IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF TENNESSEE

RAFAEL SUAREZ, DAISY GONZALEZ, and RICHARD BYRD, individually and on behalf of all others similarly situated, **Plaintiffs,** **v.** **NISSAN NORTH AMERICA, INC.,** **Defendant.**	**CASE NO: 3:21-CV-00393**

I, Lee M. Bowron, hereby declare as follows:

1. I am an actuary with Kerper and Bowron LLC, and I make this declaration in support of Plaintiffs' Motion for Award of Attorneys' Fees, Expenses, and Class Representative Service Awards.

2. I have personal knowledge of the facts stated below and, if called upon, could and would competently testify thereto.

Background of Kerper and Bowron LLC

3. Kerper and Bowron LLC is an experienced consulting and actuarial firm that specializes in evaluating property and casualty exposures, including extended warranty, vehicle service contracts, GAP insurance, personal and commercial lines, and environmental reserving. Additionally, Kerper and Bowron LLC and our affiliates are industry experts in providing reinsurance accounting, advanced analytics for the

finance and insurance industry and statements of actuarial opinion. I, Lee Bowron have over 30 years' experience as an actuary, with the last 20 years as an independent consultant. Further details on my experience are located on the attached resume.

4. I, Lee Bowron, am an Associate of the CAS (ACAS) and my basic education includes credit for Exam 7 – Estimation of Policy Liabilities, Insurance Company Valuation, and Enterprise Risk Management. Knowledge relating to U.S. financial reporting and regulation was obtained through experience working as a credentialed actuary in the U.S. property/casualty insurance industry for over 20 years as well as obtaining relevant continuing education.

5. Kerper and Bowron LLC is being compensated for time spent by me and my team at standard billing rates and for out-of-pocket expenses at cost. Kerper and Bowron currently bills for our time at $425 per hour for a partner, $275 for a credentialed actuary and $175 for an analyst. Kerper and Bowron LLC's fees are not in any way contingent upon the outcome of this matter.

Conclusions from Analysis

6. Kerper and Bowron LLC was retained by Chimicles Schwartz Kriner & Donaldson-Smith LLP (Chimicles) to provide estimated retail valuation ranges for two types of relief provided in a proposed class action settlement in Suarez et al. v. Nissan North America, Inc. The first type of relief valuated was a 3-year extended warranty to the manufacturers original 36-month/36,000-mile warranty covering the Headlight Assembly. The other type of relief valuated was a 6-month window of opportunity to receive headlamp replacements for vehicles that are already outside of the 3-year extended warranty as of the date the settlement becomes effective. These two components are together referred to as the "Warranty Benefits."

7. The total value of the Warranty Benefits is determined by estimating the expected retail cost of a service contract providing the same benefits. From our valuations we have concluded that the benefit to the consumer for the combined two types of relief was $59,268,000. A high end of the range for this combined benefit value is $71,121,000 and a low end of the range is $47,414,000. This range for the expected benefit value was given to account for possible discrepancies in how often the problem occurred, repair costs, and other potential factors.
8. We declare the values above to be fair and accurate in estimating the combined benefit of the warranty extension and one time repair opportunity during the 6-month period.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: September 20, 2021

Respectfully submitted,

Lee M. Bowron

Lee M. Bowron

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Lee M. Bowron, ACAS, MAAA

Work Experience

Kerper and Bowron LLC, Birmingham, AL
Principal
March 2001 - Present

- Representative Expert Work - CHRISTOPHER GANN, et al v. NISSAN NORTH AMERICA, INC
- Founded consulting firm in March 2001. Clients include insurance companies, state governments, reinsurance companies, managing general agencies and financial consulting firms.
- Practice focuses on extended service contract, GAP, and captive market. Extended service contract projects include:
  - Statutory Loss Reserve Opinion for regional service contract company
  - Product development for a major auto service contract company
  - Evaluation of liabilities for a major risk retention group for auto service contract
  - Auto service contract rate filings for a major auto service contract company
  - Sarbanes-Oxley compliance with actuarial function for a major service contract company
  - Development of pro-forma and reinsurance captive accounting for a regional service contract company
  - Acquisition due diligence for purchase of a service contract writers.

J. Huell Briscoe and Associates, Chicago
Vice President
2013 - Present

General management and strategic planning for Chicago based reinsurance accounting firm

The General Auto Insurance, Nashville, TN
February 1999 – February 2001
Vice President and Chief Actuary
September 1993 – February 1999
Actuary

Broad responsibility for reserving and pricing for a book of private passenger, reinsurance, and captive operations. Responsible for managing the staff of both the product management and the actuarialdepartment.

- Responsible for developing data warehouse.
- Reported to the CEO and participated in strategic planning, reinsurance strategies and information system implementations.
- Supervised the pricing and product development of a new non-standard program in several states.
- Responsible for all actuarial activities of the company, including ratemaking, reserving and statistical reporting
- Assisted in acquisitions and negotiated loss portfolio transfer of reserve liabilities

Alfa Insurance Companies, Montgomery, AL

July 1990 – August 1993

Actuarial Analyst

- Ratemaking for second largest insurer in the state of Alabama

Education

1989 University of the South Sewanee, TN

BS , Mathematics

Professional activities

Associate, Casualty Actuarial Society

Member, American Academy of Actuaries

Approved Actuary for Captive Feasibility Studies, Alabama, Oklahoma, Tennessee, South Carolina and the District of Columbia

Speaker, CAS Annual Meeting Fall 2007

Speaker, Casualty Actuaries of the Southeast, Fall 1998, March 2001, Fall 2007

Speaker, Midwest Actuarial Forum Fall 2007

Speaker, Southwest Actuarial Forum Spring 2008

Speaker, Quebec Actuarial, Spring 2008

Panelist, Ratemaking Seminar (2001, 2002)

Panelist, Dynamic Financial Analysis Seminar (2001)

Panelist, Predictive Modeling Seminar (2008)

Former Member, Casualty Actuarial Exam Committee

Former Member, Ratemaking Committee

Former Chair, Open Source Software Committee

Member, Webinar Committee

Publications

"An Exposure Based Approach to Automobile Service contract Ratemaking and Reserving" , proposal accepted by Casualty Actuarial Society to be published in 2006.

"Ratemaking for Maximum Profitability", published in the 2001 Ratemaking Discussion Forum

"Zipf's Law", published in the January 2004 issue of *Contingencies*

"Staying in the Race", published in the December 2001 issue of *Best's Review.*

KerperBowron

Nissan 36 Month Extended Warranty
Suarez et al. v. Nissan North America, Inc
Analysis of Benefits

September 20, 2021

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Nissan 36 Month Warranty Extension
Suarez et al. v. Nissan North America, Inc
Analysis of Benefits

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Purpose of Report

Kerper and Bowron LLC was retained by Chimicles Schwartz Kriner & Donaldson-Smith LLP (Chimicles) to provide estimated retail valuation ranges for two types of relief provided in a proposed class action settlement in Suarez et al. v. Nissan North America, Inc. Our valuation addresses two of the three main components of the settlement: (1) a 3-year extended warranty or "Warranty Extension" to the manufacturers original 36-month/36,000-mile warranty covering the Headlight Assembly, and (2) a 6-month window of opportunity to receive a "One Time Repair" to replace the headlamps for vehicles that are already outside of the 3-year extended warranty as of the date the settlement becomes effective. Together, these two components are referred to as the "Warranty Benefits." The third and final main component of the settlement, cash reimbursements for past repairs, is not addressed in this valuation.

The class vehicles include all Nissan Altima's for the 2013 to 2018 Model Years manufactured with halogen headlamps. This excludes the following Altima's as they were manufactured with Xenon or LED Headlamps:

- 2013-2018 Model Years with 3.5L SL Trim
- 2017 Model Years with 3.5L SR Trim
- 2016-2017 Model Years with 2.5L SR Trim with LED Appearance package
- 2016-2018 Model Years with 2.5L SR Trim with Tech package
- 2017 Model Year with 2.5L SR Trim Midnight Edition

The data and conclusions in this report are provided to support the proposed settlement and may not be appropriate for any other purpose.

Kerper and Bowron LLC is available to answer questions regarding this report or any other aspect of our review.

Executive Summary

The total value of the Warranty Benefits is determined by estimating the expected retail cost of a service contract providing the same benefits. A summary of the expected valuation ranges for the Warranty Benefits is given in the following table:

Table 1: Total Expected Warranty Benefits:

	Vehicles	Expected		
	in	Total	Class Benefit	Class Benefit
Model	Class	Benefit (000s)	Low End of Range (000s)	High End of Range (000s)
Nissan Altima	1,322,881	59,268	47,414	71,121

Scope and Limitations

Data Reliance

In performing this analysis, we relied upon data and other information provided to us by Chimicles and Nissan North America (Nissan), as well as industry sources of data. We did not audit or verify this data and information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency. We did not find material defects in the data.

If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Significant Digits

Numbers in the exhibits are generally shown to more significant digits than their accuracy suggests. This has been done to simplify review of the calculations.

Interpretation of Conclusions

Some of the assumptions, methods, and conclusions in this report are of a significantly technical nature. The recipient should understand the assumptions, methodology and possible variability in results that are inherent in our conclusions. We are available to discuss our assumptions, methodology and conclusions in greater detail.

Uncertainty

Due to the uncertainties inherent in the estimation of future costs, it cannot be guaranteed that the estimates set forth in the report will not prove to be inadequate or excessive and actual costs may vary significantly from our estimates.

Unanticipated Changes

Unanticipated changes in factors such as judicial decisions, legislation actions, claim consciousness, claim management, claim settlement practices, and economic conditions may significantly alter the conclusions.

Best Estimate

These caveats and limitations notwithstanding, the conclusions represent our best estimate of the total expected class benefit and are made within a reasonable degree of actuarial probability or certainty.

Number of Vehicles Affected

A total of approximately 1,434,954 Class vehicles were sold. Of these, an estimated 1,336,243 vehicles are still on the road based on data from Polk/IHS Markit. Considering scrapped cars that will no longer be in the population by the notice date, we estimate that the class will ultimately include 1,322,881 vehicles. We will use this number for our calculations.

The settlement documents indicate that the warranty will begin after the notice date. However, claims occurring before the notice date will be reimbursed, subject to some constraints. We have excluded reimbursement claims from our estimates. Our estimate for the Warranty Extension benefit is based on all Warranty Benefits claims that are projected to occur. The Effective Date of the settlement is estimated at February 1, 2022. Exposures before this date would be subject to reimbursement, and therefore not included in our valuation estimate.

Data Analyzed

The following data was provided by Chimicles:

- The settlement agreement for the class action.
- Nissan data reflecting the number of Altima class vehicles sold and estimated remaining in the market by model year.
- Claims data for vehicles making headlight claims under warranty, along with certain vehicles that received a “good will” replacement. This data included the mileage and retail sale date for each claim.
- Class member intake data from Chimicles with personal identifying information removed.
- Consumer survey data from Chimicles.

Expected Loss Calculation

In order to calculate the expected loss component of the Warranty Benefits, the calculation was done separately for the One Time Repair and the Warranty Extension. The One Time Repair calculation includes any claims that are expected to be redeemed as part of the settlement offer whether they occurred during the extension or not. The Warranty Extension component is limited to claims which occur after the class settlement.

The estimate of expected losses is further discussed below. The general formula utilized is:

For the Expected Warranty Extension cost:
$(Number\ of\ MY\ 2016\ to\ 2018\ vehicles\ in\ extended\ warranty\ period\ (\ or\ Exposures) \times MY\ 2016\ to\ 2018\ Frequency\ of\ Claims\ \ in\ extended\ warranty\ period\ \times Severity\ of\ Claims\ \ in\ extended\ warranty\ period)$

For the Expected One Time Repair Cost:
$(Number\ of\ MY\ 2013\ to\ 2018\ vehicles\ eligible\ for\ One\ Time\ Repair\ (\ or\ Exposures) \times MY\ 2013\ to\ 2018\ Frequency\ of\ Claims\ for\ vehicles\ eligible\ for\ One\ Time\ Repair \times Severity\ of\ Claims\ at\ estimated\ One\ Time\ Repair\ date)$

Development of Exposures

Chimicles provided the number of eligible vehicles by Model Year. Using this data, we estimated the quarter and year that each vehicle was sold.

For each model year, the number of vehicles was divided by 12 to form monthly exposures. These numbers were then taken in conjunction with a typical mileage curve in order to determine if and when a car would mileage out of its original warranty. As a mileage out of the original warranty would expire the warranty, the car would then enter the Warranty Extension. As no mileage limit was given in the settlement agreement, there were no mileage caps for class vehicles on the Warranty Extension. Thus, cars could not mileage out of the Warranty Extension. Therefore, expiration of the Warranty Extension only occurred when the time period of 36 months had elapsed. Using this information, we adjusted exposures for the extension according to the time elapsed since a car's warranty began, taken in conjunction with the mileage curve.

If a car had expired its extended warranty period of 36 months prior to the effective date of February 1st, 2022, then it was considered under the One Time Repair costs.

Frequency of Problem

The frequency of the problem is difficult to calculate. Nissan provided detailed claims data for headlight assembly repairs. Because the defect arises as result of prolonged exposure to heat and humidity, the majority of claims are expected to occur after 3-years, or the manufacturer's warranty have passed. The survey data commissioned by class counsel is indicative of problems being noticed later than the initial 3 years.

In order to form an estimate of the frequency of the problem, we compared the frequencies of the survey data inside the manufacturer's warranty with survey data outside the manufacturer's warranty. We estimated the age of the vehicle on the survey and estimated about 85% of claims occur after the manufacturer's warranty. We adjusted the warranty data from Nissan for the higher expected frequencies outside the claim.

Ultimately, we project that 0.031% will have a claim each month or 0.4% a year (0.031 x 12).

Table 2: Trend, Severity and Monthly Incidence Frequencies for One-Time Repair

Freq MY 2013-2015	0.0308%
Freq MY 2016-2018	0.0308%
Severity	1,000
Trend	1.0%

These frequencies result in the following incidence rates:

Table 3: Expected Claims (One Time Repair)

		Incidence	Estimated
	Expected	Rate % as of	Repair
	Claims	Feburary 1st, 2022	Claims
MY 2013-2015	17,088	2.06%	14,525
MY 2016-2018	5,237	1.06%	4,452
Total	**22,326**		**18,977**

The frequencies developed for the 2013-2018 model year vehicles for the One Time Repairs were also applied to the 2016-2018 model year vehicles for the Warranty Extension. The estimated repair claims are an estimate of the claims that will be repaired during the six month window. See below for further details on this calculation.

Severity of Repair

Severity estimates are included on Exhibit III. Since severity is subject to increases over time, we selected a current severity and an inflationary estimate and adjusted the expected claims cost over time. In general, severities were stable and inflationary measures were not that divergent from recent inflation patterns.

Based on data provided by Chimicles, we estimated the current dealership cost to replace the Original Equipment Manufacturer (OEM) Headlight Assembly Pair to be about $1,000.

Chimicles survey data from a range of replacement dates reflected an average dealership cost of around $960 per pair, although some of this cost data is several years old.

Chimicles survey data was taken in conjunction with research on OEM Headlight Assembly costs across several makes and models. The data found is listed below in the table and can be found at:
https://www.iihs.org/news/detail/minor-crashes-can-result-in-big-headlight-repair-bills

Table 4: Headlight Assembly Cost

Make/Model	OEM Headlight Assembly
Subaru Legacy	$526
Subaru Outback	$526
Chevrolet Volt	$540
Kia Niro hybrid	$792
Mazda CX-5	$804
Subaru Crosstrek	$860
Kia Rio	$883
Hyundai Kona	$910
Subaru Impreza	$927
Subaru WRX	$927
Kia Soul	$1,027
Mazda CX-5	$1,085
Honda Ridgeline	$1,134
Kia Sedona	$1,167
Hyundai Santa Fe Sport	$1,203
Lexus NX	$1,213
Kia Optima	$1,262
Hyundai Elantra	$1,348
Hyundai Sonata	$1,365
Lexus NX	$1,461
Alfa Romeo Giulia	$1,480
Lexus RC	$1,545
Mercedes-Benz GLC	$1,560
Genesis G80	$1,597
Hyundai Santa Fe	$1,642
Genesis G90	$1,658
Lincoln Continental	$1,667

Kia Forte	$1,788
Toyota Camry	$1,810
Mercedes-Benz E-Class	$2,580
Mercedes-Benz GLE-Class	$2,820
BMW X3	$2,840
BMW 5 series	$3,242
Average:	$1,400

The average across many different makes and models being about $1,400 for the OEM Headlight assembly, we viewed the estimated cost of repair given at $1,000 or more to be reasonable.

Thus, we proceeded with the reasonable estimate for severity of $1,000. Using this severity, we estimated the cost of the One Time Repairs and Warranty Extension claims.

Development of Expected Loss for One Time Repair

On Exhibit III.c, the expected losses were developed using the selected frequency, severity, and exposures to form the expected losses. The exposures are estimated outside the manufacturer's warranty. We estimated that 25% of consumers will have self-repaired this issue before the notice date. This assumption is judgmental. Claims which have been previously repaired may be subject to reimbursement benefits; however, these clams are not included in the settlement estimate.

Development of Expected Service Contract Cost

The value to the consumer is estimated to be based on a retail service contract which provides the same benefit as the settlement.

The retail price of a service contract is typically made up of 3 components: a loss fund, administrator cost, and marketing fee. The loss fund is generally the expected amount of losses plus a margin for premium taxes and profit. The administrator will receive a fee for administering the product, such as issuing the service contract, adjudicating claims and processing transfer and other transactions. The marketer will receive a fee for selling the product.

Adding the insurance, administrator, and marketer pieces, we get a range of suggested retail prices for this warranty.

Table 5: Development of Expected Costs Including Relevant Expenses

Vehicles in Class	1,322,881
Expected Costs (000s)	19,567
Insurance Costs (000s)	3,453
Administrative Cost per Warranty	5.00
Administrative Costs (000s)	6,614
Retail Markup (000s)	29,634
Retail Price Point Estimate (000s)	59,268
Retail Price Cost per Warranty	44.80
Retail Price Low End of Range (000s)	47,414
Retail Price High End of Range (000s)	71,121

Further, any expirations of the 36-month Warranty Extension during the 6-month window period were included in the One Time Repair costs as they were not deemed material.

Insurance Expenses

Insurance expenses are relatively small and reflect premium tax, expenses and a profit margin for the cost of capital. The amount selected was 15%. This would imply an expected loss ratio (claims divided by premium) of 85%.[1]

Administrative Costs

We estimated administrative costs to be $5.00 on this program which is consistent with other types of programs for small service contracts.

Marketing Fee

Markups on these programs by auto dealers or service contract writers vary widely but are usually around 100% (with direct marketed programs having, in general, even higher markups).[2] Often the markups are flat and since the service contract cost is low, the

[1] See SERFF Tracking #: VRGS-128990060 which is a Missouri filing for a service contract with a 75.4% permissible loss ratio and SERFF Tracking #: MACI-129040192 which is an Oklahoma filing for a service contract with an 81.0% permissible loss ratio

[2] See https://www.edmunds.com/car-buying/secrets-of-an-ace-negotiator-part-ii.html and https://www.motor1.com/reviews/517673/how-much-money-do-dealerships-make-on-warranties/ for comments on typical dealer markup.

percentage markup would likely be higher in the marketplace, but we have selected a 100% markup on loss cost and administrator cost.

Range of Results

As this is a point estimate and the actual results are subject to deviation, we formed a range of reasonable estimates. This does not mean that the actual results will be within this range, rather than the expected value of the benefits of the program can be reasonably ascertained within this range.

For the expected benefits, we created a range of +/-20%. This would be almost completely due to different loss assumptions since the other elements, such as markup, insurance costs and administrative fees are typically a function of the expected claims.

Suarez et al. v. Nissan North America, Inc
EX I - Summary

	(1)	(2)	(3)	(4)
Model	Vehicles in Class	Expected Total Benefit (000s)	Class Benefit Low End of Range (000s)	Class Benefit High End of Range (000s)
Nissan Altima	1,322,881	59,268	47,414	71,121

(2) (7) from EX II - Development of Expected Warranty Benefits
(3) (9) from EX II - Development of Expected Warranty Benefits
(4) (10) from EX II - Development of Expected Warranty Benefits

Suarez et al. v. Nissan North America, Inc
EX II - Development of Expected Warranty Benefits

(1)	Vehicles in Class	1,322,881
(2)	Expected Costs (000s)	19,567
(3)	Insurance Costs (000s)	3,453
(4)	Administrative Cost per Warranty	5.00
(5)	Administrative Costs (000s)	6,614
(6)	Retail Markup (000s)	29,634
(7)	Retail Price Point Estimate (000s)	59,268
(8)	Retail Price Cost per Warranty	44.80
(9)	Retail Price Low End of Range (000s)	47,414
(10)	Retail Price High End of Range (000s)	71,121

(2)	EX III
(3)	[(2) ÷ .85] - (2)
(4)	Judgemental
(5)	(4) x (1) ÷ 1000
(6)	(2) + (3) + (5)
(7)	(6) x 2
(8)	(7) ÷ (1) x 1000
(9)	(7) x .8
(10)	(7) x 1.2

Suarez et al. v. Nissan North America, Inc
EX III - Development of Loss Estimate (Warranty Extension)

	(1)	(2)	(3)	(4)
	Settlement Exposures Extd War MY 2016-2018	Expected Claims Extd War Headlight	Expected Severity Extd War Headlight	Expected Losses (000s) Extd War Headlight
202208	192,173	59	1,022	61
202209	178,526	55	1,023	56
202210	165,579	51	1,024	52
202211	152,952	47	1,024	48
202212	140,698	43	1,025	44
202301	128,917	40	1,026	41
202302	117,575	36	1,027	37
202303	106,726	33	1,028	34
202304	96,459	30	1,029	31
202305	86,518	27	1,030	27
202306	77,013	24	1,030	24
202307	67,930	21	1,031	22
202308	59,383	18	1,032	19
202309	51,127	16	1,033	16
202310	45,111	14	1,034	14
202311	39,427	12	1,035	13
202312	34,094	11	1,036	11
202401	29,164	9	1,036	9
202402	24,618	8	1,037	8
202403	20,474	6	1,038	7
202404	16,782	5	1,039	5
202405	13,020	4	1,040	4
202406	9,625	3	1,041	3
202407	6,132	2	1,042	2
202408	3,066	1	1,043	1
Total	1,863,090	**574**		**590**

Freq MY 2016-8	0.031%
Severity	1,000
Trend	1.0%

(1) 2016-2018 MY cars in warranty extension
(2) (1) x Headlight Frequency MY 2016-8
(3) Headlight Severity x [1 + [Headlight Trend ÷ 12]]^[Number of Months from 202106]
(4) ((2) x (3) ÷ 1000)

Suarez et al. v. Nissan North America, Inc
EX III - Development of Loss Estimate (One Time Repair)

	(1)	(2)	(3)
	Expected Claims	Incidence Rate as of Feburary 1st, 2022	Estimated Repair Claims
MY 2013-2015	17,088	2.06%	14,525
MY 2016-2018	5,237	1.06%	4,452
Total	**22,326**		**18,977**

Freq MY 2013-2015	0.0308%
Freq MY 2016-2018	0.0308%
Severity	1,000
Trend	1.0%

(1) EX III.C
(2) (1) ÷ (2) from EX V - Population Remaining
(3) (1) x .85

Suarez et al. v. Nissan North America, Inc
EX III - Development of Loss Estimate (One Time Repair)

	(1)	(2)	(3)	(4)	(5)
	Nissan Altima				
	Settlement Exposures Repair MY 2013-2015	Settlement Exposures Repair MY 2016-2018	Expected Claims Repair Headlight	Expected Severity Repair Headlight	Pending Losses(000s) Repair To Be Reported
Total	55,457,680	16,996,996	22,326	1,000	22,326

(1) MY 2013-5 exposures by month summed to Feburary 1st, 2022
(2) MY 2016-8 exposures by month summed to Feburary 1st, 2022
(3) ((1) x Headlight Frequency MY 2013-2015) + ((3) x Headlight Frequency MY 2016-2018)
(4) Assumed to be $1,000
(5) ((3) x (4) ÷ 1000)

Suarez et al. v. Nissan North America, Inc
EX IV - Headlight Claim Frequency

In Warranty Claims	1,751
In Warranty Exposures	37,884,338
In Warranty Frequency	0.005%
Out of Warranty Frequency*	0.031%

* = In Warranty Frequency x (1/(1-Ultimate Percentage))

Survey Data

	Model Year					
Age (years)	2013	2014	2015	2016	2017	2018
1	4	5	6		3	1
2	8	4	6	1		
3	16	9	16	2		1
4	18	16	8	2	1	1
5	22	19	23	1		
6	19	10	12	1		
7	16	13	25			
8	18	27				
9	15					
Inside	28	18	28			
Outside	108	85	68			
Percent	79%	83%	71%			
Ultimate Percentage		85%				

Suarez et al. v. Nissan North America, Inc
EX V - Population Remaining

Total MY13-18 Altima Halogen Population Remaining in Market

Inventory Status	MY13	MY14	MY15	MY16	MY17	MY18	Total
Exist ratio	92.9%	91.5%	92.9%	92.3%	93.5%	95.8%	93.0%
Population	255,387	216,065	367,358	199,836	184,697	112,898	1,336,243

Model Year	(1) Total	(2) Remaining*
2013-2015	838,811	830,423
2016-2018	497,432	492,458

* Assumed that 1% were scrapped between settlement date and data preparation

(1) Sum of population remaining for appropriate model years
(2) (1) x .99

Suarez et al. v. Nissan North America, Inc
EX VI - Exposure Factors
Percent of Vehicles in Each Category at Each Quarter
After Sale of Vehicle

Quarter	Nissan Quarters Original	Nissan Quarters Extended	Nissan Quarters Settlement
1	1.000	1.000	0.000
2	1.000	1.000	0.000
3	0.999	1.000	0.001
4	0.993	1.000	0.007
5	0.972	1.000	0.028
6	0.926	1.000	0.074
7	0.852	1.000	0.148
8	0.756	1.000	0.244
9	0.658	1.000	0.342
10	0.542	1.000	0.458
11	0.419	1.000	0.581
12	0.336	1.000	0.664
13	0.000	1.000	1.000
14	0.000	1.000	1.000
15	0.000	0.998	0.998
16	0.000	0.992	0.992
17	0.000	0.969	0.969
18	0.000	0.920	0.920
19	0.000	0.839	0.839
20	0.000	0.737	0.737
21	0.000	0.638	0.638
22	0.000	0.525	0.525
23	0.000	0.411	0.411
24	0.000	0.353	0.353