In/Sec	.021 G-s
EIA	.021 In/Sec	.159 G-s
EIH	.022 In/Sec	.516 G-s
EIV	.034 In/Sec	.084 G-s
EOH	.018 In/Sec	.418 G-s
EOV	.028 In/Sec	.067 G-s
PC-7215 A - PC-7215 A	(16-Jul-24)	
	OVERALL LEVEL	1 - 20 KHz
MOH	.015 In/Sec	.161 G-s
MOV	.021 In/Sec	.101 G-s
MIH	.016 In/Sec	.446 G-s
MIV	.034 In/Sec	.266 G-s

	MIA	.028 In/Sec	.115 G-s
	EIA	.023 In/Sec	.071 G-s
	EIH	.016 In/Sec	.184 G-s
	EIV	.020 In/Sec	.078 G-s
	EOH	.019 In/Sec	.257 G-s
	EOV	.016 In/Sec	.054 G-s

6110 B - PC 6110 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.017 In/Sec	.219 G-s
MOV	.048 In/Sec	.576 G-s
MIH	.013 In/Sec	.166 G-s
MIV	.017 In/Sec	.143 G-s
MIA	.015 In/Sec	.087 G-s
EIA	.020 In/Sec	.036 G-s
EIH	.024 In/Sec	.116 G-s
EIV	.017 In/Sec	.057 G-s
EOH	.019 In/Sec	.113 G-s
EOV	.014 In/Sec	.042 G-s

6120 A - PC-6120 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.025 In/Sec	.114 G-s
MOV	.025 In/Sec	.108 G-s
MIH	.022 In/Sec	.105 G-s
MIV	.021 In/Sec	.072 G-s
MIA	.012 In/Sec	.047 G-s
EIA	.0096 In/Sec	.040 G-s
EIH	.021 In/Sec	.083 G-s
EIV	.019 In/Sec	.048 G-s
EOH	.021 In/Sec	.078 G-s
EOV	.018 In/Sec	.050 G-s

2105 B - PC 2105 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.037 In/Sec	.373 G-s
MOV	.027 In/Sec	.123 G-s
MIH	.032 In/Sec	.802 G-s
MIV	.035 In/Sec	.190 G-s
MIA	.011 In/Sec	.544 G-s
EIA	.070 In/Sec	.196 G-s
EIH	.041 In/Sec	.593 G-s
EIV	.071 In/Sec	.131 G-s
EOH	.031 In/Sec	.262 G-s
EOV	.033 In/Sec	.026 G-s

1621 A - PD 1621 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.013 In/Sec	.618 G-s
MOV	.016 In/Sec	.130 G-s
MIH	.0092 In/Sec	.441 G-s
MIV	.016 In/Sec	.093 G-s
MIA	.017 In/Sec	.069 G-s
EIA	.015 In/Sec	.062 G-s
EIH	.011 In/Sec	.404 G-s
EIV	.018 In/Sec	.108 G-s
EOH	.013 In/Sec	.364 G-s
EOV	.015 In/Sec	.106 G-s

1621 B - PD 1621 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.016 In/Sec	.086 G-s
MOV	.023 In/Sec	.069 G-s
MIH	.013 In/Sec	.094 G-s
MIV	.020 In/Sec	.087 G-s
MIA	.022 In/Sec	.038 G-s
EIA	.025 In/Sec	.070 G-s
EIH	.020 In/Sec	.404 G-s
EIV	.019 In/Sec	.071 G-s
EOH	.016 In/Sec	.189 G-s

	EOV	.020 In/Sec	.038 G-s

2205 A - PC 2205 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.147 In/Sec	2.587 G-s
MOV	.088 In/Sec	1.029 G-s
MIH	.062 In/Sec	1.307 G-s
MIV	.061 In/Sec	.388 G-s
MIA	.068 In/Sec	.411 G-s
EIA	.057 In/Sec	.067 G-s
EIH	.045 In/Sec	.392 G-s
EIV	.050 In/Sec	.165 G-s
EOH	.036 In/Sec	.321 G-s
EOV	.049 In/Sec	.139 G-s

2510 B - PV 2510 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.070 In/Sec	.128 G-s
MOV	.100 In/Sec	.052 G-s
MIH	.031 In/Sec	.062 G-s
MIV	.074 In/Sec	.047 G-s
MIA	.039 In/Sec	.024 G-s
EIA	.024 In/Sec	.050 G-s
EIH	.044 In/Sec	.111 G-s
EIV	.052 In/Sec	.062 G-s
EOH	.043 In/Sec	.137 G-s
EOV	.049 In/Sec	.068 G-s

2301 C - PC 2301 C (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.035 In/Sec	.166 G-s
MOV	.090 In/Sec	.300 G-s
MIH	.022 In/Sec	.196 G-s
MIV	.051 In/Sec	.257 G-s
MIA	.044 In/Sec	.029 G-s
EIA	.036 In/Sec	.024 G-s
EIH	.017 In/Sec	.060 G-s
EIV	.034 In/Sec	.015 G-s
EOH	.017 In/Sec	.057 G-s
EOV	.036 In/Sec	.015 G-s

2301 A - PC 2301 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.030 In/Sec	.168 G-s
MOV	.076 In/Sec	.036 G-s
MIH	.026 In/Sec	.228 G-s
MIV	.051 In/Sec	.048 G-s
MIA	.029 In/Sec	.037 G-s
EIA	.024 In/Sec	.146 G-s
EIH	.025 In/Sec	.159 G-s
EIV	.027 In/Sec	.045 G-s
EOH	.026 In/Sec	.191 G-s
EOV	.023 In/Sec	.074 G-s

2310 B - PC 2310 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.065 In/Sec	.143 G-s
MOV	.181 In/Sec	.033 G-s
MIH	.079 In/Sec	.170 G-s
MIV	.174 In/Sec	.097 G-s
MIA	.077 In/Sec	.069 G-s
EIA	.089 In/Sec	.543 G-s
EIH	.116 In/Sec	.801 G-s
EIV	.248 In/Sec	.287 G-s
EOH	.212 In/Sec	1.220 G-s
EOV	.190 In/Sec	.282 G-s

5201 A - PC 5201 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.068 In/Sec	1.258 G-s

	MOV	.061 In/Sec	.496 G-s
	MIH	.060 In/Sec	1.119 G-s
	MIV	.048 In/Sec	.234 G-s
	MIA	.033 In/Sec	.188 G-s
	EIA	.040 In/Sec	.047 G-s
	EIH	.064 In/Sec	.127 G-s
	EIV	.050 In/Sec	.050 G-s
	EOH	.061 In/Sec	.144 G-s
	EOV	.049 In/Sec	.025 G-s

7501 B - PC 7501 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.020 In/Sec	.176 G-s
MOV	.022 In/Sec	.081 G-s
MIH	.016 In/Sec	.377 G-s
MIV	.020 In/Sec	.157 G-s
MIA	.0093 In/Sec	.138 G-s
EIA	.016 In/Sec	.014 G-s
EIH	.017 In/Sec	.083 G-s
EIV	.012 In/Sec	.013 G-s
EOH	.012 In/Sec	.076 G-s
EOV	.014 In/Sec	.011 G-s

7506 B - PC 7506 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.017 In/Sec	.063 G-s
MOV	.020 In/Sec	.013 G-s
MIH	.0088 In/Sec	.065 G-s
MIV	.0078 In/Sec	.014 G-s
MIA	.0050 In/Sec	.012 G-s
EIA	.0084 In/Sec	.022 G-s
EIH	.0057 In/Sec	.069 G-s
EIV	.0077 In/Sec	.029 G-s
EOH	.0051 In/Sec	.072 G-s
EOV	.0087 In/Sec	.029 G-s

1526 A - PC 1526 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.139 In/Sec	2.847 G-s
MOV	.120 In/Sec	.690 G-s
MIH	.129 In/Sec	2.172 G-s
MIV	.113 In/Sec	.440 G-s
MIA	.087 In/Sec	1.269 G-s
EIA	.019 In/Sec	.088 G-s
EIH	.030 In/Sec	.241 G-s
EIV	.043 In/Sec	.094 G-s
EOH	.024 In/Sec	.474 G-s
EOV	.025 In/Sec	.110 G-s

9901 A - PC 9901 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.077 In/Sec	.148 G-s
MOV	.088 In/Sec	.061 G-s
MIH	.081 In/Sec	.176 G-s
MIV	.085 In/Sec	.041 G-s
MIA	.036 In/Sec	.038 G-s
EIA	.060 In/Sec	.179 G-s
EIH	.061 In/Sec	.344 G-s
EIV	.071 In/Sec	.131 G-s
EOH	.037 In/Sec	.552 G-s
EOV	.051 In/Sec	.472 G-s

3110 B - PC 3110 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.057 In/Sec	.380 G-s
MOV	.138 In/Sec	.117 G-s
MIH	.066 In/Sec	.456 G-s
MIV	.197 In/Sec	.089 G-s
MIA	.116 In/Sec	.106 G-s
EIA	.059 In/Sec	.116 G-s

	EIH	.047 In/Sec	.332 G-s
	EIV	.085 In/Sec	.113 G-s

4211 A - PC 4211 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.028 In/Sec	.101 G-s
MOV	.036 In/Sec	.029 G-s
MIH	.027 In/Sec	.105 G-s
MIV	.033 In/Sec	.019 G-s
MIA	.016 In/Sec	.018 G-s
EIA	.025 In/Sec	.078 G-s
EIH	.046 In/Sec	.267 G-s
EIV	.035 In/Sec	.106 G-s

7522 A - PC 7522 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.063 In/Sec	.181 G-s
MOV	.115 In/Sec	.048 G-s
MIH	.046 In/Sec	.323 G-s
MIV	.080 In/Sec	.065 G-s
MIA	.061 In/Sec	.049 G-s

7520 A - PC 7520 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOV	.057 In/Sec	.056 G-s
MIH	.046 In/Sec	.257 G-s
MIV	.061 In/Sec	.132 G-s
MIA	.058 In/Sec	.107 G-s

9006 B - PC 9006 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.054 In/Sec	.302 G-s
MOV	.285 In/Sec	.080 G-s
MIH	.058 In/Sec	.436 G-s
MIV	.196 In/Sec	.054 G-s
MIA	.423 In/Sec	.043 G-s
EIA	.094 In/Sec	.861 G-s
EIH	.242 In/Sec	3.335 G-s
EIV	.102 In/Sec	.806 G-s
EOH	.223 In/Sec	2.410 G-s
EOV	.095 In/Sec	.528 G-s

9520 A - PC 9520 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.067 In/Sec	.552 G-s
MOV	.151 In/Sec	.167 G-s
MIH	.049 In/Sec	.458 G-s
MIV	.160 In/Sec	.168 G-s
MIA	.059 In/Sec	.066 G-s
EIA	.135 In/Sec	.390 G-s
EIH	.099 In/Sec	1.892 G-s
EIV	.072 In/Sec	.311 G-s
EOH	.107 In/Sec	1.959 G-s
EOV	.082 In/Sec	.411 G-s

9701 B - PC 9701 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.064 In/Sec	.255 G-s
MOV	.041 In/Sec	.092 G-s
MIH	.056 In/Sec	.515 G-s
MIV	.058 In/Sec	.079 G-s
MIA	.055 In/Sec	.113 G-s
EIA	.098 In/Sec	.481 G-s
EIH	.095 In/Sec	2.401 G-s
EIV	.084 In/Sec	.395 G-s
EOH	.090 In/Sec	1.623 G-s
EOV	.070 In/Sec	.314 G-s

9701 A - PC 9701 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz

	MOH	.120 In/Sec	.286 G-s
	MOV	.148 In/Sec	.173 G-s
	MIH	.091 In/Sec	.676 G-s
	MIV	.282 In/Sec	.188 G-s
	MIA	.259 In/Sec	.180 G-s

9621 B - PC 9621 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.115 In/Sec	1.655 G-s
MOV	.062 In/Sec	.562 G-s
MIH	.061 In/Sec	.702 G-s
MIV	.053 In/Sec	.138 G-s
MIA	.061 In/Sec	.146 G-s
EIA	.038 In/Sec	.307 G-s
EIH	.045 In/Sec	.713 G-s
EIV	.071 In/Sec	.350 G-s
EOH	.037 In/Sec	.497 G-s
EOV	.067 In/Sec	.406 G-s

1201 - PC 1201 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.011 In/Sec	.161 G-s
MOV	.028 In/Sec	.026 G-s
MIH	.0098 In/Sec	.069 G-s
MIV	.034 In/Sec	.015 G-s
MIA	.014 In/Sec	.0094 G-s
EIA	.016 In/Sec	.015 G-s
EIH	.020 In/Sec	.052 G-s
EIV	.020 In/Sec	.031 G-s
EOH	.018 In/Sec	.071 G-s
EOV	.018 In/Sec	.0067 G-s

1202 - PC 1202 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.011 In/Sec	.075 G-s
MOV	.023 In/Sec	.019 G-s
MIH	.013 In/Sec	.059 G-s
MIV	.027 In/Sec	.022 G-s
MIA	.014 In/Sec	.052 G-s
EIA	.020 In/Sec	.056 G-s
EIH	.015 In/Sec	.098 G-s
EIV	.025 In/Sec	.099 G-s

2101 A - PC 2101 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.011 In/Sec	.371 G-s
MOV	.015 In/Sec	.085 G-s
MIH	.013 In/Sec	.468 G-s
MIV	.017 In/Sec	.112 G-s
MIA	.011 In/Sec	.056 G-s
EIA	.0083 In/Sec	.0033 G-s
EIH	.0059 In/Sec	.027 G-s
EIV	.0076 In/Sec	.0033 G-s
EOH	.0043 In/Sec	.041 G-s
EOV	.0079 In/Sec	.0057 G-s

9002 - PC 9002 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.043 In/Sec	.188 G-s
MOV	.153 In/Sec	.045 G-s
MIH	.037 In/Sec	.323 G-s
MIV	.164 In/Sec	.042 G-s
MIA	.050 In/Sec	.048 G-s

1520 B - PC 1520 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.049 In/Sec	.754 G-s
MOV	.056 In/Sec	.185 G-s
MIH	.047 In/Sec	.949 G-s
MIV	.051 In/Sec	.138 G-s

	MIA	.021 In/Sec	.241 G-s
	EIA	.017 In/Sec	.238 G-s
	EIH	.034 In/Sec	.934 G-s
	EIV	.036 In/Sec	.205 G-s
	EOH	.035 In/Sec	1.350 G-s
	EOV	.032 In/Sec	.271 G-s

6501 A - PC 6501 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.040 In/Sec	.076 G-s
MOV	.026 In/Sec	.020 G-s
MIH	.041 In/Sec	.055 G-s
MIV	.025 In/Sec	.018 G-s
MIA	.0091 In/Sec	.027 G-s
EIA	.020 In/Sec	.013 G-s
EIH	.047 In/Sec	.044 G-s
EIV	.021 In/Sec	.029 G-s
EOH	.037 In/Sec	.053 G-s
EOV	.014 In/Sec	.023 G-s

7252 B - PC 7252 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.019 In/Sec	.123 G-s
MOV	.040 In/Sec	.023 G-s
MIH	.018 In/Sec	.155 G-s
MIV	.025 In/Sec	.039 G-s
MIA	.012 In/Sec	.032 G-s
EIA	.023 In/Sec	.215 G-s
EIH	.017 In/Sec	.224 G-s
EIV	.017 In/Sec	.114 G-s
EOH	.013 In/Sec	.150 G-s
EOV	.018 In/Sec	.081 G-s

1536 A - PM 1536 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.151 In/Sec	1.398 G-s
MOV	.427 In/Sec	.288 G-s
MIH	.145 In/Sec	1.691 G-s
MIV	.308 In/Sec	.339 G-s
MIA	.155 In/Sec	.167 G-s
EIA	.093 In/Sec	.319 G-s
EIH	.094 In/Sec	.700 G-s
EIV	.098 In/Sec	.476 G-s
EOH	.101 In/Sec	.292 G-s
EOV	.120 In/Sec	.151 G-s

1301 B - PC 1301 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.199 In/Sec	.121 G-s
MOV	.195 In/Sec	.056 G-s
MIH	.183 In/Sec	.180 G-s
MIV	.223 In/Sec	.053 G-s
MIA	.028 In/Sec	.031 G-s
EIA	.085 In/Sec	1.114 G-s
EIH	.080 In/Sec	.526 G-s
EIV	.114 In/Sec	1.681 G-s
EOH	.134 In/Sec	2.328 G-s
EOV	.094 In/Sec	1.211 G-s

1531 - PC 1531 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.075 In/Sec	.167 G-s
MOV	.098 In/Sec	.042 G-s
MIH	.062 In/Sec	.177 G-s
MIV	.082 In/Sec	.128 G-s
MIA	.044 In/Sec	.177 G-s
EIA	.040 In/Sec	.107 G-s
EIH	.056 In/Sec	.272 G-s
EIV	.061 In/Sec	.155 G-s
EOV	.045 In/Sec	.133 G-s

4304 A - PC 4304 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.037 In/Sec	.212 G-s
MOV	.041 In/Sec	.081 G-s
MIH	.038 In/Sec	.205 G-s
MIV	.035 In/Sec	.036 G-s
MIA	.025 In/Sec	.037 G-s
EIA	.038 In/Sec	.152 G-s
EIH	.037 In/Sec	.466 G-s
EIV	.063 In/Sec	.414 G-s
EOH	.033 In/Sec	.515 G-s
EOV	.057 In/Sec	.364 G-s

4300 A - PC 4300 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.044 In/Sec	.071 G-s
MOV	.076 In/Sec	.025 G-s
MIH	.045 In/Sec	.083 G-s
MIV	.027 In/Sec	.038 G-s
MIA	.055 In/Sec	.024 G-s
EIA	.024 In/Sec	.054 G-s
EIH	.020 In/Sec	.181 G-s
EIV	.032 In/Sec	.043 G-s

1430 A - PC 1430 A (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.092 In/Sec	.391 G-s
MOV	.082 In/Sec	.288 G-s
MIH	.075 In/Sec	.374 G-s
MIV	.065 In/Sec	.241 G-s
MIA	.040 In/Sec	.135 G-s
EIA	.039 In/Sec	.227 G-s
EIH	.071 In/Sec	.371 G-s
EIV	.060 In/Sec	.199 G-s
EOH	.073 In/Sec	.495 G-s
EOV	.085 In/Sec	.165 G-s

1425 B - PC 1425 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.067 In/Sec	.206 G-s
MOV	.085 In/Sec	.051 G-s
MIH	.062 In/Sec	.222 G-s
MIV	.080 In/Sec	.062 G-s
MIA	.021 In/Sec	.042 G-s
EIA	.028 In/Sec	.091 G-s
EIH	.063 In/Sec	.381 G-s
EIV	.065 In/Sec	.060 G-s
EOH	.060 In/Sec	.371 G-s
EOV	.052 In/Sec	.128 G-s

7120 - PC 7120 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.047 In/Sec	.652 G-s
MOV	.041 In/Sec	.153 G-s
MIH	.052 In/Sec	.675 G-s
MIV	.043 In/Sec	.127 G-s
MIA	.026 In/Sec	.070 G-s
EIA	.060 In/Sec	.408 G-s
EIH	.065 In/Sec	1.267 G-s
EIV	.087 In/Sec	1.046 G-s
EOH	.064 In/Sec	1.306 G-s
EOV	.080 In/Sec	1.113 G-s

4320 B - PC 4320 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.046 In/Sec	.183 G-s
MOV	.043 In/Sec	.037 G-s
MIH	.047 In/Sec	.140 G-s
MIV	.039 In/Sec	.031 G-s

	MIA	.015 In/Sec	.036 G-s
	EIA	.060 In/Sec	.190 G-s
	EIH	.028 In/Sec	.598 G-s
	EIV	.063 In/Sec	.130 G-s
	EOH	.030 In/Sec	.285 G-s
	EOV	.033 In/Sec	.091 G-s

7502 B - PD 7502 B (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.164 In/Sec	.050 G-s
MOV	.300 In/Sec	.013 G-s
MIH	.109 In/Sec	.055 G-s
MIV	.197 In/Sec	.0081 G-s
MIA	.136 In/Sec	.0069 G-s
EIA	.061 In/Sec	.090 G-s
EIH	.048 In/Sec	.305 G-s
EIV	.059 In/Sec	.096 G-s
EOH	.033 In/Sec	.223 G-s
EOV	.024 In/Sec	.054 G-s

4510 - PD-4510 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.011 In/Sec	.118 G-s
MOV	.013 In/Sec	.013 G-s
MIH	.018 In/Sec	.099 G-s
MIV	.018 In/Sec	.020 G-s
MIA	.012 In/Sec	.0066 G-s
EIA	.012 In/Sec	.0096 G-s
EIH	.018 In/Sec	.052 G-s
EIV	.029 In/Sec	.019 G-s

4535 - PD-4535 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.029 In/Sec	.169 G-s
MOV	.032 In/Sec	.062 G-s
MIH	.030 In/Sec	.276 G-s
MIV	.035 In/Sec	.056 G-s
MIA	.026 In/Sec	.031 G-s
EIA	.048 In/Sec	.260 G-s
EIH	.075 In/Sec	.582 G-s
EIV	.078 In/Sec	.140 G-s

9202 - PC-9202 (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.076 In/Sec	.241 G-s
MOV	.063 In/Sec	.034 G-s
MIH	.084 In/Sec	.062 G-s
MIV	.059 In/Sec	.018 G-s
MIA	.016 In/Sec	.021 G-s

INFLUENT - DAF INFULENT (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.073 In/Sec	.113 G-s
MOV	.117 In/Sec	.102 G-s
MIH	.047 In/Sec	.168 G-s
MIV	.092 In/Sec	.048 G-s
MIA	.048 In/Sec	.022 G-s

CIRC PUMP - DRUM CIRCULATION PUMP (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.501 In/Sec	.396 G-s
MOV	.339 In/Sec	.032 G-s
MIH	.105 In/Sec	.195 G-s
MIV	.094 In/Sec	.023 G-s
MIA	.168 In/Sec	.029 G-s

EFFULENT - DAF EFFULENT (16-Jul-24)

	OVERALL LEVEL	1 - 20 KHz
MOH	.295 In/Sec	.135 G-s
MOV	.347 In/Sec	.373 G-s

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            MIH                      .445 In/Sec       .228 G-s
            MIV                      .369 In/Sec       .169 G-s
            MIA                      .094 In/Sec       .119 G-s

      CHILLER1    - CHILLER 1                    (16-Jul-24)
                                  OVERALL LEVEL     1 - 20 KHz
            MOH                      .054 In/Sec       .875 G-s
            MOV                      .065 In/Sec       .330 G-s
            MIH                      .045 In/Sec       .914 G-s
            MIV                      .041 In/Sec       .312 G-s
            MIA                      .032 In/Sec       .280 G-s
            EIA                      .029 In/Sec       .164 G-s
            EIH                      .028 In/Sec      1.084 G-s
            EIV                      .030 In/Sec       .169 G-s

      CHILLER2    - CHILLER 2                    (16-Jul-24)
                                  OVERALL LEVEL     1 - 20 KHz
            MOH                      .051 In/Sec       .866 G-s
            MOV                      .050 In/Sec       .313 G-s
            MIH                      .034 In/Sec       .636 G-s
            MIV                      .063 In/Sec       .186 G-s
            MIA                      .032 In/Sec       .230 G-s
            EIA                      .034 In/Sec       .092 G-s
            EIH                      .050 In/Sec       .841 G-s
            EIV                      .035 In/Sec       .084 G-s

      BOILERFAN   - BOILER DRAFT FAN               (16-Jul-24)
                                  OVERALL LEVEL     1 - 20 KHz
            MOH                      .115 In/Sec       .413 G-s
            MOV                      .094 In/Sec       .156 G-s
            MIH                      .070 In/Sec       .301 G-s
            MIV                      .049 In/Sec       .100 G-s
            MIA                      .113 In/Sec       .119 G-s

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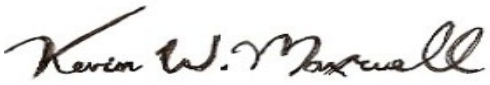
As always, it has been a pleasure to serve Bio-Energy Memphis, TN. If there are any comments or questions, do not hesitate to contact us.

Sincerely,



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