



NCAT Report 07-02

# **SOUND PRESSURE AND INTENSITY EVALUATIONS OF LOW NOISE PAVEMENT STRUCTURES WITH OPEN- GRADED ASPHALT MIXTURES**

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**SOUND PRESSURE AND INTENSITY EVALUATIONS OF LOW NOISE  
PAVEMENT STRUCTURES WITH OPEN-GRADED ASPHALT  
MIXTURES**

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## LIST OF SYMBOLS

AASHTO	: American Association of State Highway and Transportation Officials
ANOVA	: Analysis Of Variance
ASTM	: American Society for Testing and Materials
CTM	: Circular Texture Meter
CPX	: Close Proximity Trailer (NCAT Noise Trailer)
CYML	: Chevrolet Malibu Passenger Vehicle
DB(A)	: A-Weighted Decibel
FDWS	: Ford Windstar Passenger Vehicle
FHWA	: Federal Highway Administration
GDOT	: Georgia Department of Transportation
GDYR	: Goodyear Aquatread Tire
ISO	: International Organization for Standardization
LBS	: Pounds
MPH	: Mile Per Hour
NCAT	: National Center for Asphalt Technology
OBSI	: On Board Sound Intensity
OGFC	: Open-Graded Friction Course
PEM	: Porous European Mixture
PSI	: Pounds Per Square Inch
PTGX	: Pontiac Grand Prix Passenger Vehicle
SIL	: Sound Intensity Level
SMA	: Stone Matrix Asphalt
SPL	: Sound Pressure Level
SRTT	: Standard Reference Test Tire (Michelin)
UNIR	: Uniroyal Tigerpaw Tire
ULIP	: Ultra Light Inertial Profiler

## **ABSTRACT**

Five different low noise pavements were constructed and evaluated at the NCAT test track. Both single and double layer structures constructed with fine and coarse open-graded mixtures were tested. Macrotexture measurements of the paved surfaces were done using the circular texture meter (CTM) and the ultra-light inertial profiler (ULIP). Sound measurements on the sections were taken using sound pressure and sound intensity microphones. Sound pressure and intensity was evaluated using the NCAT close proximity (CPX) acoustic trailer at speeds of 45 and 60 mph. Sound intensity was also measured using three different passenger vehicles. The weight of two of the passenger vehicles was increased by 200 lbs to investigate this influence on noise at the pavement-tire interface. Practical problems with the bracket used for sound intensity measurements restricted testing with the passenger vehicles to 45 mph. Three different tire types were evaluated including the new standard reference test tire. Sound intensity testing of the low noise sections was also done using one of NCAT's triple trailer trucks. The sound absorption characteristics of the open-graded asphalt mixtures were evaluated using the impedance tube in the field.

The sound measurement results indicated that each of the low noise sections evaluated had excellent noise attenuation characteristics. The double layer structures with fine open-graded surfacing were the best performing of those tested.

## **SOUND PRESSURE AND INTENSITY EVALUATIONS OF LOW NOISE PAVEMENT STRUCTURES WITH OPEN-GRADED ASPHALT MIXTURES**

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### **INTRODUCTION**

Research in Europe and in the United States has indicated that it is possible to build pavement surfaces that will provide low noise roadways, so-called quieter pavements. The National Center for Asphalt Technology (NCAT) has embarked on a study sponsored by the Federal Highway Administration (FHWA) to evaluate different low noise pavement solutions. The report expands on the design of different low noise pavement structures constructed at the NCAT test track and reports results of noise and texture evaluations on these pavement sections.

It has been shown that modification of pavement surface type and/or texture can result in significant tire-pavement noise reductions. European highway agencies have found that the proper selection of the pavement surface can be an appropriate noise abatement procedure. Specifically, they have identified that a low noise road surface can be built at the same time considering safety, durability and cost using one of the following approaches [1]:

1. A surface with a smooth surface texture using small maximum size aggregate.
2. A porous surface, such as an open-graded friction course (OGFC) with a high air void content.
3. A pavement-wearing surface with an inherent low stiffness at the tire-pavement interface.

The FHWA study involves an evaluation of these approaches. As part of the first phase of the study, low noise sections comprising both fine and coarse open-graded friction course mixtures were constructed on the north tangent of the NCAT test track. Phase 2 of the project, to commence in the fall of 2006, will include the construction and testing of stone matrix asphalt (SMA) mixtures with varying nominal maximum aggregate size on the south tangent of the test track. The FHWA study includes an equipment evaluation component, specifically the evaluation of the ultra-light inertial profiler (ULIP) for macrotexture measurements of surface texture and sound intensity measurements as an alternative to sound pressure measurements. Findings from this study will be reported in a later NCAT report. Sound intensity is increasingly being used by State Highway Agencies in lieu of sound pressure [2]. The study compared both sound pressure and sound intensity measurements using the NCAT close proximity (CPX) trailer and investigated the influence of passenger vehicle type, tire type and speed on sound intensity measurements.

Practical problems experienced with the sound bracket used for the sound intensity measurements with the passenger vehicles restricted this testing to speeds of 45 mph. At higher speeds the bracket vibrated excessively owing to a misalignment design flaw. An upcoming report on FHWA Work Plan AU4-C1 will discuss the practical problems experienced with this bracket in more detail.

The report begins by describing the low noise sections evaluated. Results of macrotexture and noise measurements (sound pressure and intensity as well as sound absorption) on the sections are then reported and discussed. Finally, conclusions are drawn regarding the sound pressure and intensity measurements and the relative performance of the open-graded low noise sections evaluated. The scope of this document is to report the sound pressure and intensity measurements on the low noise sections. A more complete evaluation of the data will be reported in a separate NCAT report under development for FHWA Work Plan AU4-C1.

## **LOW NOISE PAVEMENT DESIGN**

### **Materials**

Five different low noise pavement sections were constructed on the inside untrafficked lanes on the north tangent of the NCAT test track. Asphalt mixtures used for the sections included two porous mixtures, one a fine-graded open-graded friction course (OGFC) and the other a coarser porous mixtures used by the Georgia Department of Transportation, a so-called Porous European Mixture (PEM). The surface textures after paving of these mixtures is shown in Figure 1.



**Figure 1: Surface textures of the OGFC (left) and PEM (right) mixtures.**

Table 1 shows the structure and mixtures paved on the north tangent at the NCAT test track. Sections N5 and N9 consisted of a single layer of OGFC and PEM respectively compacted to a thickness of 1.25 in. over the existing dense-graded asphalt (DGA), which was milled. The other sections consisted of double layer systems of the OGFC and PEM mixtures both with thicknesses of 1.25 in. Of particular interest was the relative performance of the twin layer system consisting of the fine-graded OGFC over the coarser PEM mixture. Reports are that these twin layer open-graded systems are significantly quieter than convention dense-graded systems and single layer porous

systems. Furthermore, the double layer concept is based on the idea that the finer-graded upper layer will serve as a sieve or filter preventing clogging of the underlying layer and thus extending the performance and serviceability of the system.

**Table 1: Pavements sections constructed on the NCAT track north tangent.**

Section	N5	N6	N7	N8	N9
Layer 1 (1.25 in.)	OGFC	OGFC	OGFC	PEM	PEM
Layer 2 (1.25 in.)	DGA	OGFC	PEM	PEM	DGA

Table 2 shows the gradations (expressed as percentage passing) as well as binder contents of the respective mixtures. Both mixtures were comprised of a PG76-22 SBS polymer modified asphalt binder. The OGFC mixtures included a fiber stabilizer at 0.3 percent by mass of total mix. Aggregate for the mixtures was Georgia granite.

**Table 2: Gradation and binder contents of materials.**

Sieve size	PEM	OGFC
3/4 " (19 mm)	100	100
1/2 " (12.5 mm)	92	100
3/8 " (9.5 mm)	60	100
# 4 (4.75 mm)	15	36
# 8 (2.36 mm)	11	7
# 16 (1.18 mm)	-	3
# 30 (0.6 mm)	-	2
# 50 (0.3 mm)	-	2
# 100 (0.15 mm)	-	1
# 200 (0.075 mm)	2.7	1
Binder content, percent	6	7

### Surface Macrotexture Measurements

The macrotexture of the surfacing layers were evaluated using the circular texture meter (CTM) and the ultra-light inertial profiler (ULIP). The CTM provides a measure of the mean profile depth (*MPD*) in accordance with ASTM E2157 [3]. The ULIP also provides a mean profile depth (*MPD*) measurement of macrotexture. This measure differs slightly from the mean texture depth (*MTD*) measurement of macrotexture as is reported by the sand patch method [4]. These relate as shown below when both *MTD* and *MPD* are expressed in millimeters [3]:

$$MTD = 0.947MPD + 0.027 \tag{1}$$

As shown in Table 1, the surface OGFC mixtures spans sections N5 through N7 and the PEM mixture was used as the surface layer on sections N8 and N9. Replicated circular texture meter (CTM) measurements were done at five random locations on both surfacing layers. Ultra-light inertial profile (ULIP) measurements were done by trafficking and collecting data along the entire lengths of the sections in question. Given that the sections were not trafficked, the macrotexture measurements were done in the center of the lanes. Statistics of the macrotexture measures using these devices are shown in Table 3. Data collected for the CTM and ULIP tests is listed in Appendix A.

**Table 3: Surface macrotexture of noise sections using the CTM and ULIP devices.**

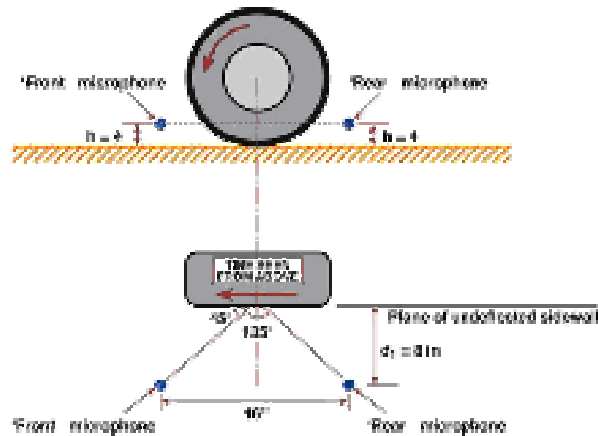
Device	CTM		ULIP	
	OGFC	PEM	OGFC	PEM
Asphalt Mixture				
Mean, mm	0.83	1.54	1.07	1.85
Standard deviation, mm	0.20	0.31	0.23	0.35

## SOUND TESTING

Sound measurements on the sections included sound pressure and on-board sound intensity (OBSI) evaluations. Sound pressure measurements were done using the NCAT close proximity (CPX) trailer shown in Figure 2. Two microphones are used to gather the sound pressure at the pavement-tire interface configured as shown in Figure 3.



**Figure 2. The NCAT CPX trailer**



**Figure 3: Sound pressure configuration**

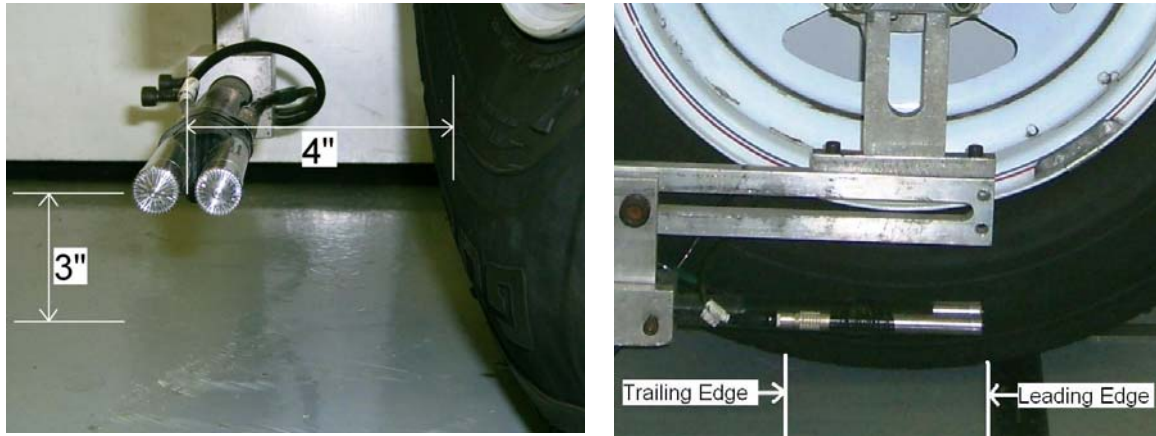
Sound measurements in the field are collected using an OR25, OROS<sup>1</sup> analyzer with GRAS<sup>2</sup> 1/2 inch microphones. The OROS NVGATE software is used to analyze in the sound data.

On-board sound intensity (OBSI) measurements were done using two phased matched sound intensity microphones attached to a bracket that in turn is attached to the rear wheel of test vehicles, configured as shown in Figure 4. The microphones are spaced 0.63 in. apart and centered 4 in. from the edge of the tire wall and 3 in. off the ground. The position of the microphones is varied for leading- and trailing-edge measurements as shown in Figure 4.

<sup>1</sup> <http://www.oros.com/en/>

<sup>2</sup> <http://www.gras.us>





**Figure 4. On-board sound intensity microphone configuration**

Repeated sound measurements (at least 3 runs) were done on each section. Testing was done with three different tires, the Goodyear Aquatread (GDYR), Uniroyal Tigerpaw (UNIR) and Michelin standard reference test tire (SRTT). The treads of these tires are shown in Figure 5. From the treads it can be seen that the Uniroyal Tigerpaw and SRTT tires are very similar (given the acquisition of Uniroyal Goodrich by The Michelin Group in 1990). The SRTT is a slightly wider tire. Tire inflation pressures used for testing were fixed at 2 bar (30 psi).



**Figure 5. Test tires used in study (Left-to-right: GDYR, UNIR and SRTT)**

In addition to testing with the CPX trailer, OBSI testing was done with three different passenger vehicles i.e. Pontiac Grand Prix (PTGX), Chevrolet Malibu (CYML) and the Ford Winstar (FDWS) shown in Figure 6. These vehicles range in curb weights from 3,200 to 3,860 lbs. The different vehicles were used to investigate the influence of vehicle type on the sound intensity measurements.



**Figure 6. Test vehicles used in the study (Left to right: PTGX, CYML, FDWS)**

Testing with the passenger vehicles was done with two people in the vehicles i.e. the driver and passenger who operated the sound equipment during testing.

Additional sound intensity tests with two of the passenger vehicles (Grand Prix and Ford Windstar) was done by adding 200 lb to these vehicles to investigate the influence of this additional weight. This was a consideration given the possibility of including an extra passenger in the vehicle during OBSI testing. Four sand bags weighting 50 lbs each were added to the trunks of these vehicles.

Sound intensity testing with a NCAT triple trailer truck was done by attaching a frame around the rear wheels on the rear trailer onto which the sound intensity microphones could be mounted for leading- and trailing-edge measurements. This frame attachment is shown in Figure 7.



**Figure 7. Sound intensity measurements with the triple trailer truck**

Sound absorption measurements with the 6 inch diameter impedance tube were done in the field. Window putty was used to seal the base of the tube that is placed directly onto the tested surface during measurements. This procedure was evaluated in lieu of coring specimens and testing these in the laboratory.

## **SOUND PRESSURE MEASUREMENTS**

Results of the sound pressure measurements on the low-noise sections measured using the CPX trailer are summarized in Table 4 and illustrated in Figure 8 through Figure 10. For the sake of brevity only the A-weighted global sound pressure levels (SPL) calculated by logarithmic addition of the sound levels between the third octave band frequencies of 316 and 3981 Hz are reported. Table 4 indicates the mean and standard deviation of SPL measured on the low noise sections using different tires. The data for

the sound pressure measurements collected for the three runs at the front and rear microphones are tabulated in Appendix B.

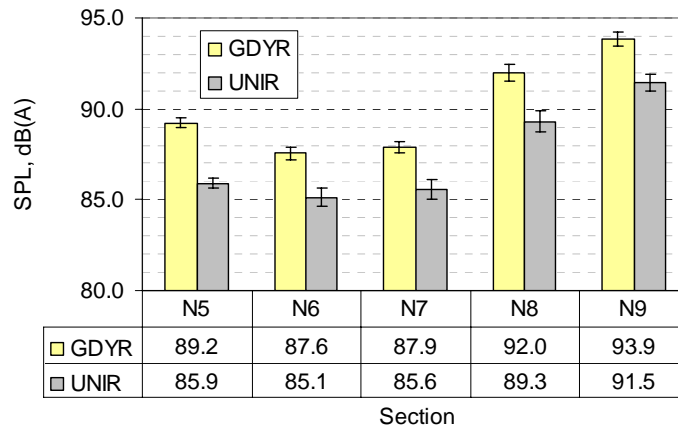
Sound pressure measurements on the low noise sections were done at different times and at different speeds. Initially measurements were taken after construction of the sections on 9 November, 2005 at 45 mph. Sound pressure measurements were repeated on 8 May, 2006 at 45 mph and again on 17 July, 2006 at 60 mph. Mean air temperatures on these dates were 70 °F, 71 °F and 86 °F respectively.

**Table 4. Global CPX sound pressure measurements**

Tire	Section	09-Nov-05 (45 mph)		08-May-06 (45 mph)		17-July-06 (60 mph)	
		Mean, dB(A)	Stdev, dB(A)	Mean, dB(A)	Stdev, dB(A)	Mean, dB(A)	Stdev, dB(A)
GDYR	N5	89.23	0.26	89.88	0.16	92.18	0.20
	N6	87.57	0.35	88.55	0.13	91.46	0.10
	N7	87.88	0.3	88.91	0.32	92.31	0.21
	N8	91.99	0.47	93.2	0.62	95.93	0.73
	N9	93.87	0.38	95.29	0.49	98.00	0.49
UNIR	N5	85.89	0.27	86.56	0.39	89.66	0.69
	N6	85.14	0.49	86.08	0.46	89.25	0.13
	N7	85.56	0.53	86.61	0.48	90.19	0.25
	N8	89.31	0.59	92.8	3.63	94.74	0.50
	N9	91.45	0.47	91.88	0.63	95.65	1.06
SRTT*	N5	-	-	89.26	0.47	91.11	0.90
	N6	-	-	87.47	0.36	89.78	0.33
	N7	-	-	88.11	0.23	90.45	0.28
	N8	-	-	91.72	0.12	94.90	0.54
	N9	-	-	94.12	0.65	97.13	0.90

\*The SRTT tire was introduced later in the study

Figure 8 summarizes the sound intensity measurements on the low noise sections done using the CPX trailer at a speed of 45 mph. These were the initial sound pressure measurements on the sections with the Goodyear and Uniroyal tires that were repeated in May 2006, using the same tires but also with the SRTT. A summary of the repeated measurements are shown in Figure 9. Figure 10 summarizes the CPX measurements done on the sections at a speed of 60 mph with all three tires tested.



**Figure 8. CPX SPL at 45 mph (09-Nov-05)**

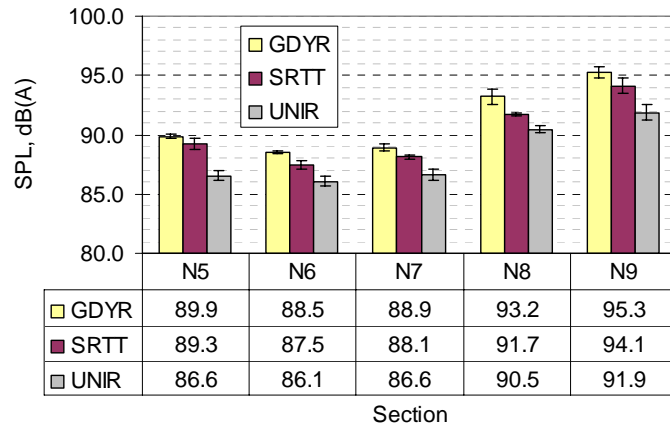


Figure 9. CPX SPL at 45 mph (08-May-06)

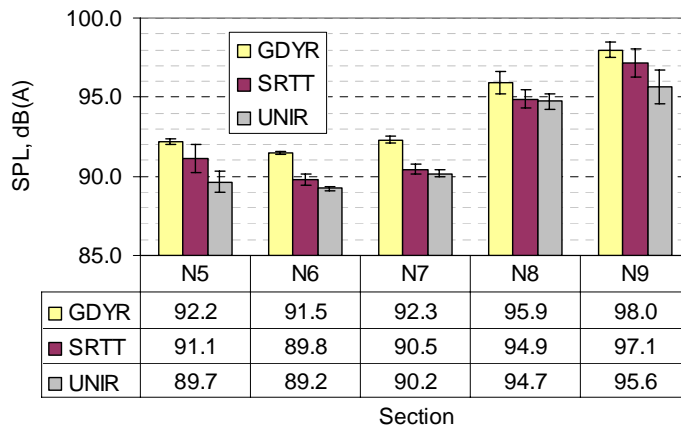


Figure 10. CPX SPL at 60 mph (17-Jul-06)

A slight increase in mean sound pressure level (SPL) in the order of 1 dB(A) is apparent from the 45 mph data comparing the latter to the initial measurements. Given that the sections are untrafficked and that the temperatures on the two measurement days were similar, the slight increase in the sound pressure level is attributed to possible measurement error or bias. An increase of 2 – 4 dB(A) in SPL is apparent comparing the data at 45 mph with that at 60 mph as a result of the higher speed but possibly also the increase in temperature. The standard deviations reported indicate the variation in measurement between the front and rear microphones rather than the variation between averaged front and rear sound pressure measurements.

An analysis of the sound pressure data indicates that the measurements with the Goodyear Aquatread tire are consistently higher than those with the Uniroyal Tigerpaw with measurements with the SRTT falling between these. The data indicate that differences in the SPL measurements with the different tires on the same section can be significant. In terms of noise at the pavement-tire interface, however, measurements with each tire rate the performance of the sections equally i.e. from best to worst as N6, N7, N5, N8 and N9 at both speeds of 45 and 60 mph and the three tires evaluated.

Figure 13 through Figure 20 in Appendix B show noise spectra of the CPX sound pressure measurements at speeds of 45 and 60 mph with the different tires. The spectra figures indicate that the sound pressure levels measured on sections N6 and N7 are similar, at both speeds evaluated. The noise levels on these sections are also fairly constant between frequencies of 500 and 2,000 Hz. These are the double layer systems with the OGFC as a surfacing layer. The single coarse PEM layer on section N9 is the noisiest. The noise measurements on section N8 (the thick coarse open-graded mixture) peak at a lower frequency. Section N5 (the single layer finer-graded OGFC) shows excellent noise attenuation at frequencies higher than 1,000 Hz.

Distinctive dips in the frequency spectra in the region of 800 – 1,000 Hz are apparent for the double layer systems N6, N7 and N8. This suggests that the sound levels at these frequencies are being absorbed within the layered structure. This is an important finding given that the human ear is sensitive to sound levels within this frequency range.

### SOUND INTENSITY MEASUREMENTS

Sound intensity tests on the north tangent low noise sections with the CPX trailer, passenger vehicles and NCAT semi truck were done during the three month period between May and early August, 2006.

Table 5 shows average air temperatures on the respective test dates for the different vehicles. In the case of the OBSI testing with the respective passenger vehicles, all tests with the different tires and with the addition of the extra 200 lb weight on two of the vehicles was done on the same day.

**Table 5. Average air temperatures during sound intensity testing**

Test Date	Temperature, °F	Vehicle
8-May-06	77	CPX (45 mph)
17-Jul-2006	87	CPX (60 mph)
1-Jun-06	88	PTGX
14-Jun-06	87	CYML
20-Jun-06	94	FDWS
3-Aug-2006	87	SEMI

Results of the on-board sound intensity (OBSI) measurements are summarized in Table 6 for the CPX trailer.

Table 7 summarizes the OBSI results for the three passenger vehicles i.e. Pontiac Grand Prix (PTGX), Ford Windstar (FDWS) and Chevrolet Malibu (CYML) vehicles for each of the different sections and tires evaluated without the addition of weight.

Table 8 shows the OBSI results for the Grand Prix and Ford Windstar vehicles with the addition of 200 lb. Table 9 shows the results of OBSI testing on the low noise sections with the NCAT Truck. The values reported are A-weighted global sound intensity levels (SIL) calculated by logarithmic addition of the levels between the third octave band frequencies of 316 and 3981 Hz. Testing was done at a speed of 72 kph (45 mph). The measurements shown are the average and standard deviation of three runs per microphone per tire per section tested. Leading and trailing edge measurements were done separately. This is currently a major disadvantage of the OBSI method as it effectively doubles the testing time compared to the sound pressure testing. Standard deviations shown indicate variations in sound intensity between the leading and trailing edge microphones.

**Table 6. Global sound intensity measurements with the CPX trailer**

Tire	Section	45 mph		60 mph	
		Mean dB(A)	Stdev dB(A)	Mean dB(A)	Stdev dB(A)
GDYR	N5	92.70	0.21	94.35	0.58
	N6	90.66	0.32	92.21	0.84
	N7	90.41	0.38	93.46	0.86
	N8	95.07	0.38	98.44	0.51
	N9	97.14	0.68	99.46	0.66
SRTT	N5	91.34	0.23	94.56	0.80
	N6	88.83	0.43	92.05	0.56
	N7	88.66	0.22	92.99	0.59
	N8	94.00	0.46	97.52	0.80
	N9	96.74	0.50	99.47	0.80
UNIR	N5	88.45	0.31	91.55	1.21
	N6	86.79	0.12	89.80	0.77
	N7	87.00	0.24	90.75	0.92
	N8	91.61	0.68	95.87	0.97
	N9	93.53	0.52	96.94	1.22

**Table 7. Global sound intensity with the passenger vehicles at 45 mph + 0 lbs weight**

Vehicle:		PTGX		FDWS		CYML	
Tire	Section	Mean dB(A)	Stdev dB(A)	Mean dB(A)	Stdev dB(A)	Mean dB(A)	Stdev dB(A)
GDYR	N5	94.14	0.40	92.08	0.22	91.61	0.44
	N6	91.04	0.14	89.46	0.12	90.85	0.86
	N7	92.03	0.21	89.56	0.11	91.07	0.58
	N8	95.90	0.57	94.60	0.40	94.82	0.42
	N9	97.77	0.33	96.54	0.19	97.72	0.33
SRTT	N5	90.47	0.20	91.02	0.24	90.86	0.40
	N6	87.91	0.29	88.04	0.70	88.46	0.58
	N7	88.69	0.20	88.55	0.76	89.03	0.84
	N8	93.41	0.34	93.36	0.38	93.21	0.50
	N9	96.36	0.46	95.62	0.34	96.73	0.18
UNIR	N5	89.57	0.74	89.78	0.25	89.67	0.47
	N6	88.04	0.35	88.12	0.22	88.48	0.51
	N7	88.80	0.31	88.68	0.22	88.64	0.32

N8	92.64	0.71	92.80	0.38	92.89	0.58
N9	94.70	0.56	94.38	0.71	95.10	0.43

**Table 8. Global sound intensity with the passenger vehicles at 45 mph + 200 lbs weight**

Vehicle:		PTGX		FDWS	
Tire	Section	Mean dB(A)	Stdev dB(A)	Mean dB(A)	Stdev dB(A)
GDYR	N5	94.03	0.19	92.66	0.98
	N6	91.16	0.21	90.22	0.99
	N7	91.69	0.34	89.92	0.26
	N8	96.07	0.25	94.16	2.14
	N9	97.94	0.33	96.04	1.45
SRTT	N5	90.62	0.34	91.18	0.22
	N6	87.92	0.16	88.40	0.41
	N7	88.55	0.26	89.04	0.45
	N8	93.27	0.31	93.56	0.27
	N9	95.95	0.19	95.79	0.30
UNIR	N5	89.66	0.74	89.93	0.46
	N6	88.31	0.49	87.91	0.31
	N7	88.77	0.33	88.47	0.14
	N8	92.97	0.54	93.31	0.45
	N9	94.95	0.64	94.76	0.55

**Table 9. Global sound intensity measurements with the NCAT SEMI at 45 mph**

Vehicle:		SEMI	
Tire	Section	Mean dB(A)	Stdev dB(A)
TRUCK	N5	92.82	0.38
	N6	92.03	0.68
	N7	91.20	1.33
	N8	94.72	0.46
	N9	96.44	0.60

Figure 21 through Figure 28 in Appendix C show the mean A-weighted sound intensity levels (SIL) for the tests done using the different vehicles. As with the sound pressure measurements, the SIL values with the SRTT tire fall between those with the Goodyear Aquatread and Uniroyal Tigerpaw tires.

Figure 29 through Figure 50 in Appendix C show noise spectra of the sound intensity measurements with the different vehicles and tires. CPX measurements were done at speeds of 45 and 60 mph while speeds of the passenger vehicles and Semi were 45 mph. The dips apparent in the sound pressure levels between 800 – 1,000 Hz are also evident in the sound intensity data.

## **IMPEDANCE TUBE MEASUREMENTS**

The absorption coefficients of the low noise sections were measured in-situ using the 6 inch impedance tube. Measurements were done at 5 random locations along each of the sections N5 through N9. Window sealing putty was placed around the base of the tube, which was then positioned on the pavement surface. The data are recorded using the OROS system and analyzed using Spectronics<sup>3</sup> ACUPRO software. Results of the testing are in Appendix D. Figure 51 through Figure 55 in Appendix D show the sound absorption curves as a function of frequency for the five sections tested. These are the mean results together with the standard deviations of the measurements with frequency at the five random locations.

## **DISCUSSION**

### **Sound Pressure**

With reference to the sound pressure measurements in Table 4, there is on average a difference of 6.8 dB(A) between the quietest N6 and noisiest N9 emphasizing the relatively better noise attenuation characteristics of the double layer systems with the finer surface course. The noisier sound levels measured on the PEM compared to the OGFC is due to it being coarser.

From the data presented it is obvious that the sound pressure levels are influenced significantly by section (N5 through N9) and tire type, the latter indicating the importance of selecting a standard reference test tire for noise measurements. An analysis of variance (ANOVA) done on the sound pressure data indicated that this was the case but that the speed of testing (45 or 60 mph) and the test date also significantly influenced the data. Differences resulting from test date could be caused by differences in temperature on the respective test days or possible measurement error or bias. The effect of temperature of noise levels is being addressed in another NCAT FHWA study (Work Plan AU4-C1). Measurement error or bias is unavoidable. To minimize bias, sound pressure microphones were calibrated before and after testing and tests repeated if the calibration after testing deviated by more than 0.5dB. An increase in vehicle speed from 45 mph to 60 mph resulted in an increase in global SPL in the order of 1 – 2 dB(A).

The spectra figures show that the SPL levels measured on sections N6 and N7 are very similar, particularly at the lower speeds. These are the double layer systems with the OGFC as a surfacing layer. Section N5, the single layer OGFC performed on par or better than these sections at frequencies higher than 1,000 Hz and may be the preferred application when considering cost-benefit. The single coarse PEM layer on section N9 is the noisiest. With the exception of section N8 that shows a peak SPL at a frequency of 631 Hz, the peak SPL of the other sections is at 1,000 Hz.

### **Sound Intensity**

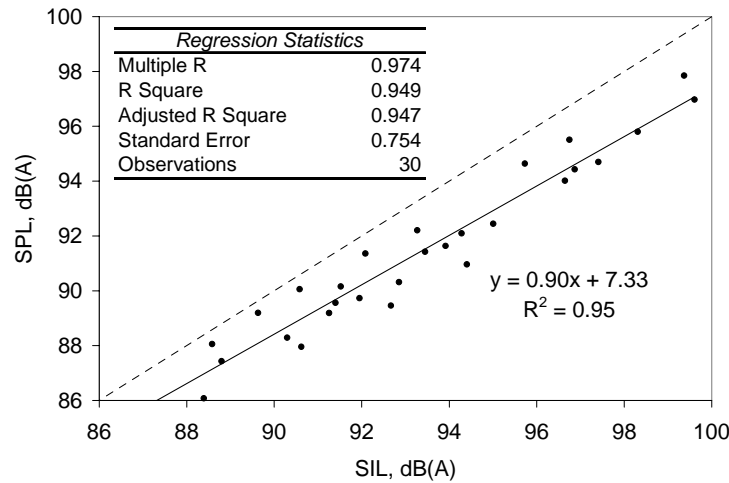
The first observation when evaluating the sound intensity data was how closely these measurements matched the sound pressure data for the different low noise sections tested.

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<sup>3</sup> <http://www.spectronics.net>



This is evident in a comparison of the global sound intensity levels as well as the frequency spectra data. Empirical relationship showing the global sound pressure and intensity measurements with the CPX trailer at 45 and 60 mph is shown in Figure 11. This figure was compiled using data from all three tires tested with the CPX trailer on the low noise sections at the test track. It can be seen that the measurements compare well and that the sound intensity levels are between 1 – 2 dB(A) higher than corresponding sound pressure levels.



**Figure 11. Comparison of global sound pressure and sound intensity levels**

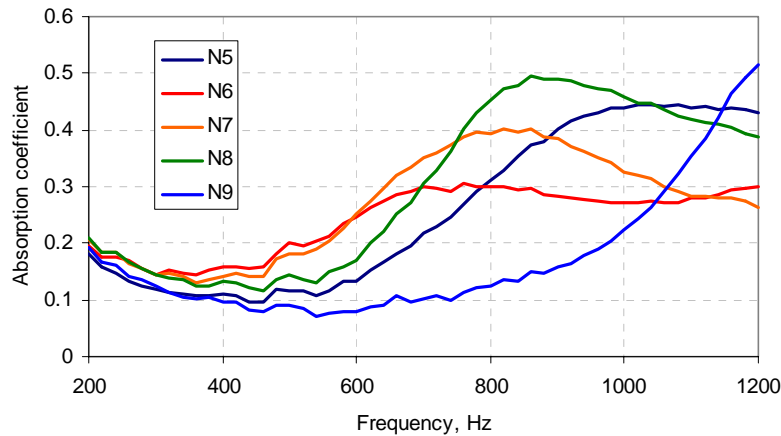
The sound intensity measurements follow the same trends indicated by the sound pressure measurements in that the relative performances of the noise sections are ranked accordingly. The tire influence on the sound intensity data corresponds to that observed for the sound pressure measurements. Sound intensity measurements with the CPX trailer are on average about 1 dB(A) higher than with the passenger vehicles. The intensity data measured with the Pontiac Grand Prix and Chevrolet Malibu are very similar while those measured with the Ford Windstar are on average slightly lower.

The additional 200 lbs weight added to the Pontiac Grand Prix and Ford Windstar did not significantly influence the sound intensity measurements with these vehicles. Preliminary ANOVA runs indicate that each of the other main factors investigated (section, vehicle, tire) significantly influences the expected value of the sound intensity but that interactions between these factors are not significant (at the 95 percent confidence level). A more thorough statistical analysis of the sound intensity data will be presented in the NCAT report of FHWA Work Plan AU4-C1. The FHWA Work Plan AU4-C1 report will also discuss problems experienced with the OBSI procedure during this study, suffice it to say that consequently sound intensity testing with the passenger vehicles was restricted to a speed of 45 mph.

Interestingly, the global sound intensity levels resulting from tests with the NCAT truck semi are in the same order of magnitude as measurements with the CPX and passenger vehicles. As expected, the sound intensity levels at the low frequencies are higher. In terms of noise of the different sections, the semi SIL data rank the respective sections similar to the noise ranking with the CPX and passenger vehicles.

## Sound Absorption

Sound absorption measurements with the impedance tube at NCAT were first done and reported by Crocker *et al.* [6]. In their study they investigated sound absorption measurements with both the 4- and 6-inch diameter tubes. They found that the 6-inch tube allows the absorption to be determined up to a frequency of about 1250 Hz. The 4-inch tube allows the absorption coefficient to be determined up to a frequency of about 1950 Hz. Testing reported in this document was done using the 6-inch tube. Figure 12 was compiled using data presented previously and shows the mean absorption coefficient spectra measured on the low noise sections.



**Figure 12. Mean Sound Absorption Coefficient Spectra**

Clearly, the frequency cutoff (1200 Hz) masks the potential of relating these data with the sound pressure and intensity measurements as the absorption curve's peak cycles are not complete over the sensitive frequency range (400 – 2000 Hz). Section N9 shows the lowest absorption between 400 and 1,000 Hz and was also the noisiest of the sections tested. There is no clear relationship between the absorption characteristics and the sound measurements for the other sections evaluated. Testing with the 4-inch tube may provide more insight into this relationship. The absorption curves presented in Figure 51 through Figure 55 indicate that the variation in the absorption coefficients measured is greater for the sections with finer surface courses, particularly at the higher frequency range shown.

Maximum sound absorption in the double layer systems (N6, N7 and N8) occurs between frequencies of 800 – 1,000 Hz and corresponds with the dips in the sound pressure and intensity levels between these frequencies observed on these sections. Peak sound absorption on the single layer systems occurs at higher frequencies.

A problem with in-situ sound absorption measurements is that it is difficult to accurately control the test temperature. The ISO standard [5] recommends that the temperature be held constant during the test to within 1 °C. Another potential problem is confining the sound propagation through porous surfaces.

## **CONCLUSIONS AND RECOMMENDATIONS**

This document reports on sound testing of porous low noise sections constructed at the NCAT test track as part of FHWA Work Plan AU4-C2. These sections include single and double layer systems with fine and coarse porous asphalt mixtures. Macrotexture measurements were done on the sections using the circular texture meter (CTM) and ultra-light inertial profiler (ULIP). Sound pressure measurements were done at speeds of 45 and 60 mph using the NCAT close proximity (CPX) trailer using three different test tires. Onboard sound intensity (OBSI) measurements were done using the CPX trailer at speeds of 45 and 60 mph as well as with three different passenger vehicles using the three different test tires. Testing with the passenger vehicles was restricted to speeds of 45 mph following excess vibration problems experienced with the wheel bracket used for the OBSI measurements. The influence on sound intensity resulting from adding 200 lbs to two of the passenger vehicles was investigated. Sound intensity testing was also done using a NCAT truck semi running over the low noise sections at 45 mph. Finally, sound absorption tests using a 6-inch diameter impedance tube were done on the respective sections.

The sound pressure and intensity measurements with the CPX trailer, the passenger vehicles and truck semi ranked the noise levels on the different sections similarly. The results indicate that each of the low noise sections tested were beneficial at reducing noise at the pavement-tire interface and that the double layer structure with the fine surface course (OGFC over PEM on N7) was the best at noise attenuation, closely followed by the double OGFC structure on section N6. The single layer fine OGFC mixture on N5 performed on par with the double layer systems at frequencies higher than 1,000 Hz. This may be the preferred application when considering cost benefit. Section N9 (single PEM) was the noisiest section. There is on average a difference of 6.8 dB(A) between the quietest N6 and noisiest N9. The noisier sound levels measured on the PEM compared to the OGFC is due to it being coarser.

Dips in both the sound pressure and intensity levels were evident in the frequency spectra measurements on the double layer sections. These correspond to an extent with the sound absorption measurements found between these frequencies on these sections. This is an important finding indicating that the double layer systems absorb sound levels in the frequency range that is sensitive to human hearing.

An excellent correlation was found between the sound pressure and intensity measurements with the CPX. Sound intensity levels are between 1 – 2 dB(A) higher than corresponding sound pressure levels. Sound intensity levels measured with the NCAT truck semi are in the same order of magnitude with levels measured on corresponding sections with the CPX and passenger vehicles.

Given that sound absorption measurements with the 6-inch impedance tube did not fully capture the sound absorption characteristics of the sections evaluated it is recommended that future testing include measurements with the 4-inch tube. In-situ measurements of sound absorption should be investigated further. Preliminary testing indicates a positive correlation with sound pressure and intensity levels observed in the field.

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**APPENDIX A: MACROTEXTURE MEASUREMENTS**

**Table 10. CTMeter MPD measurements in mm**

Sec	Sample <sup>4</sup>	Measurement								MPD	DROP	RMS
OGFC Run1	110 ft	0.93	0.70	0.63	0.90	0.74	0.59	0.53	0.74	0.72	4	0.72
	194 ft	0.99	0.89	1.21	0.57	0.95	0.94	1.02	1.15	0.97	3	1.01
	241 ft	0.76	0.75	0.60	1.09	0.76	0.99	0.53	1.01	0.81	4	0.70
	373 ft	0.91	0.58	0.67	0.59	0.97	0.68	0.59	0.69	0.71	3	0.57
	533 ft	0.77	0.99	0.85	1.28	0.68	1.36	0.92	0.84	0.96	4	0.85
OGFC Run2	110 ft	0.89	0.70	0.59	0.73	0.81	0.63	0.55	0.73	0.70	3	0.60
	194 ft	0.98	0.94	1.19	0.59	0.96	0.91	1.01	0.90	0.94	3	0.77
	241 ft	0.74	0.95	0.63	1.10	0.75	0.94	0.54	1.01	0.83	3	0.87
	373 ft	0.90	0.56	0.66	0.61	0.94	0.68	0.60	0.70	0.71	3	0.56
	533 ft	0.81	0.99	0.87	1.19	0.68	1.34	0.89	0.86	0.95	5	0.80
PEM Run1	33 ft	1.34	1.52	1.00	1.28	1.62	1.70	1.47	1.01	1.37	5	1.19
	95 ft	1.67	0.87	1.61	1.58	1.37	1.19	1.12	1.51	1.37	7	1.37
	202 ft	1.54	1.80	1.57	1.69	2.36	1.74	1.53	1.74	1.75	9	1.54
	249 ft	1.80	1.64	1.61	1.49	1.88	1.84	1.49	1.41	1.65	8	1.42
	323 ft	1.31	2.09	2.11	1.23	1.40	1.87	1.13	1.70	1.61	5	1.52
PEM Run2	33 ft	1.33	1.51	1.06	1.28	1.67	1.70	1.45	0.98	1.37	5	1.16
	95 ft	1.59	0.81	1.50	1.47	1.37	1.28	1.14	1.51	1.33	8	1.28
	202 ft	1.56	1.84	1.48	1.65	2.31	1.75	1.61	1.80	1.75	9	1.54
	249 ft	1.99	1.56	1.58	1.51	1.83	1.92	1.47	1.36	1.65	4	1.60
	323 ft	1.30	2.05	1.86	1.26	1.37	1.87	1.12	1.61	1.56	6	1.34

**Table 11. Ultra-light inertial profiler (ULIP) MPD measurements in mm**

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
1.24	1.06	1.20	1.16	1.83	1.58	2.00	1.82
1.10	1.11	1.03	1.06	1.96	1.90	1.96	2.12
1.16	1.13	1.06	1.14	1.54	1.71	1.91	1.93
1.17	0.97	1.09	1.20	1.76	1.96	1.62	2.30
1.28	1.02	1.07	1.07	1.40	1.94	1.59	2.17
0.97	1.12	1.01	0.91	1.52	1.71	1.44	1.66
1.16	1.01	1.04	1.05	1.41	2.25	1.79	2.27
1.13	1.13	1.31	1.01	1.44	1.56	1.67	2.06
1.15	1.04	1.09	1.17	1.67	1.78	1.75	1.68
1.05	1.09	1.01	0.93	1.56	2.66	1.77	2.17
1.13	1.21	0.99	1.04	1.37	1.49	1.74	1.97
1.01	0.89	1.27	0.97	2.16	1.41	1.81	1.35
1.00	1.51	0.94	1.06	1.59	1.58	2.18	1.99
1.21	1.11	1.02	1.02	1.39	1.38	1.70	2.26
1.17	1.12	1.00	1.03	1.65	3.51	2.24	1.98
1.27	1.18	0.97	1.05	1.79	1.85	1.93	2.29
1.08	1.19	1.18	1.20	1.49	2.40	1.87	1.87
1.22	1.08	1.09	1.43	1.43	1.55	1.93	1.80
2.73	1.10	1.06	1.12	1.80	2.76	1.84	1.86
2.34	1.04	1.01	0.91	1.67	1.42	1.72	1.72

<sup>4</sup> Distance from start of the low noise on the inside lane of section N5 for OGFC and N8 for PEM

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
2.13	1.23	1.23	0.94	1.69	1.46	1.83	1.52
1.28	1.09	1.10	0.89	1.39	2.73	1.78	1.64
1.01	0.99	0.92	1.04	1.62	1.55	1.81	1.71
1.06	1.20	1.10	1.01	1.90	1.64	1.80	2.04
1.20	1.06	1.02	0.90	1.37	1.75	1.63	1.90
1.18	1.05	0.90	1.05	1.74	1.79	1.99	1.93
1.08	1.02	1.12	0.96	1.66	2.07	1.93	1.93
3.95	1.21	1.01	0.96	1.67	1.64	1.77	1.96
1.79	1.13	1.12	1.13	1.52	1.51	2.40	1.80
1.35	1.12	1.18	0.95	1.74	1.62	1.79	1.78
1.09	1.16	1.32	1.12	1.59	1.81	1.54	1.76
0.99	1.12	1.08	1.12	1.88	1.35	1.97	1.67
1.03	1.08	1.03	1.01	1.91	1.67	1.71	2.10
1.29	1.13	0.94	1.02	1.67	1.80	1.80	1.77
1.09	1.19	0.98	1.07	1.48	1.56	1.98	1.98
1.05	1.86	1.54	0.99	1.92	2.00	1.77	1.96
1.14	1.08	1.03	1.02	1.53	1.51	1.84	1.83
1.17	1.04	1.03	0.96	1.65	1.90	1.73	1.70
1.10	0.94	1.27	1.08	3.23	2.10	1.73	1.63
1.10	0.93	0.90	1.11	1.98	1.48	1.75	1.94
1.07	1.08	0.95	0.90	1.63	1.99	1.71	1.78
1.14	1.00	1.06	0.94	1.45	1.99	1.84	1.78
1.12	0.88	1.17	1.03	1.71	1.85	1.56	1.57
1.09	1.10	1.15	1.06	1.85	1.45	1.41	1.89
1.16	0.90	0.99	0.85	1.62	1.96	1.86	1.77
1.17	1.08	1.11	1.01	1.82	2.26	1.75	1.84
1.05	0.97	0.93	0.91	3.14	1.68	1.47	2.09
1.14	0.94	1.08	0.97	1.59	1.54	1.91	1.84
0.96	0.91	1.06	1.10	1.56	1.65	1.53	1.75
1.02	0.90	0.92	0.82	1.72	1.81	1.78	1.68
0.97	0.94	0.90	1.01	1.88	1.40	2.07	1.76
1.06	1.05	0.93	0.83	2.13	1.59	1.21	1.90
1.14	1.01	1.01	1.01	1.75	1.62	1.37	1.51
0.98	1.00	1.00	0.96	2.87	1.89	1.42	1.66
1.10	1.01	1.12	0.89	3.29	1.82	1.49	1.75
1.11	1.09	0.94	1.09	2.52	2.06	1.98	1.87
1.17	1.08	0.87	1.09	1.53	1.83	1.56	1.58
1.05	1.01	0.99	1.07	1.83	1.91	2.03	1.43
1.06	1.06	0.89	0.95	2.07	1.94	1.52	1.67
1.21	0.96	0.96	1.06	2.20	1.79	1.62	1.55
1.11	1.16	1.01	0.91	2.12	2.00	1.66	1.42
1.34	0.99	0.93	0.93	1.51	1.78	2.65	1.70
1.15	0.92	0.82	1.04	1.66	1.75	1.38	1.48
1.07	1.01	0.87	0.99	1.65	2.39	1.64	1.53
1.01	1.01	0.81	0.99	1.85	1.98	1.47	1.92
1.12	0.90	1.01	0.91	1.92	1.43	1.67	1.58
1.13	0.93	1.00	0.90	1.74	2.02	1.61	1.77
1.22	0.98	0.94	0.91	2.22	1.96	1.82	1.82
1.28	1.09	0.91	0.86	1.84	1.72	1.85	1.65
1.10	1.21	1.13	1.00	2.34	1.85	2.01	1.80
1.19	2.41	1.00	0.97	1.71	2.05	1.82	2.10
1.23	1.09	0.96	0.95	1.86	2.31	2.01	1.96

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
0.97	1.07	0.93	1.08	1.98	1.74	1.89	1.95
1.19	1.12	1.11	1.01	1.87	2.02	1.75	1.86
1.26	1.11	1.02	1.05	2.07	1.54	1.71	1.65
1.16	0.99	0.92	0.91	1.95	2.23	1.70	1.70
1.16	0.97	0.83	0.99	2.08	2.10	1.63	1.79
1.20	1.15	1.16	1.22	1.73	1.59	1.91	1.71
1.30	1.02	1.00	0.94	2.27	3.88	2.03	1.68
0.99	1.26	0.89	0.85	2.17	1.80	1.69	1.70
0.99	0.97	1.10	1.20	1.90	2.08	1.92	1.88
1.29	1.78	0.83	1.07	1.49	1.71	1.92	2.03
1.16	1.25	0.96	1.05	1.98	1.69	1.69	1.59
1.16	1.06	0.97	0.85	1.83	1.53	1.46	2.21
1.10	2.29	0.92	0.93	1.59	1.61	1.93	2.27
1.06	0.92	0.91	0.87	1.54	1.50	1.95	1.89
1.01	1.32	0.80	0.91	1.50	1.83	1.76	1.93
1.03	1.14	0.91	0.76	1.66	3.83	1.91	1.66
1.25	1.00	1.06	1.05	2.72	1.77	1.98	2.14
1.30	1.20	0.97	0.85	1.93	1.51	1.55	2.09
1.40	1.04	1.38	0.84	1.64	1.81	1.92	2.14
1.19	1.13	1.04	0.84	1.70	1.75	1.92	2.02
1.30	1.70	0.93	0.99	1.85	1.76	1.90	2.32
1.07	1.23	0.83	0.81	3.11	1.72	1.83	2.09
1.14	1.15	0.81	0.89	1.73	1.75	1.73	1.95
1.60	1.21	0.90	0.89	1.74	1.88	1.81	1.86
1.09	1.19	0.95	1.02	1.89	1.66	1.73	1.91
0.98	1.04	0.91	0.99	1.74	1.94	1.88	2.20
1.22	1.10	0.95	1.02	1.76	1.89	1.68	2.14
1.10	1.13	1.14	0.82	1.81	1.79	2.05	2.38
1.04	1.24	0.96	1.36	1.98	1.56	1.92	2.01
1.05	1.21	1.10	0.90	1.81	1.54	1.84	1.99
1.21	1.25	0.93	1.01	2.01	2.85	1.50	2.27
1.29	1.24	1.00	1.02	1.86	1.96	1.71	1.99
1.41	1.11	0.86	0.82	2.04	1.84	1.97	1.99
1.26	2.83	0.84	1.03	1.96	1.59	2.01	1.89
2.05	1.39	0.95	0.79	1.83	1.86	1.86	2.37
1.40	1.13	1.02	0.86	1.88	1.75	1.91	1.83
1.34	0.99	0.93	0.82	2.12	1.24	1.74	1.58
1.11	1.06	0.89	1.09	1.89	1.79	1.58	1.61
1.22	1.16	0.91	0.99	1.90	1.76	1.88	1.90
1.07	1.03	1.00	0.98	1.96	1.63	1.51	1.98
1.21	1.07	1.16	0.93	1.62	1.64	1.85	1.81
2.34	1.17	0.83	0.92	1.68	1.83	1.55	2.33
1.09	2.33	1.09	0.98	1.83	1.63	1.70	1.88
1.11	1.19	1.05	1.05	2.10	1.74	2.04	1.85
1.06	0.97	0.95	0.88	1.88	1.62	1.97	1.68
0.93	2.57	1.03	0.88	1.75	1.74	2.03	2.24
0.92	1.00	0.77	1.10	1.62	1.60	1.91	1.87
1.02	0.98	0.86	0.89	1.99	2.06	1.68	2.12
1.07	1.01	0.90	0.84	1.88	1.96	2.10	1.89
1.12	1.13	0.95	0.93	1.59	1.72	1.99	1.83
1.12	1.22	0.88	0.93	1.48	1.87	1.70	1.96
1.11	1.01	0.90	0.83	2.10	1.74	1.51	1.58

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
1.05	1.50	0.82	0.85	1.67	1.86	1.68	1.92
1.09	0.93	0.86	0.95	1.57	1.81	1.56	1.63
1.04	0.91	0.89	0.87	1.83	1.57	1.60	2.05
1.11	1.24	0.95	1.00	1.64	1.69	1.65	1.66
1.17	1.13	0.98	0.93	1.75	2.61	1.55	1.68
1.17	1.10	0.82	0.85	1.86	2.07	1.89	1.87
2.94	1.55	0.84	1.04	1.94	1.60	1.80	1.97
1.04	1.08	0.90	0.85	4.05	1.69	1.72	1.95
1.05	0.92	0.95	0.98	1.74	1.77	1.87	2.03
1.08	1.09	1.26	0.96	1.91	1.87	1.97	1.71
1.10	1.45	0.95	0.80	1.75	1.77	1.59	2.16
1.15	1.09	0.82	0.95	1.81	1.32	1.96	1.84
1.89	0.99	0.90	0.85	2.64	1.83	1.88	2.00
1.11	1.03	0.85	0.92	1.86	1.71	1.65	1.82
1.16	1.58	0.98	0.88	1.71	1.75	2.05	1.94
1.30	0.94	0.80	0.81	2.41	1.83	1.90	1.81
1.14	1.08	0.99	0.88	1.92	2.04	1.95	2.05
1.49	1.06	0.93	0.91	2.08	1.71	1.93	1.70
1.02	1.06	1.39	0.97	2.21	1.48	1.91	1.83
1.07	1.08	0.92	1.01	1.51	3.12	1.75	1.83
1.22	1.05	0.91	0.94	1.54	1.75	1.54	1.98
1.21	0.94	0.96	0.88	1.81	1.56	1.61	1.76
1.16	1.03	0.99	0.83	1.53	1.74	2.03	1.89
1.16	1.02	1.00	1.00	1.72	1.75	1.71	1.63
1.10	0.95	0.92	1.00	1.49	1.40	1.76	1.76
1.29	1.36	1.18	1.16	1.57	2.00	1.72	2.00
1.14	1.14	0.84	0.93	1.44	1.77	2.00	1.68
1.25	1.50	0.84	1.15	1.29	1.70	1.63	1.91
1.17	1.13	0.82	0.97	1.61	1.98	1.80	1.63
1.14	1.31	0.86	0.96	1.88	1.44	1.50	1.82
1.12	2.80	1.03	1.00	1.53	1.95	1.53	1.56
1.40	1.84	0.86	0.88	1.95	3.65	1.66	1.93
1.09	1.11	0.84	0.90	1.63	1.58	1.58	1.74
1.25	1.55	0.89	0.99	1.54	1.58	1.51	1.82
1.10	1.20	0.91	0.93	1.73	1.71	1.87	1.94
1.13	1.22	0.82	0.95	1.63	1.80	1.72	1.80
1.06	1.10	0.98	1.04	1.69	1.69	1.55	2.08
1.06	1.15	0.98	0.92	1.80	1.71	2.02	1.87
1.00	1.24	1.05	1.10	1.97	1.87	1.61	1.75
1.00	1.13	0.94	1.08	1.73	1.59	1.71	1.62
1.11	1.19	1.03	1.19	1.77	1.66	1.42	1.50
1.13	1.10	1.08	1.10	4.61	1.69	1.61	1.45
1.09	0.98	1.12	0.98	2.01	2.08	2.04	1.90
0.90	0.93	0.97	0.92	2.05	3.50	1.71	1.59
0.87	0.96	0.93	1.02	1.54	1.96	1.59	2.14
0.97	1.05	1.10	1.22	1.53	1.83	1.49	1.82
1.07	1.17	0.99	1.20	2.84	1.56	2.26	1.96
1.04	0.96	1.13	1.16	1.58	1.75	1.48	2.15
0.97	0.98	1.04	1.27	1.79	1.73	1.84	2.04
1.01	0.97	1.14	1.06	1.49	1.68	1.92	1.80
0.95	0.90	1.11	1.12	1.57	1.88	2.02	2.04
0.88	0.86	1.07	1.07	1.74	1.61	1.87	1.86



OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
0.85	0.98	1.07	1.12	1.63	1.65	2.18	2.05
1.02	0.97	1.00	1.08	1.60	1.58	1.80	1.81
0.93	0.87	1.17	1.03	1.65	1.60	1.96	1.87
0.89	0.95	1.02	0.92	1.45	3.72	1.69	2.28
0.91	0.86	1.38	1.10	1.69	2.06	1.91	1.68
0.81	1.48	1.23	1.13	1.72	2.10	2.25	2.17
0.89	0.85	1.21	1.46	1.63	2.38	2.30	2.13
0.76	0.95	1.16	1.14	5.12	1.97	1.75	1.90
0.79	0.83	1.15	1.14	1.40	1.77	1.61	2.24
0.90	0.87	1.22	1.35	1.56	1.87	1.71	2.62
1.03	1.01	1.30	1.23	1.77	1.84	1.81	2.09
0.85	0.85	1.27	1.15	1.70	2.14	1.79	1.90
0.95	0.93	1.13	1.18	1.60	2.21	1.63	2.14
1.01	0.92	1.15	1.03	1.73	1.68	1.51	1.71
1.01	0.92	1.55	1.21	3.62	1.97	1.71	1.81
0.82	0.86	1.22	1.09	1.57	1.48	2.01	2.19
0.88	0.90	1.01	1.24	1.71	1.80	1.73	2.26
0.86	0.99	1.50	1.34	1.74	1.95	2.01	1.91
0.98	0.92	1.16	0.97	1.43	1.79	1.94	1.89
0.90	0.93	1.11	1.22	1.81	1.62	1.67	1.77
0.96	0.89	1.24	1.07	1.53	1.60	1.87	2.17
0.85	0.89	0.95	1.04	1.67	1.84	2.12	2.09
0.93	0.90	1.05	1.01	2.39	1.71	2.02	1.92
0.87	0.90	1.06	1.32	1.84	2.48	1.71	2.02
0.92	0.73	1.18	1.15	1.46	1.97	1.62	1.87
0.85	0.75	1.13	1.10	1.63	2.11	1.52	1.61
0.97	0.96	0.96	0.96	1.61	1.88	1.92	1.64
1.05	0.79	1.07	0.98	2.03	2.25	1.55	1.62
1.00	0.78	1.27	1.23	1.68	2.07	1.81	1.90
0.93	0.89	1.16	1.03	1.76	1.98	1.69	1.84
0.94	0.66	1.02	1.18	2.15	1.73	1.82	1.95
0.90	0.72	1.04	1.25	1.74	2.08	1.87	2.00
1.51	0.75	1.06	1.00	2.04	2.13	1.55	1.49
1.06	0.75	0.99	0.98	1.92	1.85	1.82	2.10
0.94	0.89	1.17	1.00	2.20	2.16	1.57	1.51
1.10	0.97	0.95	1.04	1.86	2.12	1.81	1.72
1.03	0.92	1.15	1.15	2.31	2.23	1.71	1.68
0.87	0.86	1.06	0.91				
0.94	1.01	1.06	0.90				
0.93	0.89	1.20	1.02				
0.85	0.83	0.96	1.12				
0.85	0.93	0.94	0.91				
1.02	0.84	1.20	1.03				
0.79	1.12	1.19	1.12				
0.95	0.87	0.98	1.33				
1.06	0.83	1.11	1.19				
0.84	0.84	1.15	1.12				
0.83	0.99	1.17	1.12				
1.29	1.27	1.08	0.95				
0.92	1.11	1.21	1.17				
0.90	0.86	1.21	1.05				
1.00	0.94	1.08	1.24				

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
0.89	1.02	1.31	1.24				
1.06	1.04	1.41	1.36				
0.84	0.97	1.22	1.13				
0.96	0.99	1.35	1.37				
0.86	0.92	1.14	1.10				
0.97	0.96	1.24	1.06				
1.11	1.09	1.12	1.30				
1.43	0.84	1.02	1.24				
0.87	1.01	1.13	1.12				
0.86	0.98	1.08	1.13				
0.97	0.99	1.07	1.10				
1.69	1.26	1.01	1.14				
1.27	1.00	1.08	1.30				
0.95	0.93	1.22	1.05				
1.03	1.11	0.92	1.20				
0.92	0.94	1.28	1.16				
1.02	0.90	1.31	1.17				
0.85	0.90	1.10	1.04				
1.06	0.77	1.00	1.07				
0.84	1.04	1.05	1.00				
0.80	0.73	0.92	1.00				
0.95	0.81	1.21	1.02				
0.83	0.71	0.97	0.94				
0.86	0.84	1.04	1.14				
0.88	0.76	1.15	1.04				
1.07	0.88	1.05	1.25				
0.94	0.96	1.11	1.06				
0.94	0.90	0.99	1.14				
0.97	0.96	1.18	1.08				
1.07	0.78	1.06	1.30				
2.11	1.75	0.99	1.10				
1.02	0.82	0.99	1.05				
0.96	0.85	1.12	1.11				
1.24	0.88	1.31	1.22				
0.91	0.86	1.11	1.15				
1.08	0.99	1.00	1.41				
0.94	0.86	1.10	1.05				
0.97	0.88	1.05	1.26				
1.02	0.88	1.15	1.13				
0.95	0.87	1.09	1.05				
1.00	0.86	1.10	1.03				
1.02	0.97	1.02	1.13				
0.93	0.84	1.13	0.98				
0.83	1.06	1.14	1.01				
0.81	0.98	0.94	1.10				
0.98	0.91	1.11	0.91				
1.15	0.97	0.99	1.08				
0.98	0.97	1.21	0.99				
0.91	0.84	1.08	1.05				
0.90	0.81	1.06	0.98				
0.93	0.99	1.03	0.92				
0.89	1.00	1.13	1.07				

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
0.90	0.90	1.20	1.03				
0.97	0.83	1.25	1.00				
0.99	1.11	1.12	1.16				
1.00	0.93	0.94	0.88				
1.04	0.89	0.87	1.18				
0.97	0.95	1.11	1.02				
0.97	0.87	1.02	0.98				
1.07	0.92	1.00	1.04				
0.88	0.96	0.97	0.98				
1.18	0.90	1.16	1.01				
0.92	1.01	1.31	1.10				
1.04	0.97	1.05	1.10				
0.95	0.88	1.01	0.94				
0.95	0.98	1.04	0.99				
1.88	0.93	0.97	1.00				
0.90	1.00	0.99	1.07				
1.02	1.08	1.11	1.06				
1.28	0.93	1.16	1.10				
1.02	1.31	1.03	0.96				
0.91	1.30	1.17	1.11				
1.01	1.11	1.16	1.09				
0.92	1.14	1.05	1.15				
1.01	1.17	1.40	1.19				
1.08	1.23	1.14	1.21				
1.01	1.03	1.12	1.08				
1.19	0.98	1.21	1.23				
1.08	1.27	0.98	1.05				
1.01	0.89	1.09	1.29				
1.04	1.10	0.96	1.30				
1.12	1.00	1.18	1.09				
1.49	0.91	1.16	1.22				
0.81	3.11	1.32	1.14				
0.98	0.97	1.08	1.23				
1.02	1.04	1.10	1.12				
1.12	0.85	1.14	1.19				
1.11	1.00	1.08	1.11				
1.05	1.11	1.13	1.16				
1.01	0.95	1.25	1.16				
0.95	1.12	1.34	1.22				
0.95	1.21	1.21	1.26				
1.01	0.92	1.09	1.22				
1.56	1.01	1.03	1.28				
1.26	1.07	1.26	1.08				
1.08	1.10	1.13	1.02				
1.03	0.94	1.17	1.18				
0.99	1.04	1.24	1.21				
1.08	0.98	1.04	1.05				
1.19	0.99	1.14	1.18				
1.04	1.06	1.22	1.04				
1.27	0.89	1.07	1.28				
1.10	1.08	1.26	1.34				
1.54	1.06	1.16	1.07				

OGFC Mixture				PEM Mixture			
With Traffic		Against Traffic		With Traffic		Against Traffic	
Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
1.28	1.00	1.13	1.26				
1.05	1.12	0.98	1.13				
0.95	0.97	1.19	1.18				

**APPENDIX B: CPX SOUND PRESSURE MEASUREMENTS**

**Table 12. 9-Nov-2005 Section N5 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.59	68.38	72.47	68.11	71.72	68.72
398	74.90	71.30	73.53	70.91	74.24	71.46
501	80.28	78.22	80.19	78.12	80.17	78.07
631	84.21	84.31	83.58	84.14	84.09	84.50
794	79.90	81.85	79.49	81.53	79.72	81.50
1000	81.18	80.75	80.89	80.82	81.03	80.64
1259	78.59	81.86	78.44	81.28	78.58	82.00
1585	75.97	76.55	76.27	76.65	75.05	76.88
1995	74.35	73.26	74.48	73.92	73.73	73.26
2512	75.35	74.33	75.77	74.37	74.43	73.22
3162	68.63	70.66	68.88	70.50	67.67	70.07
3981	66.07	66.84	66.73	66.67	64.47	65.49

**Table 13. 9-Nov-2005 Section N5 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.88	66.86	72.15	66.53	71.64	65.98
398	71.64	68.42	70.58	67.48	70.22	67.50
501	77.09	74.24	75.93	73.18	76.11	73.24
631	80.00	79.59	79.32	78.88	78.59	78.53
794	77.68	80.96	77.31	80.73	76.83	80.75
1000	78.69	77.77	77.82	77.46	78.14	77.53
1259	74.54	75.76	73.94	75.47	74.22	75.30
1585	74.58	74.44	74.80	74.74	75.58	74.74
1995	72.30	70.60	72.44	70.77	72.99	71.47
2512	72.76	71.65	72.73	71.72	72.97	72.47
3162	67.25	69.38	66.95	69.30	67.32	69.81
3981	63.43	64.16	63.18	63.78	63.69	64.36

**Table 14. 9-Nov-2005 Section N6 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.90	68.36	71.18	67.34	71.37	67.59
398	74.40	71.01	73.79	71.07	73.76	70.67
501	78.00	77.39	77.99	77.23	77.47	77.33
631	79.65	79.14	78.71	78.97	79.12	79.09
794	75.01	76.89	73.23	75.86	74.61	76.72
1000	78.96	76.92	78.77	76.64	78.56	76.91
1259	82.40	80.42	81.99	79.65	82.55	80.11
1585	79.75	81.35	79.96	80.75	80.03	81.44
1995	73.69	74.80	73.29	74.38	73.88	75.18
2512	73.23	72.72	72.62	72.24	72.76	72.56
3162	67.75	69.47	67.29	68.69	67.41	69.00
3981	66.00	66.49	65.49	65.95	66.06	66.08

**Table 15. 9-Nov-2005 Section N6 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.13	67.01	72.95	66.82	71.80	66.73
398	70.87	68.26	70.67	68.27	69.98	67.79
501	75.02	72.54	74.63	72.25	74.24	72.00
631	74.05	74.36	73.87	74.20	73.40	73.84
794	73.26	76.40	73.99	76.63	73.75	76.90
1000	76.10	73.19	76.14	73.43	76.30	74.09
1259	78.63	76.59	78.71	77.06	78.71	77.43
1585	79.92	78.93	80.15	79.13	80.20	79.37
1995	72.59	73.00	72.75	72.99	72.68	73.07
2512	70.48	70.15	70.46	70.33	70.40	70.37
3162	66.74	67.68	66.77	67.94	66.80	67.84
3981	64.54	64.16	64.58	64.49	64.64	64.54

**Table 16. 9-Nov-2005 Section N7 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	70.79	67.24	71.54	68.12	70.95	68.19
398	73.89	70.99	74.50	71.15	74.01	71.24
501	78.59	78.05	78.99	78.27	78.68	78.63
631	80.25	79.76	79.86	79.86	80.36	80.24
794	73.95	76.81	74.06	76.35	74.39	77.00
1000	76.62	75.41	77.38	76.22	76.39	75.60
1259	82.14	79.18	81.85	79.42	82.18	79.35
1585	81.75	82.03	81.01	81.37	81.32	81.52
1995	75.64	76.52	75.10	76.30	75.43	76.41
2512	72.91	73.16	72.66	73.09	72.46	72.83
3162	67.91	68.66	67.58	68.99	67.14	68.46
3981	66.49	66.57	66.29	66.74	66.29	66.23

**Table 17. 9-Nov-2005 Section N7 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.79	66.32	71.64	66.29	71.13	65.81
398	70.53	67.78	70.46	67.42	69.38	67.09
501	75.16	72.87	74.90	73.15	74.32	71.94
631	74.34	74.97	74.77	75.47	73.87	74.56
794	72.86	76.12	72.95	76.39	72.71	76.21
1000	74.57	70.70	74.21	70.81	74.45	71.44
1259	79.21	76.74	79.00	76.68	79.03	76.91
1585	81.62	80.27	81.42	80.25	81.33	80.18
1995	75.25	74.93	74.82	75.04	74.93	74.83
2512	70.71	71.56	70.18	71.75	70.71	71.96
3162	66.97	67.78	66.72	67.26	66.92	67.63
3981	65.06	64.74	64.87	64.55	65.14	64.71

**Table 18. 9-Nov-2005 Section N8 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.21	73.60	76.42	72.67	76.68	73.95
398	80.37	77.22	80.12	77.08	81.00	77.68
501	85.76	84.06	85.66	83.66	85.97	84.34
631	87.27	86.85	87.12	86.93	88.16	88.07
794	80.54	82.40	80.10	82.10	80.88	83.08
1000	78.18	79.28	78.88	79.29	79.17	79.87
1259	82.32	80.13	81.90	80.48	82.00	80.43
1585	82.48	80.99	81.83	80.68	81.93	80.45
1995	77.08	77.58	76.78	77.44	76.87	77.52
2512	74.34	75.42	74.50	75.83	74.10	75.00
3162	67.47	69.35	71.43	70.48	66.69	68.94
3981	66.63	66.64	70.46	67.41	66.25	65.87

**Table 19. 9-Nov-2005 Section N8 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.01	71.42	77.86	71.75	77.14	71.35
398	77.17	73.71	77.30	73.49	76.06	72.63
501	83.10	80.80	83.91	81.45	81.93	79.40
631	83.91	83.96	85.15	85.34	82.56	83.07
794	78.57	82.13	79.46	82.80	78.04	81.59
1000	74.43	75.53	75.02	76.62	74.48	74.88
1259	77.95	76.27	78.12	76.66	78.24	76.54
1585	80.37	79.73	79.86	79.68	80.72	79.84
1995	75.66	75.46	75.16	75.33	75.95	76.22
2512	71.69	72.92	71.42	73.17	72.27	73.74
3162	66.49	67.60	65.84	67.17	67.80	68.48
3981	65.40	64.75	64.83	64.10	66.79	65.25

**Table 20. 9-Nov-2005 Section N9 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.30	72.88	76.04	73.31	76.17	73.26
398	78.57	75.56	78.14	75.74	78.59	75.00
501	83.94	81.54	83.43	80.51	83.56	81.12
631	87.59	87.13	87.22	87.03	87.58	87.28
794	85.38	87.25	85.46	87.14	85.82	87.76
1000	87.29	87.06	87.81	87.80	87.76	87.72
1259	84.51	87.48	84.41	87.49	84.63	87.63
1585	79.36	83.08	79.00	82.72	79.01	82.90
1995	72.00	73.33	71.29	72.81	71.61	73.45
2512	73.62	72.79	73.08	71.99	73.21	72.14
3162	69.80	70.19	69.67	70.25	69.54	70.16
3981	67.93	67.73	68.10	69.12	68.04	67.87

**Table 21. 9-Nov-2005 Section N9 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.54	71.13	77.77	71.63	77.54	71.09
398	76.01	72.15	76.30	72.62	75.50	72.06
501	81.36	77.99	81.37	77.86	80.94	77.59
631	85.24	84.52	85.41	84.62	84.93	84.47
794	83.38	86.36	83.74	86.70	83.38	86.33
1000	84.78	85.96	84.03	86.04	83.27	85.25
1259	81.75	83.47	81.32	83.16	81.19	83.20
1585	78.35	79.24	78.47	79.31	78.42	79.51
1995	68.78	70.98	68.32	70.82	68.64	70.94
2512	71.17	69.29	70.09	67.49	70.70	68.56
3162	68.93	69.41	68.18	67.52	68.79	68.72
3981	67.20	68.90	66.57	65.58	66.97	66.99

**Table 22. 8-May-2006 Section N5 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.31	68.06	73.32	68.84	73.56	68.82
398	75.36	72.12	75.12	71.80	75.17	71.71
501	81.45	78.86	81.74	78.97	81.25	78.38
631	84.44	84.48	84.94	84.80	84.38	84.51
794	80.64	81.98	80.66	82.08	80.79	81.85
1000	82.20	81.86	81.90	81.74	81.42	81.81
1259	78.53	81.94	78.23	81.91	77.86	81.73
1585	77.06	76.13	76.61	76.23	76.84	76.69
1995	75.83	75.95	75.98	76.34	76.07	76.56
2512	75.07	76.62	74.89	76.40	74.96	76.11
3162	68.41	71.94	68.35	71.61	67.95	71.23
3981	64.25	66.22	64.07	65.89	64.21	65.75

**Table 23. 8-May-2006 Section N5 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.84	67.26	72.89	67.08	72.74	67.73
398	72.22	68.70	71.50	68.50	71.49	68.47
501	76.68	74.06	76.88	74.19	76.70	73.90
631	79.63	80.15	79.79	79.97	79.56	79.67
794	77.17	81.26	77.64	80.93	77.39	81.02
1000	77.62	78.13	78.16	78.72	77.90	78.88
1259	74.63	76.91	74.77	76.82	74.95	76.86
1585	76.28	76.43	75.53	76.27	75.57	76.30
1995	75.25	73.30	74.64	72.58	74.60	73.00
2512	73.42	74.84	72.81	74.30	72.95	74.39
3162	68.11	70.68	67.81	70.53	67.84	70.25
3981	63.40	64.67	63.07	64.54	63.02	64.40



**Table 24. 8-May-2006 Section N5 (45 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	70.78	69.37	71.34	69.23	71.14	69.12
398	73.68	73.42	73.87	73.46	73.85	72.96
501	79.46	78.87	79.95	79.04	79.88	78.63
631	83.53	83.34	83.55	83.27	83.36	83.48
794	82.66	84.88	82.37	84.76	82.39	84.77
1000	79.34	80.60	79.63	80.87	78.51	79.93
1259	73.25	77.00	74.19	77.28	74.16	76.88
1585	74.95	74.78	75.99	75.39	77.39	76.66
1995	76.92	76.80	77.24	76.89	77.70	77.73
2512	73.23	75.74	73.06	75.55	73.86	76.06
3162	66.67	69.95	66.60	69.56	68.30	70.13
3981	62.69	64.83	63.02	64.81	66.60	66.69

**Table 25. 8-May-2006 Section N6 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.53	68.34	72.21	68.02	72.12	68.38
398	75.02	71.77	74.79	71.54	74.61	71.89
501	78.95	78.05	77.78	77.52	78.29	77.65
631	79.22	79.37	78.27	78.79	78.57	78.54
794	76.00	77.34	75.87	76.49	75.91	77.26
1000	81.19	79.33	81.55	79.86	80.97	79.77
1259	83.14	82.42	83.62	82.31	83.40	82.24
1585	79.61	81.46	80.06	81.51	79.70	81.70
1995	73.74	76.03	74.45	76.11	73.95	75.93
2512	72.91	74.83	73.03	74.65	72.51	74.04
3162	68.78	71.14	69.06	70.75	68.12	70.38
3981	65.16	67.19	65.42	67.08	64.94	66.49

**Table 26. 8-May-2006 Section N6 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.87	66.63	71.86	66.01	71.99	66.01
398	71.70	68.72	70.40	68.20	70.52	68.21
501	74.04	72.87	73.74	72.19	72.93	71.61
631	73.83	73.78	72.81	72.85	72.71	73.52
794	74.32	75.94	74.60	75.42	74.65	75.80
1000	80.22	76.78	79.97	76.54	80.57	76.92
1259	80.53	79.48	80.28	79.84	80.45	79.94
1585	79.16	79.42	79.32	79.31	79.11	79.50
1995	73.02	72.64	73.56	73.34	73.42	73.45
2512	70.50	71.65	71.65	72.90	71.61	72.99
3162	68.20	69.33	69.09	70.37	68.99	70.44
3981	63.82	65.49	64.09	65.87	64.15	65.86

**Table 27. 8-May-2006 Section N6 (45 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.24	69.63	70.62	69.76	70.84	69.19
398	73.32	72.71	73.29	72.77	73.34	71.61
501	75.71	77.03	75.68	76.88	75.35	76.80
631	76.25	76.79	76.41	77.18	75.85	76.63
794	77.09	79.16	77.72	79.87	77.91	79.10
1000	79.64	78.47	79.81	78.49	80.54	79.04
1259	80.25	80.78	80.86	81.21	80.81	81.40
1585	78.87	79.95	79.62	80.41	79.33	80.23
1995	74.38	75.16	75.29	75.66	74.94	75.41
2512	71.09	73.54	71.97	74.24	72.11	74.20
3162	67.41	69.47	68.43	70.52	68.55	70.81
3981	64.21	66.44	64.97	67.17	65.01	67.15

**Table 28. 8-May-2006 Section N7 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.14	69.13	73.76	69.30	73.36	68.96
398	76.58	72.79	76.16	72.36	76.04	72.88
501	81.27	79.76	79.94	78.17	80.50	79.34
631	82.02	82.47	80.26	79.97	81.02	81.22
794	75.47	78.48	75.90	77.15	75.67	77.51
1000	77.79	77.85	80.20	78.79	78.09	78.10
1259	82.57	80.49	83.46	81.83	82.84	80.69
1585	80.96	81.02	81.39	81.89	80.89	80.90
1995	76.02	77.42	75.59	77.74	75.70	77.12
2512	72.84	75.55	72.87	74.98	71.86	74.42
3162	69.59	70.77	69.35	71.10	67.76	69.39
3981	70.24	68.06	65.77	67.33	64.88	66.33

**Table 29. 8-May-2006 Section N7 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.51	67.54	73.24	67.53	72.53	67.38
398	72.64	69.58	72.24	70.13	72.09	69.06
501	76.67	75.68	76.08	75.08	75.28	73.72
631	76.89	77.33	76.00	76.44	74.31	75.23
794	74.33	77.01	74.94	76.30	74.82	76.22
1000	77.10	73.83	79.70	75.29	80.33	76.84
1259	79.60	78.47	80.74	79.43	80.97	79.94
1585	79.81	79.64	80.48	80.33	80.46	80.43
1995	75.11	74.50	74.75	75.05	74.62	75.07
2512	70.44	73.03	70.50	72.75	71.02	72.97
3162	68.03	68.10	69.06	69.74	69.20	70.14
3981	63.80	65.18	64.16	65.77	64.15	65.90

**Table 30. 8-May-2006 Section N7 (45 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.46	69.91	72.44	70.30	72.66	70.15
398	74.99	73.49	74.47	72.76	74.91	73.06
501	78.53	78.58	78.54	77.90	78.42	78.87
631	78.10	78.21	77.83	78.52	78.23	78.36
794	76.34	80.27	76.92	79.68	76.76	79.70
1000	77.56	76.96	79.43	78.05	79.12	77.70
1259	80.62	80.47	81.35	81.11	80.90	80.93
1585	81.05	81.16	81.32	81.62	81.01	81.33
1995	76.36	77.31	76.19	77.14	76.30	77.28
2512	70.36	73.44	70.92	73.69	70.85	73.33
3162	67.86	68.82	68.18	69.85	68.94	69.80
3981	66.23	66.45	65.01	66.70	66.47	67.05

**Table 31. 8-May-2006 Section N8 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	80.23	74.25	79.38	74.68	79.82	75.28
398	82.75	78.99	81.54	77.85	83.23	79.78
501	87.90	85.30	87.03	84.52	87.69	85.44
631	87.54	88.21	87.52	87.64	88.67	89.24
794	80.79	83.37	80.75	82.93	81.83	84.62
1000	80.74	81.70	80.82	81.60	81.31	82.16
1259	82.34	82.18	82.11	82.00	82.07	81.64
1585	82.04	80.56	81.15	80.41	80.68	80.11
1995	79.05	79.46	77.14	78.66	77.09	78.67
2512	81.52	79.29	73.46	76.56	73.03	76.27
3162	82.32	77.17	69.82	71.69	69.15	70.46
3981	81.38	76.32	67.13	69.44	66.33	67.58

**Table 32. 8-May-2006 Section N8 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.56	74.53	79.26	73.50	79.20	73.02
398	79.32	76.02	78.54	74.84	78.50	74.97
501	84.52	83.03	84.11	82.39	83.18	81.17
631	85.43	85.81	84.54	85.20	85.47	85.16
794	79.84	83.00	79.15	82.55	82.04	83.15
1000	78.27	77.68	78.06	77.03	81.99	78.48
1259	79.73	77.69	79.53	78.02	85.32	81.22
1585	79.29	79.51	79.74	79.90	86.26	84.06
1995	75.86	75.62	75.55	75.95	93.42	89.59
2512	71.04	74.38	71.05	74.24	90.20	92.66
3162	68.77	69.80	69.19	70.27	86.65	87.35
3981	65.27	67.29	65.68	68.21	89.21	86.17

**Table 33. 8-May-2006 Section N8 (45 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.33	74.28	76.96	73.59	77.28	74.33
398	81.00	78.88	79.97	78.50	81.53	79.50
501	86.16	84.96	85.67	84.39	86.16	85.71
631	86.14	85.87	85.59	85.56	85.83	85.86
794	80.91	84.31	81.44	84.78	80.91	84.15
1000	78.06	79.98	78.85	79.95	78.18	79.77
1259	79.61	80.00	80.45	80.80	79.99	79.91
1585	81.03	80.65	81.45	81.39	81.03	80.78
1995	76.95	78.13	77.06	78.35	76.91	78.00
2512	71.27	73.87	71.14	74.29	70.36	73.70
3162	69.51	69.59	67.95	68.91	67.01	67.89
3981	71.41	69.29	65.24	66.78	64.44	65.65

**Table 34. 8-May-2006 Section N9 (45 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.78	74.63	78.55	74.40	79.02	74.71
398	81.34	77.77	80.00	76.52	80.28	76.88
501	86.01	82.45	85.23	81.34	85.29	81.69
631	90.00	88.77	88.61	87.89	88.81	87.74
794	88.49	89.93	87.51	89.12	87.19	88.54
1000	89.75	90.24	89.57	89.68	89.10	89.65
1259	84.13	88.53	83.33	87.96	83.95	88.32
1585	77.52	81.88	76.84	80.66	76.91	81.24
1995	71.62	74.39	72.94	74.62	72.57	74.84
2512	72.98	74.27	73.70	74.73	73.09	74.21
3162	70.88	71.89	71.11	72.07	70.87	71.57
3981	67.54	68.93	67.38	68.67	67.61	68.99

**Table 35. 8-May-2006 Section N9 (45 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.49	72.57	78.14	72.81	77.44	72.00
398	76.85	73.15	76.64	73.19	75.58	72.70
501	81.36	78.37	80.95	77.98	80.64	77.74
631	85.11	84.63	84.95	84.46	84.44	84.28
794	83.98	87.18	83.32	86.65	83.22	86.50
1000	85.23	87.29	85.00	87.11	85.21	87.21
1259	81.06	84.42	80.35	84.01	80.37	83.78
1585	75.29	77.90	74.95	77.46	74.83	76.87
1995	69.21	70.55	70.49	70.47	70.81	70.50
2512	71.01	70.63	71.96	71.50	72.18	71.98
3162	70.64	70.83	70.54	70.98	70.62	71.32
3981	66.57	68.29	66.15	67.40	65.75	67.34

**Table 36. 8-May-2006 Section N9 (45 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.74	74.02	76.03	73.25	74.95	72.32
398	79.16	77.55	77.83	76.41	77.66	76.01
501	85.26	83.30	84.02	82.34	83.42	81.55
631	89.18	88.57	88.16	87.52	88.29	87.66
794	87.90	89.91	87.46	89.58	87.76	89.90
1000	86.13	88.13	86.07	87.75	86.11	87.79
1259	81.10	85.82	80.86	85.30	80.47	84.89
1585	76.59	79.37	76.08	78.92	75.28	78.10
1995	70.01	72.56	72.09	72.98	72.46	72.75
2512	70.62	71.64	72.03	72.90	72.59	73.68
3162	69.39	70.46	69.66	70.67	69.70	70.86
3981	66.08	68.03	65.85	67.69	65.76	67.77

**Table 37. 17-Jul-2006 Section N5 (60 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.63	72.28	74.59	72.23	74.25	71.65
398	76.78	73.40	76.15	73.59	75.94	72.90
501	82.84	78.65	81.57	77.79	81.63	77.51
631	85.34	85.16	84.64	84.47	84.41	84.37
794	84.60	85.08	84.83	85.43	84.84	85.46
1000	85.79	85.56	85.40	85.06	85.10	84.86
1259	80.70	84.03	80.42	83.23	80.06	83.49
1585	81.29	80.16	81.59	80.88	81.73	80.81
1995	79.47	81.12	80.12	81.42	79.69	81.06
2512	78.73	79.93	78.77	79.67	78.01	79.12
3162	72.91	76.12	72.72	75.81	72.46	75.36
3981	68.71	71.15	69.11	71.08	68.80	70.37

**Table 38. 17-Jul-2006 Section N5 (60 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.92	71.36	71.97	70.94	73.28	71.59
398	74.24	71.49	73.46	70.52	74.56	71.28
501	77.82	77.07	77.76	76.20	78.38	77.41
631	81.51	81.20	81.39	80.87	82.44	81.65
794	79.93	83.37	79.23	82.73	80.20	83.53
1000	83.31	84.58	82.40	84.13	82.59	84.18
1259	78.10	81.43	77.25	80.61	77.52	81.01
1585	77.62	77.99	78.02	78.00	77.19	77.62
1995	78.41	77.05	78.45	77.54	77.64	76.58
2512	77.57	79.78	77.33	79.61	76.95	79.17
3162	72.93	75.54	72.66	75.39	72.28	75.32
3981	68.30	70.54	68.28	70.70	67.56	69.73

**Table 39. 17-Jul-2006 Section N5 (60 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.08	70.37	72.44	69.78	72.73	70.67
398	76.11	72.89	74.97	72.83	75.58	73.20
501	81.03	78.90	80.29	77.36	81.77	78.30
631	82.65	82.59	82.40	82.69	83.38	83.73
794	83.36	83.92	82.58	83.28	83.51	84.69
1000	84.45	87.17	83.80	87.52	84.50	87.84
1259	77.57	83.26	77.39	82.45	77.32	83.22
1585	77.33	77.33	76.68	76.80	76.24	76.67
1995	77.94	77.84	77.82	77.77	78.02	77.41
2512	76.90	79.09	76.74	78.96	77.10	79.30
3162	71.85	74.64	71.78	74.29	71.78	74.32
3981	67.84	71.40	67.93	71.01	67.49	70.06

**Table 40. 17-Jul-2006 Section N6 (60 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.90	72.16	74.16	72.02	75.49	72.11
398	76.10	73.17	75.07	73.84	75.79	73.70
501	80.89	76.85	80.36	76.78	79.87	76.14
631	79.32	79.90	79.33	79.61	79.42	79.60
794	81.16	79.86	81.25	79.83	81.70	81.00
1000	84.22	83.05	84.83	83.05	84.44	83.05
1259	84.87	84.44	84.49	84.27	84.19	84.14
1585	84.60	85.69	84.32	85.84	84.30	85.51
1995	78.47	82.27	78.33	82.31	78.18	82.04
2512	77.51	79.14	76.90	78.63	76.32	77.98
3162	73.21	75.72	72.90	74.96	72.47	74.45
3981	70.06	72.02	69.94	71.79	69.77	71.16

**Table 41. 17-Jul-2006 Section N6 (60 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.29	72.01	71.89	70.59	72.25	71.42
398	75.57	72.07	74.61	71.47	74.29	71.23
501	76.76	76.73	76.52	76.58	76.01	76.00
631	77.82	77.94	76.21	76.66	76.64	76.63
794	76.10	78.07	76.40	78.11	76.09	77.69
1000	82.30	81.43	82.74	81.52	82.75	81.61
1259	82.86	82.18	82.79	82.34	82.68	82.72
1585	81.63	82.60	81.72	82.40	81.37	82.54
1995	78.38	78.67	77.82	78.70	77.81	78.52
2512	75.22	78.16	75.25	78.32	75.48	78.19
3162	72.69	74.11	72.40	74.26	72.68	74.40
3981	68.93	70.80	68.80	70.96	68.79	70.70

**Table 42. 17-Jul-2006 Section N6 (60 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.81	69.74	73.07	70.13	73.08	70.46
398	75.18	72.72	74.85	72.88	75.29	73.29
501	78.74	76.62	78.81	76.54	79.35	76.35
631	77.12	78.00	76.73	78.15	76.35	76.92
794	77.99	78.39	78.54	78.54	78.28	78.48
1000	84.36	83.66	83.92	83.67	85.04	83.94
1259	82.28	82.91	82.58	83.17	83.29	84.17
1585	80.50	80.95	80.97	81.60	81.28	82.38
1995	77.54	78.14	75.93	77.88	77.34	78.91
2512	74.94	76.98	73.90	76.24	75.68	78.00
3162	71.75	73.63	71.22	72.81	72.31	73.96
3981	68.35	71.28	67.89	70.66	68.64	71.66

**Table 43. 17-Jul-2006 Section N7 (60 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.60	73.20	76.09	72.94	75.12	72.84
398	78.12	75.43	77.34	74.48	77.40	74.14
501	84.13	80.23	82.41	78.85	82.19	78.90
631	83.63	84.60	82.29	82.85	81.90	81.63
794	81.77	82.01	81.23	80.85	81.40	81.18
1000	83.10	82.67	83.80	83.34	83.66	82.77
1259	85.05	83.94	85.19	84.84	85.06	84.66
1585	85.74	85.14	85.47	86.52	85.51	86.31
1995	79.82	83.20	79.89	83.34	80.07	82.77
2512	77.03	79.43	77.10	79.52	76.78	78.34
3162	73.05	74.95	73.77	75.54	73.27	74.67
3981	69.91	71.65	70.34	72.45	70.24	71.62

**Table 44. 17-Jul-2006 Section N7 (60 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.03	73.25	73.38	72.62	73.85	72.66
398	76.75	73.31	76.73	72.55	75.88	72.04
501	81.69	80.66	80.25	79.49	78.63	78.00
631	82.46	82.48	80.08	81.18	79.70	79.24
794	78.96	82.18	78.40	81.20	77.07	79.24
1000	80.29	81.03	80.16	80.08	82.20	81.34
1259	81.94	80.74	82.43	81.22	83.38	82.25
1585	82.53	82.47	82.86	82.75	83.21	83.47
1995	80.07	79.87	79.81	80.28	78.97	80.06
2512	75.68	79.61	76.25	79.91	74.61	78.45
3162	72.36	73.96	72.68	74.04	72.60	74.04
3981	68.73	70.93	69.69	71.19	68.77	70.90

**Table 45. 17-Jul-2006 Section N7 (60 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.19	71.74	74.53	71.99	74.23	70.54
398	77.35	74.15	77.69	74.29	76.24	73.11
501	82.59	80.28	82.41	79.95	80.88	78.27
631	81.09	81.93	80.30	81.24	79.43	80.00
794	79.31	80.58	78.94	80.51	78.71	78.75
1000	80.62	81.40	81.99	81.67	84.67	83.35
1259	81.90	81.30	82.90	82.47	83.80	83.86
1585	81.93	81.75	82.62	82.44	83.15	83.60
1995	78.91	80.56	78.86	80.55	78.53	80.59
2512	74.47	78.44	73.98	77.85	74.89	77.94
3162	71.23	72.32	71.45	72.29	72.48	73.60
3981	68.26	70.46	68.09	70.83	69.02	71.38

**Table 46. 17-Jul-2006 Section N8 (60 mph) A-Weighted SPL GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	80.03	77.37	79.95	77.60	79.02	76.36
398	84.43	79.60	83.60	79.72	81.84	78.46
501	90.29	86.78	90.14	86.25	88.21	84.16
631	91.12	91.97	91.03	91.56	88.96	89.78
794	86.71	88.23	86.45	87.90	85.01	86.23
1000	86.83	86.63	86.50	87.04	85.19	85.80
1259	85.61	85.97	85.19	85.99	84.77	85.43
1585	84.92	84.35	84.57	84.21	84.92	84.81
1995	80.75	82.86	81.26	82.76	81.48	82.78
2512	77.52	80.89	77.60	80.59	78.12	80.00
3162	73.35	75.26	74.27	75.28	75.06	75.94
3981	70.48	71.91	71.46	71.96	75.64	73.64

**Table 47. 17-Jul-2006 Section N8 (60 mph) A-Weighted SPL UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.05	77.69	78.69	77.35	78.64	76.52
398	82.90	78.68	82.31	78.32	82.24	78.21
501	87.39	86.04	86.88	85.40	86.84	85.82
631	90.17	90.11	89.66	89.55	89.09	88.98
794	85.19	88.58	84.97	88.65	84.53	87.74
1000	83.40	85.94	83.07	85.59	82.49	84.66
1259	83.38	84.68	82.53	83.99	82.97	83.52
1585	83.86	84.19	83.47	84.22	83.46	84.08
1995	80.05	80.81	79.78	80.64	78.90	80.41
2512	76.69	80.18	76.10	79.43	75.27	78.99
3162	74.71	75.22	72.96	74.38	72.70	73.71
3981	71.85	72.96	70.00	71.49	69.54	70.80



**Table 48. 17-Jul-2006 Section N8 (60 mph) A-Weighted SPL SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.10	75.59	79.45	76.28	77.99	74.79
398	84.08	79.05	83.83	79.30	82.75	78.14
501	90.55	87.63	90.17	87.75	88.89	85.98
631	88.99	89.89	89.88	90.30	87.21	88.32
794	85.46	88.39	85.91	88.87	84.94	87.53
1000	82.65	85.47	81.35	85.16	82.13	85.08
1259	82.80	82.97	80.74	82.07	82.38	83.09
1585	83.55	82.84	81.77	81.28	83.23	82.94
1995	79.36	81.28	79.09	80.66	79.46	81.23
2512	75.41	78.99	74.92	78.52	75.80	79.12
3162	71.78	72.47	71.34	71.81	72.58	73.18
3981	68.84	70.19	68.48	69.57	69.03	70.56

**Table 49. 17-Jul-2006 Section N9 (60 mph) A-Weighted SPL GDYR Tire in dB(A)**

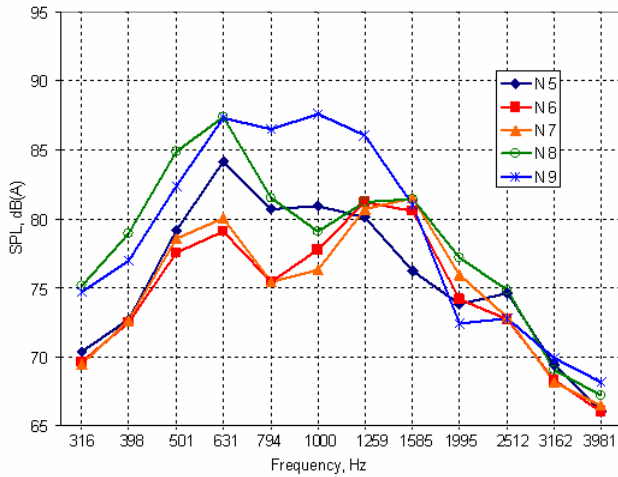
Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.39	76.87	79.73	77.31	78.81	76.22
398	81.44	78.38	82.90	77.87	81.46	77.39
501	87.00	83.05	87.76	83.72	86.64	82.54
631	90.46	89.56	91.54	90.39	90.43	89.26
794	90.66	91.55	91.27	92.33	90.59	91.45
1000	92.83	92.77	93.45	93.30	92.25	92.32
1259	87.39	91.48	87.06	91.54	86.19	90.98
1585	82.27	87.00	80.92	85.81	81.96	85.65
1995	79.32	81.25	76.80	79.75	78.37	80.06
2512	79.18	80.31	77.48	78.53	78.22	79.12
3162	75.83	77.39	75.14	76.35	75.10	76.85
3981	72.23	74.15	71.64	73.33	71.52	73.31

**Table 50. 17-Jul-2006 Section N9 (60 mph) A-Weighted SPL UNIR Tire in dB(A)**

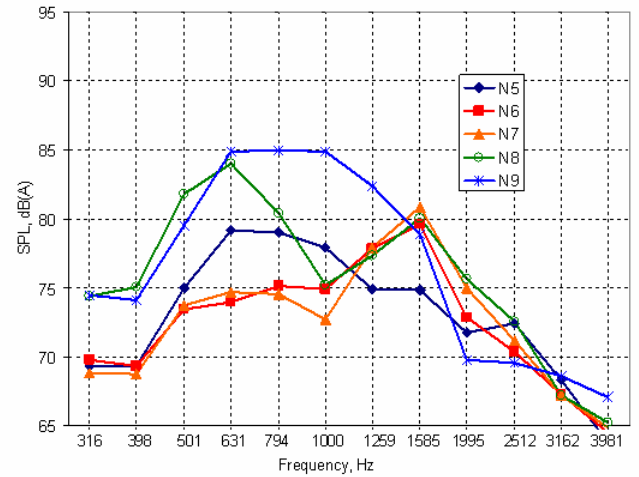
Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.47	75.74	77.32	75.64	78.72	77.26
398	79.85	76.28	78.88	75.49	80.39	76.32
501	83.90	82.62	82.50	80.64	84.31	81.58
631	89.04	87.93	87.74	87.03	88.90	88.00
794	87.36	90.49	86.22	89.41	87.63	90.58
1000	89.94	92.00	88.83	90.91	88.73	91.51
1259	85.35	89.73	84.57	88.92	84.96	89.21
1585	79.04	83.20	80.11	82.90	80.50	84.11
1995	75.15	75.39	77.23	77.51	75.94	77.25
2512	77.06	76.57	77.76	78.86	76.18	77.19
3162	75.78	76.42	75.39	77.06	74.71	75.56
3981	71.79	73.75	71.38	73.53	70.96	72.46

**Table 51. 17-Jul-2006 Section N9 (60 mph) A-Weighted SPL SRTT Tire in dB(A)**

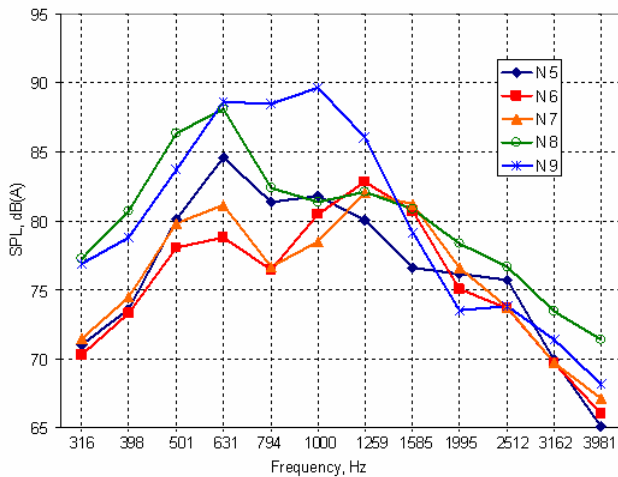
Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.77	74.38	77.96	74.83	77.22	73.92
398	81.02	76.28	82.21	77.82	80.86	76.48
501	86.48	83.76	87.86	85.50	86.34	83.06
631	90.49	90.03	91.11	90.67	89.87	89.71
794	89.81	92.53	90.68	93.02	89.71	92.17
1000	89.75	91.82	90.04	92.30	90.09	91.91
1259	84.57	90.21	84.70	90.16	84.63	89.89
1585	80.05	83.73	80.81	83.74	80.39	83.17
1995	75.31	76.45	73.32	76.11	77.59	77.64
2512	75.65	76.19	74.69	75.09	77.15	77.32
3162	74.19	74.52	73.36	73.43	74.26	74.53
3981	70.28	71.76	69.70	71.10	70.62	71.94



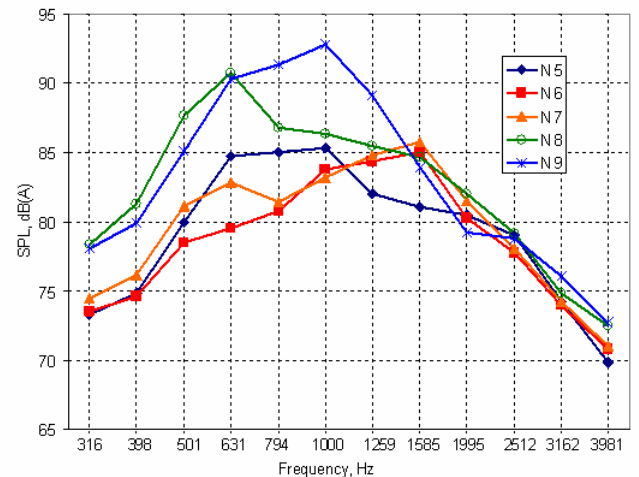
**Figure 13. CPX SPL Spectra with GDYR tire at 45 mph**



**Figure 14. CPX SPL Spectra with UNIR tire at 45 mph**



**Figure 15. CPX SPL Spectra with GDYR tire at 45 mph**



**Figure 16. CPX SPL Spectra with GDYR tire at 60 mph**

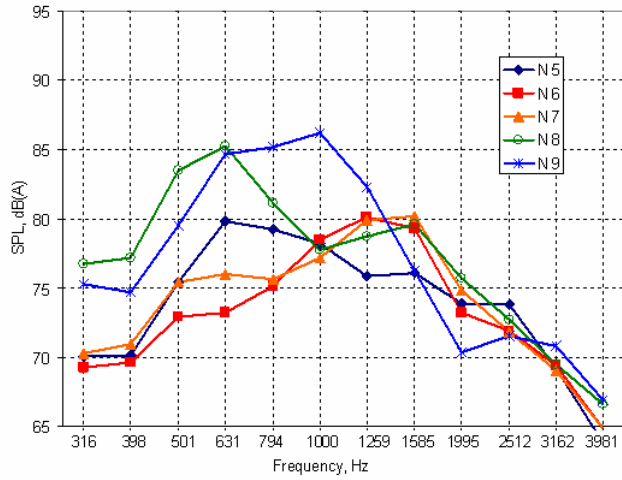


Figure 17. CPX SPL Spectra with UNIR tire at 45 mph

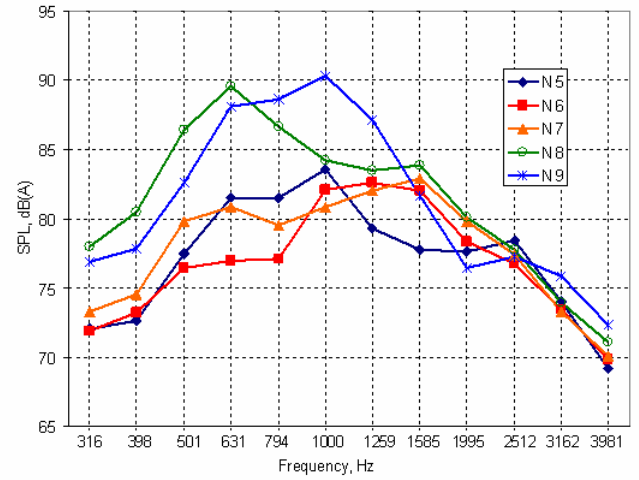


Figure 18. CPX SPL Spectra with UNIR tire at 60 mph

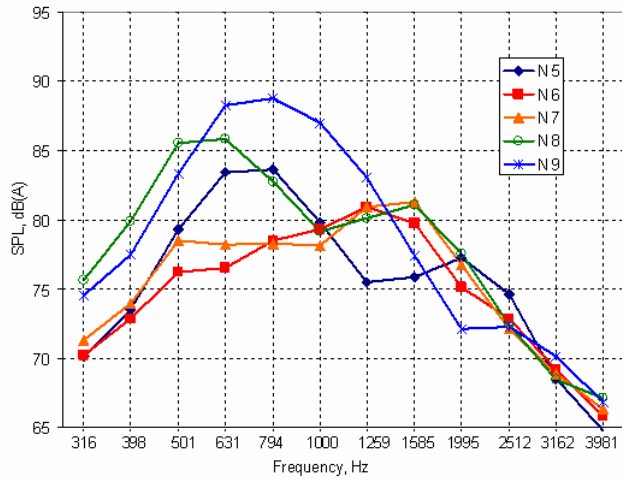


Figure 19. CPX SPL Spectra with SRTT tire at 45 mph

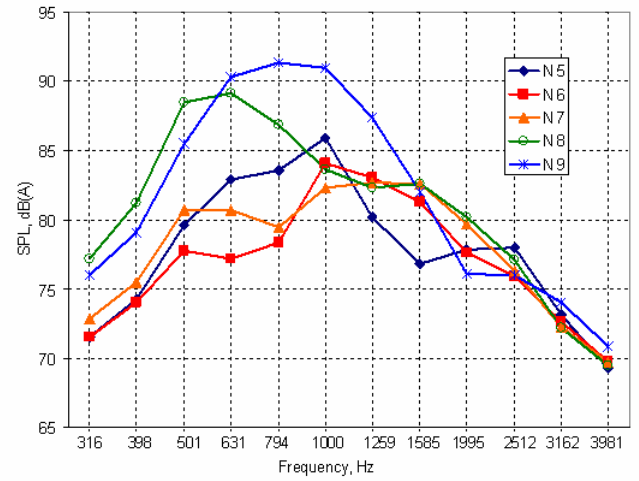


Figure 20. CPX SPL Spectra with SRTT tire at 60 mph

**APPENDIX C: SOUND INTENSITY MEASUREMENTS**

**Table 52. Section N5 (45 mph) A-Weighted SIL CYML GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	68.83	63.70	68.20	65.72	69.40	68.47
398	73.23	71.67	73.61	68.43	72.59	73.12
501	79.65	77.45	79.44	76.85	79.35	76.63
631	86.52	85.72	86.50	85.79	86.19	85.72
794	86.64	84.67	87.00	84.40	85.13	84.77
1000	83.33	84.15	84.20	84.06	83.86	83.75
1259	81.13	82.65	81.55	83.05	80.66	82.64
1585	79.21	76.75	77.85	76.38	79.45	76.17
1995	78.07	77.39	77.14	77.64	78.11	77.22
2512	77.65	75.60	77.34	75.67	77.72	75.67
3162	72.83	73.05	73.18	72.82	72.60	72.70
3981	67.90	67.10	67.99	66.97	67.78	67.04

**Table 53. Section N6 (45 mph) A-Weighted SIL CYML GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	67.38	73.67	74.34	73.94	74.70	76.00
398	76.47	76.80	79.68	76.90	74.83	76.03
501	81.42	80.56	82.47	78.47	82.41	79.50
631	83.43	86.48	87.41	84.51	86.58	82.70
794	80.24	83.60	85.08	80.03	84.03	80.22
1000	82.21	82.62	82.20	80.75	81.13	80.81
1259	83.10	81.65	80.19	82.59	79.88	83.34
1585	80.65	75.71	78.74	79.90	79.98	80.07
1995	75.72	76.47	77.28	76.77	77.39	76.62
2512	75.24	75.06	76.42	73.07	75.81	73.44
3162	72.29	71.73	71.58	71.41	70.71	71.48
3981	67.55	66.55	66.99	67.55	67.57	67.48

**Table 54. Section N7 (45 mph) A-Weighted SIL CYML GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.54	74.82	66.83	76.80	77.33	73.84
398	76.97	76.10	77.95	79.63	76.51	75.78
501	82.37	81.07	82.81	79.65	82.04	79.64
631	84.37	86.32	87.18	84.78	85.69	84.56
794	81.44	83.09	84.14	80.37	83.12	80.50
1000	80.20	82.25	82.29	80.60	80.96	81.23
1259	83.06	82.15	81.33	82.75	82.01	82.62
1585	81.83	78.13	80.38	80.36	81.03	80.15
1995	77.16	76.96	77.33	77.77	77.47	77.49
2512	74.95	74.13	75.94	73.89	76.17	73.74
3162	71.92	71.36	71.61	71.33	71.79	71.08
3981	67.62	67.10	68.01	67.61	68.29	67.30

**Table 55. Section N8 (45 mph) A-Weighted SIL CYML GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.08	76.21	76.17	74.08	77.25	76.08
398	83.93	80.53	82.59	82.05	81.65	81.04
501	87.59	83.88	86.21	85.03	86.52	84.03
631	90.58	89.75	90.56	90.20	90.60	89.85
794	88.52	89.19	88.49	87.61	88.96	87.58
1000	84.13	86.59	84.10	84.68	84.92	85.41
1259	81.89	83.73	81.24	82.05	80.97	82.12
1585	80.57	77.16	81.04	78.87	80.20	77.91
1995	78.53	77.65	79.15	77.72	79.04	77.65
2512	76.20	75.91	77.06	75.30	77.08	75.60
3162	72.04	73.13	71.92	71.33	71.98	71.96
3981	68.20	67.55	68.65	66.92	68.66	67.37

**Table 56. Section N9 (45 mph) A-Weighted SIL CYML GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.11	77.55	78.44	80.42	75.78	80.32
398	79.54	80.42	82.35	80.44	81.52	82.36
501	85.76	82.88	86.12	83.25	85.86	84.30
631	91.65	90.16	92.05	90.54	91.27	89.92
794	93.59	93.53	94.50	92.79	93.84	92.87
1000	90.44	91.05	90.99	90.94	90.09	90.69
1259	86.60	88.32	85.41	88.62	85.38	88.49
1585	78.95	80.78	77.56	80.10	77.44	80.19
1995	74.90	74.20	73.72	74.63	74.34	74.65
2512	75.52	71.86	74.35	72.79	75.13	72.54
3162	73.39	71.98	73.11	72.07	72.83	71.88
3981	69.64	68.31	69.00	68.07	68.63	68.11

**Table 57. Section N5 (45 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.92	70.82	73.78	73.87	72.57	71.24
398	77.99	78.61	77.28	78.20	78.89	76.69
501	83.32	82.12	82.77	83.07	82.93	81.54
631	87.10	88.12	86.80	87.42	87.48	88.03
794	86.45	86.04	86.31	86.25	85.84	85.18
1000	84.75	84.58	85.25	84.73	84.69	83.69
1259	82.01	84.23	82.45	84.53	82.26	84.16
1585	77.04	77.52	77.38	76.61	76.49	76.64
1995	75.33	75.56	75.60	75.08	75.40	75.07
2512	73.80	74.63	73.91	73.69	73.67	73.34
3162	69.45	71.93	69.94	70.86	69.80	70.75
3981	65.07	66.90	65.14	65.89	65.06	65.81

**Table 58. Section N6 (45 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	69.55	70.66	67.49	67.16	73.73	68.83
398	77.22	77.43	79.02	78.19	76.79	78.41
501	80.67	81.00	81.69	81.42	81.53	80.38
631	83.66	85.50	83.79	84.32	82.91	83.50
794	83.53	84.60	82.72	82.87	82.98	82.81
1000	82.86	82.31	81.98	81.44	82.04	81.63
1259	83.57	82.89	82.90	83.50	83.22	83.70
1585	77.56	78.19	77.96	77.00	78.37	77.25
1995	74.29	74.91	74.83	74.31	75.11	74.61
2512	71.98	73.59	72.99	72.40	72.73	72.52
3162	69.09	71.23	69.75	69.93	69.82	70.07
3981	65.33	66.91	65.69	65.82	65.90	66.21

**Table 59. Section N7 (45 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.22	69.04	72.11	70.11	72.25	69.25
398	78.44	76.43	76.18	78.71	75.94	79.39
501	82.39	81.70	80.78	83.21	82.43	82.14
631	83.85	85.79	82.26	86.07	83.00	85.72
794	81.12	82.61	81.08	82.47	81.11	82.65
1000	77.82	78.94	79.18	79.44	79.43	78.28
1259	82.64	81.09	83.42	81.35	83.25	80.41
1585	80.08	79.27	80.58	78.37	80.58	78.84
1995	76.45	76.77	76.84	76.65	77.11	76.54
2512	72.12	73.94	72.58	73.44	72.96	73.48
3162	69.24	70.44	69.81	69.45	69.80	69.58
3981	65.71	66.48	66.63	65.43	66.61	65.60

**Table 60. Section N8 (45 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	81.10	75.09	79.32	68.58	80.42	76.86
398	83.88	82.13	84.24	84.39	84.90	83.58
501	89.24	89.31	88.27	88.21	88.46	88.74
631	89.72	91.83	89.83	91.41	89.85	91.29
794	86.38	87.40	86.69	87.33	86.50	87.50
1000	81.40	83.14	82.02	83.35	81.44	82.94
1259	81.21	81.49	81.34	81.40	81.77	81.32
1585	79.77	78.39	79.68	78.10	79.76	77.95
1995	76.82	76.51	76.39	76.96	76.49	77.07
2512	72.75	74.10	72.60	73.67	72.64	73.08
3162	70.29	70.32	69.79	70.30	70.41	69.70
3981	66.32	66.63	66.44	66.79	66.56	66.11

**Table 61. Section N9 (45 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	80.19	78.26	82.47	79.60	76.50	80.09
398	83.24	76.37	81.55	80.74	79.52	76.95
501	87.52	84.30	84.01	84.30	84.61	83.51
631	91.37	87.37	88.38	86.66	88.94	86.48
794	91.93	91.71	92.11	92.28	93.07	91.22
1000	89.29	93.57	92.50	93.21	93.03	93.23
1259	86.22	91.69	89.48	91.51	89.68	91.05
1585	78.42	89.65	86.08	89.81	86.16	89.01
1995	73.52	81.70	78.73	80.62	78.36	79.66
2512	71.04	74.33	74.42	74.76	73.72	74.37
3162	70.63	72.43	72.03	71.80	71.61	71.65
3981	66.85	70.30	70.42	70.39	70.51	70.01

**Table 62. Section N5 (45 mph) A-Weighted SIL FDWS GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.99	74.08	72.72	75.05	75.77	73.75
398	78.69	72.48	77.54	78.11	78.83	75.46
501	83.43	82.41	82.33	81.67	81.99	81.50
631	87.15	87.15	86.55	86.01	86.59	86.51
794	85.63	85.28	86.04	85.32	85.27	85.41
1000	85.28	85.17	84.80	85.05	84.54	85.14
1259	80.24	82.25	79.66	81.99	79.29	82.29
1585	75.38	74.55	75.52	75.14	75.74	74.82
1995	74.89	74.25	74.80	74.71	75.13	74.44
2512	73.15	73.16	73.10	73.35	73.46	73.01
3162	69.48	70.97	69.64	70.54	69.42	70.39
3981	64.85	64.84	64.76	65.33	65.00	64.56

**Table 63. Section N6 (45 mph) A-Weighted SIL FDWS GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.12	74.06	76.28	72.30	74.94	76.82
398	76.75	76.64	77.20	74.62	78.36	72.35
501	80.48	80.32	79.96	81.44	80.40	80.80
631	80.82	81.18	80.72	81.65	79.86	79.94
794	79.95	80.07	80.07	80.34	80.11	79.79
1000	82.59	80.83	82.50	80.88	83.22	81.08
1259	82.28	82.45	82.04	82.50	82.03	82.71
1585	79.00	80.00	78.65	80.07	78.93	79.81
1995	74.61	74.82	74.03	74.78	74.41	74.75
2512	72.14	71.69	72.07	71.75	72.37	71.36
3162	69.37	69.75	69.56	69.59	69.50	69.46
3981	66.60	65.97	66.19	65.88	66.77	66.03

**Table 64. Section N7 (45 mph) A-Weighted SIL FDWS GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	70.05	74.58	75.24	74.52	72.20	74.84
398	76.77	75.90	76.50	74.08	77.07	76.03
501	80.97	81.51	80.53	80.95	80.54	81.35
631	80.65	82.42	82.20	81.72	81.64	82.07
794	79.90	80.27	80.26	80.04	80.00	80.14
1000	81.47	80.65	81.42	80.93	81.63	81.28
1259	81.85	80.79	81.95	82.02	81.93	81.35
1585	80.38	80.21	80.13	81.05	79.93	80.19
1995	76.01	76.24	75.99	76.53	75.73	76.12
2512	71.71	72.19	71.69	71.93	71.74	71.79
3162	69.46	69.48	69.84	69.93	69.75	69.44
3981	66.67	66.30	66.76	66.46	66.94	66.77

**Table 65. Section N8 (45 mph) A-Weighted SIL FDWS GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	81.65	76.12	79.39	81.15	71.07	78.48
398	83.73	82.83	84.66	82.40	83.22	83.98
501	88.94	86.34	87.83	87.06	87.81	86.39
631	90.52	89.67	90.29	90.46	89.56	89.59
794	86.93	87.18	86.11	87.25	85.75	86.59
1000	83.53	84.99	82.78	85.06	82.21	85.56
1259	81.23	80.83	80.74	80.87	81.15	81.31
1585	79.86	78.32	79.18	78.36	79.89	77.87
1995	77.05	76.76	77.01	76.71	77.05	76.32
2512	72.94	74.02	72.83	73.60	72.54	73.41
3162	69.36	70.02	69.58	69.89	69.32	69.55
3981	66.73	66.66	67.20	66.72	66.73	66.17

**Table 66. Section N9 (45 mph) A-Weighted SIL FDWS GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	80.82	78.23	79.08	75.45	76.49	76.75
398	82.01	79.94	82.46	81.16	80.45	77.69
501	85.56	83.21	86.18	84.24	85.35	83.98
631	90.89	89.69	90.80	88.74	90.59	89.66
794	91.16	92.18	91.33	91.32	91.02	91.89
1000	89.95	90.51	89.62	90.46	89.68	89.78
1259	85.12	87.63	84.69	88.05	84.37	87.55
1585	76.45	79.71	76.67	78.84	76.61	79.30
1995	72.94	73.96	73.55	74.34	73.79	73.87
2512	71.96	72.89	72.56	72.44	73.01	71.70
3162	71.12	71.84	71.49	71.56	71.26	70.79
3981	68.03	67.89	68.01	68.05	67.86	67.50



**Table 67. Section N5 (45 mph) A-Weighted SIL FDWS+200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.58	75.15	81.60	73.27	70.85	73.25
398	78.00	74.07	79.27	76.67	78.39	74.43
501	83.58	83.76	85.31	84.01	83.76	81.56
631	87.28	85.26	87.06	84.42	87.16	79.68
794	85.81	85.14	85.01	84.80	85.29	85.58
1000	84.91	85.62	84.80	84.97	84.64	89.53
1259	80.50	83.23	80.77	82.37	79.88	88.75
1585	76.31	75.85	75.76	76.64	75.95	85.55
1995	75.48	74.66	75.32	75.40	75.66	80.42
2512	73.93	72.43	74.03	72.64	73.77	76.37
3162	69.94	70.15	70.59	69.70	70.04	73.31
3981	65.67	64.73	66.04	65.25	65.76	69.85

**Table 68. Section N6 (45 mph) A-Weighted SIL FDWS+200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.83	75.19	74.77	68.50	77.11	70.89
398	77.45	75.99	76.27	74.16	75.73	74.74
501	81.19	83.52	81.05	82.57	81.41	83.82
631	81.20	81.51	80.87	81.11	80.86	84.52
794	80.26	80.25	79.71	79.84	80.62	85.16
1000	82.89	81.39	83.13	81.57	83.18	85.61
1259	82.97	80.92	82.71	81.44	83.17	83.59
1585	79.64	78.43	79.07	78.95	79.40	78.22
1995	75.24	74.83	74.71	74.89	75.11	75.73
2512	72.90	70.92	71.79	71.39	72.58	72.88
3162	70.26	68.42	69.63	68.69	69.92	69.90
3981	67.12	64.87	66.67	65.04	67.26	65.54

**Table 69. Section N7 (45 mph) A-Weighted SIL FDWS+200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	80.49	71.43	74.66	74.67	71.68	73.32
398	78.27	76.80	78.60	75.65	75.67	75.39
501	82.46	83.30	81.78	83.54	81.49	82.00
631	81.84	82.56	81.87	81.44	81.05	82.78
794	79.31	81.53	79.29	79.70	80.17	81.92
1000	80.88	81.18	80.32	80.71	81.80	83.01
1259	82.59	79.90	82.36	80.58	82.84	81.49
1585	80.66	78.41	80.71	79.54	80.54	78.37
1995	76.08	75.88	76.40	76.09	76.54	74.33
2512	72.05	71.71	71.85	71.88	72.45	71.07
3162	70.15	67.99	69.90	68.80	70.52	69.03
3981	67.37	64.87	67.30	65.70	67.94	65.38

**Table 70. Section N8 (45 mph) A-Weighted SIL FDWS+200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.67	73.73	77.06	77.91	78.92	78.51
398	84.68	82.25	84.48	79.95	84.53	75.50
501	89.79	89.18	89.30	88.14	88.28	83.43
631	90.84	89.83	90.48	89.13	90.05	81.51
794	86.78	87.56	86.94	87.45	86.92	80.37
1000	84.10	85.19	82.85	84.92	83.55	81.00
1259	81.99	80.67	81.20	80.79	82.09	80.45
1585	80.07	77.54	80.09	77.75	80.26	79.18
1995	77.69	76.76	77.80	76.88	77.60	76.34
2512	73.56	73.16	73.44	73.15	73.61	72.26
3162	69.74	68.58	69.46	68.98	70.71	69.32
3981	67.45	65.30	67.54	65.50	68.29	66.66

**Table 71. Section N9 (45 mph) A-Weighted SIL FDWS+200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.57	75.95	79.49	71.47	78.23	73.60
398	83.13	78.79	81.83	76.60	83.39	74.96
501	85.77	85.42	86.08	84.30	87.85	86.34
631	91.87	89.00	91.59	88.63	91.35	87.45
794	91.74	91.10	91.53	90.92	91.56	86.43
1000	89.65	90.13	89.96	89.55	89.96	85.21
1259	84.76	86.78	85.03	86.60	84.57	81.56
1585	77.19	78.00	76.94	78.43	77.03	78.97
1995	73.64	73.80	74.63	74.12	74.09	77.00
2512	73.10	71.54	73.16	71.21	73.78	73.82
3162	72.11	70.10	71.95	70.36	72.21	70.06
3981	68.79	67.10	68.68	66.83	68.83	66.77

**Table 72. Section N5 (45 mph) A-Weighted SIL PTGX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.52	72.95	75.18	75.07	78.62	73.27
398	79.87	74.70	77.16	75.63	79.23	77.25
501	84.38	81.51	83.65	82.13	83.56	82.39
631	90.97	89.74	90.72	90.34	91.08	90.88
794	87.24	86.58	87.90	87.09	88.01	87.63
1000	84.33	84.47	84.69	85.31	85.12	85.70
1259	79.53	82.46	79.98	82.34	79.76	82.72
1585	77.13	77.36	77.63	76.93	77.41	76.91
1995	75.70	77.33	75.97	76.30	75.90	76.62
2512	75.01	75.10	75.24	74.79	74.70	74.70
3162	71.08	71.44	71.42	71.44	70.90	71.73
3981	65.17	66.06	65.35	66.57	65.84	66.20

**Table 73. Section N6 (45 mph) A-Weighted SIL PTGX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	70.03	73.03	71.80	74.34	73.31	71.99
398	77.89	75.99	78.77	76.05	78.74	72.99
501	80.84	80.44	81.70	80.56	81.61	80.57
631	85.70	86.41	86.06	85.57	85.72	86.08
794	81.82	82.42	82.13	82.05	81.97	82.87
1000	81.20	81.57	81.66	81.54	81.48	81.47
1259	82.40	83.13	82.59	83.49	82.56	82.98
1585	80.44	79.99	79.92	80.16	80.59	80.10
1995	75.09	76.80	75.11	76.61	75.65	76.61
2512	73.02	73.41	72.93	73.90	73.58	73.58
3162	70.46	70.19	70.33	70.37	70.85	70.46
3981	66.15	65.87	66.15	67.01	66.79	66.29

**Table 74. Section N7 (45 mph) A-Weighted SIL PTGX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.36	77.08	75.20	73.16	73.06	71.55
398	81.01	79.22	80.42	76.62	79.57	79.38
501	83.92	80.73	83.59	82.53	82.67	82.37
631	88.10	88.25	87.35	87.42	87.56	87.39
794	81.88	83.08	81.14	82.76	83.40	82.03
1000	80.68	81.63	80.57	81.39	81.58	80.97
1259	82.37	82.46	82.73	82.75	82.56	83.25
1585	81.03	79.67	80.90	80.44	81.05	80.38
1995	76.74	77.16	76.74	77.52	77.02	78.01
2512	72.85	73.72	73.11	73.97	73.13	73.80
3162	70.48	69.74	70.38	70.10	70.76	69.95
3981	66.47	65.77	66.41	67.03	66.91	65.99

**Table 75. Section N8 (45 mph) A-Weighted SIL PTGX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.13	78.48	79.90	75.22	77.31	72.98
398	85.25	83.05	85.38	84.09	85.04	81.31
501	89.94	87.36	89.88	87.67	89.17	86.81
631	93.27	91.28	92.13	91.93	92.33	91.25
794	87.28	88.12	87.55	88.25	87.51	87.77
1000	83.31	84.80	84.73	84.91	84.13	85.18
1259	81.95	81.80	81.79	82.05	81.88	82.25
1585	79.71	79.21	80.28	79.13	80.79	79.63
1995	77.80	78.26	77.96	77.94	78.14	79.03
2512	73.52	75.09	74.29	75.32	74.36	75.15
3162	69.91	70.06	70.73	70.28	70.95	71.07
3981	66.29	66.56	67.33	66.78	67.48	66.86

**Table 76. Section N9 (45 mph) A-Weighted SIL PTGX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.80	76.10	78.25	70.79	78.79	77.02
398	82.83	82.12	84.20	82.51	82.71	81.27
501	86.88	83.23	87.15	84.61	86.54	84.36
631	92.69	91.36	93.35	91.49	92.98	91.94
794	92.80	92.43	92.97	92.91	92.56	93.40
1000	90.07	90.76	90.70	90.58	89.82	91.56
1259	84.83	86.99	84.83	87.44	84.63	87.76
1585	78.12	78.68	77.81	79.17	78.19	79.19
1995	73.79	76.61	73.51	76.19	75.37	76.89
2512	73.73	74.11	73.15	73.38	75.18	74.23
3162	72.43	72.03	72.65	71.23	72.99	72.30
3981	68.02	67.66	68.50	68.18	68.50	68.14

**Table 77. Section N5 (45 mph) A-Weighted SIL PTGX +200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.98	75.25	74.36	72.60	73.40	73.09
398	78.89	75.28	78.65	77.27	78.36	77.50
501	84.72	83.00	84.66	83.57	84.58	82.53
631	90.64	90.31	91.09	90.11	90.37	90.03
794	87.00	86.63	87.19	86.61	87.23	87.18
1000	84.19	84.87	84.30	85.55	84.49	85.51
1259	80.35	81.83	80.59	82.18	81.02	82.21
1585	77.44	77.14	76.94	77.72	76.88	77.86
1995	75.85	76.94	75.50	77.05	75.50	77.15
2512	74.78	74.62	74.78	74.55	74.97	74.45
3162	70.83	71.75	71.20	71.14	71.05	71.57
3981	65.82	65.84	65.47	65.73	65.24	65.75

**Table 78. Section N6 (45 mph) A-Weighted SIL PTGX +200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.37	76.22	75.82	72.40	72.20	72.70
398	79.14	75.80	79.60	76.07	78.84	76.66
501	82.10	81.64	82.70	81.33	81.63	81.61
631	85.63	85.97	85.39	85.27	85.20	85.69
794	82.21	82.52	82.19	82.54	81.60	81.59
1000	81.30	81.87	81.16	81.87	80.87	81.42
1259	83.84	83.09	83.87	82.92	83.63	82.95
1585	80.38	80.00	80.23	80.78	79.97	80.51
1995	75.46	76.51	75.67	76.93	75.26	76.93
2512	73.28	73.16	73.05	73.57	73.07	73.54
3162	70.96	70.35	70.49	70.51	70.44	70.25
3981	66.99	66.39	66.48	66.47	66.47	66.39

**Table 79. Section N7 (45 mph) A-Weighted SIL PTGX +200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.96	75.36	73.94	75.62	70.74	71.81
398	79.36	75.10	79.31	78.02	79.32	76.05
501	82.78	83.68	83.39	80.75	83.61	84.22
631	86.35	87.74	86.82	85.44	86.79	87.29
794	82.34	83.11	81.78	81.60	82.13	82.69
1000	80.83	80.94	80.08	80.63	79.95	81.51
1259	83.71	81.96	83.32	83.42	83.28	82.66
1585	81.17	79.69	80.90	80.82	80.47	80.45
1995	77.26	77.79	77.11	77.94	77.08	78.05
2512	72.92	73.91	72.99	73.79	72.73	74.40
3162	71.04	69.78	70.31	70.40	70.06	70.06
3981	67.04	65.84	66.77	66.67	66.39	66.27

**Table 80. Section N8 (45 mph) A-Weighted SIL PTGX +200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.67	79.23	78.83	78.67	81.55	83.23
398	85.03	83.53	85.09	81.25	85.32	82.11
501	88.61	89.39	90.25	87.91	89.43	88.62
631	91.96	92.02	92.31	92.20	92.16	91.26
794	87.65	88.03	87.95	87.84	87.46	88.67
1000	83.63	85.48	84.38	84.99	83.38	85.06
1259	82.02	81.57	82.01	82.21	82.15	81.91
1585	80.78	79.07	80.40	79.83	80.76	80.11
1995	77.98	78.88	78.01	78.49	77.99	79.12
2512	74.33	75.38	74.42	75.14	73.95	75.47
3162	70.45	70.60	70.37	70.78	70.22	70.93
3981	67.31	66.50	67.74	66.83	67.33	67.05

**Table 81. Section N9 (45 mph) A-Weighted SIL PTGX +200 GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.92	77.75	79.90	76.45	76.67	77.73
398	83.59	72.67	83.68	81.38	83.22	78.94
501	87.87	86.34	87.15	86.18	87.67	85.29
631	93.86	92.65	93.23	92.92	93.29	92.17
794	93.17	92.63	92.45	92.39	92.22	92.09
1000	90.12	90.99	89.95	92.30	89.43	90.73
1259	84.65	87.09	84.39	87.04	84.29	87.25
1585	78.61	79.39	78.61	79.14	77.73	78.60
1995	74.25	76.71	75.05	77.87	74.35	77.01
2512	72.58	73.87	74.55	74.67	74.04	74.47
3162	72.25	71.85	73.01	73.68	72.54	72.43
3981	68.40	67.98	69.02	68.90	68.48	68.28

**Table 82. Section N5 (60 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.92	80.64	78.94	76.75	78.29	80.33
398	80.26	79.44	81.77	78.02	80.82	76.35
501	83.69	81.22	83.22	81.21	82.01	81.83
631	86.50	88.03	86.54	87.43	85.70	86.37
794	88.85	89.40	88.25	89.80	87.81	89.26
1000	87.73	88.91	87.33	88.03	88.17	88.89
1259	81.06	85.10	79.99	84.67	80.84	84.63
1585	80.38	79.98	79.40	80.71	79.35	79.44
1995	78.57	80.17	77.10	80.03	77.65	79.72
2512	76.35	77.60	75.92	76.83	76.24	76.41
3162	72.87	75.87	72.44	75.71	72.68	75.31
3981	68.04	71.03	66.76	70.45	67.50	70.06

**Table 83. Section N6 (60 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.98	81.22	74.77	78.09	80.10	81.67
398	78.90	80.34	77.86	79.82	79.22	79.24
501	80.74	79.43	81.08	80.40	81.63	77.86
631	81.98	81.76	82.05	83.25	81.77	82.31
794	84.59	87.46	83.11	87.00	83.92	87.35
1000	84.14	85.26	83.77	83.83	82.52	84.72
1259	83.79	82.84	83.67	82.95	82.83	83.87
1585	82.50	83.54	82.75	83.55	82.60	84.06
1995	78.11	82.27	77.86	81.57	77.39	81.68
2512	75.51	76.71	74.75	76.01	73.76	75.98
3162	72.56	74.29	71.84	73.66	71.89	73.73
3981	69.39	71.10	68.52	70.66	68.36	71.01

**Table 84. Section N7 (60 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.40	81.29	77.72	81.36	75.57	80.51
398	82.60	82.41	81.38	77.75	80.56	79.69
501	85.19	85.10	81.94	80.59	85.72	79.77
631	87.65	87.57	85.31	86.19	87.56	86.20
794	85.81	89.10	83.63	87.78	84.43	87.94
1000	83.83	86.66	82.88	83.27	82.79	84.57
1259	82.40	83.03	83.67	81.73	81.98	82.69
1585	83.28	82.02	83.55	82.68	82.84	83.12
1995	78.99	82.94	79.21	82.38	79.12	82.59
2512	74.81	77.76	73.94	76.13	74.74	76.59
3162	71.25	73.87	71.92	73.14	70.86	73.43
3981	68.08	70.36	68.41	70.24	68.03	69.74

**Table 85. Section N8 (60 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	84.28	82.24	77.17	83.19	80.35	84.30
398	88.41	77.65	85.43	81.13	84.70	85.31
501	91.35	89.94	91.69	89.76	91.15	88.68
631	92.95	94.73	92.91	94.30	92.27	93.99
794	91.76	92.97	90.93	92.04	91.66	92.64
1000	87.66	90.78	87.81	90.02	87.97	90.07
1259	82.63	86.30	83.04	85.85	82.43	84.49
1585	82.67	82.38	83.19	81.42	82.46	80.95
1995	80.05	82.76	80.89	81.93	80.32	81.79
2512	76.03	78.53	76.15	78.11	75.98	78.42
3162	71.73	74.69	71.85	73.64	72.07	74.05
3981	68.93	70.62	68.58	67.82	69.54	69.91

**Table 86. Section N9 (60 mph) A-Weighted SIL CPX GDYR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	81.67	83.96	80.36	79.09	77.74	76.95
398	82.48	77.65	83.10	79.65	82.53	82.46
501	88.06	87.07	88.37	85.79	86.93	85.82
631	92.09	92.23	92.19	91.43	91.04	91.37
794	94.59	95.35	94.50	94.76	94.87	95.00
1000	92.36	95.20	92.12	94.52	92.45	94.29
1259	87.06	91.56	87.01	91.28	86.58	90.84
1585	80.92	85.02	81.02	84.43	81.63	83.74
1995	76.32	79.76	76.69	79.59	77.51	78.88
2512	74.59	76.11	75.02	75.69	75.50	74.79
3162	74.11	75.07	74.46	74.01	74.00	74.36
3981	70.29	72.54	70.60	71.99	70.56	71.67

**Table 87. Section N5 (45 mph) A-Weighted SIL CYML SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.37	72.30	75.82	74.56	65.48	74.29
398	75.48	72.29	76.66	75.39	75.16	76.41
501	80.61	80.12	81.29	79.35	80.27	77.72
631	84.91	84.98	85.11	83.81	85.11	84.04
794	86.76	87.12	87.59	85.97	86.83	86.49
1000	80.00	83.08	81.28	81.83	80.45	82.21
1259	75.58	78.35	76.26	77.38	75.59	77.93
1585	76.22	72.47	75.45	73.47	75.87	73.01
1995	75.71	73.05	75.33	74.76	75.48	74.50
2512	73.88	73.48	73.83	73.94	73.25	73.95
3162	69.55	70.77	69.61	70.23	69.19	70.52
3981	63.99	62.71	63.77	63.07	63.66	63.49

**Table 88. Section N6 (45 mph) A-Weighted SIL CYML SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.48	72.22	69.15	74.28	71.45	76.15
398	75.24	74.06	75.91	74.38	74.06	75.07
501	77.96	78.34	79.27	76.51	78.48	78.23
631	79.76	79.08	81.50	79.72	81.18	79.31
794	83.20	81.19	83.77	81.96	83.97	81.24
1000	80.26	79.33	77.50	78.64	77.79	79.12
1259	80.75	79.01	78.62	78.05	79.78	79.24
1585	79.69	77.77	78.51	77.49	79.00	77.93
1995	74.83	75.55	75.75	75.77	75.30	75.09
2512	72.65	71.42	71.87	71.65	71.28	72.01
3162	70.93	69.74	69.71	70.00	69.83	70.74
3981	65.65	64.18	64.75	64.11	64.81	64.65

**Table 89. Section N7 (45 mph) A-Weighted SIL CYML SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.92	74.25	73.16	76.59	72.94	74.53
398	77.20	71.31	76.81	74.99	76.85	77.58
501	80.88	79.05	80.90	78.53	80.02	78.82
631	81.40	77.86	82.31	80.60	82.28	79.50
794	83.66	80.27	84.58	82.51	83.62	81.31
1000	79.30	79.84	78.76	79.99	79.23	79.44
1259	80.37	79.33	79.75	77.84	80.28	78.62
1585	79.81	78.35	79.62	76.94	79.57	78.21
1995	76.18	76.55	75.87	76.41	76.22	76.72
2512	72.11	71.69	72.28	73.48	72.18	72.96
3162	70.16	70.13	69.33	70.00	69.73	70.06
3981	64.98	63.99	64.73	64.35	65.00	64.26

**Table 90. Section N8 (45 mph) A-Weighted SIL CYML SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.86	78.72	73.99	78.70	79.56	76.08
398	83.08	79.59	81.74	81.32	82.49	80.26
501	86.43	85.20	85.85	85.15	86.32	84.06
631	88.58	87.01	87.45	87.51	87.94	87.25
794	88.40	86.99	88.01	88.29	87.77	86.86
1000	80.50	82.40	79.81	83.36	79.82	82.68
1259	78.03	76.59	78.25	76.77	78.74	76.88
1585	79.04	77.32	79.42	76.33	79.69	77.56
1995	77.35	77.42	77.34	76.86	76.87	77.58
2512	73.10	74.12	73.63	74.30	72.79	74.12
3162	69.86	70.11	69.98	70.45	69.78	70.14
3981	64.98	64.59	64.97	64.17	65.18	64.39



**Table 91. Section N9 (45 mph) A-Weighted SIL CYML SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.09	72.76	77.55	76.39	78.77	74.19
398	80.47	80.24	81.06	80.45	80.55	79.85
501	84.44	83.20	84.20	83.82	84.62	83.88
631	91.96	90.61	91.87	91.19	90.93	90.78
794	92.44	92.32	92.54	93.21	92.92	92.52
1000	87.87	89.23	87.79	89.08	87.71	89.84
1259	83.30	85.81	82.99	85.59	82.65	85.64
1585	78.03	78.26	77.81	77.85	77.68	78.03
1995	72.86	72.52	71.66	71.75	71.77	71.71
2512	71.95	71.06	71.69	70.54	71.86	70.51
3162	71.11	70.79	70.65	70.61	70.98	70.91
3981	65.86	65.29	65.42	65.08	65.85	64.64

**Table 92. Section N5 (45 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.00	69.90	68.80	73.75	74.09	70.58
398	73.85	73.36	75.23	74.64	77.52	75.62
501	81.34	79.08	80.31	79.71	81.27	79.53
631	84.59	83.71	84.27	84.48	85.09	84.04
794	88.00	86.38	87.91	86.52	87.72	86.38
1000	83.09	84.82	82.45	85.23	82.51	84.99
1259	76.97	79.56	76.31	79.36	75.53	78.88
1585	75.66	75.35	76.32	73.57	73.56	75.96
1995	76.02	73.25	75.52	73.18	74.27	74.42
2512	72.83	72.98	71.90	72.78	71.48	73.33
3162	69.21	69.87	68.38	70.03	68.12	70.02
3981	62.41	62.79	62.85	62.83	61.59	63.24

**Table 93. Section N6 (45 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	70.33	71.80	70.96	68.49	73.92	70.43
398	77.15	76.16	77.03	76.61	75.37	75.79
501	78.43	78.45	79.41	77.74	77.90	76.40
631	80.75	80.71	81.37	80.30	80.41	78.60
794	84.25	83.27	84.55	82.95	84.58	82.90
1000	81.02	82.33	81.73	81.05	81.30	81.72
1259	78.80	79.02	78.01	78.35	78.30	78.51
1585	77.21	75.05	76.28	76.30	75.74	76.10
1995	73.72	71.78	72.76	74.03	71.55	72.44
2512	70.79	70.21	69.77	71.57	69.20	70.74
3162	68.61	68.39	68.18	68.86	68.17	68.59
3981	62.93	62.74	62.23	63.12	61.96	62.81

**Table 94. Section N7 (45 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	69.58	69.13	67.24	67.95	76.09	73.39
398	77.36	75.90	77.64	73.86	77.10	77.57
501	80.88	79.63	80.65	79.42	81.02	79.24
631	81.48	81.94	81.18	81.74	80.89	80.51
794	82.54	82.97	82.31	82.72	81.66	82.55
1000	78.23	79.30	78.28	78.74	78.41	79.58
1259	78.15	75.05	77.86	74.80	78.38	77.12
1585	79.18	76.67	78.78	76.84	78.84	77.85
1995	76.26	76.51	75.42	76.21	75.87	77.46
2512	70.44	72.13	69.58	71.94	69.98	72.37
3162	67.99	67.22	67.55	67.27	67.78	68.19
3981	62.88	62.43	61.98	61.89	62.31	63.26

**Table 95. Section N8 (45 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.49	74.56	80.64	75.03	78.59	69.40
398	84.30	82.57	85.22	82.36	84.49	80.83
501	89.20	87.92	89.23	87.63	89.58	86.74
631	87.73	88.96	88.26	88.96	88.15	87.65
794	87.28	87.51	87.07	87.51	86.71	87.15
1000	80.90	83.04	80.99	83.14	80.93	82.68
1259	77.19	76.25	77.91	75.37	77.92	76.58
1585	78.74	77.77	79.17	77.12	79.02	77.94
1995	74.76	76.49	74.72	75.51	74.56	76.22
2512	69.47	70.39	68.70	70.06	69.26	71.34
3162	67.86	67.03	67.97	67.40	68.27	68.78
3981	62.08	62.91	62.70	62.72	63.11	63.61

**Table 96. Section N9 (45 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.10	72.58	78.54	77.74	78.26	68.96
398	82.31	80.09	83.52	78.95	82.13	79.24
501	86.89	85.05	87.62	83.93	87.09	83.25
631	91.49	90.66	91.27	90.22	91.09	89.02
794	91.98	92.93	92.84	92.57	92.48	91.03
1000	88.61	90.66	88.07	90.17	88.35	89.87
1259	83.64	85.76	83.32	85.83	82.28	85.39
1585	79.13	79.88	79.02	78.84	78.90	78.73
1995	71.10	73.80	70.38	72.09	70.46	71.30
2512	68.84	67.27	68.36	67.82	68.26	68.70
3162	69.76	67.59	69.10	68.15	69.05	68.75
3981	64.48	63.54	63.89	64.10	63.88	63.92

**Table 97. Section N5 (45 mph) A-Weighted SIL FDWS SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.37	71.75	73.34	77.72	77.49	78.69
398	76.34	75.18	76.91	73.72	77.88	76.15
501	80.87	80.50	79.97	79.62	80.74	78.31
631	85.34	84.14	86.19	83.57	85.79	83.79
794	87.17	86.56	86.87	86.93	87.11	86.83
1000	80.62	83.42	81.01	82.79	81.30	83.21
1259	75.11	77.33	74.61	77.17	75.40	76.34
1585	75.33	71.85	74.67	71.76	73.67	72.76
1995	75.07	71.97	74.63	72.11	73.79	72.73
2512	72.75	71.96	72.35	72.43	72.24	72.33
3162	69.04	68.03	68.31	68.46	68.72	68.22
3981	63.92	61.18	62.55	62.22	62.75	61.85

**Table 98. Section N6 (45 mph) A-Weighted SIL FDWS SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.42	71.49	74.30	77.21	79.05	74.54
398	76.44	74.31	77.14	76.27	79.01	72.31
501	76.63	74.93	77.88	73.41	78.03	76.75
631	80.08	78.09	79.72	77.41	79.91	76.86
794	80.62	81.04	80.93	81.53	80.92	80.91
1000	80.37	79.63	80.48	80.26	80.38	80.10
1259	80.47	78.82	80.61	78.94	80.55	78.93
1585	78.63	77.50	78.36	77.38	78.66	77.42
1995	73.31	73.43	73.22	73.26	73.69	73.30
2512	70.05	70.80	70.90	70.51	70.97	70.60
3162	68.84	67.91	69.20	68.26	69.15	68.77
3981	63.87	63.42	64.29	63.64	64.65	63.50

**Table 99. Section N7 (45 mph) A-Weighted SIL FDWS SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.03	73.86	75.65	75.13	79.73	75.13
398	79.08	77.41	76.74	72.63	79.95	77.67
501	80.37	79.44	78.33	76.11	78.68	77.73
631	82.54	79.11	80.50	78.35	80.76	78.24
794	81.50	81.46	80.86	80.76	80.38	81.42
1000	78.81	80.03	79.84	79.96	79.48	79.99
1259	79.89	77.29	81.08	78.14	80.65	77.84
1585	79.60	77.64	79.89	78.20	80.13	77.93
1995	75.48	75.61	75.41	75.62	75.25	75.60
2512	69.87	70.64	70.90	70.79	70.57	70.64
3162	68.61	67.13	69.90	68.33	69.36	68.03
3981	63.93	62.87	65.01	64.20	65.32	63.57

**Table 100. Section N8 (45 mph) A-Weighted SIL FDWS SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.38	77.56	78.55	77.43	80.42	77.89
398	83.20	81.42	82.48	83.77	82.57	81.66
501	86.58	85.80	85.44	83.88	86.73	86.46
631	88.81	87.69	88.36	86.91	88.83	87.20
794	86.96	87.45	87.08	86.49	86.64	86.76
1000	81.61	84.04	81.91	83.62	80.93	84.33
1259	78.86	76.08	79.46	77.09	79.28	76.87
1585	79.78	76.44	80.12	77.58	79.43	77.49
1995	75.80	75.72	76.82	76.67	75.93	76.57
2512	70.90	71.36	73.20	71.44	71.22	71.52
3162	68.44	66.67	70.17	67.91	69.46	67.10
3981	64.72	63.22	67.44	64.06	65.17	63.29

**Table 101. Section N9 (45 mph) A-Weighted SIL FDWS SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.69	73.68	77.78	75.36	77.07	82.35
398	80.15	71.74	81.24	76.34	79.38	71.43
501	84.58	83.00	85.34	83.09	83.63	82.45
631	91.52	88.97	91.63	89.50	91.47	89.48
794	90.75	91.32	91.03	90.53	91.52	91.46
1000	87.46	88.45	86.69	88.34	87.13	88.29
1259	81.44	83.38	81.14	83.50	81.48	82.86
1585	75.43	75.79	75.88	76.28	75.93	75.73
1995	71.51	70.95	70.93	71.40	71.43	71.72
2512	71.98	70.06	71.52	70.75	71.73	70.10
3162	71.14	69.55	70.62	69.72	70.66	69.21
3981	65.76	64.42	66.13	64.73	65.79	64.38

**Table 102. Section N5 (45 mph) A-Weighted SIL FDWS+200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.07	74.44	77.24	76.15	74.52	79.13
398	77.54	76.01	75.61	75.36	77.89	74.72
501	79.76	79.54	80.28	79.59	81.07	80.49
631	85.34	84.35	85.61	84.42	86.05	84.07
794	87.27	87.45	87.21	86.52	87.35	87.01
1000	81.12	83.07	80.80	83.09	81.24	83.05
1259	75.71	77.32	75.70	77.41	75.05	76.52
1585	76.38	72.86	74.88	72.27	74.08	72.45
1995	75.53	72.18	74.73	72.56	74.00	72.30
2512	72.61	71.60	72.84	71.72	72.12	71.85
3162	68.66	68.24	69.21	68.36	68.56	68.19
3981	64.13	61.31	63.94	62.04	63.05	61.53

**Table 103. Section N6 (45 mph) A-Weighted SIL FDWS+200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.58	72.66	75.73	74.68	76.67	75.11
398	76.41	73.44	76.83	77.88	77.20	74.28
501	77.35	75.84	78.70	75.93	77.55	78.07
631	80.90	78.71	80.34	78.25	80.21	78.40
794	81.38	82.64	80.93	82.65	81.98	82.77
1000	80.29	80.59	80.25	80.25	79.92	80.43
1259	80.63	78.16	80.45	78.26	80.51	78.25
1585	78.75	77.63	78.82	76.97	78.75	77.19
1995	73.50	73.51	73.49	73.64	74.03	72.94
2512	70.84	70.32	70.04	69.79	71.03	70.24
3162	69.16	68.14	68.39	67.73	68.94	68.38
3981	64.85	63.07	64.02	63.66	64.89	63.23

**Table 104. Section N7 (45 mph) A-Weighted SIL FDWS+200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	69.37	73.02	78.92	76.70	72.14	68.23
398	78.34	75.53	81.02	71.37	79.77	72.56
501	80.56	80.51	80.69	78.34	79.36	78.88
631	81.96	81.90	81.35	79.26	81.25	80.25
794	80.68	83.64	81.56	83.18	81.24	83.65
1000	79.62	80.63	79.11	80.11	80.14	80.75
1259	80.12	77.62	79.58	77.52	80.55	76.95
1585	79.67	77.55	79.71	78.00	79.99	77.40
1995	75.35	75.61	75.80	75.37	75.44	75.83
2512	69.98	70.34	69.82	70.75	70.05	70.43
3162	69.11	67.48	68.54	68.57	69.25	67.88
3981	65.08	63.30	64.42	63.88	64.68	62.93

**Table 105. Section N8 (45 mph) A-Weighted SIL FDWS+200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.00	75.07	78.22	74.12	79.02	77.52
398	85.13	78.60	84.87	79.17	83.70	79.91
501	86.74	87.20	87.05	86.24	85.98	87.44
631	88.15	88.19	88.69	87.61	88.36	87.52
794	86.56	88.22	86.86	87.17	86.39	87.34
1000	80.89	84.31	81.00	84.37	80.86	84.06
1259	78.67	76.85	78.79	76.32	79.24	76.57
1585	79.74	76.97	79.75	77.26	80.07	77.16
1995	75.87	76.45	75.90	76.35	76.12	76.09
2512	71.28	71.55	70.74	71.45	71.30	71.82
3162	68.91	66.51	68.75	67.33	69.24	66.78
3981	65.52	62.97	65.24	63.80	65.46	63.25

**Table 106. Section N9 (45 mph) A-Weighted SIL FDWS+200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.25	75.17	79.54	74.22	72.28	76.23
398	80.58	75.33	82.17	78.54	81.91	77.76
501	84.83	83.37	85.22	84.33	85.29	83.40
631	91.91	89.57	92.08	89.51	91.85	89.68
794	90.97	91.26	90.80	91.08	90.68	90.91
1000	86.99	88.85	87.33	88.38	86.95	88.96
1259	81.58	83.73	81.34	83.20	81.58	83.80
1585	76.91	75.49	76.44	75.92	76.38	76.56
1995	72.11	70.28	70.34	70.91	71.59	71.62
2512	71.92	69.47	71.05	69.63	72.14	69.99
3162	70.83	69.14	70.85	69.24	70.79	69.51
3981	66.20	64.71	66.13	64.69	66.26	64.92

**Table 107. Section N5 (45 mph) A-Weighted SIL PTGX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.16	70.02	71.70	75.72	72.63	72.97
398	76.42	75.80	76.54	72.38	75.81	75.53
501	81.22	78.16	79.75	77.99	80.87	79.32
631	84.86	84.50	83.94	83.96	84.47	83.55
794	86.47	85.61	85.99	85.66	85.65	85.74
1000	81.22	84.23	80.83	83.66	81.45	84.06
1259	75.13	77.17	74.91	76.70	76.49	76.63
1585	73.59	73.43	74.43	73.72	74.70	73.68
1995	73.86	73.72	74.53	74.31	74.03	74.54
2512	72.97	73.05	73.44	73.86	72.39	73.59
3162	69.09	69.29	69.50	69.11	68.98	69.00
3981	62.26	62.23	62.92	62.70	62.83	62.44

**Table 108. Section N6 (45 mph) A-Weighted SIL PTGX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.79	73.33	76.10	75.54	70.96	75.26
398	78.28	73.00	76.52	74.62	73.94	73.15
501	76.40	75.04	76.42	74.89	76.86	73.99
631	78.78	77.62	78.97	78.33	78.34	76.51
794	80.85	81.14	81.26	82.65	79.50	81.98
1000	79.22	81.14	78.92	81.95	80.31	81.69
1259	79.64	78.84	79.39	79.10	80.51	77.87
1585	78.70	77.47	78.45	77.90	79.19	77.30
1995	73.69	75.05	73.79	74.86	74.27	75.21
2512	70.20	70.34	70.44	70.84	71.61	70.48
3162	68.54	67.66	69.09	68.04	69.82	68.47
3981	63.43	62.52	63.65	63.35	63.89	63.55

**Table 109. Section N7 (45 mph) A-Weighted SIL PTGX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.14	72.67	70.48	72.43	75.12	73.30
398	77.18	76.07	77.43	75.19	76.46	74.88
501	79.93	78.97	80.04	77.08	78.93	78.39
631	81.69	80.58	81.28	79.00	81.03	80.58
794	82.30	83.75	81.79	82.20	80.73	82.94
1000	77.81	81.23	77.87	81.10	79.36	81.59
1259	78.23	76.30	78.15	78.12	80.12	75.96
1585	78.76	77.52	78.45	79.05	79.98	77.37
1995	75.85	76.71	75.78	77.08	76.22	76.63
2512	70.80	71.90	70.45	72.16	71.18	72.62
3162	67.22	67.25	67.54	67.86	69.29	66.73
3981	63.07	62.97	63.11	63.35	64.15	63.04

**Table 110. Section N8 (45 mph) A-Weighted SIL PTGX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.40	77.50	76.25	76.98	78.02	75.29
398	82.74	82.38	82.82	79.86	82.51	81.47
501	87.59	86.92	87.60	85.16	85.45	85.87
631	88.62	87.77	87.96	87.18	87.11	87.08
794	87.38	87.59	86.37	87.66	87.11	87.65
1000	80.99	85.12	80.40	84.72	80.10	84.51
1259	78.37	77.65	78.32	77.42	79.30	76.66
1585	79.20	77.90	79.20	77.97	80.30	77.23
1995	76.08	76.86	75.96	77.50	76.78	76.52
2512	70.64	72.22	71.91	72.46	72.14	72.47
3162	68.23	67.17	68.43	67.57	69.55	67.46
3981	63.71	63.38	64.05	63.36	64.71	64.12

**Table 111. Section N9 (45 mph) A-Weighted SIL PTGX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.55	77.21	75.78	72.20	78.40	81.32
398	80.03	75.22	79.84	78.81	81.04	79.70
501	86.56	83.58	84.64	83.58	86.71	83.26
631	92.40	89.84	91.36	89.33	92.21	90.24
794	92.77	91.98	91.89	91.57	92.28	92.71
1000	86.33	89.44	86.89	89.14	87.28	88.90
1259	82.43	84.30	81.63	83.81	81.84	83.23
1585	78.13	76.45	76.55	75.52	76.66	77.53
1995	70.40	71.40	71.07	70.84	70.09	71.70
2512	70.18	70.49	71.94	70.26	71.63	68.58
3162	70.10	69.51	70.91	69.51	70.65	68.79
3981	65.05	64.83	65.34	64.32	65.41	64.44

**Table 112. Section N5 (45 mph) A-Weighted SIL PTGX +200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.88	75.37	73.91	78.07	69.91	76.01
398	75.92	77.62	76.88	74.64	78.06	75.59
501	81.17	80.11	80.29	79.02	79.82	80.09
631	85.03	85.20	85.12	84.30	84.83	84.76
794	85.80	85.83	85.56	85.53	85.63	86.16
1000	81.16	84.07	80.50	83.34	80.87	83.58
1259	74.52	76.17	74.76	76.80	74.68	76.31
1585	73.05	73.90	72.57	73.89	72.81	73.29
1995	74.07	74.52	73.70	74.13	73.37	74.33
2512	72.74	73.65	72.60	73.65	72.50	73.07
3162	69.13	69.36	68.62	69.75	68.80	69.09
3981	62.16	62.51	62.47	63.02	62.27	62.58

**Table 113. Section N6 (45 mph) A-Weighted SIL PTGX +200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.19	72.72	73.41	76.07	72.58	69.52
398	77.49	73.36	75.98	75.21	76.81	75.07
501	77.34	76.73	77.40	77.93	77.14	76.40
631	78.20	78.41	78.87	77.86	79.15	78.13
794	80.33	80.72	79.97	80.66	80.26	81.01
1000	79.08	81.86	79.38	81.73	79.00	81.65
1259	79.77	77.87	79.90	78.46	79.59	78.70
1585	78.88	78.32	78.66	78.30	78.74	78.55
1995	74.13	75.07	74.13	75.58	73.73	74.91
2512	70.24	71.40	70.39	70.86	70.53	71.08
3162	68.54	68.82	68.69	68.23	68.56	69.18
3981	63.57	63.13	63.71	62.63	63.64	63.72

**Table 114. Section N7 (45 mph) A-Weighted SIL PTGX +200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.58	72.69	75.24	67.67	72.08	72.87
398	76.97	78.39	76.65	75.37	75.01	76.64
501	79.74	79.57	78.60	79.58	78.52	79.19
631	80.09	81.24	80.17	79.82	81.08	79.39
794	80.44	81.82	80.79	80.88	80.66	80.92
1000	78.25	81.75	78.70	81.54	78.96	81.65
1259	79.60	77.08	79.61	76.99	79.55	76.79
1585	79.57	78.34	80.06	78.52	79.47	79.01
1995	76.27	77.03	76.15	77.29	76.00	76.79
2512	70.71	71.75	70.37	71.52	70.61	71.50
3162	68.64	68.00	68.71	68.04	68.27	68.32
3981	63.57	63.11	63.96	63.16	63.62	63.36



**Table 115. Section N8 (45 mph) A-Weighted SIL PTGX +200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.52	77.99	81.70	72.78	76.12	80.17
398	83.07	81.35	84.19	81.12	83.30	80.43
501	86.38	85.92	86.94	85.76	86.17	86.22
631	87.30	86.85	87.91	87.21	88.03	87.67
794	85.62	87.00	86.89	87.07	87.04	87.54
1000	80.47	83.71	80.18	84.09	79.97	84.74
1259	79.44	77.04	78.52	77.20	78.67	77.44
1585	80.10	78.32	79.39	78.21	79.20	78.14
1995	76.85	77.34	76.11	77.23	76.50	77.23
2512	71.98	72.70	71.38	72.78	72.54	72.71
3162	69.31	68.35	68.39	68.29	69.01	68.14
3981	65.04	63.85	64.14	64.03	64.82	63.98

**Table 116. Section N9 (45 mph) A-Weighted SIL PTGX +200 SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.43	75.46	75.96	78.00	74.14	75.36
398	82.27	79.10	79.59	79.40	81.09	73.91
501	85.48	83.39	84.91	84.14	86.16	83.35
631	90.98	90.69	91.15	90.18	91.27	90.38
794	90.59	91.17	91.33	91.68	91.50	91.43
1000	87.16	89.94	86.72	89.27	86.47	89.23
1259	81.73	84.15	80.87	83.64	81.15	84.05
1585	76.44	76.70	76.22	76.24	76.56	76.44
1995	71.11	71.68	70.32	71.52	71.58	71.78
2512	72.12	71.63	70.96	71.22	71.73	71.26
3162	70.93	70.41	70.38	70.57	70.50	70.62
3981	65.80	65.00	65.10	64.89	65.19	65.40

**Table 117. Section N5 (60 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	81.61	84.50	78.76	81.76	79.86	83.57
398	80.87	81.92	76.45	79.11	79.50	81.68
501	84.52	82.32	82.47	78.88	84.83	81.99
631	86.33	85.85	85.45	84.98	85.33	84.30
794	87.99	88.45	88.27	87.53	88.52	87.67
1000	88.63	91.22	88.16	90.68	89.21	92.25
1259	78.81	85.07	78.62	84.20	80.20	84.89
1585	77.24	76.65	77.10	78.46	75.47	76.05
1995	78.16	77.12	77.87	78.85	76.88	76.54
2512	76.78	77.54	75.91	78.48	76.07	77.26
3162	72.91	74.08	72.44	74.78	73.18	73.83
3981	66.48	68.47	66.24	70.34	65.68	68.68

**Table 118. Section N6 (60 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	83.23	81.86	79.65	80.74	81.78	78.82
398	80.96	80.99	78.90	78.71	80.75	82.66
501	79.03	79.18	79.25	81.03	82.59	78.02
631	80.66	81.04	79.45	81.84	78.20	82.01
794	83.19	82.21	82.47	83.41	80.16	82.44
1000	85.06	87.07	85.63	87.46	85.99	87.54
1259	82.90	83.94	83.00	84.40	83.04	84.61
1585	81.11	81.38	81.85	81.69	81.06	81.20
1995	77.48	79.24	77.57	79.64	77.13	79.90
2512	75.10	76.67	74.76	76.42	74.86	76.31
3162	73.01	73.83	72.59	73.63	72.90	73.55
3981	68.27	69.84	67.79	70.32	67.71	69.52

**Table 119. Section N7 (60 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	83.03	82.93	75.97	80.04	81.14	78.66
398	81.09	82.05	82.11	78.45	82.93	77.86
501	85.56	86.15	82.66	82.13	84.28	84.88
631	83.38	85.89	82.47	84.15	82.77	84.13
794	84.14	85.68	83.36	84.95	84.26	85.98
1000	84.66	86.50	85.16	86.48	84.97	87.30
1259	82.85	81.40	83.22	82.02	82.85	82.58
1585	82.56	80.95	82.99	81.30	82.67	82.06
1995	79.25	80.92	79.62	81.06	79.49	81.80
2512	74.48	77.54	75.36	77.11	74.86	77.39
3162	72.03	72.48	73.28	72.41	73.00	72.36
3981	67.43	69.22	68.49	69.42	68.29	69.30

**Table 120. Section N8 (60 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.91	80.63	80.04	79.84	83.34	81.81
398	84.39	83.14	85.59	81.21	86.76	81.20
501	90.73	91.02	88.69	90.02	91.32	90.19
631	91.66	92.07	89.75	91.37	92.41	91.84
794	91.84	92.44	90.22	91.53	91.62	92.09
1000	86.79	90.56	84.97	89.65	85.81	91.13
1259	81.74	84.33	82.01	82.92	81.44	84.28
1585	82.23	80.78	82.70	81.49	81.97	82.39
1995	80.04	81.27	80.22	82.29	79.78	82.23
2512	75.60	78.38	75.91	78.18	75.76	78.22
3162	72.62	73.21	72.91	73.15	71.50	73.26
3981	68.63	69.08	68.68	69.65	67.81	69.19

**Table 121. Section N9 (60 mph) A-Weighted SIL CPX SRTT Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.36	82.49	77.71	83.22	73.74	81.75
398	81.64	83.52	85.57	80.05	82.73	80.20
501	86.34	87.40	88.65	85.21	88.82	85.50
631	91.94	93.24	93.50	92.14	93.83	91.31
794	95.56	94.82	95.53	94.72	96.02	94.28
1000	92.46	95.09	91.91	94.97	91.51	95.21
1259	86.25	90.53	86.06	91.07	85.94	90.61
1585	81.76	83.37	81.82	83.19	81.13	84.16
1995	76.07	76.75	74.19	77.55	74.15	79.80
2512	75.64	74.63	74.39	76.29	74.37	77.98
3162	75.06	74.01	74.21	75.10	74.27	75.64
3981	69.67	70.36	69.31	70.93	69.25	71.10

**Table 122. Section N5 (45 mph) A-Weighted SIL CYML UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	72.03	77.08	75.43	73.38	70.01	74.79
398	70.57	74.35	71.76	73.86	76.05	75.34
501	77.17	79.22	77.20	76.93	77.63	77.19
631	82.64	82.81	83.40	82.52	82.28	82.77
794	84.76	86.24	85.34	86.64	84.60	86.29
1000	79.77	79.95	80.43	81.13	79.39	81.23
1259	76.38	76.42	76.99	77.78	76.96	77.62
1585	75.42	74.43	74.35	72.69	76.21	73.50
1995	74.70	74.78	73.72	73.32	75.50	74.01
2512	74.04	74.60	73.85	73.65	74.07	73.92
3162	71.13	71.73	71.43	71.84	70.86	71.82
3981	65.37	65.93	65.79	65.43	65.83	65.72

**Table 123. Section N6 (45 mph) A-Weighted SIL CYML UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.75	76.22	74.51	78.52	73.98	75.33
398	77.48	74.44	73.18	73.90	74.55	74.33
501	75.78	74.41	77.74	78.78	78.78	76.02
631	79.22	77.51	81.42	82.09	82.01	79.93
794	81.89	82.71	82.73	84.63	84.09	83.31
1000	77.55	77.48	77.55	78.50	78.26	75.96
1259	78.79	80.03	76.95	76.17	76.60	78.85
1585	79.09	78.43	77.46	73.99	77.27	78.41
1995	76.13	74.61	76.07	74.69	75.94	76.18
2512	72.46	73.01	74.14	74.47	74.41	72.83
3162	70.28	71.34	70.18	71.80	70.80	71.13
3981	66.40	66.74	65.83	66.33	66.05	67.10

**Table 124. Section N7 (45 mph) A-Weighted SIL CYML UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.56	75.37	72.52	76.65	74.68	71.47
398	74.74	71.36	75.26	74.19	75.43	72.63
501	74.99	76.35	79.10	78.78	78.30	77.86
631	78.14	79.59	79.99	81.11	82.58	79.78
794	81.47	83.21	82.34	84.04	83.40	82.68
1000	78.93	77.28	78.09	78.36	79.00	77.71
1259	80.10	79.91	78.53	78.33	77.68	79.73
1585	79.37	78.61	78.66	77.11	77.51	78.88
1995	76.62	76.49	76.44	76.00	75.55	76.48
2512	73.15	72.93	73.49	74.16	74.13	73.51
3162	71.38	70.90	70.68	71.17	71.40	71.28
3981	67.10	66.17	66.62	66.36	66.47	66.69

**Table 125. Section N8 (45 mph) A-Weighted SIL CYML UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.89	74.96	76.03	78.00	80.57	77.92
398	81.32	76.71	79.41	77.21	81.02	78.39
501	84.60	83.80	84.41	83.71	83.92	83.48
631	88.35	86.72	88.26	86.39	86.97	87.58
794	88.54	87.52	89.19	87.49	87.47	87.64
1000	82.18	81.10	83.35	81.27	81.83	82.16
1259	78.15	77.67	78.26	78.18	77.25	78.35
1585	76.54	77.72	75.26	77.58	77.01	77.85
1995	75.60	77.23	74.71	76.60	76.02	77.05
2512	74.73	74.78	74.57	74.75	74.82	74.60
3162	72.24	71.52	72.65	71.92	71.87	71.50
3981	67.00	66.94	67.30	66.94	66.94	66.89

**Table 126. Section N9 (45 mph) A-Weighted SIL CYML UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.03	78.68	77.04	75.64	75.73	80.09
398	80.64	76.31	77.60	75.44	79.62	76.92
501	84.02	80.56	82.50	80.73	82.52	83.46
631	88.79	87.62	88.81	88.73	88.17	88.82
794	91.17	91.77	91.39	91.85	90.86	91.45
1000	85.47	88.08	85.31	88.58	85.73	88.72
1259	81.31	84.23	82.14	84.21	82.39	84.12
1585	76.71	77.48	76.99	78.19	76.84	78.78
1995	71.00	72.38	72.34	72.33	71.36	73.33
2512	71.71	71.49	72.51	71.77	72.03	70.54
3162	71.39	71.57	71.94	71.84	71.74	71.27
3981	67.58	67.37	67.53	67.70	67.49	67.97

**Table 127. Section N5 (45 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.20	66.86	72.26	70.80	71.35	72.16
398	73.17	72.53	72.81	72.11	72.73	67.66
501	78.42	76.69	78.18	76.80	76.35	76.01
631	82.07	81.72	82.07	81.75	81.62	81.45
794	81.86	84.16	82.21	83.79	81.86	83.82
1000	80.05	80.90	79.84	80.68	79.84	80.70
1259	77.37	78.91	77.50	78.12	77.04	78.34
1585	75.68	74.12	75.94	74.90	76.57	75.43
1995	74.68	73.90	74.26	73.69	74.98	74.81
2512	72.64	72.96	72.40	72.87	72.87	73.37
3162	69.58	70.26	69.34	69.98	69.32	70.30
3981	62.34	64.09	62.22	63.71	62.69	63.72

**Table 128. Section N6 (45 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	69.74	72.05	71.74	73.46	74.23	66.53
398	71.81	72.75	72.30	63.81	71.74	69.99
501	76.44	75.49	75.03	75.13	76.19	75.66
631	77.81	78.79	78.61	79.01	77.52	78.43
794	78.67	80.97	79.00	80.68	79.08	81.31
1000	79.06	77.41	78.67	77.18	79.21	77.49
1259	79.25	78.55	79.48	78.47	79.41	78.34
1585	77.54	76.30	76.73	75.91	77.56	76.15
1995	73.92	74.36	73.14	74.07	73.41	73.53
2512	71.35	71.76	71.42	71.30	71.10	71.79
3162	69.31	69.58	69.59	68.93	69.30	69.35
3981	63.43	64.52	63.04	63.73	63.13	63.89

**Table 129. Section N7 (45 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.33	67.32	72.58	68.06	71.02	70.44
398	71.97	70.06	73.92	68.93	72.00	72.96
501	76.23	76.71	77.10	75.55	75.97	77.06
631	77.87	78.50	79.17	77.72	78.40	79.28
794	78.04	80.41	78.45	80.44	78.12	80.68
1000	77.20	74.22	76.99	74.85	77.13	74.82
1259	80.11	77.94	79.53	78.40	79.62	78.20
1585	79.13	78.11	79.19	78.67	79.79	78.55
1995	76.37	76.55	76.18	76.72	76.04	77.28
2512	71.10	72.76	71.16	72.79	70.93	72.63
3162	68.69	69.08	68.67	69.07	68.63	68.90
3981	63.25	63.92	63.19	64.02	63.13	63.77

**Table 130. Section N8 (45 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.55	74.91	76.08	73.44	76.90	74.34
398	78.18	78.16	80.47	75.88	78.61	76.37
501	82.92	84.93	85.93	83.45	84.44	84.71
631	85.42	87.80	87.03	87.51	85.68	87.50
794	82.28	86.31	83.92	85.73	83.60	86.23
1000	77.76	78.95	77.50	78.66	77.84	78.90
1259	79.83	78.05	78.99	78.02	79.25	78.50
1585	78.93	77.93	78.60	78.30	78.72	77.77
1995	75.34	75.88	74.76	76.42	74.87	76.18
2512	71.33	71.68	69.73	71.80	71.02	71.51
3162	69.93	68.71	68.93	68.90	69.52	68.86
3981	64.44	64.60	64.19	64.04	64.06	64.00

**Table 131. Section N9 (45 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.46	75.72	77.96	71.55	75.95	75.16
398	78.65	77.56	77.60	75.63	77.83	74.78
501	82.79	81.77	83.00	80.56	82.43	80.57
631	87.00	87.15	87.68	86.81	87.50	86.99
794	87.51	89.55	88.43	89.47	87.39	89.24
1000	84.65	87.60	84.53	87.86	84.33	87.63
1259	83.44	83.59	83.15	83.81	83.12	84.10
1585	77.52	78.07	77.78	77.46	77.66	77.51
1995	70.73	72.82	70.38	72.82	70.60	72.59
2512	70.02	68.68	69.62	68.92	70.05	69.13
3162	69.96	68.11	69.85	68.89	69.89	68.89
3981	65.00	64.65	64.87	64.66	64.79	64.67

**Table 132. Section N5 (45 mph) A-Weighted SIL FDWS UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.12	75.64	78.49	75.37	71.09	78.12
398	70.22	72.55	75.60	73.17	76.88	74.65
501	80.11	79.65	81.14	77.28	77.54	77.90
631	84.61	84.23	85.03	83.81	84.89	83.42
794	82.90	85.20	83.07	85.14	83.69	85.36
1000	80.49	81.24	79.88	80.48	80.28	80.57
1259	76.14	76.96	76.78	76.67	76.24	77.00
1585	74.85	73.75	75.89	75.37	76.34	75.68
1995	73.72	72.44	75.32	74.32	74.89	74.49
2512	72.63	72.57	73.20	73.29	73.02	73.60
3162	69.57	70.42	70.52	70.19	70.01	70.41
3981	63.87	64.39	65.54	64.40	64.48	64.62

**Table 133. Section N6 (45 mph) A-Weighted SIL FDWS UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.58	75.60	73.27	75.08	73.50	75.94
398	73.02	76.39	73.20	73.15	74.49	74.32
501	74.13	77.99	75.76	78.29	75.85	74.86
631	78.66	79.51	79.26	79.96	78.27	79.38
794	80.66	82.02	80.81	82.38	80.65	82.25
1000	79.70	77.93	79.75	78.45	79.58	78.85
1259	81.05	79.91	80.73	80.21	80.63	80.04
1585	78.86	78.58	79.38	78.48	78.91	78.58
1995	74.37	74.58	74.38	74.52	74.44	74.47
2512	71.48	71.71	71.10	71.78	71.28	71.95
3162	70.08	68.96	69.97	69.78	70.08	69.94
3981	65.60	64.93	65.56	65.32	65.49	65.43

**Table 134. Section N7 (45 mph) A-Weighted SIL FDWS UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.01	76.39	73.40	72.23	75.15	73.28
398	75.50	77.27	74.49	74.18	77.36	75.68
501	77.65	78.00	77.05	76.56	77.70	76.65
631	80.12	80.79	78.48	82.02	81.64	81.56
794	81.05	82.39	80.56	82.72	80.80	82.39
1000	79.65	77.83	79.16	78.11	79.37	77.64
1259	80.87	79.09	81.10	79.50	80.85	79.55
1585	80.59	78.89	80.34	79.47	79.89	78.88
1995	76.43	76.49	76.03	76.42	76.05	76.38
2512	70.90	72.83	71.47	72.86	71.40	73.71
3162	70.09	69.03	70.36	69.65	70.22	69.62
3981	65.65	65.02	66.46	65.84	66.01	66.19

**Table 135. Section N8 (45 mph) A-Weighted SIL FDWS UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.10	77.09	77.00	77.86	80.81	76.04
398	81.43	79.59	81.20	78.19	80.34	78.77
501	86.15	85.01	85.41	83.21	85.12	84.59
631	89.13	87.99	88.02	87.44	88.09	87.65
794	85.96	87.03	85.83	86.52	85.79	86.59
1000	80.66	81.04	80.38	80.40	80.20	81.66
1259	79.26	77.99	78.88	78.68	79.44	78.26
1585	79.19	78.23	79.33	79.23	79.65	78.16
1995	76.46	76.99	76.42	77.11	76.66	77.17
2512	71.48	73.20	71.76	73.54	71.91	74.06
3162	69.22	69.50	69.44	69.64	70.28	69.60
3981	66.25	65.58	66.75	65.88	67.01	65.80

**Table 136. Section N9 (45 mph) A-Weighted SIL FDWS UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.70	76.17	75.31	77.18	75.22	79.81
398	75.20	78.50	78.40	76.66	77.88	69.34
501	83.38	81.22	83.81	82.02	81.74	83.55
631	89.56	88.55	89.96	88.89	88.80	88.86
794	88.70	90.86	87.65	90.78	87.87	90.83
1000	85.07	87.76	85.00	88.00	84.94	87.98
1259	82.10	83.41	81.36	83.47	82.05	83.01
1585	76.16	76.21	76.11	76.56	75.89	76.75
1995	71.35	70.96	72.10	71.97	71.28	71.12
2512	71.65	70.79	72.40	70.95	72.06	70.60
3162	71.44	70.99	72.02	70.76	71.83	70.72
3981	67.13	66.86	67.64	66.45	67.63	66.70

**Table 137. Section N5 (45 mph) A-Weighted SIL FDWS+200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.18	74.00	74.83	74.99	78.11	70.75
398	77.61	74.88	76.68	74.18	78.46	72.05
501	79.54	79.68	77.79	78.71	78.15	77.58
631	85.13	84.44	84.04	84.94	84.34	84.05
794	84.37	85.19	82.77	85.99	83.10	85.25
1000	80.67	81.25	79.04	81.55	80.67	81.61
1259	76.38	77.96	76.92	77.37	76.85	77.86
1585	75.14	75.20	76.91	74.92	75.30	75.11
1995	74.51	73.18	75.70	73.16	74.04	72.78
2512	72.59	73.18	72.97	72.61	72.70	73.09
3162	69.43	70.48	69.75	70.68	69.90	70.48
3981	64.03	64.13	65.14	64.29	64.46	64.11

**Table 138. Section N6 (45 mph) A-Weighted SIL FDWS+200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.59	71.81	74.44	73.64	76.82	73.74
398	72.55	74.09	69.13	73.11	70.99	70.01
501	75.57	77.21	71.82	77.44	78.26	75.35
631	78.25	79.75	79.05	79.24	79.21	78.60
794	80.25	81.43	80.13	81.97	80.77	82.71
1000	79.79	77.40	80.36	77.00	80.29	77.68
1259	80.92	78.59	81.07	79.09	80.88	79.72
1585	78.87	78.10	79.41	78.13	79.34	78.98
1995	74.22	74.35	74.13	74.35	74.45	74.68
2512	70.95	71.37	71.05	71.58	71.47	72.11
3162	70.08	68.91	70.44	69.36	70.38	69.54
3981	65.94	64.74	66.28	65.14	65.97	65.45



**Table 139. Section N7 (45 mph) A-Weighted SIL FDWS+200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.56	76.44	76.38	76.09	77.77	76.71
398	69.69	73.94	75.10	74.61	72.80	75.48
501	76.25	78.33	77.54	78.00	76.16	75.55
631	79.76	80.22	79.72	80.56	80.14	79.87
794	81.08	82.77	81.30	82.72	81.16	82.90
1000	79.31	77.15	79.48	76.60	79.17	77.49
1259	80.48	78.08	80.56	78.40	80.57	78.93
1585	80.30	78.44	80.20	78.98	80.10	79.57
1995	75.82	75.39	75.89	76.19	76.10	76.09
2512	70.61	72.06	70.53	72.39	71.55	72.72
3162	70.17	69.02	70.10	68.39	70.48	69.50
3981	65.65	65.28	65.82	64.79	66.64	65.46

**Table 140. Section N8 (45 mph) A-Weighted SIL FDWS+200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.62	77.97	76.65	79.08	79.88	81.00
398	80.70	81.32	83.52	80.76	81.14	82.36
501	85.68	84.61	86.34	85.16	83.82	84.92
631	89.36	88.34	88.70	89.37	87.51	88.35
794	85.78	87.72	86.43	88.01	85.33	87.71
1000	80.40	81.92	80.80	81.69	80.76	80.87
1259	79.04	78.37	78.52	78.45	79.93	78.95
1585	79.39	78.47	79.41	78.55	80.26	79.17
1995	76.42	76.87	76.49	76.92	76.61	77.29
2512	71.60	73.19	71.60	73.34	71.80	74.18
3162	68.97	69.66	69.13	69.54	70.56	70.27
3981	65.86	66.51	66.41	65.84	66.74	66.54

**Table 141. Section N9 (45 mph) A-Weighted SIL FDWS+200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.41	75.39	77.07	76.08	80.93	76.37
398	78.68	78.24	82.53	77.33	78.39	80.62
501	83.48	82.00	82.85	81.80	83.27	82.61
631	89.90	88.73	89.84	89.29	90.13	89.20
794	88.30	91.12	88.20	91.35	88.38	91.26
1000	85.61	88.28	86.01	87.96	85.59	87.99
1259	81.93	83.25	81.97	83.14	81.95	82.64
1585	76.22	76.44	76.14	76.21	76.25	76.45
1995	72.08	71.60	71.09	72.34	72.16	72.21
2512	71.99	70.87	71.69	70.91	72.06	70.57
3162	71.74	71.01	71.56	70.84	71.35	70.84
3981	67.49	66.87	67.12	66.62	67.37	66.71

**Table 142. Section N5 (45 mph) A-Weighted SIL PTGX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.36	75.43	68.86	73.96	73.88	69.29
398	71.45	68.72	74.99	68.67	68.71	71.01
501	78.67	78.10	76.91	78.67	78.73	79.08
631	83.12	83.71	83.27	82.73	83.19	82.54
794	83.02	86.10	82.78	86.06	82.59	86.77
1000	80.31	81.90	80.62	82.31	79.92	81.92
1259	76.41	77.49	76.35	77.19	75.45	77.78
1585	75.57	75.48	74.61	74.81	75.09	75.00
1995	75.83	74.04	75.48	73.44	75.37	73.46
2512	75.06	74.66	74.47	73.95	74.42	74.11
3162	70.91	71.64	70.81	71.43	70.82	71.63
3981	64.44	66.22	63.97	64.98	64.19	64.83

**Table 143. Section N6 (45 mph) A-Weighted SIL PTGX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	71.74	76.64	75.07	68.52	73.21	75.09
398	71.04	70.85	70.99	73.60	73.77	69.66
501	74.38	76.21	73.99	74.71	73.94	76.43
631	76.61	78.03	76.81	77.57	77.17	77.29
794	80.13	83.65	79.64	83.85	79.90	84.09
1000	80.04	77.85	80.38	78.17	80.07	78.15
1259	80.83	79.70	80.99	79.53	81.23	79.67
1585	79.47	78.34	78.93	78.77	79.15	78.58
1995	75.71	75.88	75.09	75.84	75.51	75.90
2512	72.75	72.45	72.49	72.92	73.06	72.42
3162	70.55	70.51	70.58	70.64	70.84	70.37
3981	64.93	66.15	64.67	66.00	65.26	65.16

**Table 144. Section N7 (45 mph) A-Weighted SIL PTGX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.46	75.62	72.82	74.27	73.62	77.57
398	76.30	70.57	73.12	73.72	73.02	76.32
501	76.19	77.82	76.26	79.16	77.55	77.69
631	80.81	79.96	78.87	80.50	79.47	79.56
794	80.43	84.54	80.59	84.84	80.69	83.72
1000	79.31	76.26	80.34	77.74	80.11	77.44
1259	80.65	77.93	81.00	78.97	81.44	79.13
1585	79.96	78.10	80.08	78.54	80.11	78.49
1995	77.44	77.20	77.27	77.50	77.46	77.53
2512	72.24	74.44	72.35	73.73	72.35	73.89
3162	70.61	69.64	70.43	70.17	70.76	70.41
3981	65.16	65.61	65.06	65.70	65.23	65.97

**Table 145. Section N8 (45 mph) A-Weighted SIL PTGX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.52	76.71	78.07	78.09	78.20	77.03
398	79.80	76.59	78.34	76.89	78.48	78.20
501	85.07	86.07	84.78	86.03	82.08	84.88
631	87.46	88.60	87.32	88.56	86.38	86.96
794	85.25	87.95	85.60	87.21	84.41	87.22
1000	79.40	81.44	79.56	81.04	80.30	81.28
1259	79.95	79.10	80.19	79.11	80.64	79.80
1585	79.82	78.77	79.74	78.75	80.19	79.68
1995	77.11	78.05	77.46	77.54	77.45	78.25
2512	72.88	74.19	72.97	74.61	73.99	74.60
3162	70.28	69.91	70.52	70.02	71.23	70.71
3981	65.95	66.57	65.93	66.38	66.26	66.74

**Table 146. Section N9 (45 mph) A-Weighted SIL PTGX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.18	74.09	72.32	75.73	78.16	77.24
398	78.28	68.98	78.19	78.11	77.85	74.65
501	83.05	81.32	83.44	82.00	82.88	80.77
631	88.84	87.82	88.63	87.54	88.53	87.45
794	89.38	91.49	88.95	91.14	89.27	90.57
1000	86.56	89.48	86.68	89.69	86.91	89.01
1259	82.21	84.33	82.16	83.81	82.59	83.89
1585	76.16	77.58	76.71	77.40	76.69	77.30
1995	71.21	71.59	72.51	72.38	72.62	73.81
2512	72.97	70.64	73.67	70.44	73.55	72.85
3162	72.29	70.86	72.67	70.75	72.55	72.07
3981	66.74	67.35	66.87	67.44	66.75	67.42

**Table 147. Section N5 (45 mph) A-Weighted SIL PTGX +200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	75.30	76.93	74.54	76.08	71.25	71.88
398	70.92	73.19	73.21	74.75	76.24	74.55
501	78.28	76.60	78.31	77.08	77.62	79.66
631	83.58	83.96	82.69	83.45	83.23	83.64
794	82.88	85.62	83.55	86.30	83.09	86.23
1000	80.18	81.05	79.26	81.70	79.99	82.09
1259	76.62	77.47	76.66	77.35	75.88	78.20
1585	75.86	76.04	76.26	75.30	75.08	75.09
1995	75.84	75.36	76.35	74.18	75.36	73.55
2512	74.60	75.12	74.77	74.54	74.73	74.28
3162	71.19	72.21	71.16	71.82	71.10	72.28
3981	64.87	66.48	64.70	65.33	64.03	65.60

**Table 148. Section N6 (45 mph) A-Weighted SIL PTGX +200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	73.32	75.88	74.18	75.93	73.06	76.88
398	71.47	70.93	74.97	72.87	69.24	72.72
501	74.89	74.85	75.72	78.07	75.09	76.12
631	77.70	77.37	77.17	78.93	76.62	76.81
794	80.45	82.95	80.72	84.18	80.67	84.19
1000	80.22	77.64	79.94	77.86	80.01	78.43
1259	81.50	79.48	80.60	79.66	80.98	80.53
1585	79.71	79.09	79.58	79.35	79.19	79.57
1995	75.72	76.09	75.28	76.18	75.04	76.04
2512	73.49	73.59	72.83	73.02	72.08	73.42
3162	71.35	71.91	70.85	71.58	70.50	72.10
3981	65.63	66.76	65.16	66.55	65.16	66.84

**Table 149. Section N7 (45 mph) A-Weighted SIL PTGX +200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.56	73.94	74.57	74.33	69.59	71.51
398	73.23	75.08	76.67	75.53	75.06	69.79
501	75.95	75.30	77.10	78.68	76.52	76.43
631	78.44	78.63	77.25	81.24	79.34	78.26
794	81.18	83.39	81.07	84.80	81.77	83.96
1000	79.61	76.96	80.15	77.37	78.96	77.69
1259	81.85	79.09	81.68	78.28	80.54	80.20
1585	80.73	79.34	80.46	78.31	80.29	80.27
1995	77.13	77.61	77.50	77.77	77.31	77.85
2512	72.78	74.05	72.48	74.22	72.03	74.46
3162	71.38	71.26	71.16	70.63	70.35	72.01
3981	65.53	66.41	65.49	65.99	65.03	66.72

**Table 150. Section N8 (45 mph) A-Weighted SIL PTGX +200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	77.35	77.65	80.99	80.27	76.58	80.45
398	79.81	76.54	78.73	77.26	78.30	80.40
501	85.27	84.06	83.14	85.21	85.29	82.80
631	87.55	88.47	86.81	89.27	88.03	87.63
794	85.84	87.78	85.49	88.31	85.82	88.14
1000	80.41	80.94	80.18	81.79	79.63	80.52
1259	80.49	78.96	81.21	79.71	80.45	79.80
1585	80.43	78.61	80.63	78.91	80.41	78.99
1995	77.52	77.83	77.92	78.60	77.48	78.45
2512	73.11	74.76	73.57	74.47	73.37	75.14
3162	70.99	70.59	71.74	70.11	70.97	71.11
3981	66.44	66.47	67.15	66.38	66.89	66.64

**Table 151. Section N9 (45 mph) A-Weighted SIL PTGX +200 UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	74.77	78.83	72.15	75.59	79.51	78.67
398	78.77	75.94	78.44	74.29	80.15	75.43
501	83.54	81.82	83.78	82.23	82.97	81.04
631	88.26	88.57	89.20	88.26	89.07	87.93
794	88.86	91.71	89.85	91.38	89.63	90.91
1000	86.66	90.05	86.91	89.30	87.13	89.16
1259	82.80	83.98	82.55	83.80	82.46	83.55
1585	76.62	77.82	76.47	77.63	76.36	77.04
1995	72.66	72.26	73.36	72.78	72.76	73.02
2512	73.82	70.04	73.90	71.14	74.29	72.53
3162	72.97	71.00	73.06	71.29	73.33	71.88
3981	66.96	67.82	67.38	67.68	67.82	68.00

**Table 152. Section N5 (60 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	76.55	79.80	78.39	70.50	75.21	78.25
398	76.55	73.87	77.20	79.38	77.68	80.74
501	78.04	80.27	80.87	78.41	77.55	77.27
631	84.66	84.03	82.83	84.30	82.31	83.44
794	83.55	86.22	83.50	86.31	82.42	84.59
1000	83.74	87.89	83.62	87.92	84.09	88.04
1259	79.18	82.59	79.49	82.12	79.09	82.01
1585	77.38	76.50	77.65	77.41	77.66	77.09
1995	78.01	77.64	77.84	78.14	77.33	78.36
2512	76.38	77.32	76.55	77.12	76.51	77.21
3162	72.43	74.52	72.37	74.59	72.35	74.55
3981	66.07	68.31	66.68	68.33	66.93	69.18

**Table 153. Section N6 (60 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.45	79.59	76.60	77.49	74.66	73.86
398	79.26	72.70	78.13	76.79	74.19	78.80
501	77.52	75.67	75.80	78.16	79.40	78.65
631	75.48	78.08	76.71	76.84	80.42	79.31
794	79.33	81.37	78.28	82.45	80.37	81.41
1000	80.83	84.38	80.71	83.39	80.10	83.74
1259	81.90	81.94	81.44	81.09	81.46	82.19
1585	80.46	81.23	80.94	80.76	80.36	81.06
1995	78.11	80.82	78.53	80.74	78.86	81.23
2512	74.17	77.68	74.87	77.19	73.90	78.44
3162	71.91	74.28	72.09	73.34	71.40	74.26
3981	67.00	69.77	67.54	68.52	66.89	70.24

**Table 154. Section N7 (60 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.70	79.47	76.89	77.22	78.16	74.15
398	76.61	78.41	78.16	74.06	76.86	81.70
501	81.49	81.42	75.92	80.85	80.37	77.65
631	83.43	82.94	79.54	83.07	82.40	83.45
794	79.57	84.20	79.59	83.42	80.96	84.33
1000	80.97	83.59	79.58	83.04	79.93	83.58
1259	81.33	81.03	82.02	80.93	80.13	80.48
1585	81.41	81.55	82.04	81.47	80.64	81.53
1995	79.91	82.04	80.49	81.87	79.45	81.95
2512	74.21	77.87	74.01	77.52	74.67	77.60
3162	71.87	73.26	71.69	72.61	70.71	72.99
3981	67.15	69.32	67.22	68.03	67.01	68.52

**Table 155. Section N8 (60 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	79.19	81.43	76.86	83.11	81.48	83.55
398	84.92	75.15	79.57	83.20	81.72	81.63
501	87.08	87.68	88.02	87.70	87.64	87.41
631	89.50	91.56	90.40	90.24	91.27	92.47
794	86.91	91.72	87.92	90.13	88.42	91.16
1000	83.35	87.80	82.03	85.52	82.18	87.16
1259	81.79	82.70	81.53	82.66	81.35	82.80
1585	82.60	82.02	82.36	82.33	82.59	81.74
1995	79.73	81.62	79.91	82.08	79.90	81.68
2512	74.31	78.03	75.55	77.85	75.58	78.40
3162	73.16	72.75	72.49	73.34	71.56	72.67
3981	69.06	68.74	68.61	69.15	68.15	68.64

**Table 156. Section N9 (60 mph) A-Weighted SIL CPX UNIR Tire in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	78.82	76.88	82.33	81.95	82.18	82.36
398	80.19	77.56	81.70	76.63	79.28	81.86
501	86.30	83.35	85.92	82.82	84.58	83.65
631	89.36	89.06	89.49	88.52	89.77	88.87
794	89.71	92.53	91.12	91.95	90.87	93.49
1000	87.97	93.34	88.48	93.12	88.19	94.26
1259	85.51	88.16	85.16	87.88	84.66	88.24
1585	81.54	83.14	80.19	82.92	80.07	83.87
1995	76.69	78.17	76.73	79.44	74.44	78.95
2512	75.30	74.54	74.75	75.93	74.82	75.34
3162	74.24	73.68	74.24	74.08	73.81	73.94
3981	69.93	69.63	69.20	69.97	69.09	70.53

**Table 157. Section N5 (45 mph) A-Weighted SIL SEMI in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	87.34	88.22	88.48	88.59	87.77	87.25
398	83.62	83.91	84.00	84.53	87.41	85.78
501	82.62	83.75	78.03	82.72	80.44	82.70
631	85.99	83.23	85.52	81.36	85.81	84.89
794	85.02	82.55	84.78	81.57	85.22	82.62
1000	81.85	82.06	81.21	81.72	81.24	81.25
1259	77.56	78.02	76.53	77.51	78.00	76.42
1585	74.02	74.06	74.74	73.44	73.49	72.86
1995	73.54	72.36	74.17	70.51	70.62	71.11
2512	73.54	69.88	73.63	71.13	72.12	71.59
3162	69.69	70.41	69.75	68.71	68.99	69.30
3981	66.04	66.74	66.48	65.96	65.93	65.14

**Table 158. Section N6 (45 mph) A-Weighted SIL SEMI in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	88.27	87.84	87.43	86.41	88.87	88.12
398	86.61	85.67	86.40	84.96	86.89	85.00
501	77.86	81.86	77.78	80.54	77.54	82.36
631	82.43	82.37	82.68	80.98	82.41	82.10
794	81.09	79.59	81.50	78.65	79.91	80.24
1000	80.60	77.95	80.66	73.80	80.20	75.93
1259	79.28	76.18	79.60	75.63	79.87	74.81
1585	76.17	74.40	76.32	75.16	76.55	74.13
1995	73.81	73.43	73.99	68.55	72.07	71.76
2512	72.71	70.63	72.65	73.06	71.20	70.28
3162	69.68	69.40	69.91	70.43	68.71	67.50
3981	66.73	65.91	67.41	69.35	67.61	64.88

**Table 159. Section N7 (45 mph) A-Weighted SIL SEMI in dB(A)**

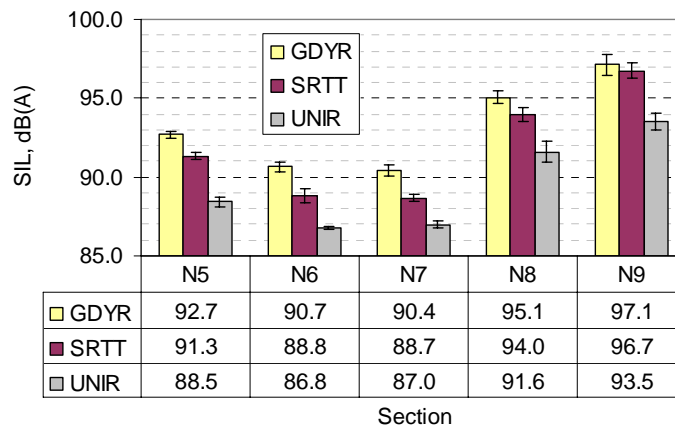
Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	89.34	86.83	88.23	85.86	86.96	83.24
398	85.33	79.31	86.38	85.10	85.06	80.58
501	80.06	80.78	80.53	82.74	78.29	82.30
631	81.97	81.98	82.25	80.12	82.03	81.14
794	78.32	77.30	79.12	77.76	79.15	77.21
1000	78.71	72.92	79.06	75.27	79.09	73.96
1259	79.92	75.39	80.04	74.57	79.49	74.27
1585	79.11	76.76	79.00	77.13	78.24	76.85
1995	75.45	75.88	75.77	74.64	74.56	75.90
2512	72.73	72.76	72.74	71.62	72.18	71.49
3162	69.66	69.36	69.71	69.43	69.13	67.41
3981	67.45	64.99	67.41	66.28	67.27	64.85

**Table 160. Section N8 (45 mph) A-Weighted SIL SEMI in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	88.31	86.24	87.99	86.89	87.73	88.53
398	87.18	85.76	87.33	88.91	86.94	84.69
501	86.05	87.09	86.27	87.59	85.78	85.06
631	88.91	88.07	88.44	87.87	88.15	86.96
794	85.99	86.23	85.55	87.48	85.53	86.40
1000	81.94	83.45	81.32	84.37	80.72	82.32
1259	79.04	78.57	78.25	77.58	78.75	77.14
1585	78.44	75.67	78.07	77.24	78.04	76.74
1995	77.09	75.69	76.82	75.93	76.67	76.54
2512	74.34	73.63	74.23	75.16	73.60	72.80
3162	70.42	70.24	70.16	72.42	69.78	68.35
3981	68.43	66.50	68.61	68.83	68.05	65.80

**Table 161. Section N9 (45 mph) A-Weighted SIL SEMI in dB(A)**

Freq (Hz)	Run. 1		Run. 2		Run. 3	
	Ch. 1	Ch. 2	Ch. 1	Ch. 2	Ch. 1	Ch. 2
316	87.05	85.37	86.26	84.86	86.61	87.40
398	86.39	87.53	85.77	85.97	87.63	85.85
501	88.62	86.43	87.60	84.35	88.27	88.11
631	90.04	88.23	90.12	88.45	90.37	90.28
794	90.47	88.19	90.21	89.59	90.48	88.76
1000	88.78	87.90	88.28	87.74	88.30	87.84
1259	85.50	83.82	85.52	84.17	85.35	84.67
1585	78.35	81.11	78.82	82.72	79.00	81.81
1995	73.15	73.49	72.56	77.58	72.53	74.18
2512	72.05	71.42	71.88	73.23	71.36	69.31
3162	71.26	68.59	71.10	71.87	71.26	68.62
3981	69.00	67.63	69.14	69.95	68.99	67.19



**Figure 21. CPX Mean SIL at 45 mph**



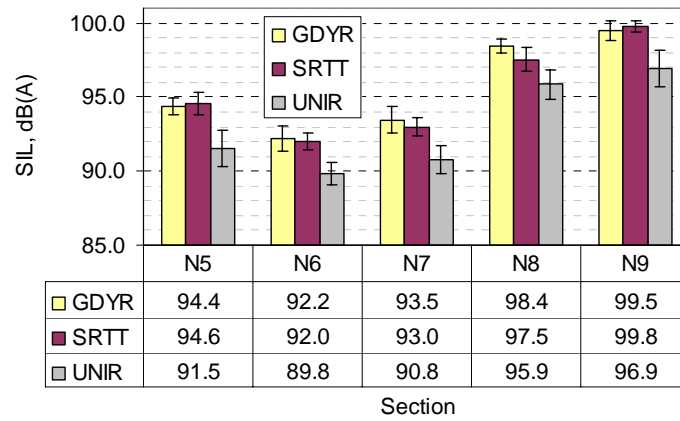


Figure 22. CPX Mean SIL at 60 mph

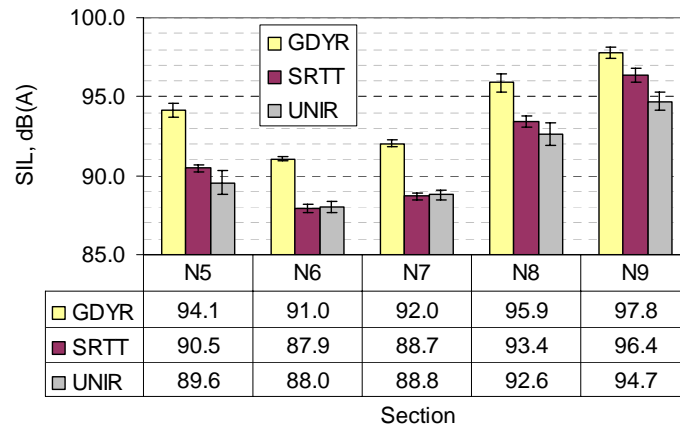


Figure 23. PTGX SIL at 45 mph + 0 lbs

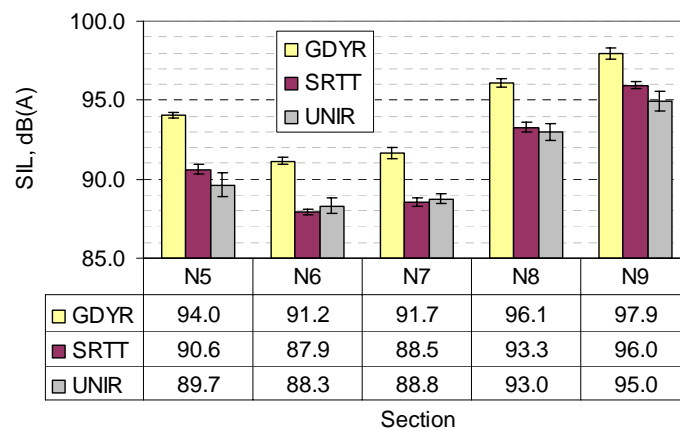


Figure 24. PTGX SIL at 45 mph + 200 lbs

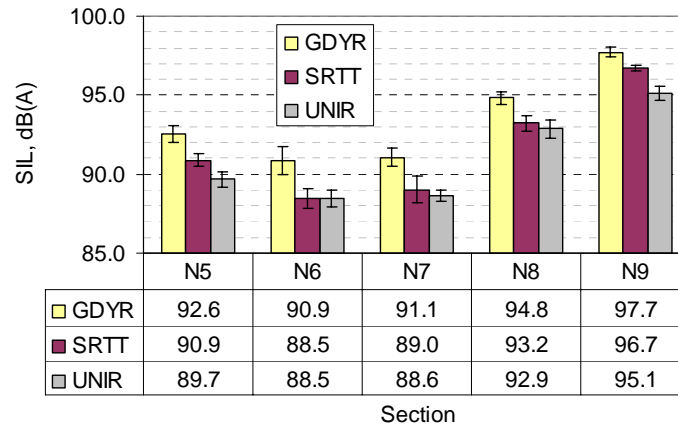


Figure 25. CYML SIL at 45 mph

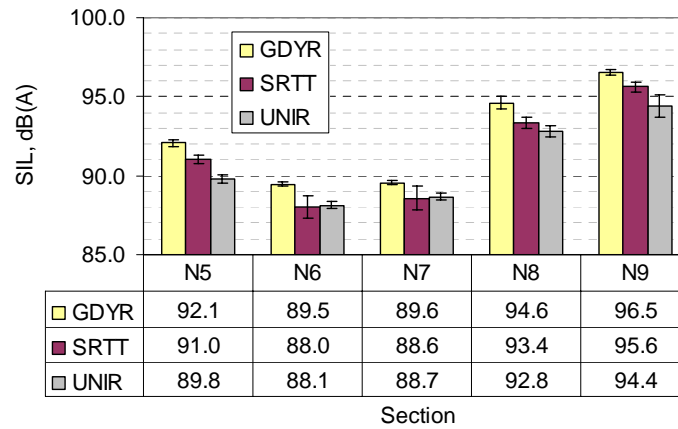


Figure 26. FDWS SIL at 45 mph + 0 lbs

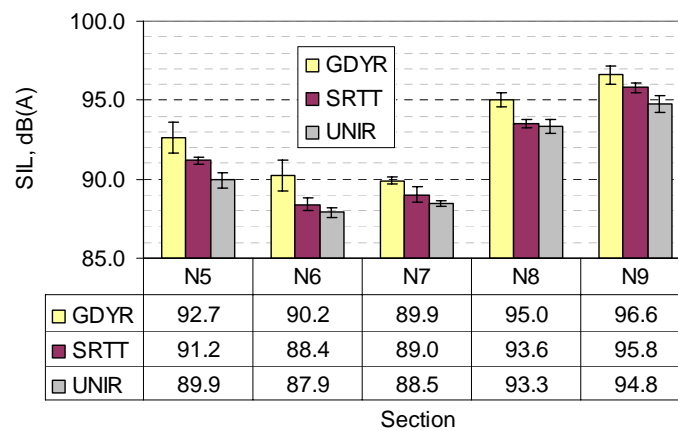


Figure 27. FDWS SIL at 45 mph + 200 lbs

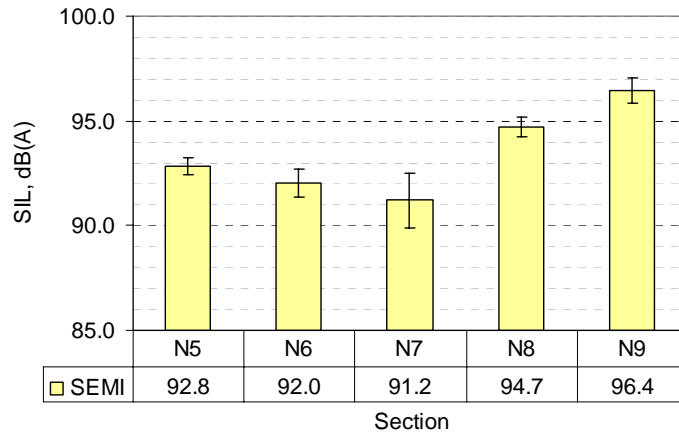


Figure 28. NCAT SEMI SIL at 45 mph

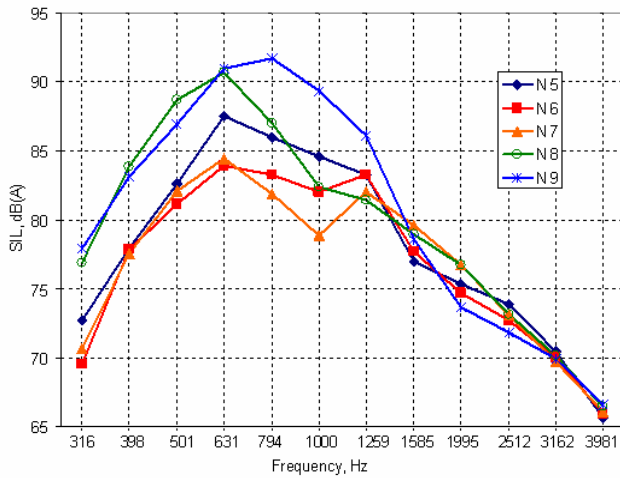


Figure 29. CPX SIL Spectra with GDYR tire at 45 mph

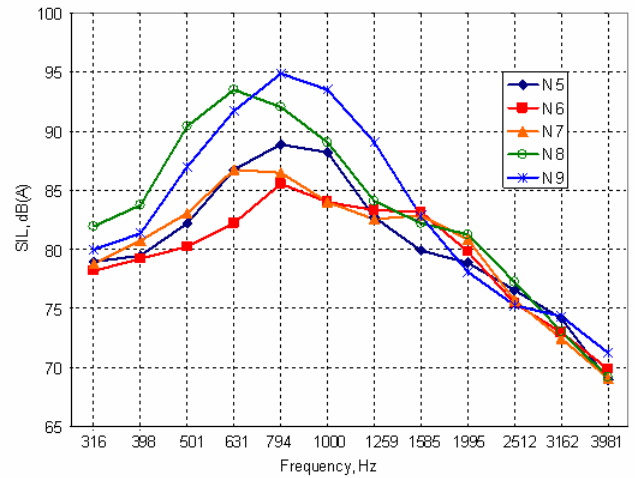


Figure 30. CPX SIL Spectra with GDYR tire at 60 mph

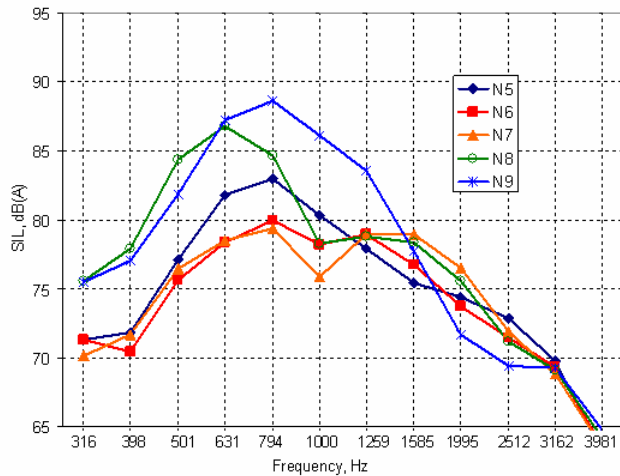


Figure 31. CPX SIL Spectra with UNIR tire at 45 mph

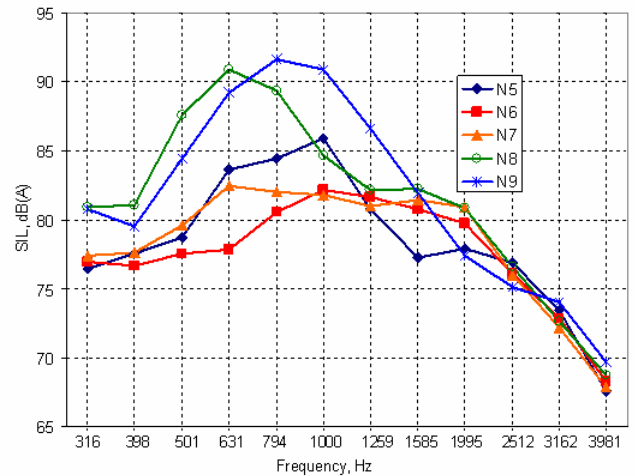


Figure 32. CPX SIL Spectra with UNIR tire at 60 mph

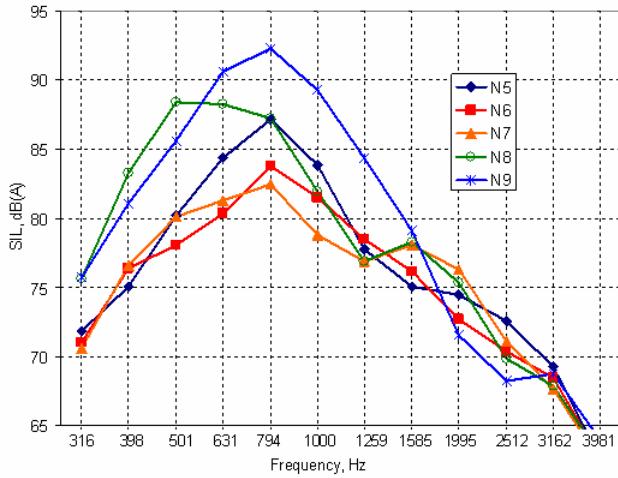


Figure 33. CPX SIL Spectra with SRTT tire at 45 mph

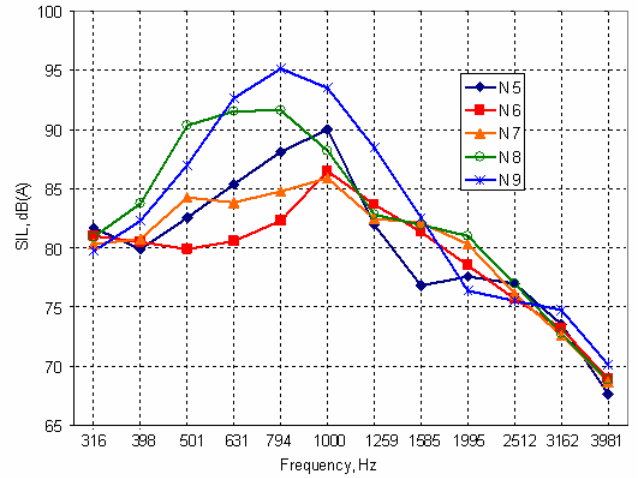


Figure 34. CPX SIL Spectra with SRTT tire at 60 mph

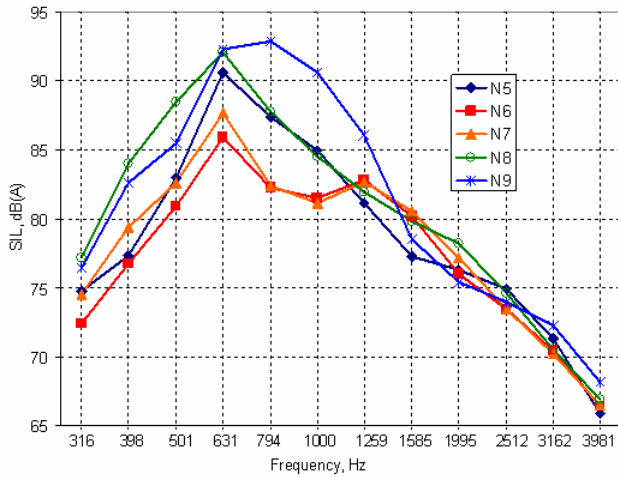


Figure 35. PTGX SIL Spectra with GDYR tire + 0 lbs

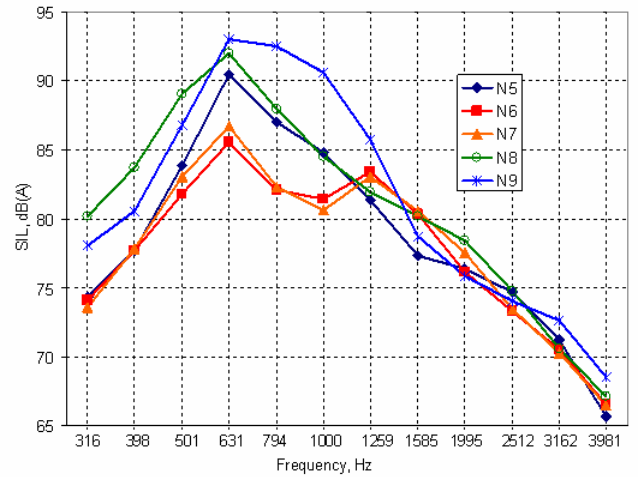


Figure 36. PTGX SIL Spectra with GDYR tire + 200 lbs

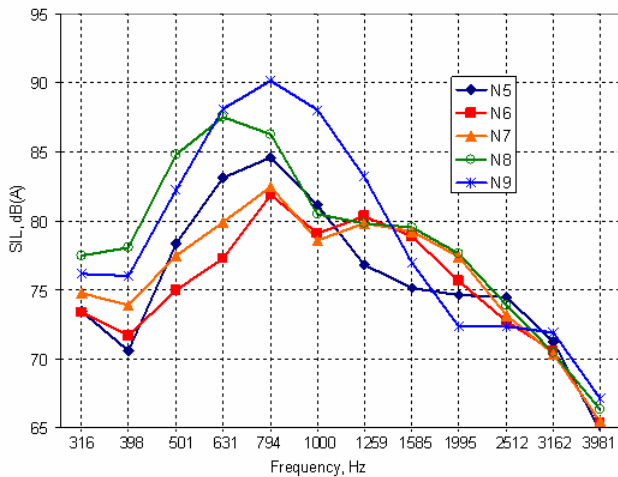


Figure 37. PTGX SIL Spectra with UNIR tire + 0 lbs

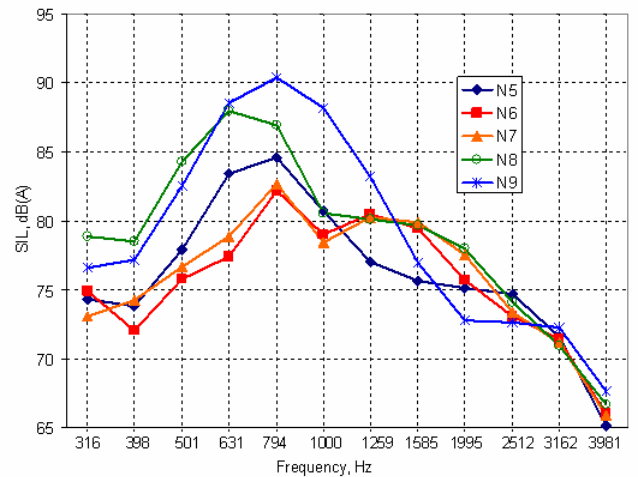


Figure 38. PTGX SIL Spectra with UNIR tire + 200 lbs

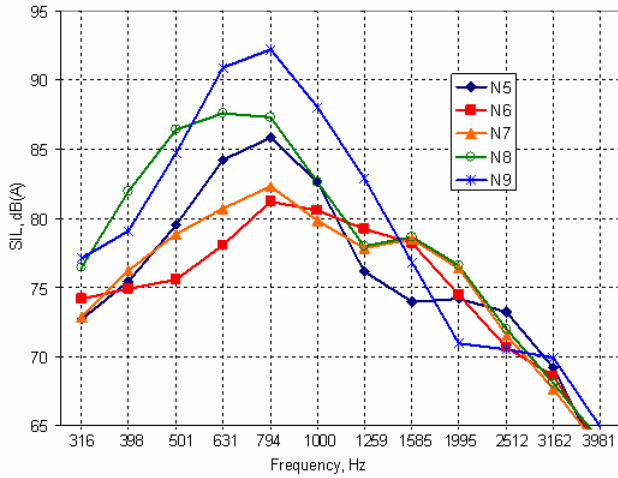


Figure 39. PTGX SIL Spectra with SRTT tire + 0 lbs

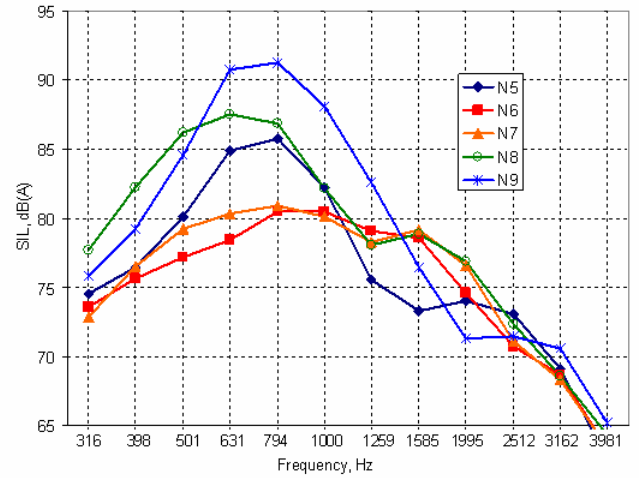


Figure 40. PTGX SIL Spectra with SRTT tire + 200 lbs

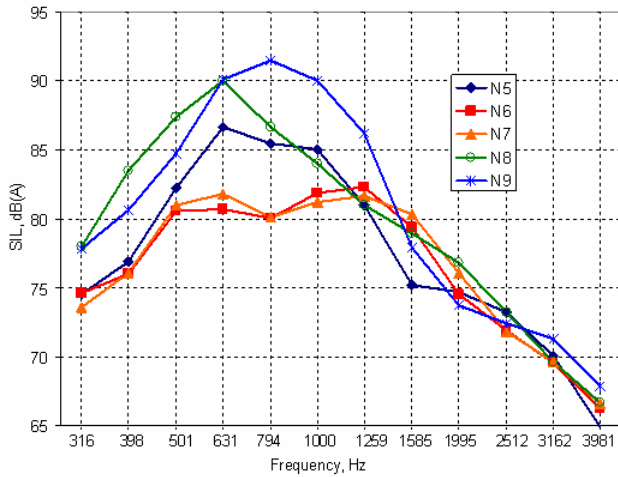


Figure 41. FDWS SIL Spectra with GDYR tire + 0 lbs

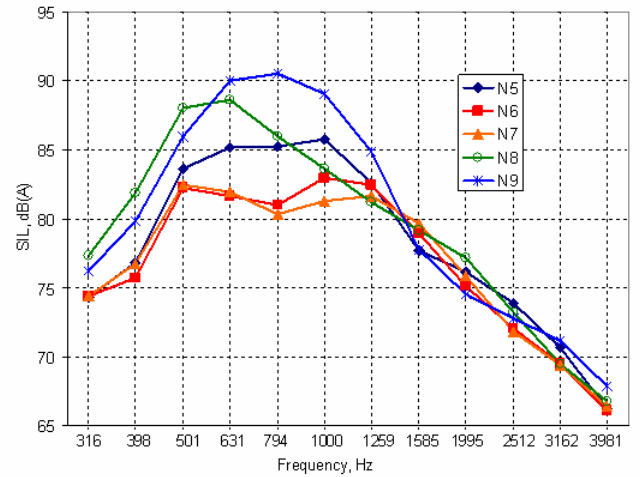


Figure 42. FDWS SIL Spectra with GDYR tire + 200 lbs

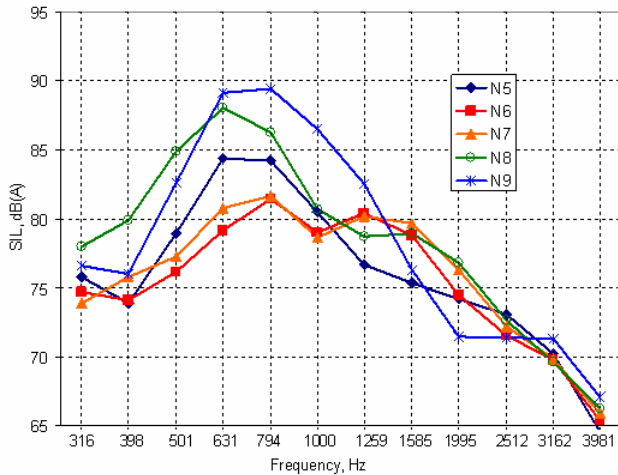


Figure 43. FDWS SIL Spectra with UNIR tire + 0 lbs

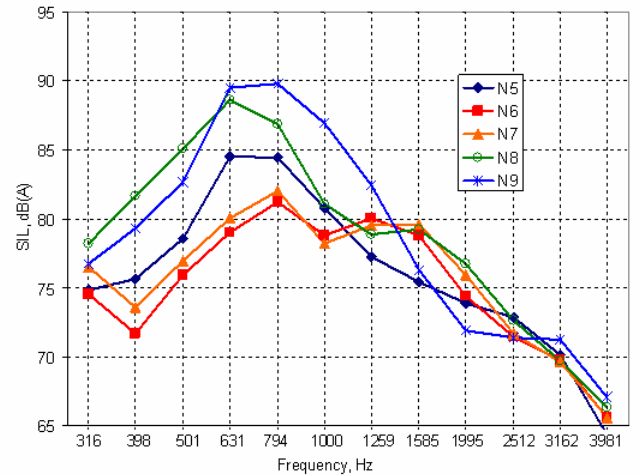


Figure 44. FDWS SIL Spectra with UNIR tire + 200 lbs

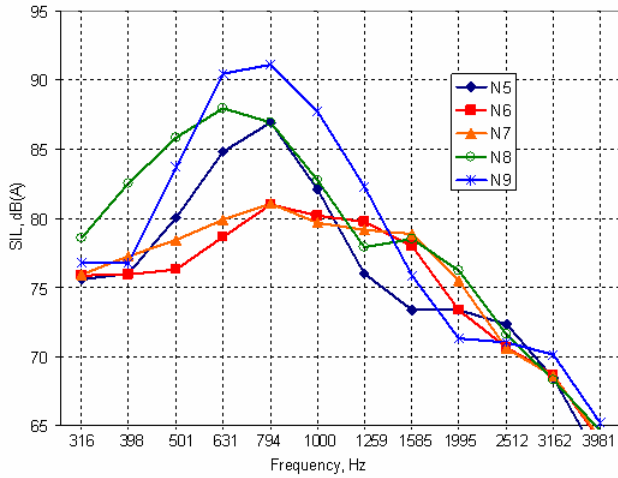


Figure 45. FDWS SIL Spectra with SRTT tire + 0 lbs

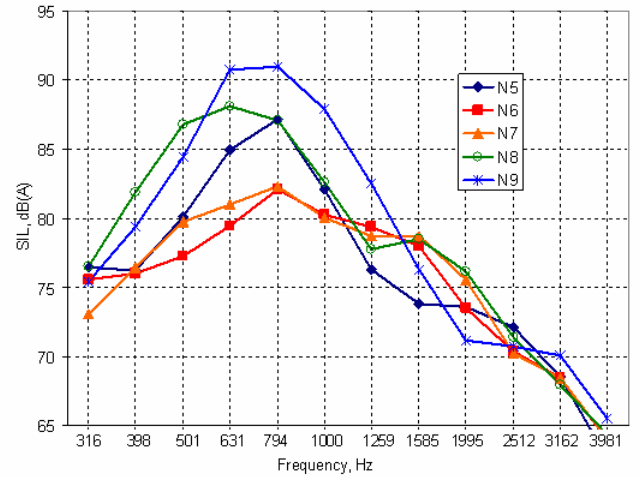


Figure 46. FDWS SIL Spectra with SRTT tire + 200 lbs

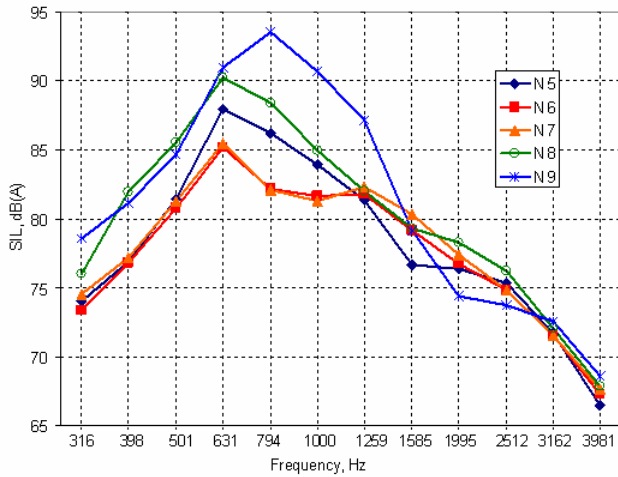


Figure 47. CYML SIL Spectra with GDYR tire

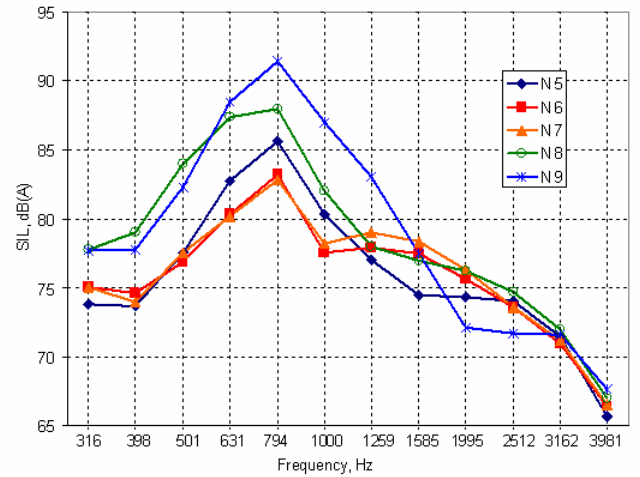


Figure 48. CYML SIL Spectra with UNIR tire

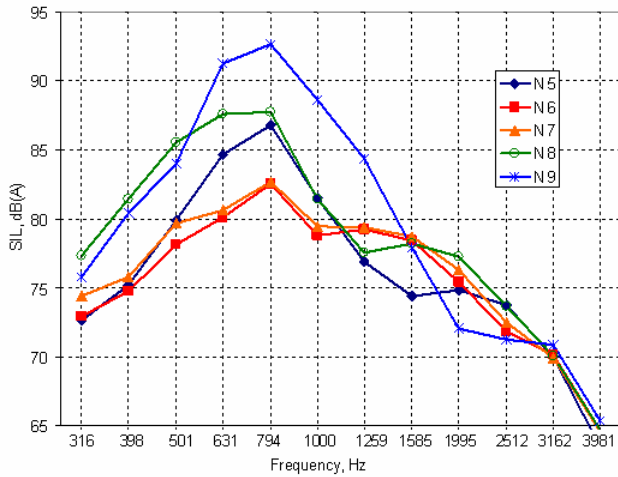


Figure 49. CYML SIL Spectra with SRTT tire

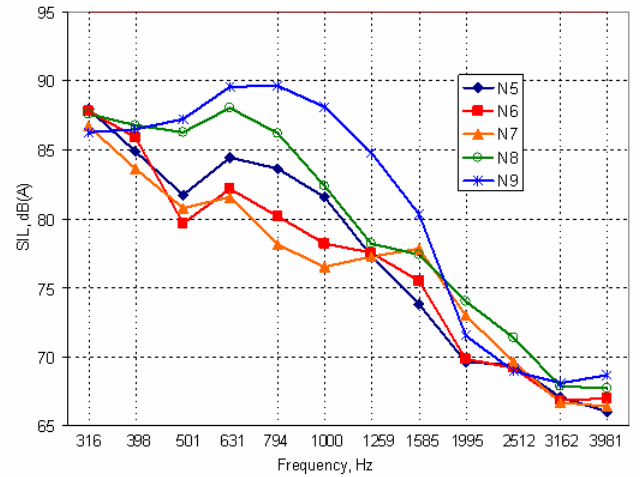


Figure 50. SEMI SIL Spectra

**APPENDIX D: SOUND ABSORPTION MEASUREMENTS**

**Table 162. Sound Absorption Coefficients of Section N5, N6 and N7**

Hz	N5 Random location					N6 Random location					N7 Random location				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
200	0.21	0.20	0.16	0.15	0.18	0.22	0.21	0.20	0.16	0.17	0.18	0.21	0.24	0.23	0.17
220	0.17	0.15	0.15	0.13	0.19	0.22	0.19	0.18	0.14	0.15	0.17	0.17	0.21	0.19	0.18
240	0.17	0.15	0.13	0.12	0.16	0.21	0.19	0.17	0.14	0.17	0.16	0.19	0.21	0.21	0.15
260	0.16	0.14	0.13	0.10	0.13	0.19	0.18	0.18	0.15	0.15	0.14	0.17	0.19	0.18	0.13
280	0.15	0.13	0.12	0.10	0.13	0.18	0.17	0.15	0.14	0.13	0.14	0.17	0.18	0.17	0.12
300	0.13	0.14	0.11	0.10	0.12	0.16	0.17	0.14	0.13	0.13	0.12	0.14	0.18	0.15	0.12
320	0.13	0.12	0.10	0.10	0.12	0.17	0.16	0.15	0.14	0.14	0.13	0.15	0.17	0.16	0.13
340	0.13	0.12	0.09	0.10	0.12	0.16	0.17	0.14	0.13	0.13	0.13	0.14	0.16	0.15	0.12
360	0.12	0.11	0.09	0.10	0.11	0.17	0.14	0.15	0.13	0.13	0.11	0.14	0.14	0.14	0.13
380	0.13	0.12	0.11	0.08	0.10	0.17	0.16	0.15	0.14	0.13	0.13	0.13	0.16	0.14	0.12
400	0.13	0.12	0.10	0.08	0.11	0.17	0.17	0.15	0.15	0.15	0.12	0.15	0.15	0.16	0.13
420	0.14	0.10	0.10	0.08	0.11	0.18	0.16	0.15	0.16	0.15	0.14	0.14	0.15	0.16	0.15
440	0.12	0.09	0.10	0.07	0.10	0.17	0.16	0.14	0.16	0.15	0.14	0.13	0.15	0.15	0.14
460	0.12	0.10	0.08	0.07	0.11	0.19	0.16	0.14	0.16	0.15	0.13	0.15	0.14	0.15	0.15
480	0.15	0.11	0.11	0.10	0.13	0.20	0.18	0.16	0.19	0.18	0.18	0.15	0.17	0.18	0.19
500	0.14	0.11	0.11	0.09	0.12	0.22	0.20	0.18	0.21	0.20	0.18	0.16	0.18	0.20	0.19
520	0.16	0.10	0.12	0.08	0.11	0.22	0.19	0.16	0.21	0.21	0.19	0.15	0.17	0.20	0.19
540	0.16	0.11	0.10	0.08	0.10	0.25	0.19	0.17	0.21	0.20	0.21	0.15	0.18	0.22	0.20
560	0.17	0.11	0.11	0.08	0.11	0.24	0.19	0.16	0.23	0.23	0.22	0.16	0.18	0.23	0.23
580	0.20	0.14	0.12	0.09	0.11	0.27	0.21	0.19	0.26	0.24	0.22	0.18	0.21	0.27	0.26
600	0.20	0.13	0.12	0.09	0.13	0.29	0.21	0.20	0.27	0.26	0.25	0.19	0.23	0.29	0.30
620	0.23	0.14	0.15	0.10	0.14	0.30	0.22	0.21	0.29	0.30	0.27	0.21	0.24	0.33	0.32
640	0.25	0.17	0.16	0.11	0.14	0.32	0.24	0.22	0.30	0.29	0.29	0.23	0.28	0.36	0.32
660	0.28	0.17	0.17	0.12	0.15	0.31	0.25	0.23	0.32	0.32	0.29	0.26	0.31	0.40	0.33
680	0.30	0.19	0.20	0.12	0.17	0.32	0.24	0.25	0.33	0.31	0.30	0.27	0.34	0.41	0.35
700	0.34	0.21	0.22	0.13	0.18	0.31	0.26	0.25	0.35	0.32	0.30	0.29	0.38	0.43	0.35
720	0.36	0.22	0.23	0.13	0.19	0.32	0.28	0.24	0.33	0.30	0.30	0.32	0.41	0.44	0.34
740	0.40	0.25	0.25	0.15	0.19	0.29	0.27	0.25	0.33	0.31	0.30	0.35	0.45	0.45	0.32
760	0.43	0.27	0.28	0.16	0.22	0.30	0.29	0.28	0.34	0.32	0.31	0.38	0.47	0.46	0.32
780	0.46	0.28	0.30	0.17	0.25	0.30	0.28	0.28	0.32	0.31	0.29	0.41	0.50	0.45	0.32
800	0.47	0.31	0.33	0.19	0.25	0.30	0.30	0.28	0.33	0.30	0.28	0.42	0.51	0.45	0.29
820	0.49	0.34	0.35	0.20	0.27	0.28	0.31	0.29	0.32	0.30	0.28	0.47	0.54	0.44	0.29
840	0.50	0.37	0.37	0.22	0.30	0.28	0.30	0.29	0.31	0.28	0.27	0.47	0.55	0.43	0.28
860	0.50	0.40	0.40	0.24	0.34	0.28	0.32	0.30	0.30	0.29	0.27	0.49	0.56	0.42	0.28
880	0.49	0.42	0.41	0.24	0.34	0.26	0.31	0.29	0.29	0.27	0.25	0.49	0.54	0.41	0.25
900	0.49	0.45	0.41	0.26	0.38	0.27	0.31	0.31	0.27	0.26	0.25	0.48	0.54	0.40	0.25
920	0.49	0.48	0.43	0.28	0.41	0.26	0.32	0.31	0.28	0.24	0.22	0.48	0.53	0.39	0.24
940	0.47	0.48	0.43	0.32	0.41	0.26	0.33	0.32	0.25	0.24	0.23	0.48	0.52	0.38	0.22
960	0.47	0.49	0.43	0.31	0.45	0.24	0.33	0.33	0.24	0.23	0.21	0.48	0.50	0.36	0.22
980	0.46	0.50	0.44	0.34	0.46	0.24	0.34	0.33	0.23	0.22	0.21	0.47	0.49	0.35	0.20
1000	0.45	0.51	0.43	0.34	0.46	0.25	0.34	0.34	0.23	0.20	0.18	0.46	0.46	0.33	0.19
1020	0.44	0.49	0.44	0.37	0.48	0.25	0.34	0.35	0.22	0.20	0.19	0.45	0.46	0.32	0.18
1040	0.43	0.49	0.43	0.37	0.49	0.25	0.35	0.36	0.23	0.20	0.19	0.44	0.44	0.31	0.19
1060	0.42	0.48	0.43	0.38	0.50	0.25	0.35	0.37	0.21	0.18	0.17	0.43	0.42	0.31	0.17
1080	0.40	0.48	0.44	0.40	0.50	0.26	0.35	0.38	0.19	0.18	0.18	0.42	0.41	0.30	0.16
1100	0.39	0.47	0.41	0.41	0.50	0.26	0.36	0.38	0.21	0.18	0.17	0.40	0.39	0.30	0.16
1120	0.39	0.48	0.40	0.43	0.51	0.27	0.36	0.39	0.21	0.17	0.16	0.40	0.39	0.29	0.17

Hz	N5 Random location					N6 Random location					N7 Random location				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1140	0.37	0.47	0.42	0.42	0.51	0.27	0.37	0.40	0.20	0.18	0.17	0.41	0.37	0.29	0.17
1160	0.36	0.47	0.41	0.43	0.52	0.29	0.38	0.41	0.21	0.19	0.18	0.41	0.36	0.29	0.16
1180	0.35	0.46	0.39	0.45	0.53	0.30	0.39	0.41	0.21	0.18	0.18	0.39	0.35	0.28	0.18
1200	0.33	0.46	0.39	0.44	0.53	0.32	0.39	0.41	0.19	0.19	0.15	0.40	0.35	0.25	0.17

**Table 163. Sound Absorption Coefficients of Section N8 and N9**

Hz	N8 Random location					N9 Random location				
	1	2	3	4	5	1	2	3	4	5
200	0.18	0.20	0.21	0.23	0.24	0.20	0.20	0.14	0.21	0.22
220	0.18	0.20	0.16	0.19	0.18	0.16	0.20	0.11	0.18	0.18
240	0.16	0.18	0.18	0.21	0.18	0.17	0.18	0.10	0.17	0.18
260	0.14	0.18	0.16	0.18	0.16	0.14	0.14	0.12	0.14	0.16
280	0.15	0.15	0.16	0.16	0.15	0.14	0.15	0.10	0.14	0.14
300	0.12	0.16	0.14	0.16	0.15	0.12	0.12	0.09	0.14	0.15
320	0.13	0.14	0.14	0.16	0.13	0.12	0.12	0.08	0.12	0.12
340	0.12	0.14	0.13	0.16	0.14	0.11	0.11	0.08	0.11	0.12
360	0.12	0.14	0.12	0.14	0.10	0.10	0.12	0.07	0.11	0.12
380	0.12	0.13	0.12	0.14	0.11	0.11	0.12	0.08	0.11	0.11
400	0.12	0.14	0.14	0.14	0.13	0.11	0.10	0.07	0.11	0.10
420	0.12	0.15	0.12	0.13	0.12	0.10	0.10	0.07	0.11	0.09
440	0.11	0.13	0.12	0.12	0.12	0.08	0.08	0.06	0.10	0.10
460	0.12	0.13	0.13	0.11	0.11	0.09	0.09	0.06	0.07	0.08
480	0.12	0.14	0.13	0.15	0.13	0.10	0.09	0.06	0.09	0.11
500	0.14	0.16	0.14	0.14	0.14	0.10	0.10	0.08	0.09	0.10
520	0.13	0.15	0.13	0.13	0.14	0.08	0.08	0.07	0.09	0.10
540	0.12	0.14	0.13	0.13	0.13	0.08	0.08	0.04	0.08	0.07
560	0.13	0.17	0.15	0.16	0.14	0.08	0.08	0.06	0.06	0.09
580	0.15	0.18	0.17	0.16	0.14	0.08	0.08	0.06	0.09	0.08
600	0.15	0.20	0.18	0.17	0.15	0.08	0.08	0.07	0.07	0.09
620	0.19	0.24	0.20	0.20	0.18	0.09	0.10	0.07	0.08	0.10
640	0.19	0.27	0.23	0.22	0.20	0.10	0.12	0.07	0.09	0.08
660	0.20	0.30	0.26	0.26	0.24	0.12	0.10	0.09	0.11	0.12
680	0.25	0.33	0.28	0.26	0.24	0.11	0.10	0.07	0.09	0.11
700	0.26	0.37	0.32	0.29	0.28	0.11	0.10	0.09	0.10	0.10
720	0.28	0.40	0.35	0.32	0.29	0.13	0.12	0.07	0.10	0.12
740	0.31	0.43	0.39	0.35	0.33	0.14	0.09	0.07	0.10	0.11
760	0.34	0.47	0.43	0.39	0.37	0.13	0.12	0.10	0.10	0.12
780	0.36	0.50	0.47	0.43	0.39	0.15	0.13	0.10	0.11	0.12
800	0.39	0.51	0.48	0.47	0.42	0.14	0.13	0.11	0.12	0.12
820	0.40	0.52	0.51	0.50	0.44	0.17	0.13	0.12	0.13	0.13
840	0.40	0.52	0.50	0.52	0.45	0.16	0.13	0.12	0.13	0.13
860	0.43	0.52	0.51	0.55	0.47	0.19	0.14	0.12	0.15	0.14
880	0.42	0.50	0.48	0.56	0.47	0.18	0.14	0.12	0.15	0.14
900	0.43	0.50	0.47	0.58	0.47	0.21	0.16	0.13	0.15	0.14
920	0.44	0.48	0.46	0.59	0.46	0.22	0.17	0.13	0.16	0.15
940	0.44	0.47	0.45	0.59	0.45	0.25	0.18	0.14	0.16	0.17
960	0.45	0.45	0.43	0.59	0.46	0.27	0.17	0.15	0.18	0.18
980	0.45	0.44	0.42	0.58	0.46	0.28	0.20	0.16	0.19	0.19
1000	0.45	0.43	0.40	0.56	0.45	0.31	0.22	0.17	0.21	0.21
1020	0.44	0.41	0.40	0.54	0.45	0.34	0.24	0.18	0.24	0.21



Hz	N8 Random location					N9 Random location				
	1	2	3	4	5	1	2	3	4	5
1040	0.45	0.40	0.39	0.53	0.46	0.37	0.26	0.20	0.25	0.24
1060	0.46	0.38	0.38	0.51	0.45	0.41	0.30	0.21	0.28	0.27
1080	0.45	0.36	0.37	0.49	0.44	0.44	0.34	0.22	0.32	0.29
1100	0.45	0.36	0.36	0.47	0.45	0.47	0.36	0.25	0.36	0.32
1120	0.45	0.35	0.37	0.46	0.44	0.50	0.41	0.26	0.38	0.37
1140	0.45	0.33	0.39	0.44	0.44	0.51	0.45	0.29	0.44	0.41
1160	0.44	0.33	0.38	0.42	0.44	0.54	0.50	0.30	0.49	0.47
1180	0.43	0.32	0.37	0.41	0.45	0.54	0.55	0.34	0.52	0.50
1200	0.42	0.31	0.37	0.39	0.44	0.55	0.59	0.35	0.55	0.54

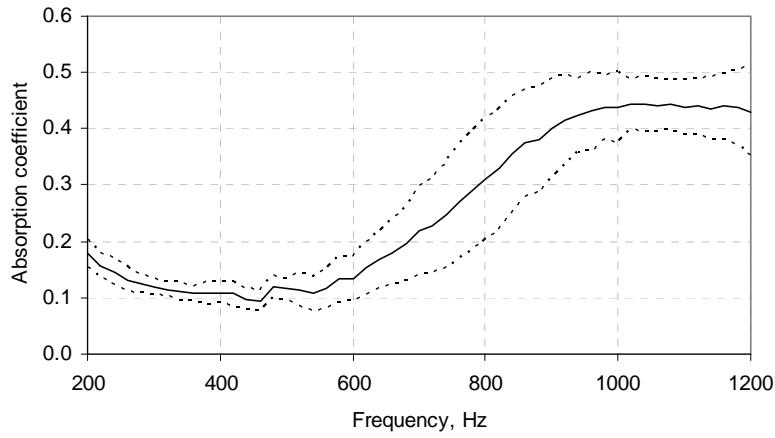


Figure 51. Sound Absorption Coefficients for SectionN5

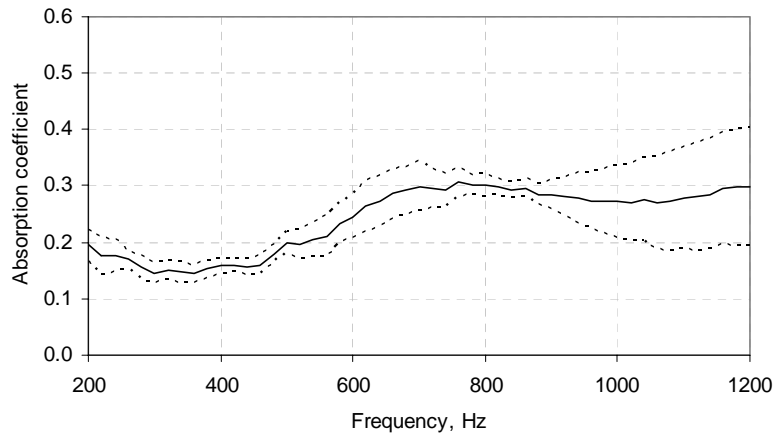


Figure 52. Sound Absorption Coefficients for SectionN6

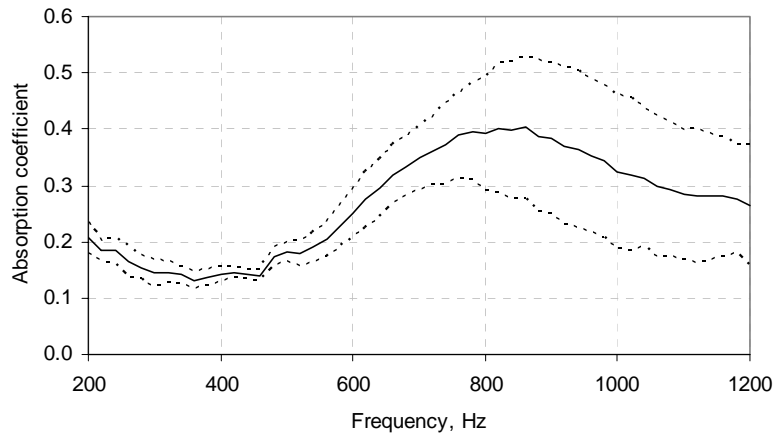


Figure 53. Sound Absorption Coefficients for SectionN7

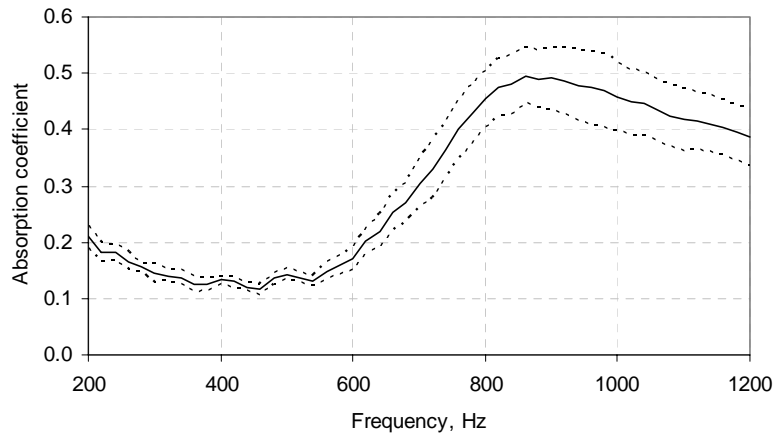


Figure 54. Sound Absorption Coefficients for SectionN8

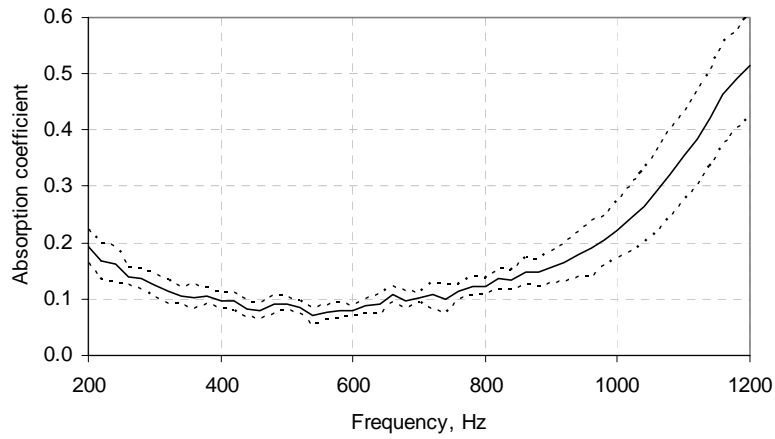


Figure 55. Sound Absorption Coefficients for SectionN9