



Brake Dynamometer Test Report

Customer Test Report #: YANCHENG AUTORIGIN AUTO PARTS CO., LTD
Link Test Report #:
Test Description: SAE J2521

Purpose of Test: DISC AND DRUM BRAKE DYNAMOMETER SQUEAL
NOISE TEST PROCEDURE

Customer Reference: D1650
Program #: DISC-MF.SPT
Platform: D1650
Lining Material: Yangpin
Test Date: 11/13/21 - 11/14/21

Requested By:

YANCHENG AUTORIGIN AUTO PARTS CO., LTD

Tested By:

Testing Coordination and Facility
Link Transportation Testing Technology (Shanghai) Co., Ltd
Building No.2, 778 Zhao Xian Road, Jiading District, Shanghai
Shanghai, 201821
www.linkeng.com
Phone: (021) 5916-5656
Fax: (021) 5916-5959

SAE J2521

Test Information

Requestor	
Test Procedure	SAE J2521 - Test Sequence: Disc-FA-A
Program Number	1601152
Test Coordinator	Ma Fukun
Technician	Chang Qinghui
Dynamometer	D6151
Parts received, start and end dates	
Template Name:	T13034A0_SAE_J2521
Datalog / Template version	3.31 / 3.25

Setup Details

Fixture Identification
 Fixture Design
 Drive adapter method

Dynamometer Information

Rolling radius	326.00 mm
Gross Axle Weight	.00 kg
Required Wheel Load	.00 kg
Actual Wheel Load	658.70 kg
Required Inertia	70.00 kg·m ²
Actual Inertia	70.07 kg·m ²

Brake Information

Brake Platform	
Brake Type	DISK /
Brake Size	295*26mm
Brake ID Number	2001/278.7HB
Disc Type	STANDARD
Disc Finish	USED
Inner Lining ID	56.8HRL 190um
Outer Lining ID	76.8HRL 180um
Insulator (Inner)	
Insulator (Outer)	
Chamfer (Inner)	
Chamfer (Outer)	
Slot (Inner)	
Slot (Outer)	
Compressibility (Inner)	
Compressibility (Outer)	
Orientation	Right
Effective radius	120.75 mm
Number of Pistons	1
Coefficient Multiplier	0.016225
Piston Diameter	57 mm

Comments:

Processed by: Mu Zengzeng

Title:

Date: 11/14/2021

Reviewed by: ChangQinghui

Title:

Date: 11/14/2021

Main Peaks Only

Frequency Range	Threshold	Number of noisy stops				Percentage of noisy stops			
		Overall	Drag	Decel	Back/ Fwd	Overall	Drag	Decel	Back/ Fwd
2 kHz to 16 kHz	≥70db(A)	23	9	10	4	1.6%	1.1%	2.1%	2.7%
	≥80db(A)	12	5	6	1	0.8%	0.6%	1.2%	0.7%
2 kHz to 4 kHz	≥70db(A)	9	7	1	1	0.6%	0.9%	0.2%	0.7%
	≥80db(A)	5	4	1	0	0.3%	0.5%	0.2%	0.0%
4 kHz to 6 kHz	≥70db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
	≥80db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
6 kHz to 10 kHz	≥70db(A)	5	1	1	3	0.3%	0.1%	0.2%	2.0%
	≥80db(A)	1	0	0	1	0.1%	0.0%	0.0%	0.7%
10 kHz to 14 kHz	≥70db(A)	9	1	8	0	0.6%	0.1%	1.7%	0.0%
	≥80db(A)	6	1	5	0	0.4%	0.1%	1.0%	0.0%
14 kHz to 16 kHz	≥70db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
	≥80db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Total number of brake applications:						1430	798	482	150

Three Loudest Peaks

Frequency Range	Threshold	Number of noisy stops				Percentage of noisy stops			
		Overall	Drag	Decel	Back/ Fwd	Overall	Drag	Decel	Back/ Fwd
2 kHz to 16 kHz	≥70db(A)	23	9	10	4	1.6%	1.1%	2.1%	2.7%
	≥80db(A)	12	5	6	1	0.8%	0.6%	1.2%	0.7%
2 kHz to 4 kHz	≥70db(A)	9	7	1	1	0.6%	0.9%	0.2%	0.7%
	≥80db(A)	5	4	1	0	0.3%	0.5%	0.2%	0.0%
4 kHz to 6 kHz	≥70db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
	≥80db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
6 kHz to 10 kHz	≥70db(A)	5	1	1	3	0.3%	0.1%	0.2%	2.0%
	≥80db(A)	1	0	0	1	0.1%	0.0%	0.0%	0.7%
10 kHz to 14 kHz	≥70db(A)	9	1	8	0	0.6%	0.1%	1.7%	0.0%
	≥80db(A)	6	1	5	0	0.4%	0.1%	1.0%	0.0%
14 kHz to 16 kHz	≥70db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
	≥80db(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Total number of brake applications:						1430	798	482	150

Test Description:

SAE J2521

Rotor

Primary Lining

Secondary Lining

2001/278.7HB

56.8HRL 190um

76.8HRL 180um

Effective Radius

Piston Diameter

Actual Inertia

Actual Wheel Load

Rolling Radius

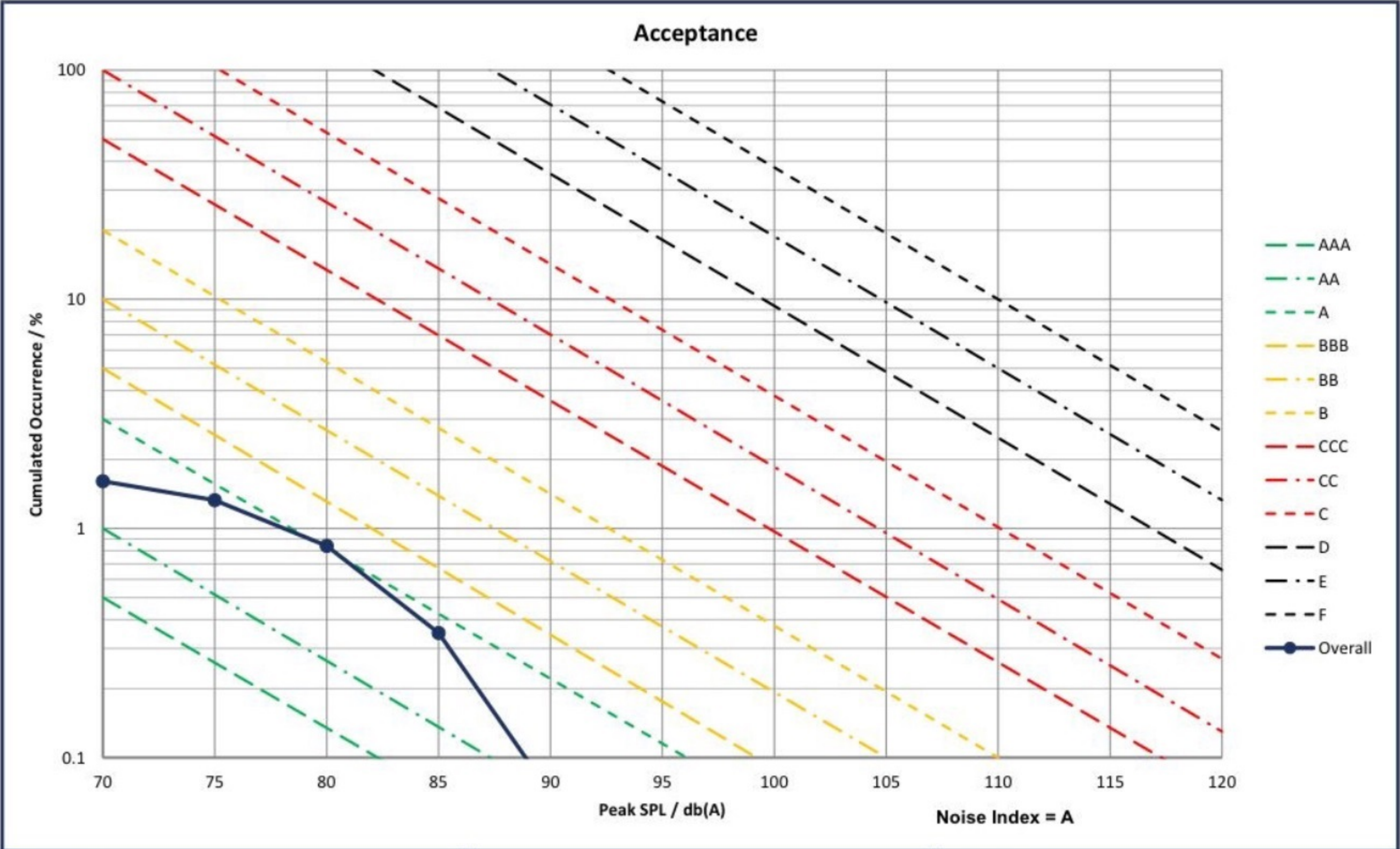
120.75 mm

1 x 57 mm

70.07 kg·m²

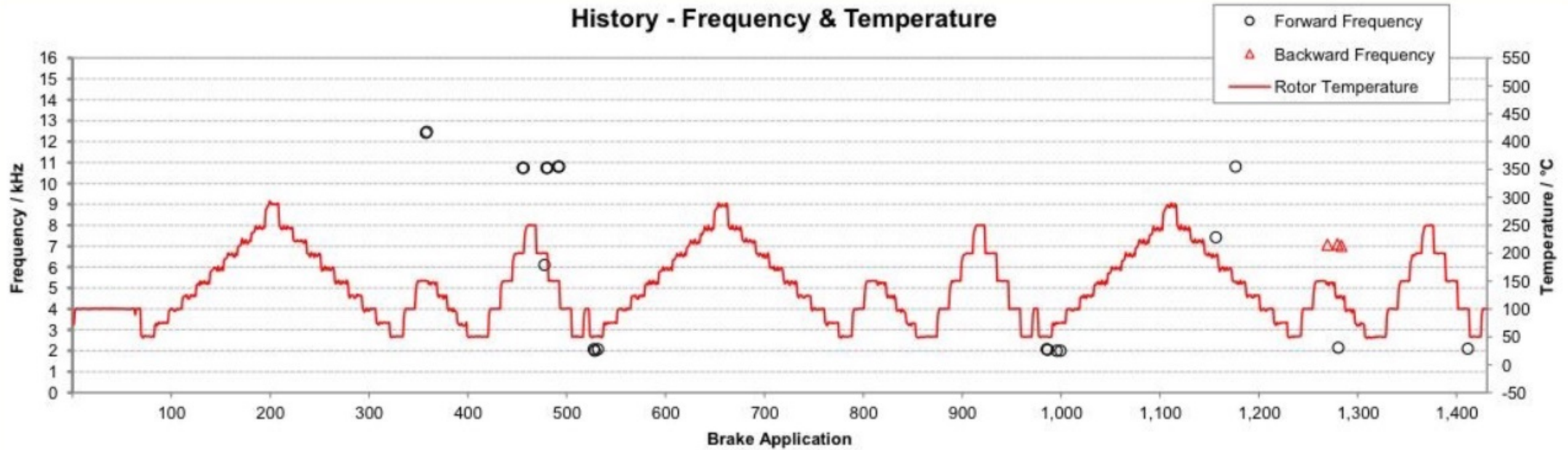
658.7 kg

326 mm

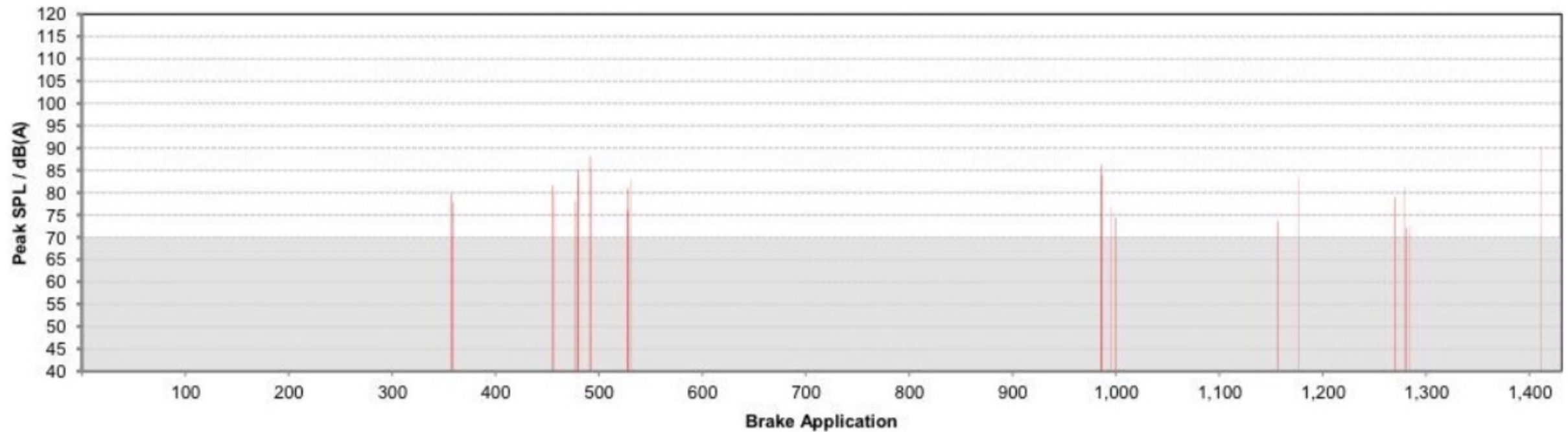


Test Description:		Effective Radius		120.75 mm
SAE J2521	Rotor	2001/278.7HB	Piston Diameter	1 x 57 mm
	Primary Lining	56.8HRL 190um	Actual Inertia	70.07 kg·m²
	Secondary Lining	76.8HRL 180um	Actual Wheel Load	658.7 kg
			Rolling Radius	326 mm

History - Frequency & Temperature



History - Peak SPL



Test Description:

SAE J2521

Rotor
Primary Lining
Secondary Lining

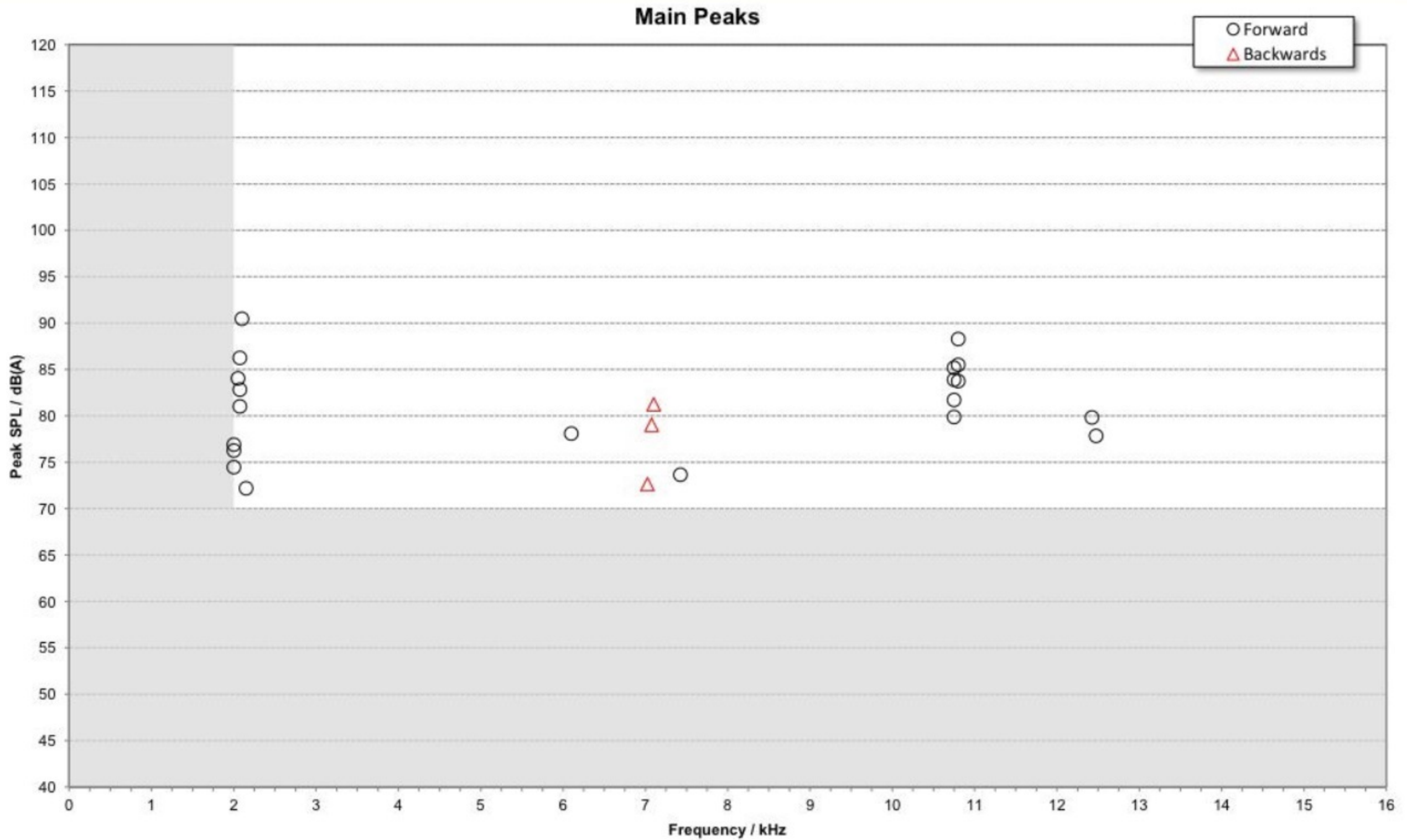
2001/278.7HB
56.8HRL 190um
76.8HRL 180um

Effective Radius
Piston Diameter
Actual Inertia
Actual Wheel Load
Rolling Radius

120.75 mm
1 x 57 mm
70.07 kg·m²
658.7 kg
326 mm

Test Request #:

Customer Ref:



Test Description:

SAE J2521

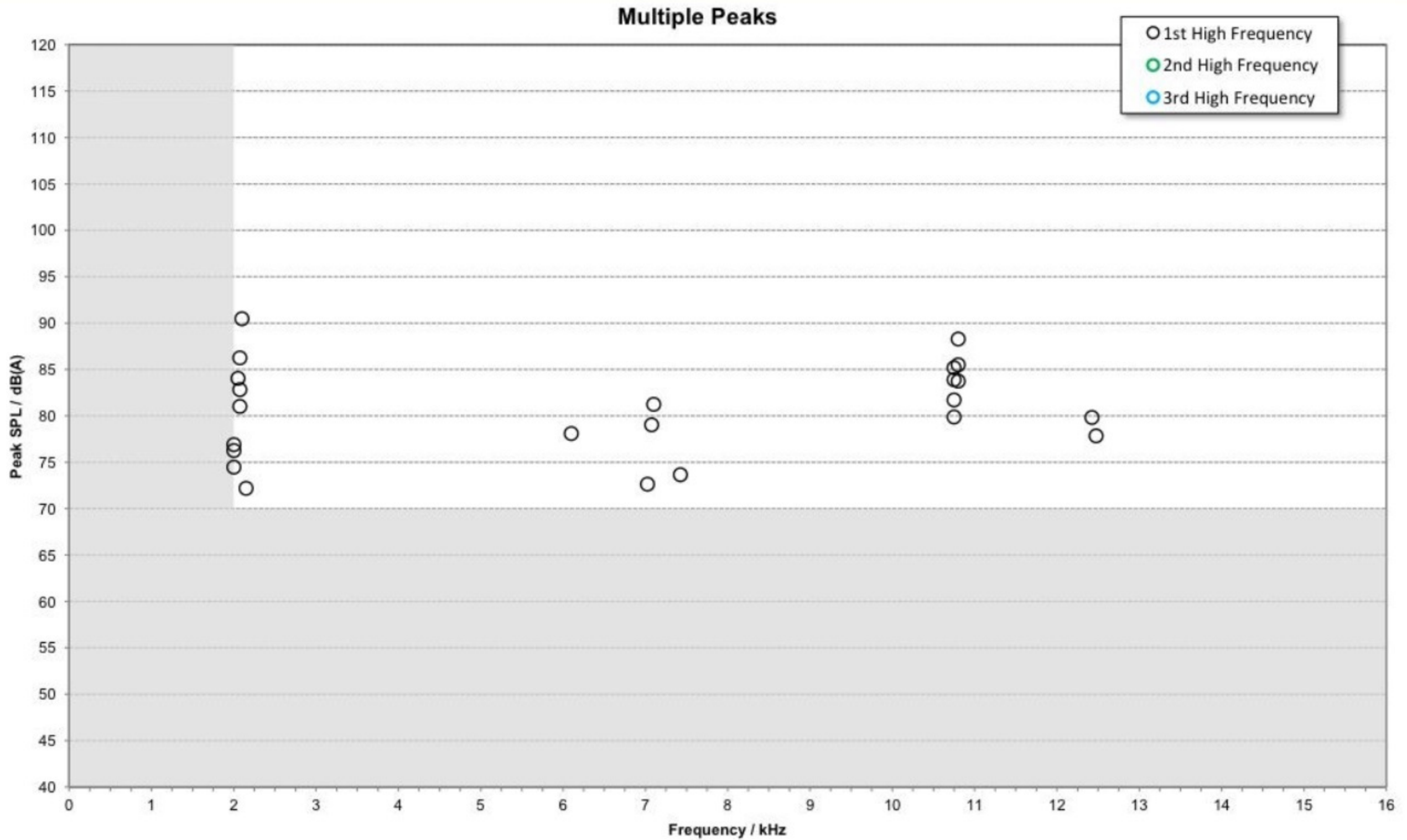
Rotor
Primary Lining
Secondary Lining

2001/278.7HB
56.8HRL 190um
76.8HRL 180um

Effective Radius	120.75 mm
Piston Diameter	1 x 57 mm
Actual Inertia	70.07 kg·m²
Actual Wheel Load	658.7 kg
Rolling Radius	326 mm

Test Request #:

Customer Ref:



Test Description:

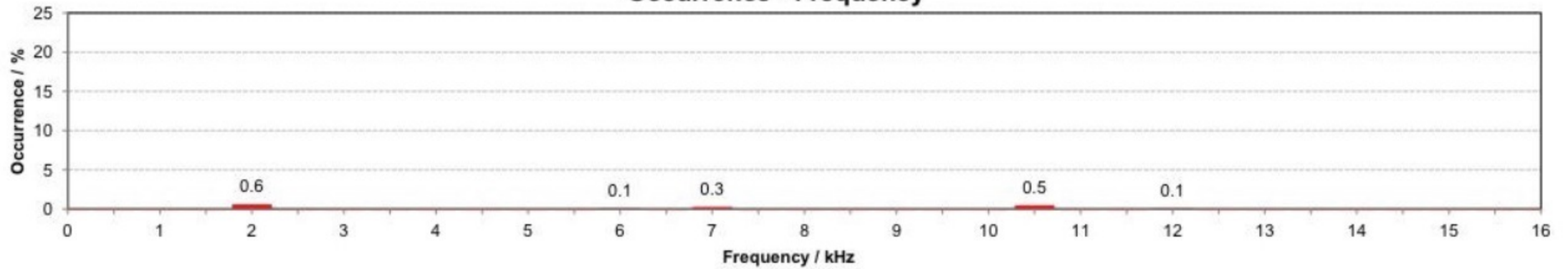
SAE J2521

Rotor
Primary Lining
Secondary Lining

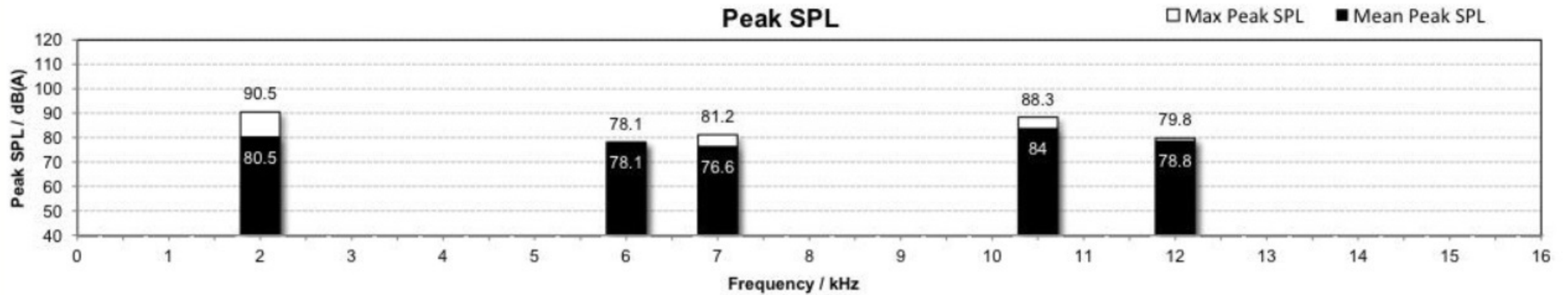
2001/278.7HB
56.8HRL 190um
76.8HRL 180um

Effective Radius	120.75 mm
Piston Diameter	1 x 57 mm
Actual Inertia	70.07 kg·m²
Actual Wheel Load	658.7 kg
Rolling Radius	326 mm

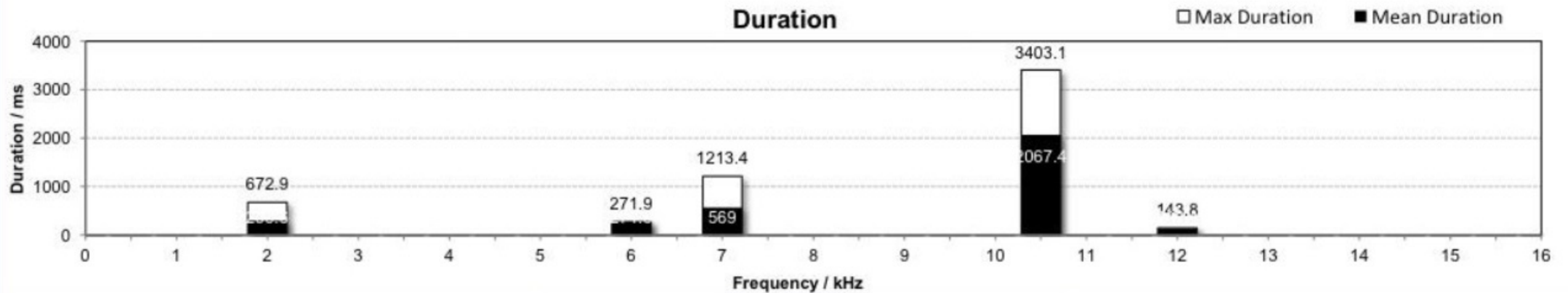
Occurrence - Frequency



Peak SPL



Duration



Test Description:

SAE J2521

Rotor
Primary Lining
Secondary Lining

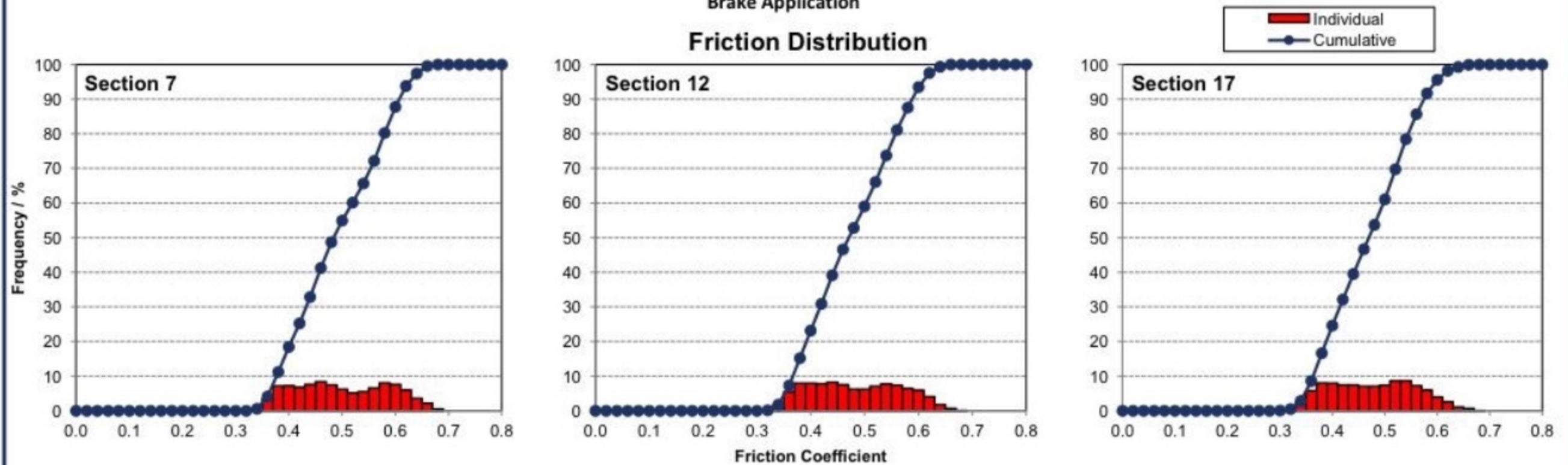
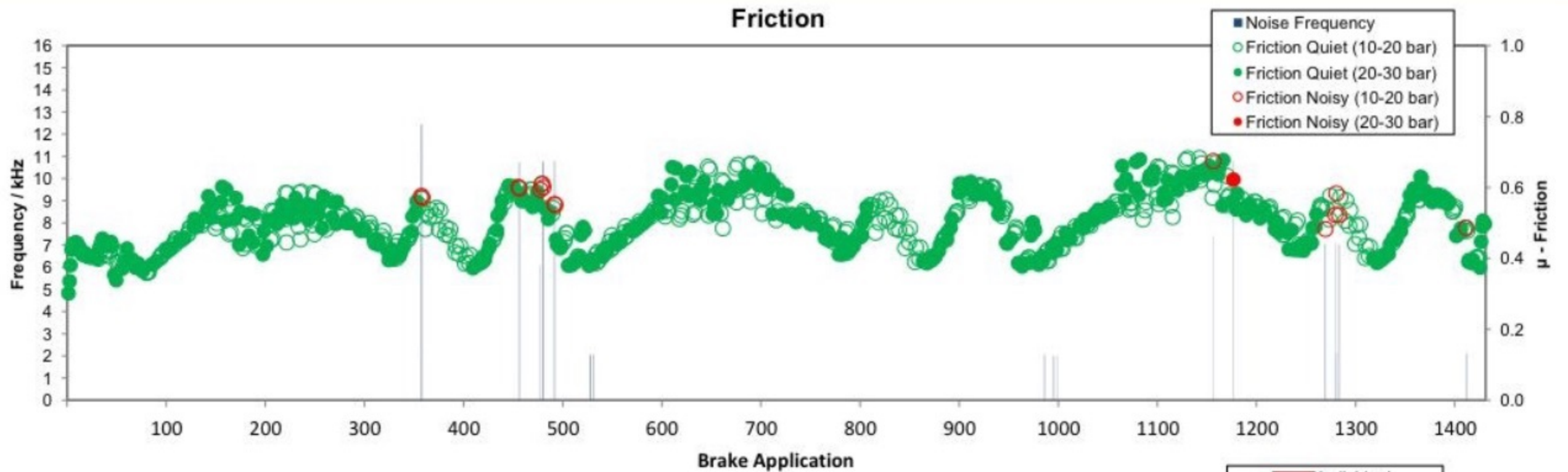
2001/278.7HB
56.8HRL 190um
76.8HRL 180um

Effective Radius
Piston Diameter
Actual Inertia
Actual Wheel Load
Rolling Radius

120.75 mm
1 x 57 mm
70.07 kg·m²
658.7 kg
326 mm

Test Request #:

Customer Ref:



Test Description:

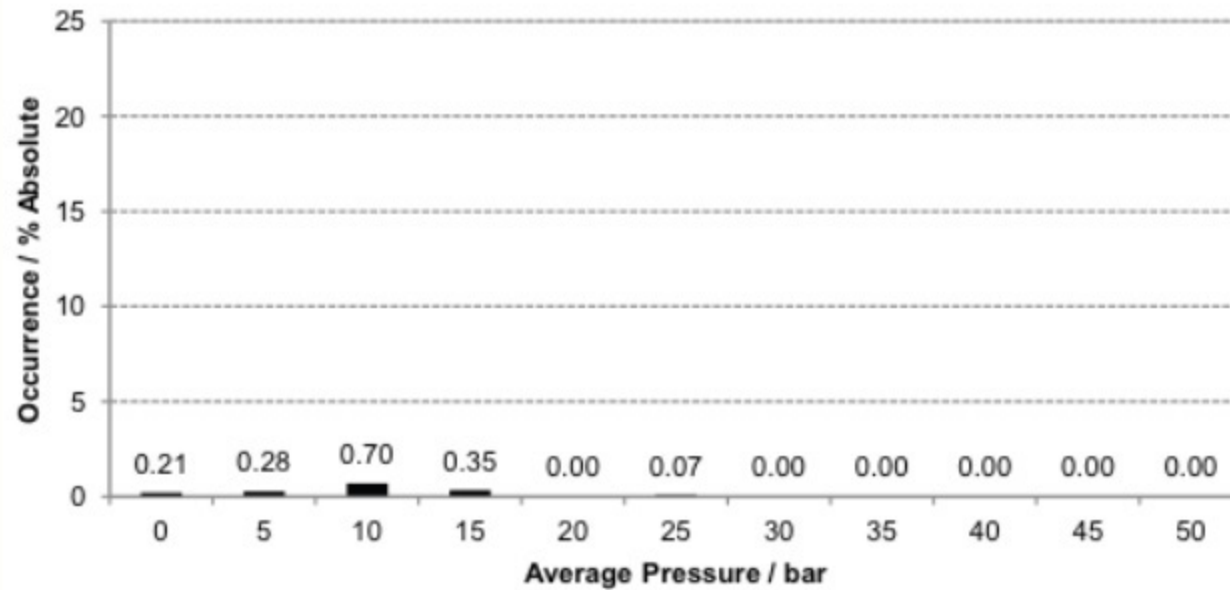
SAE J2521

Rotor
Primary Lining
Secondary Lining

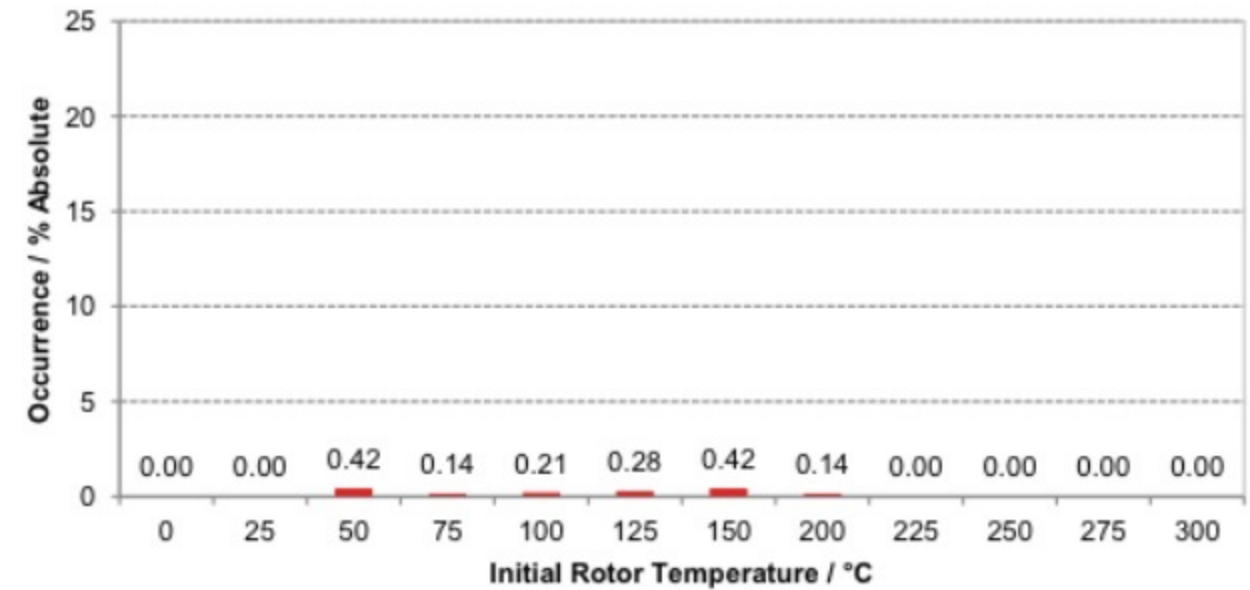
2001/278.7HB
56.8HRL 190um
76.8HRL 180um

Effective Radius	120.75 mm
Piston Diameter	1 x 57 mm
Actual Inertia	70.07 kg·m ²
Actual Wheel Load	658.7 kg
Rolling Radius	326 mm

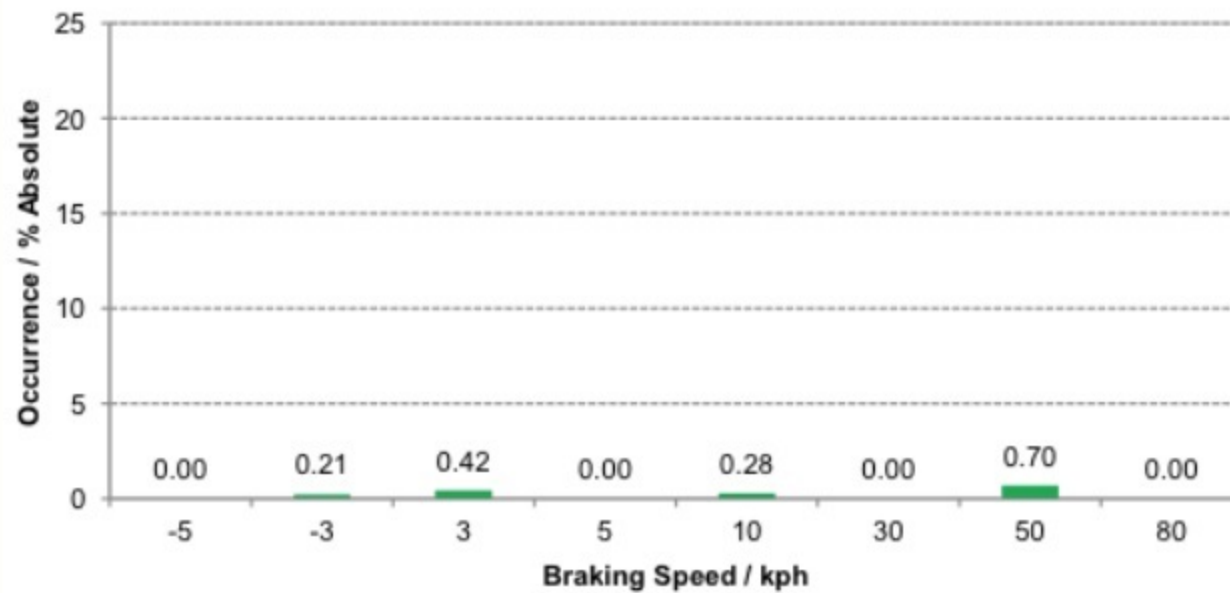
Absolute % of Noisy Stops vs Average Pressure



Absolute % of Noisy Stops vs Initial Rotor Temp



Absolute % of Noisy Stops vs Braking Speed



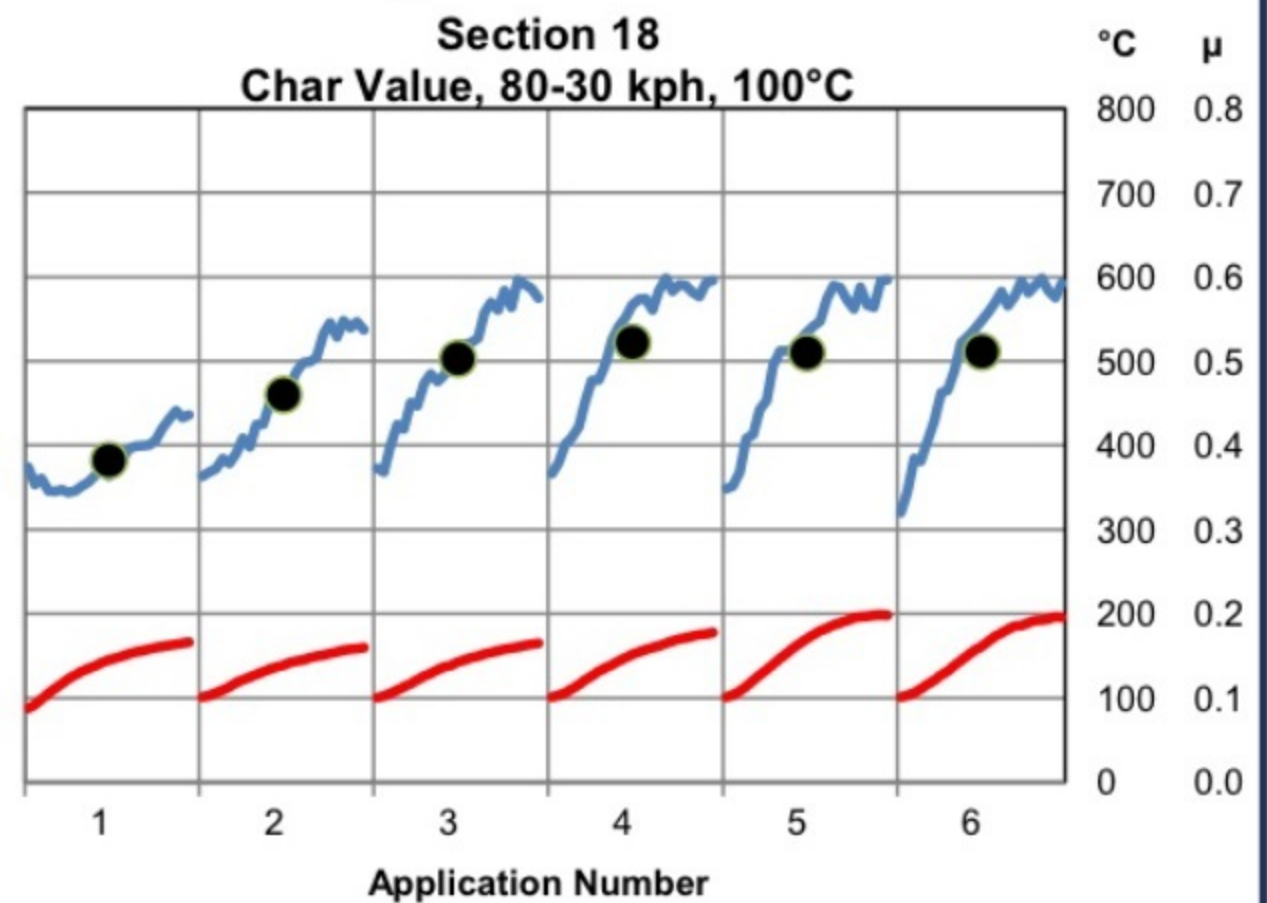
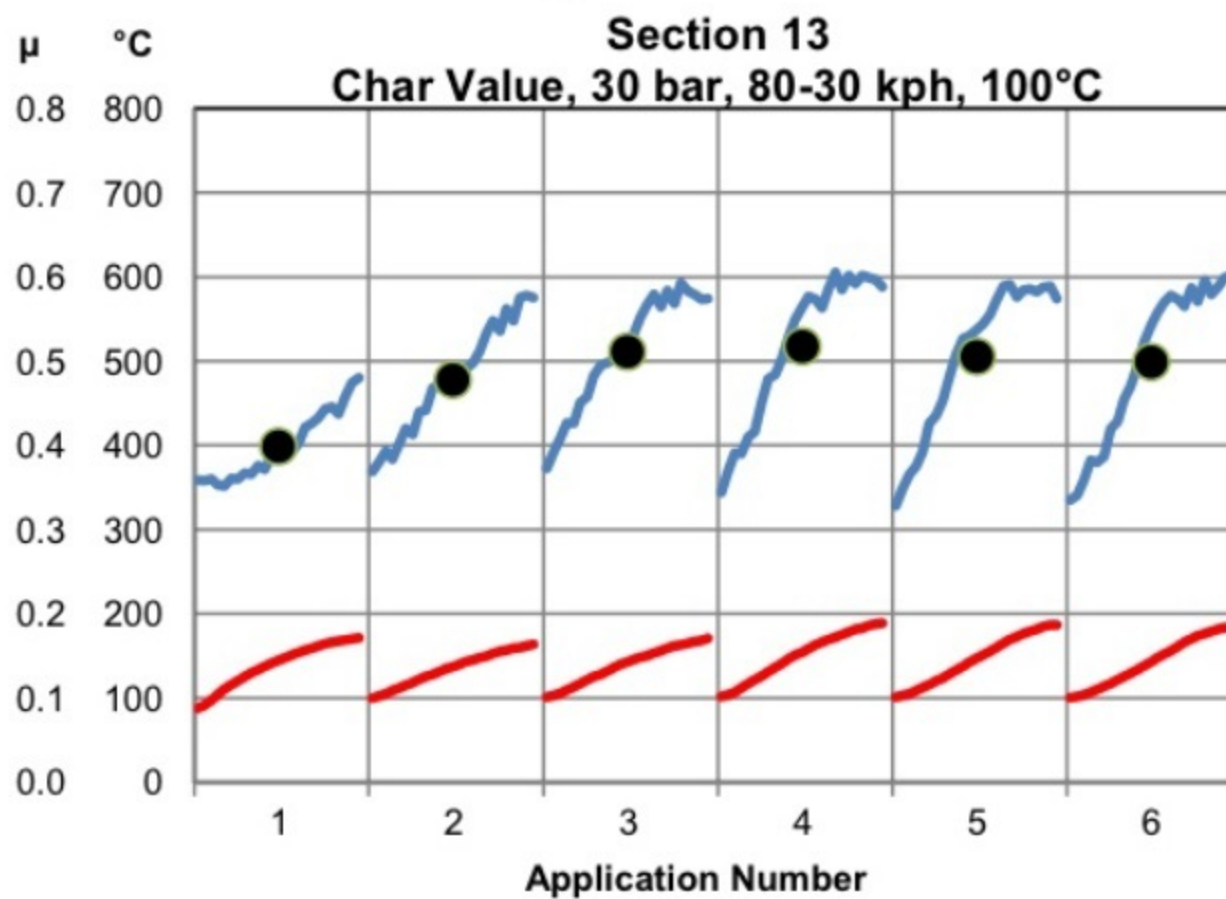
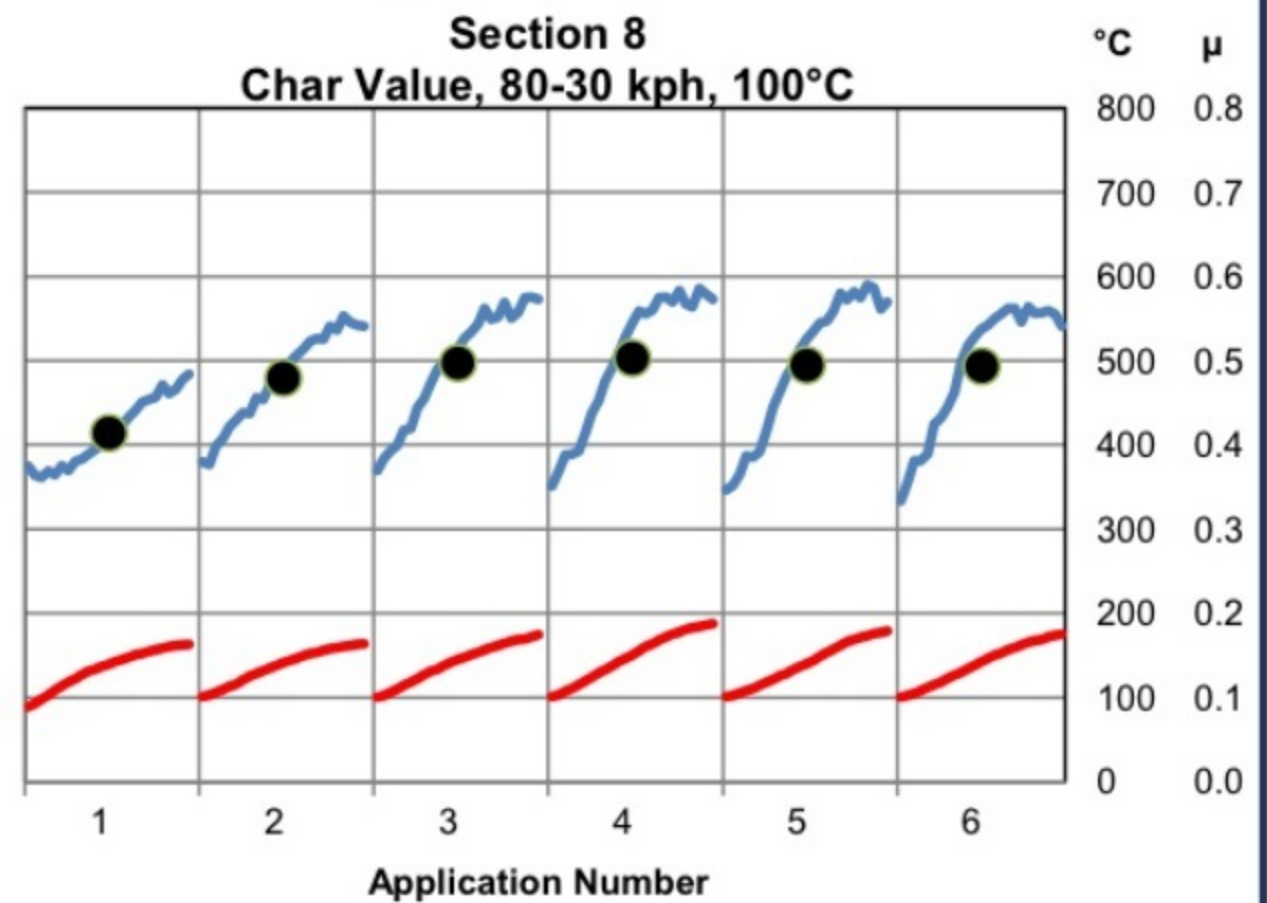
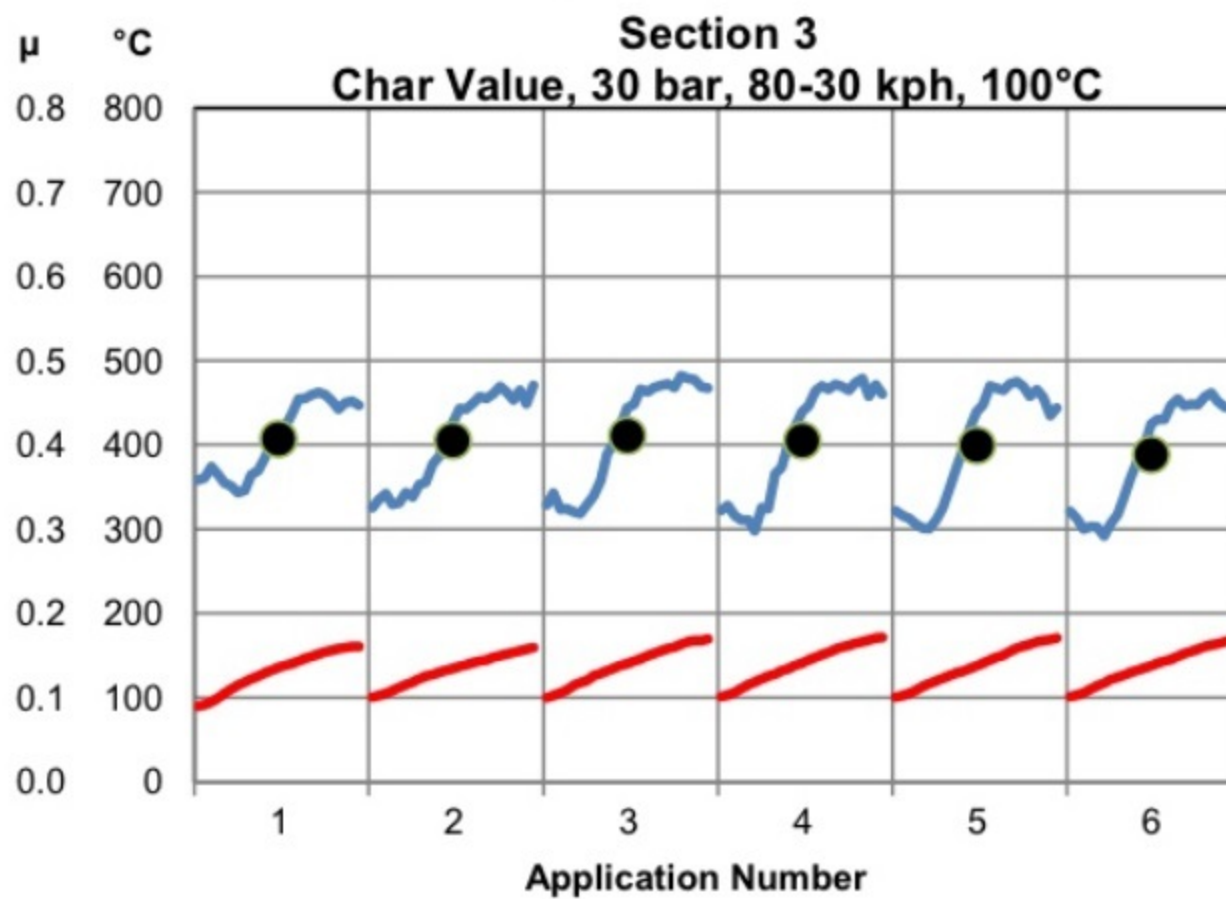
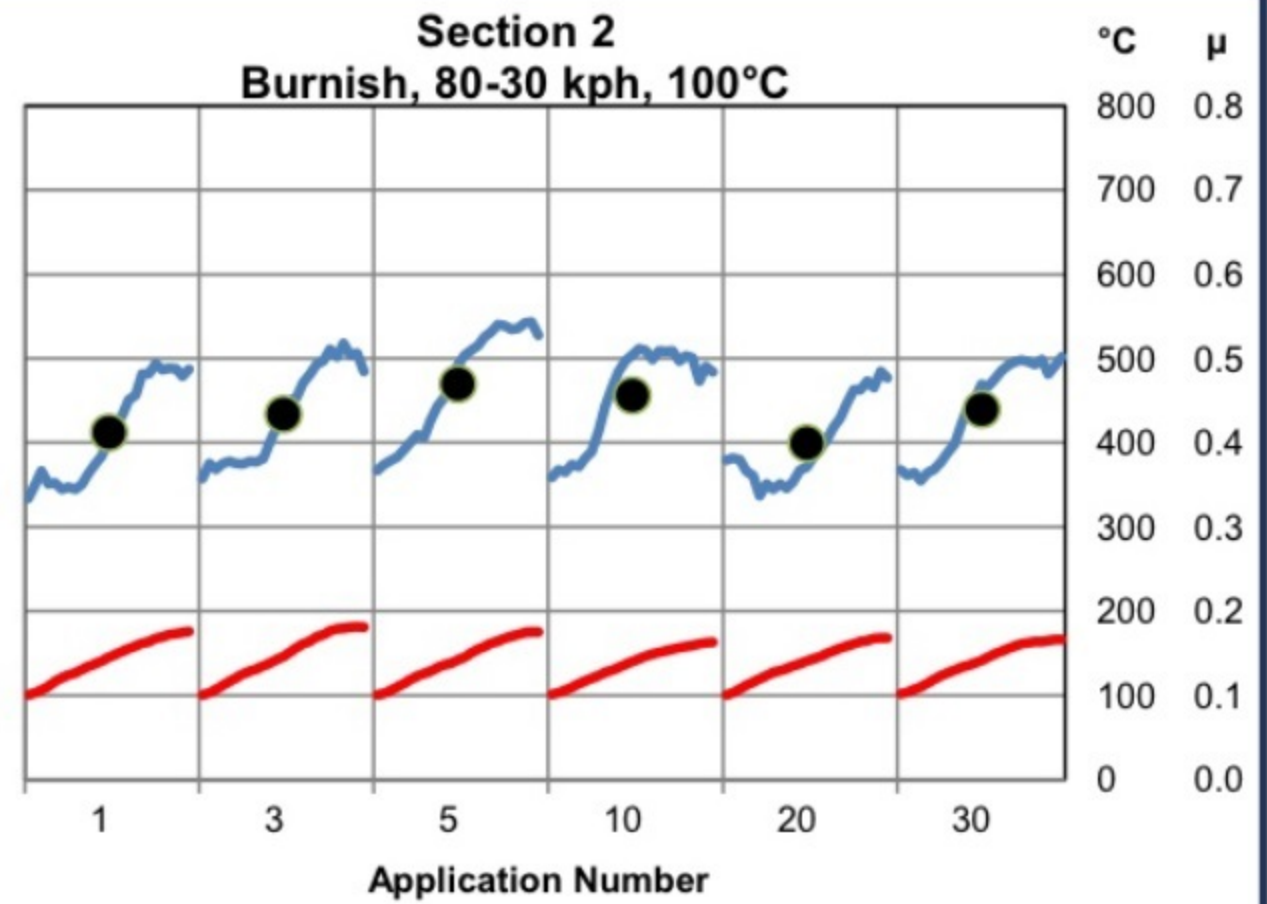
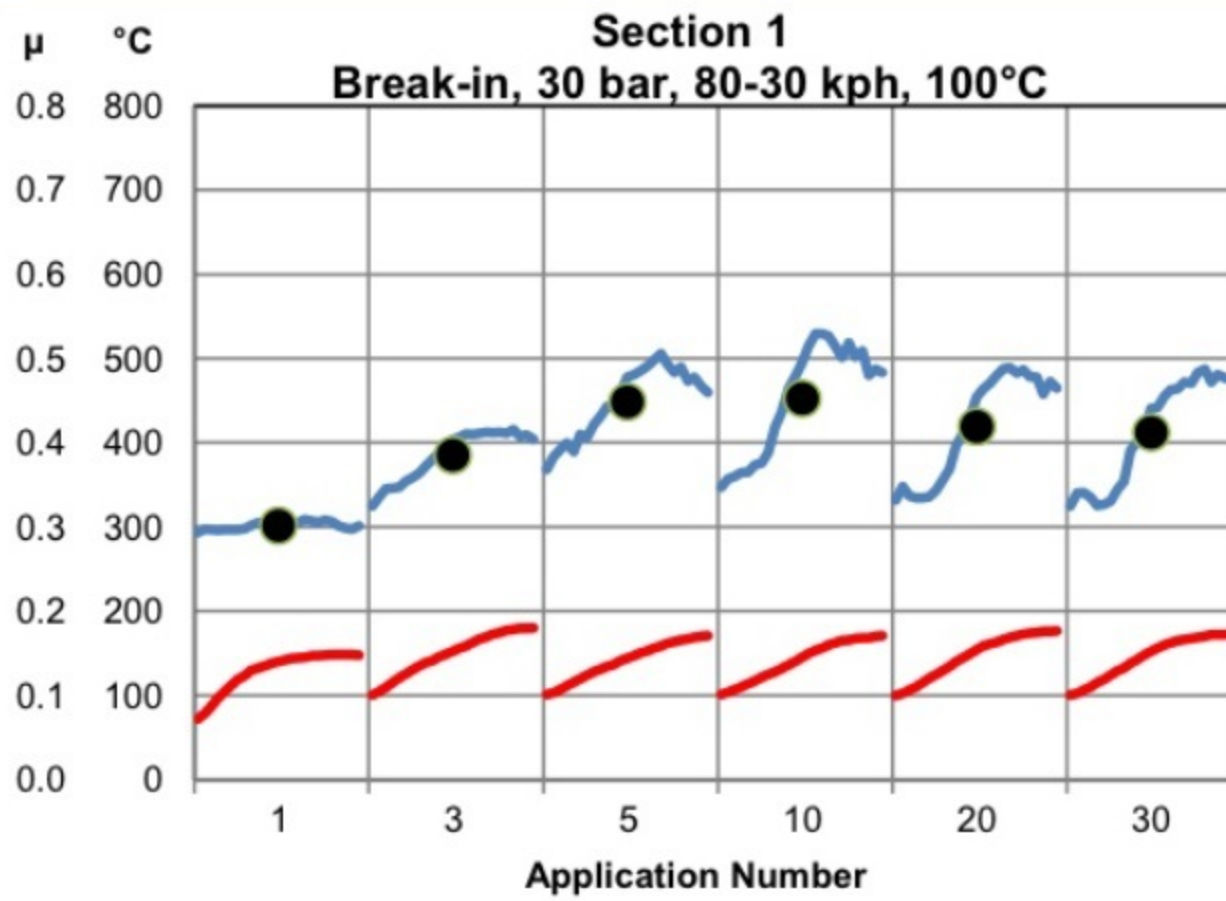
Test Description:

SAE J2521

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Primary Lining
Secondary Lining

2001/278.7HB
56.8HRL 190um
76.8HRL 180um

Effective Radius	120.75 mm
Piston Diameter	1 x 57 mm
Actual Inertia	70.07 kg·m²
Actual Wheel Load	658.7 kg
Rolling Radius	326 mm



— Brake Temperature — Effectiveness ● Average Effectiveness

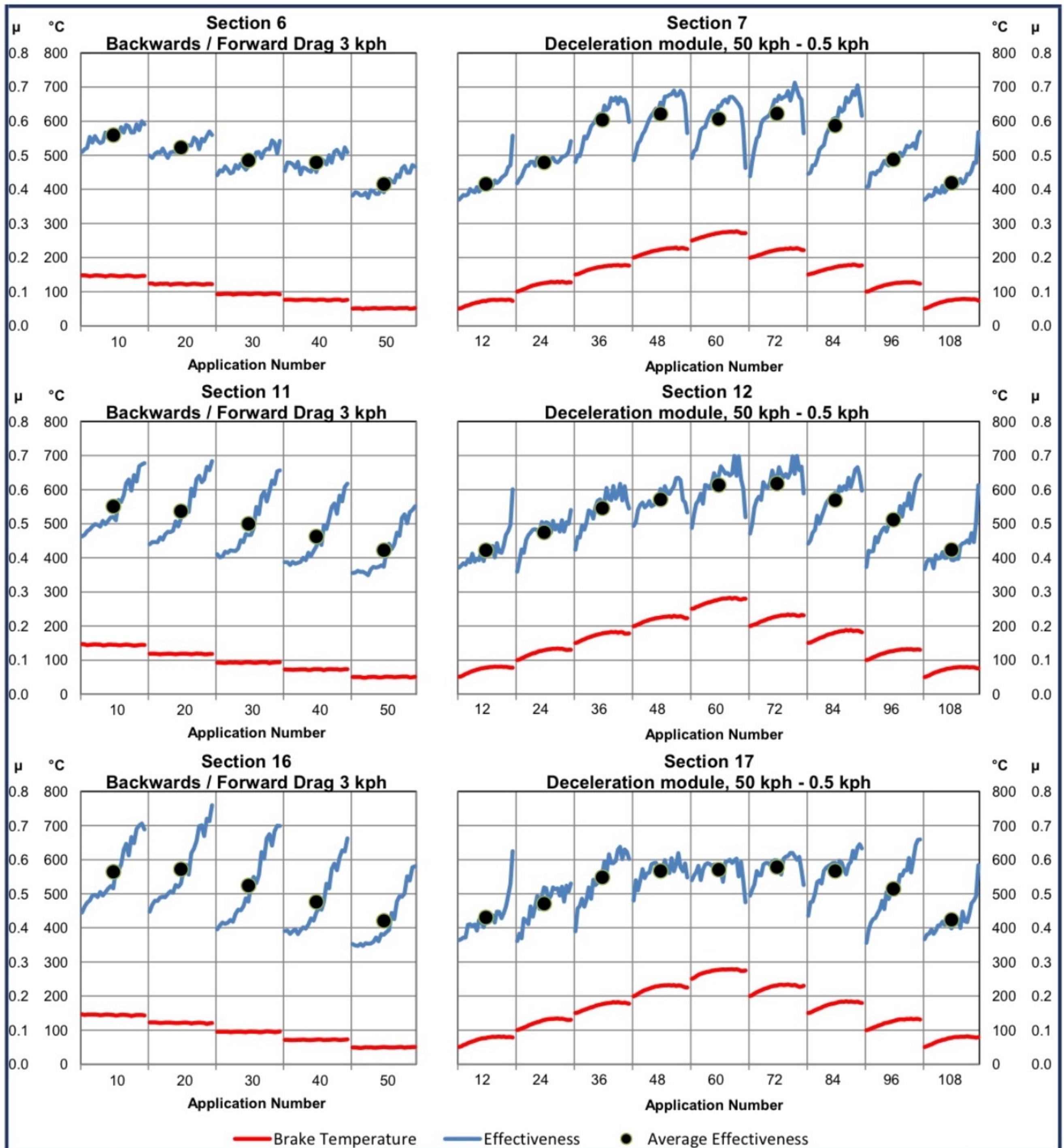
Test Description:

SAE J2521

Rotor
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Actual Wheel Load 658.7 kg
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Inboard Pad Thickness (mm)

	1	2	3	4	5	6	7	8	Average	Mass (gram)
Initial	15.599	15.612	15.588	15.538	15.705	15.724	15.751	15.782	15.66	369.4
Final	14.890	14.690	14.502	14.400	14.920	15.079	15.211	15.400	14.89	360.7
Loss	0.71	0.92	1.09	1.14	0.79	0.65	0.54	0.38	0.77	8.7
Tangential -43.5%				Radial 38.9%				Cup -5.6%		

Outboard Pad Thickness (mm)

	1	2	3	4	5	6	a	8	Average	Mass (gram)
Initial	15.388	15.620	15.720	15.740	15.860	15.830	15.711	15.559	15.68	375.3
Final	14.842	15.069	15.039	14.790	14.882	15.040	15.062	15.050	14.97	367.0
Loss	0.55	0.55	0.68	0.95	0.98	0.79	0.65	0.51	0.71	8.3
Tangential -45.1%				Radial -6.8%				Cup 10.7%		

Rotor Thickness (mm)

	Inner				Outer				Average	Mass (gram)
	1	2	3	4	1	2	3	4		
Initial	25.864	25.814	25.864	25.812	25.862	25.815	25.864	25.813	25.838	#VALUE!
Final	25.843	25.801	25.840	25.800	25.840	25.802	25.841	25.800	25.821	#VALUE!
Loss	0.020	0.013	0.024	0.012	0.022	0.013	0.023	0.013	0.017	#VALUE!

MicroFinish (μm)

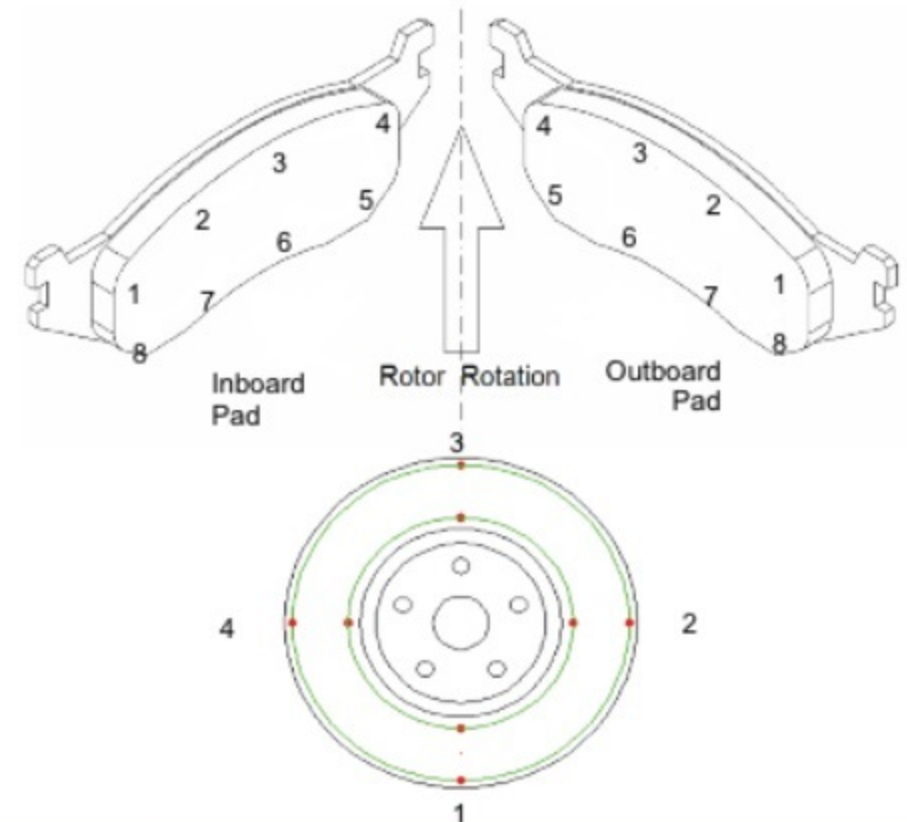
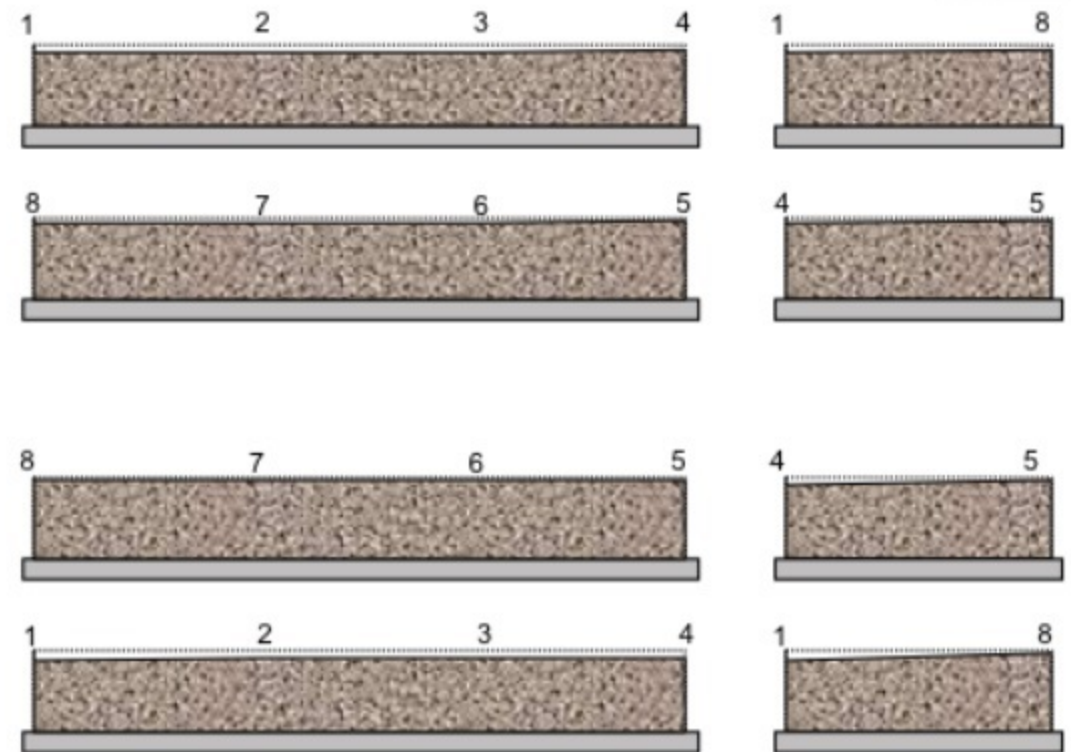
Initial	#####	#####	#####	#####	#####	#####	#####	#####
Final	#####	#####	#####	#####	#####	#####	#####	#####

*Tangential wear =Avg(1,8) - Avg(4,5)

*Radial wear =Avg(1,2,3,4) - Avg(5,6,7,8)

* reported as percentage of max

*Cup wear =Avg(1,8,4,5) - Avg(2,3,7,6)



Test Description

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Secondary Lining

0.00
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76.8HRL 180um

Effective Radius
Piston Diameter
Actual Inertia
Actual Wheel Load
Rolling Radius

120.75 mm
1 x 57 mm
70.07 kg·m²
658.7 kg
326 mm

Rotor

Inboard

Outboard



Inner Pad

Friction

Backing Plate



Outer Pad

Friction

Backing Plate



Test Description:

SAE J2521

Rotor

Primary Lining:

Secondary Lining:

56.8HRL 190um
76.8HRL 180um

Effective Radius

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Rolling Radius

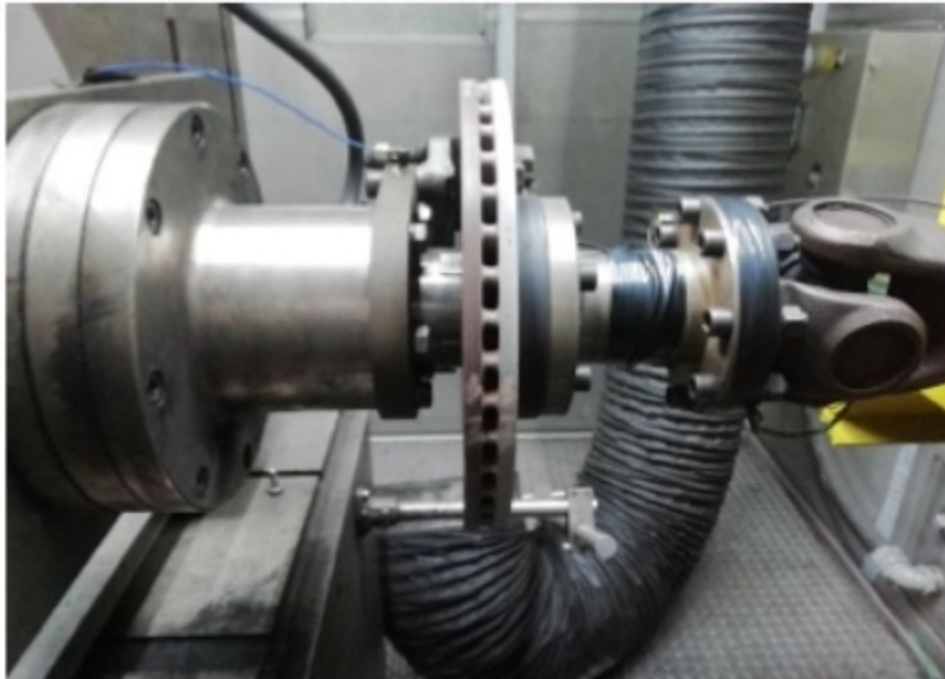
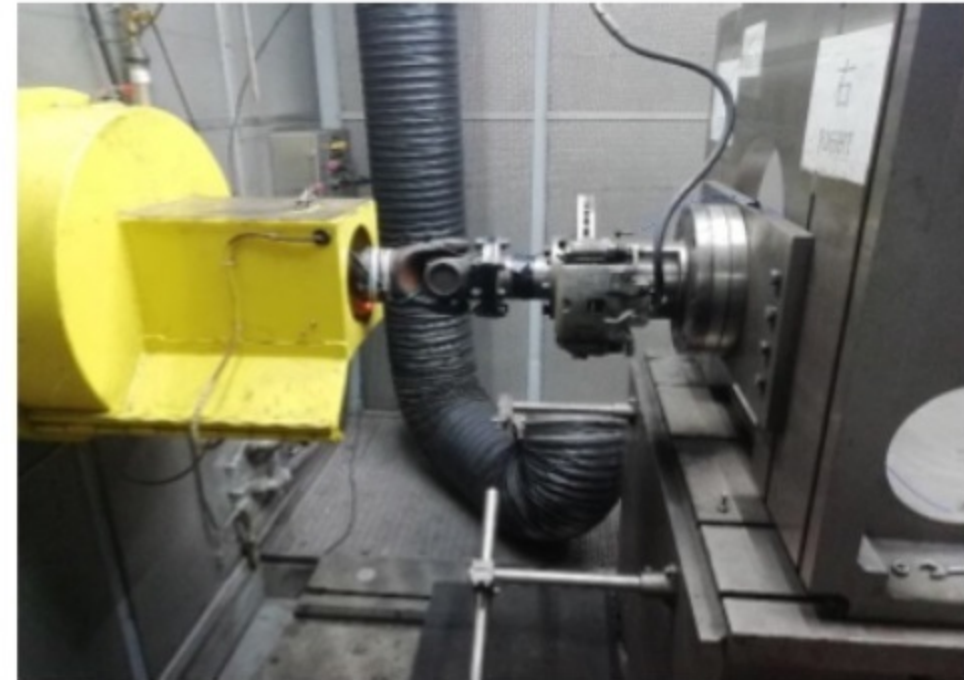
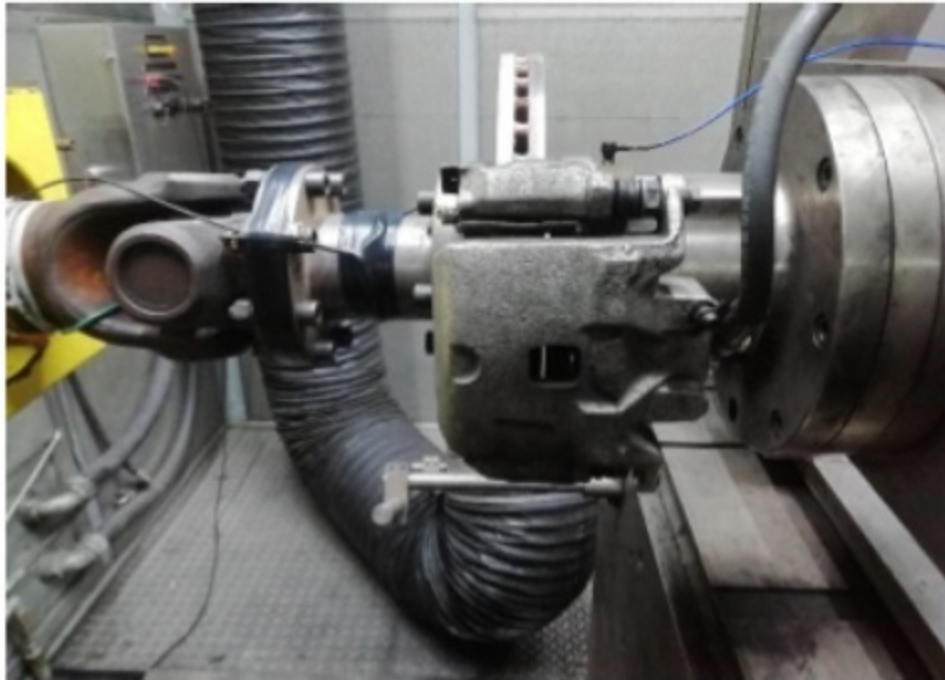
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