Survey of Principal Drivers of Vehicles with a Rear Seat Belt Reminder System

NHTSA

2015

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1. Executive Summary

Introduction and Objectives

The purpose of the 2015 Survey of Principal Drivers of Vehicles with a Rear Seat Belt Reminder System (RSBRS) was to determine the acceptability and potential effectiveness of RSBRSs currently in the marketplace.

A RSBRS alerts the driver and other vehicle occupants as to who has fastened their seat belt in the rear seat. While not in use in most vehicles in the US, the RSBRS works similar to seat belt reminders for the front seats, albeit with some minor differences. The RSBRS will alert those in the vehicle at the beginning of a trip by a visual alert, and provides an auditory and a visual alert if one of the passengers has unfastened their seat belt during a trip.

Methodology

Given the low incidence of individuals who own a vehicle with a rear SBRS, the sample was drawn from vehicle registration lists. These lists were obtained from R.L. Polk, which provided the name and telephone number for registered owners of specific vehicle models equipped with RSBRSs sold in the U.S. The survey instrument then asked for the primary drivers of vehicles with a RSBRS, which consisted of Volvo owners, Cadillac SRX and ELR owners, and Chevrolet Volt and SS drivers. The survey also included a sample of primary drivers of vehicles without a RSBRS, including model year 2009 and older Volvo vehicles, a Nissan Leaf, Lexus RX, Dodge Charger SRT8, and Audi RS5. The survey instrument included questions that measured attitudes and behaviors, and was split into two versions. The first version was intended for respondents who drive a vehicle equipped with a RSBRS, and contained questions on acceptability and effectiveness of RSBRS characteristics. The second version was shorter and was intended for respondents who drive a vehicle that is not equipped with a RSBRS. A total of 2,548 interviews were conducted over the phone among a representative sample of the primary drivers, age 18 years or older, of the vehicle models selected. The phone interviewing for the study commenced on December 8, 2014, following the training of the interviewers, and was completed on February 19, 2015.

Results

Effectiveness of RSBRSs (Chapters 8-9)

Nearly three in ten GM drivers (28%) noticed an increase in rear seat belt use, and close to one quarter of Volvo drivers (23%) reported an increase since driving a vehicle with a RSBRS. Over one-third of RSBRS drivers who reported experiencing a change of buckle status warning said that, despite the passenger hearing the alert, they had to intervene and encourage him/her to refasten the seat belt (37%). One in three (28%) did not need to intervene as the unbuckled passenger heard the alert and refastened his/her seat belt on their own. Hence, nearly two-thirds of drivers indicated that the change of status warning led rear passengers to refasten their seat belt. Non-RSBRS drivers were asked which indicators would be the most likely to get the rear passengers to fasten their seat belt in order to determine perceptions of drivers who have never

experienced driving a vehicle with a RSBRS. Nearly three-quarters of them (72%) said that auditory alerts would be the most effective alert to get rear passengers to fasten their seat belts. Unlike visual alerts that are mostly located on the dashboard and can mainly be seen by the driver, auditory alerts can be heard by everyone in the car. The driver or any vehicle occupant can intervene to encourage an unbuckled passenger to refasten his/her seat belt if they do not react to the audible signal voluntarily.

Utility of RSBRS (Chapter 10)

Nine in ten drivers think that SBRSs make it easier for them to encourage passengers to fasten their seat belt. Nearly two-thirds of RSBRS drivers (61%) reported checking the RSBRS on all trips to find out the seat belt status of the rear seat passengers, indicating that RSBRS drivers have accepted and incorporated the RSBRS warnings into their driving habits. Those respondents who do not check the RSBRS on all trips were asked why they do not check the RSBRS, and the two main reasons for not checking the RSBRS were "I always make sure that passengers are wearing their seat belt before turning the engine on" (37%) and "I never pay attention to the alerts as my passengers always wear their seat belt" (25%).

Satisfaction with the RSBRS (Chapter 11)

The majority of RSBRS drivers are very satisfied with their current RSBRS at the beginning of a trip (81%) and during a trip when there is a change of seat belt status (78%). Although, almost all RSBRS drivers reported being very satisfied with their current RSBRS at the beginning of a trip and during a trip, those who drive a vehicle equipped with a RSBRS that emits a buzz (95%) and/or a chime (90%) were the most satisfied with their current RSBRS in terms of how well it notifies them when a rear passenger has unbuckled their seat belt during a trip.

Acceptability of RSBRSs in Vehicle (Chapter 12)

Over seven in ten RSBRS drivers (73%) said that it was at least somewhat important that their new vehicle come with a RSBRS. The passengers' attitudes towards the RSBRS were very positive as well. Almost all RSBRS drivers (94%) indicated that they have not heard any complaints from their passengers since they started driving a vehicle equipped with a RSBRS. Those who had heard complaints were asked an additional question to find out what complaints they had heard from their passengers. The three most common complaints were "it's annoying" (45%), "don't like/want to wear seat belt" (10%), and "it's annoying for the other passengers in the vehicle" (10%), which were expected as reminder systems are designed to provide some levels of annoyance to get people to fasten their seat belt and to change their behavior.

Preferred Options and Features (Chapter 13)
All drivers were asked questions regarding desired warning options. The most desired option was a system that alerts both the driver and passengers regardless of whether their vehicle had a RSBRS or not. A majority of RSBRS drivers also said that they would like the system to have occupant detection capabilities to better inform them of the status of the rear seat belts (51%). In contrast, only 27 percent of Non-RSBRS drivers would like this feature in their vehicle.

Limitations

- The demographic characteristics of the survey respondents are very homogenous and highly correlate with the demographics of those with expected high seat belt usage; over eight-in-ten respondents are white, married, and have at least a bachelor degree, and a majority of them come from a household earning more than $100,000 a year. Therefore, it can be inferred that the study surveyed individuals who are very safety-conscious and thus would be amenable to a safety system such as SBRSs. The penetration of vehicles with RSBRSs in the U.S. fleet is so low that it is difficult to obtain results that accurately reflect the general U.S. population and difficult to evaluate the positive and negative aspects of RSBRSs.
- Because of state restrictions, which prevent the release of registration data for survey purposes without permission from the vehicle manufacturer, Volvo drivers (both RSBRS and non-RSBRS drivers) were the only nationally representative sample in the survey population. The conclusions of this report will not translate to the entire GM RSBRS population since data collection could only occur in the 36 states that do not require permission from General Motors to release registration information.
- Answers on effectiveness in getting rear passengers to buckle-up from non-RSBRS drivers may be less accurate as respondents cannot be expected to reliably predict the behavior of other vehicle occupants.
- The purpose of the survey was to determine which alert characteristics and features would be the most likely to get rear passengers to fasten their seat belt and the most acceptable to have in the vehicle. However, effectiveness and acceptability can be at odds with one another in designing an optimal rear reminder system; a reminder system seen as highly effective, will generally also be judged as highly attention-getting and annoying and hence not be widely accepted.

Conclusion

Overall, RSBRS drivers are satisfied with their current RSBRS, and have noticed an increase in rear seat belt usage. Audible alerts were perceived to be more effective than visual alerts. In addition, almost all RSBRS drivers seem to support the introduction of a RSBRS, and have come to rely on the system. The non-RSBRS drivers' attitudes towards the RSBRS are generally positive as well. Both driver types see the benefits of having a RSBRS in their vehicle.

2. Background and Objectives

The National Highway Traffic Safety Administration (NHTSA) is an agency of the U.S. Department of Transportation (DOT). NHTSA's mission is to reduce deaths, injuries and economic losses resulting from motor vehicle crashes.

Traffic injuries are the primary cause of fatal injuries and the leading cause of all deaths for people ages 6 to 27.[1] The easiest and most effective way to prevent traffic injuries and fatalities is to make certain that each passenger is wearing a seat belt on every trip. In 2013, seat belt use continued to be lower in the rear seats (78%) than in the front (87%), and in the event of a crash, unbuckled rear-seat passengers can be a risk to themselves and to others in the vehicle as well.

One way NHTSA accomplishes its mission is by setting and enforcing Federal motor vehicle safety standards (FMVSSs) for in-vehicle measures, which promote the safety of the vehicle's occupants. One such measure is a Seat Belt Reminder System (SBRS), which reminds those riding in a vehicle to fasten their seat belt once the vehicle engine is turned on. According to NHTSA, vehicle-based technologies, such as the driver-only SBRS currently mandated by FMVSS No. 208, along with various behavioral programs and State seat belt laws and enforcement, have helped increase overall seat belt use throughout the years.

In 2009, Volvo started to introduce vehicles with Rear SBRSs (RSBRS) in the U.S. At the time of the survey Volvo vehicles (except the XC90); the Jaguar Land Rover, Range Rover Evoque, Range Rover, and Range Rover Sport; the Chevrolet Volt and SS; and the Cadillac SRX and ELR were the only vehicles sold with RSBRSs in the U.S. A RSBRS alerts the driver, at the beginning of a trip, as to how many or which rear seat belts are in use and activates an audiovisual signal when a rear passenger has unbuckled his/her seat belt during a trip.

The purpose of this survey was to determine the acceptability and potential effectiveness of RSBRSs. The survey sampled drivers of vehicles with a RSBRS (RSBRS drivers) and drivers of vehicles without a RSBRS (Non-RSBRS drivers) to measure their attitudes towards SBRSs.

3. Methodology

[1] http://www.nhtsa.gov/people/injury/airbags/Archive-04/PresBelt/crash_accident.html

3.1 Survey Population

Given the low incidence of individuals who own a vehicle with a rear SBRS, the sample was drawn from vehicle registration lists of specific vehicle models. These lists were obtained from R.L. Polk, which provided the name and telephone number for registered owners of specific vehicle models equipped with RSBRS sold in the U.S. The selected vehicle models with a RSBRS, consisted of Volvo vehicles (MY 2009-2015), the Cadillac SRX (MY 2011-2015) and ELR (MY 2014-2015), and Chevrolet Volt (MY 2011-2015) and SS (MY 2014-2015). The selected vehicle models without a RSBRS, included model year 2008 and older Volvo vehicles, Nissan Leaf (MY 2011-2015), Lexus RX (MY 2011-2015), Dodge Charger SRT8 (MY 2012-2014), and Audi RS5 (MY 2013-2015). NHTSA sought to interview all owners of these vehicles in all 50 states; however, for 14 states the permission of the vehicle manufacturer needed to be obtained before R.L. Polk could release the vehicle owner's name and telephone number. Abt SRBI, the survey research organization that administered the survey, obtained permission from Volvo on December 19, 2013, to release the vehicle owners' names and telephone numbers. General Motors, however, did not grant permission for R.L. Polk to release the data in the 14 states,[2] which restricts the use of registration data for survey purposes without the vehicle manufacturer's permission. The registration data contained phone numbers which allowed targeting only households who own this type of vehicle and increased the efficiency of the data collection effort.

3.2 Survey Instrument

The survey instrument included questions that measured attitudes and behaviors toward the SBRS in the vehicle, and consisted of two versions. The first version was intended for respondents who were the primary drivers of a vehicle equipped with a RSBRS, and contained questions on acceptability and effectiveness of the RSBRS characteristics. The second version was shorter and was intended for respondents who were the primary drivers of a vehicle that is not equipped with a RSBRS. This version included similar questions on RSBRSs, but they were worded differently so that the respondent would be able to answer them. Answers from respondents of vehicles with a RSBRS were then compared to answers of those who do not have a RSBRS. The non-RSBRS group was used to verify the effectiveness of the rear SBRSs in increasing rear passenger seat belt use. The survey was developed with screening questions to identify individuals who drive and transport rear passengers on a regular basis. Only respondents who drive a RSBRS vehicle at least a few days a month and transport passengers in the rear seat at least once a month were qualified for the survey. All the other individuals that did not meet these three criteria were screened out, so that the findings would present results of individuals who have sufficiently experienced RSBRS warnings and changes of rear seat belt status warnings. The survey was conducted over the phone

[2] Alaska, Arizona, California, Hawaii, Illinois, Kansas, Maryland, Montana, Nevada, New Hampshire, Oregon, Pennsylvania, South Dakota, and Washington.

using the Computer-Assisted Telephone Interviewing system (CATI). OMB approved the information collection on March 27, 2014, assigning it the OMB number 2127-0696.

3.3 Sample Design

The study procedures necessitated the construction of a national sampling frame of telephone households from which a probability sample could be drawn[3]. The sample was made up of two strata:

1) A sample of 2,048 drivers aged 18 years and older, who drive a vehicle equipped with a RSBRS and regularly transport rear seat passengers 8 years old or older

2) A control group of 500 drivers aged 18 or older who drive comparable vehicles as those in the RSBRS stratum, but which do not have a RSBRS, and regularly transport rear seat passengers 8 years old or older

Table 2-1: Sample Design

	Drivers of Vehicles with a RSBRS RSBRS Drivers (N=2,048)		**Drivers of Vehicles without a RSBRS** Non-RSBRS Drivers (n=500)	
	Volvo Drivers (National)	GM Drivers (36 states)	Older Volvo Model Drivers (National)	Other Vehicle Brands Drivers (36 States)
Target	N=1,500	N=500	N=500	
Actual Count	N=1,548	N=500	N=325	N=175

While Volvo did grant permission to use sales data from the 14 states, which restrict the use of registration data for survey purposes, General Motors did not do so. As a result, the sample of General Motors drivers was drawn from the 36 states that did not require permission from General Motors to release contact information. The sample size of Volvo drivers was increased from 1,000 to 1,500 and the sample size of General Motors drivers was reduced from 1,000 to 500 (See Table 2-1).

R.L. Polk also provided a list of owners of vehicles similar to the vehicles in the first stratum without a RSBRS, but with a similar Front SBRS. The Volvo control group included 2008 and older Volvo models. Only the past ten year Volvo models were included in the control group sample in order to have a vehicle fleet that shares similar characteristics with recent Volvo models equipped with a RSBRS. Some of the GM vehicles were recently released models (e.g., came out in the early 2010s), and therefore, older models could not be used in the control group sample. To find models comparable to GM models equipped with RSBRSs, Abt SRBI researched different vehicle manufacturers that have vehicles that have comparable vehicle classifications,

[3] The sample frame comprises all of the possible numbers that can be chosen for the study. The sample is comprised of only those numbers that were actually chosen.

characteristics, and price points with the Chevrolet SS and Volt, and the Cadillac ELR and SRX (See Table 2-2).

Table 2-2: Vehicle Models Selected

Vehicles with a RSBRS	Vehicle Classifications	Vehicles without a RSBRS
All Volvo models[1]	--	Volvo models[2]
Chevrolet Volt	Highway-Capable Plug-In Electric	Nissan Leaf
Chevrolet SS	Sport Sedan	Dodge Charger SRT8
Cadillac SRX	Luxury Mid-Size Crossover SUV	Lexus RX
Cadillac ELR	Compact Coupé	Audi RS 5 Coupe

1 Except Volvo XC90

2 All models that came out before 2009

3.4 Survey Administration and Calling Protocol

The list provided by R.L Polk contained both landline and cell phone numbers. In order to comply with the Federal Law prohibiting automated dialers to be used for cell numbers, the entire list was run through the NuStar database in order to determine which phone numbers were landline and which were cell numbers. Cell phone numbers were flagged in the CATI system and diverted to a special queue where the interviewer had to dial the number by hand.

Initial telephone contact was attempted during the hours of the day and days of the week that have the greatest probability of respondent contact. The primary interviewing period was from 5:30 p.m. to 9:30 p.m. on weekdays, 9 a.m. to 9:30 p.m. on Saturdays, and from 10 a.m. to 9:30 p.m. on Sundays (all times listed are local times). Since interviewing was conducted across time zones, the interviewing shift lasted until 12:30 a.m. Eastern (9:30 p.m. Pacific Time). If the interview was not conducted at the time of the initial contact, the interview was rescheduled to a time convenient for the respondent. Although initial contact attempts were made on evenings and weekends, daytime interviews were scheduled when necessary. If four telephone contacts on the night and weekend shifts did not result in a completed interview, the fifth contact was attempted on a weekday during the daytime. Interviewers attempted a maximum of 10 calls to each landline telephone number in order to reach a person within the household. When the household was reached, the interviewer asked to speak to the registered owner of the vehicle. If the registered owner did not transport passengers in the rear seat at least once a month, the interview was conducted with another household member who drives the target vehicle and meets the criteria of driving and transporting passengers in the rear seat. When contact was made with the household, but the target respondent was unavailable, interviewers probed for appropriate callback times for an appointment. After a target respondent was reached, the maximum number of call attempts was raised to 15. For cell phone respondents, which represented about 10% of the sample, interviewers attempted a maximum of five calls to each number for it to be deemed a permanent no answer. If contact was made with a respondent, a maximum of 10 call attempts were made. Prior to asking the person's name, all cell phone respondents were asked if they were currently driving and if they were in a safe place to talk. If the respondent was driving or in an unsafe place to use a cell phone,

the interviewer thanked the respondent and hung up the phone, noting the time of the call so the respondent would not be reached at the same time on the subsequent attempt.

3.5 Survey Pretest

A survey pretest was conducted on January 24 and 25, 2013, with nine respondents. The pretest served as a "dress rehearsal" and tested the survey systems, in addition to testing the survey instrument and CATI programming. CATI is a telephone surveying technique in which the interviewer follows a script provided by a software application. The results of the pretest of the survey instrument allowed the study team to evaluate the wording of questions and response categories in terms of clarity and confusion for respondents via telephone administration. In addition, analysis of the pretest allowed the study team to:

- Assess the flow of the interview, including question sequencing and skip patterns;
- Determine the time required to administer the questionnaire over the telephone;
- Gauge non-response to sensitive questions;
- Ensure that a smooth interview occurred with previous information guiding later questions;
- Ensure random rotation of specified questions;
- Check that invalid responses were not entered; and
- Review and evaluate the full range of procedures.

3.6 Field Outcomes

A total of 2,548 interviews were conducted among a representative sample of drivers of Volvo, Cadillac, Chevrolet, Audi, Dodge, Lexus, and Nissan vehicles age 18 or older. The phone interviewing for the study commenced on December 8, 2014, following the training of the field interviewers, and was completed on February 19, 2015. No data was collected during the holiday season from December 20, 2014, through January 5, 2015.

3.7 Weighting

Survey weights are needed to provide reliable inference to the target population. The final weight variable consists of a base weight and a calibration adjustment of this weight. The base weight takes into account the probability of selection from the sample frame, while the calibration adjustment compares the sample to the target population on several demographic characteristics to ensure the sample is representative.

First Weighting Step

The first step in the weighting process is the calculation of the base weights. The base weights account for the probability of selection of the vehicle record in each order cell. Order cells are comprised of specific model years for a single make and model. Model years are combined within a single order cell based upon the years the model contained a SBRS and the years the model did not contain a SBRS.

Base Weight Adjustment for the Probability of Selection of the Vehicle Record

The first base weight (BSW) accounts for the probability of selecting a vehicle record in each order cell. This adjustment (BSW) is computed as:

$$\frac{N_h}{n_h}$$

where N_h is the population count of vehicle records in each order cell h and n_h is the count of vehicle records that were released for dialing in each order cell h. The population counts were provided by R.L. Polk.

Table 3-1: Frame and Sample Counts by Model

Model	Frame (N)	Sample (n)	Base Weight (BSW)
Volvo Models Equipped with a RSBRS			
VOLVO C30 (2009-2013)	3,075	1,559	1.972
VOLVO C70 (2009-2013)	5,458	2,763	1.975
VOLVO S40 (2009-2011)	2,446	1,218	2.008
VOLVO S60 (2011-2015)	19,440	9,597	2.026
VOLVO S80 (2010-2015)	5,323	2,603	2.045
VOLVO V50 (2009-2011)	683	357	1.913
VOLVO V60 (2015)	874	388	2.253
VOLVO V70 (2010)	442	229	1.930
VOLVO XC60 (2010-2015)	22,427	11,069	2.026
VOLVO XC70 (2015)	1,006	422	2.384
GM Models Equipped with a RSBRS			
CHEVROLET VOLT (2011-2015)	7,639	1,308	5.840
CHEVROLET SS (2014)	321	321	1.000
CADILLAC SRX (2011-2015)	54,612	8,558	6.381
CADILLAC ELR (2014)	163	163	1.000
Control Group Models			
VOLVO C30 (2008)	842	794	1.060
VOLVO C70 (2006-2008)	2,609	1,293	2.018
VOLVO S40 (2006-2008)	5,461	1,319	4.140
VOLVO S60 (2006-2008)	7,014	1,297	5.408
VOLVO V50 (2006-2008)	1,467	1,227	1.196
VOLVO V70 (2006-2008)	2,771	1,317	2.104
VOLVO XC70 (2006-2008)	5,954	1,208	4.929
VOLVO XC90 (2006-2008)	14,269	1,211	11.783
LEXUS RX (2011-2015)	74,552	1,745	42.723
AUDI RS 5 COUPE (2013-2015)	347	347	1.000
AUDI RS 5 CONV (2013-2015)	118	118	1.000
NISSAN LEAF (2011-2015)	4,546	913	4.979
DODGE CHARGER SRT8 (2012-2014)	497	497	1.000

Second Weighting Step

The second weighting step calibrates the base-weighted released sample to demographic benchmarks for the target population. This is performed via iterative proportional fitting (or raking). The raking procedure aligns survey respondents to benchmarks on the following dimensions:

- Vehicle type by gender
- Vehicle type by age (18-34, 35-44, 45-54, 55-64, 65-74, 75+)
- Vehicle type by race/ethnicity (Hispanic, Black, Asian, White/Other)
- Vehicle type by income (less than $15K, $15K to less than $30K, $30K to less than $50K, $50K to less than $75K, $75K to less than $100K, $100K or more)

The four vehicle types used are Volvo with RSBRS, Volvo without RSBRS, GM brands with RSBRS, and other brands without RSBRS. The demographic weighting parameters were provided by R. L. Polk. If R.L. Polk was unable to provide demographic data for a record, the demographic variables were constructed from survey responses or by modal imputation within an order cell.

In the first iteration to create the raking adjustment (RAKEADJ), the procedure matches the distribution of the first demographic variable to the population benchmark, recalculates cell counts and creates new totals. The second iteration matches the distribution of the second demographic variable to its population benchmark using the new cell counts from the first iteration and calculates new totals. The second weighting step continues alternating between the distributions until the adjusted distributions converge with the population benchmark totals.

The final weight can be represented as follows:

$$Final\ Weight = BSW \times RAKEADJ$$

The use of the resulting final weight variable in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the target population.

3.8 Reported Values

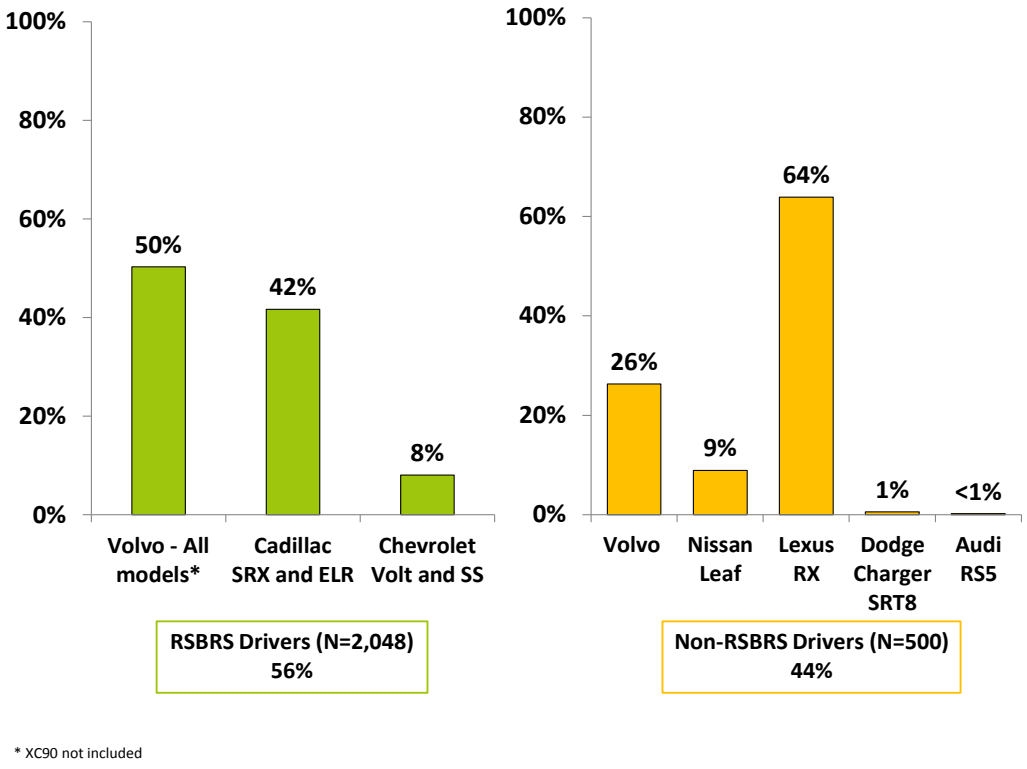
The percentages presented in this report are weighted to accurately reflect the national population of owners of Volvo, Cadillac, Chevrolet, Audi, Nissan, Dodge and Lexus vehicles. Unweighted sample sizes (Ns) are included so that readers know the exact number of respondents answering a given question, allowing them to estimate sampling precision. All tests for statistical significance were performed using the Chi-Square test. An observed relationship is called statistically significant when the p-value for a chi-square test is less than or equal to 0.05. Percentages for some items may not add to 100 percent due to rounding, or because the question allowed for more than one response. In addition, the number of cases involved in subgroup analyses may not sum to the grand total who responded to the primary questionnaire item being analyzed. Reasons for this include some form of non-response on the grouping variable (e.g., "Don't Know" or "Refused"), or use of only selected subgroups in the analysis. For rounding purposes, all variables are rounded based on two decimal places. Any value that had a decimal of .50 or greater was rounded up and any value that had a decimal below .50 was rounded down.

4. Demographics of Drivers

4.1 Demographic Profile of Drivers

Overall, the breakdown of drivers who participated in the survey was 56 percent RSBRS drivers and 44 percent non-RSBRS drivers. The RSBRS population consisted of Volvo drivers (50%), Cadillac SRX and ELR drivers (42%), and Chevrolet Volt and SS drivers (8%). The study also surveyed drivers of vehicles without RSBRS about their attitudes toward SBRSs in general. It included drivers of Volvo vehicles that came out before 2009 (26%), Nissan Leaf (9%), Lexus RX (64%), Dodge Charger SRT8 (1%), and less than 1 percent of Audi RS5 vehicles. Percentage distributions for selected demographics are provided on the following pages.

Figure 4-1: Vehicle Driver Owns/Leases



Base: All Respondents
Unweighted N=See Chart

Table 4-1
Vehicle Driver Owns/Leases
By Demographic Characteristics

	Unweighted N[1]	All Respondents	RSBRS Drivers	Non-RSBRS Drivers
Gender				
Male	1,254	45%	47%	41%
Female	1,294	56%	53%	59%
Total	2,548	101%	100%	100%
Age				
18-24	23	1%	1%	1%
25-34	42	1%	2%	1%
35-44	319	10%	11%	9%
45-54	751	25%	29%	21%
55-64	666	27%	28%	27%
65+	703	33%	29%	38%
Total	2,504	97%	100%	97%
Race[3]				
American Indian or Alaska Native	25	1%	1%	1%
Asian	55	3%	2%	4%
Black or African American	105	4%	6%	3%
Native Hawaiian or Other Pacific Islander	7	<1%	<1%	<1%
White	2,251	88%	88%	87%
Total	2,443	96%	97%	95%
Ethnicity				
Hispanic	80	3%	3%	2%
Non-Hispanic	2,410	95%	95%	94%

Total	2,490	98%	98%	96%

Vehicles that were targeted in the survey were mostly premium vehicles, which may explain why the respondents were fairly homogeneous in their demographic characteristics. Female and male respondents were about equally divided into those who drive these types of vehicles, with 45% male drivers and 56% female drivers participating in the survey. The vast majority of respondents were over 45 years old (85%), which is not surprising since the RSBRS-equipped vehicles are not easily affordable to younger individuals. When examining their marital situation, most respondents were married (86%) or widowed (6%), and about one-third of them (33%) have children under the age of 18 living in their household. In terms of employment status and education, nearly half of them were employed full time (48%), one-third were retired (33%), and 10 percent were employed part-time. Respondents who participated in the survey were highly educated individuals, with 37 percent of them holding a Bachelor's degree and 37 percent holding a Graduate degree. More than half indicated they come from a household earning more than $100,000 per year (51%). Respondents were predominantly White (88%). Only a small minority of respondents indicated that they were of Hispanics or Latin Origin Descent (3%), Black or African Americans (4%), or Asians (3%).

Table 4-1
Vehicle Driver Owns/Leases (Continued)
By Demographic Characteristics

	Unweighted N[1]	All Respondents	RSBRS Drivers	Non-RSBRS Drivers
Education				
Less than High School	13	<1%	<1%	<1%
High School Diploma	375	18%	20%	16%
Associates Degree	151	6%	7%	3%
Bachelors Degree	934	37%	37%	38%
Graduate Degree	1,046	37%	35%	39%
Total	2,519	98%	99%	96%
Income				
Less than $15,000	9	1%	<1%	1%
$15,000 - $29,999	32	1%	1%	1%
$30,000 - $49,999	88	5%	4%	5%
$50,000 - $74,999	190	8%	9%	6%
$75,000 - $99,999	254	10%	11%	9%
$100,000 or more	1,433	51%	52%	49%
Total	2,006	76%	77%	71%
Marital Status				
Married	2,193	86%	85%	87%
Divorced	72	2%	3%	2%
Separated	7	<1%	<1%	<1%
Widowed	125	6%	6%	5%
Single	114	4%	4%	4%
Total	2,511	98%	98%	98%
Children under 18 in Household				
Yes	1,011	33%	36%	30%
No	1,508	65%	63%	68%
Total	2,519	98%	99%	98%
Employment[3]				
Employed Full Time	1,398	48%	53%	41%
Employed Part-Time	248	10%	9%	10%
Unemployed and looking for work	23	1%	1%	1%
Retired	698	33%	31%	36%
Going to School	19	1%	1%	1%
Homemaker	122	7%	4%	10%
Disabled[4]	8	<1%	<1%	<1%
Total	2,516	100%	99%	99%

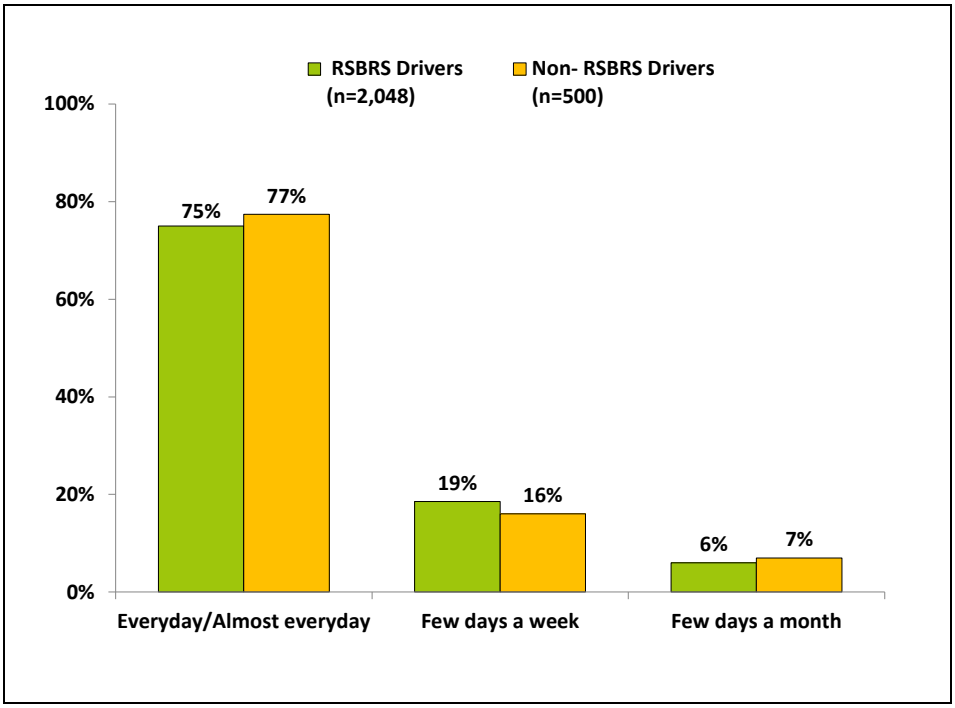
[1] Some Ns may not add to 2,548 due to Don't Know or Refused responses
[2] Some totals may not add to 100% due to Don't Know/Refused responses or may exceed 100% due to rounding
[3] For Multiple Response questions, respondents were allowed to select more than one category; hence, the percentages may add to more than 100%
[4] Respondents voluntarily reported being disabled when asked about employment

5. Frequency of Driving and Transporting Passengers in the Rear Seat

5.1 Frequency of Driving

The survey asked all respondents how often they drive their vehicle. Figure 5-1 shows that a large majority of all the respondents (76%) reported driving their vehicle everyday or almost everyday. Nearly one-fifth of RSBRS drivers (19%) and 16% of non-RSBRS drivers said they use their vehicle a few days a week. Very few RSBRS drivers (6%) and non-RSBRS drivers (7%) reported driving their vehicle only a few days a month. Respondents who drive less than a few days a month were screened out of the survey and hence not included in this analysis.

Figure 5-1: Frequency of Driving

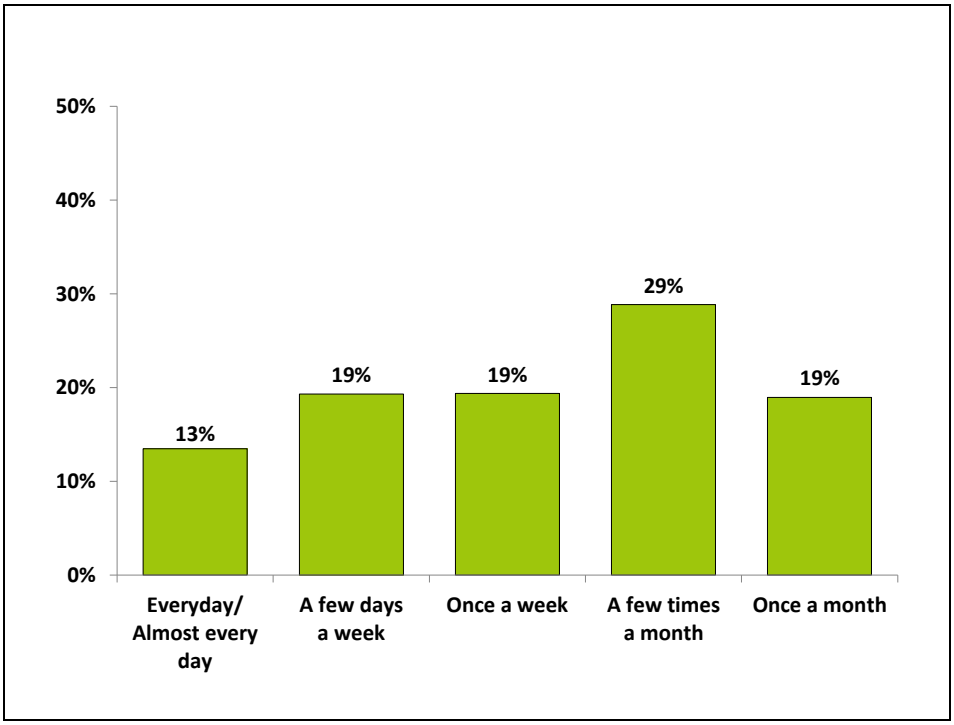


QS8. How often do you drive the <vehicle>?
Base: All Respondents
Unweighted N=See Chart

5.2 Transporting Passengers in the Rear Seat

Figure 5-2 shows the frequency of transporting passengers in the rear seat. Close to a third of respondents (29%) reported transporting passengers in the rear seat a few times a month. Over half of respondents (51%) transport passengers in the rear seat at least once a week, with 13% percent of respondents transporting rear passengers everyday or almost everyday, 19 percent a few times a week and 19 percent once a week. Like the question on driving frequency, respondents who transport rear passengers less than once a month were screened out of the survey.

Figure 5-2: Frequency of Transporting Passengers in the Rear Seat



QS9. When you drive the <vehicle>, how often do you transport passengers in the rear seat, not including those who use a child safety seat?
Base: All Respondents
Unweighted N=2,548

Respondents who were the most likely to transport rear passengers everyday or almost everyday are females (59%), aged 45-54 (34%), with a college degree (77%), come from a household earning $100,000 or more (61%), and work full time jobs (57%). Three-quarters of respondents who drive everyday or almost everyday have children under the age of 18 living in their household (76%). Younger respondents were the least represented age segment in each category, which was expected as the sampled vehicles are mostly premium vehicles and are not easily affordable to younger individuals.

The types of passenger that respondents transport the most often are family members. Nearly half of the respondents (48%) transport their children in their vehicle at least a few days a week and about a third (34%) said they transport a family-related child a few days a week. Although there is no information on age, children 16 and under are normally dependent on their parents/adults for transportation, which explains the high frequency of transporting children. Drivers also transport other household members (30%), adult relatives (26%), spouse (26%), and parents (24%).

Respondents were also asked to indicate how many front and rear passengers they transport in their vehicle when they transport passengers in the rear seat. Over eight-in-ten respondents (84%) transport two or more passengers, which may explain the support for rear SBRSs.

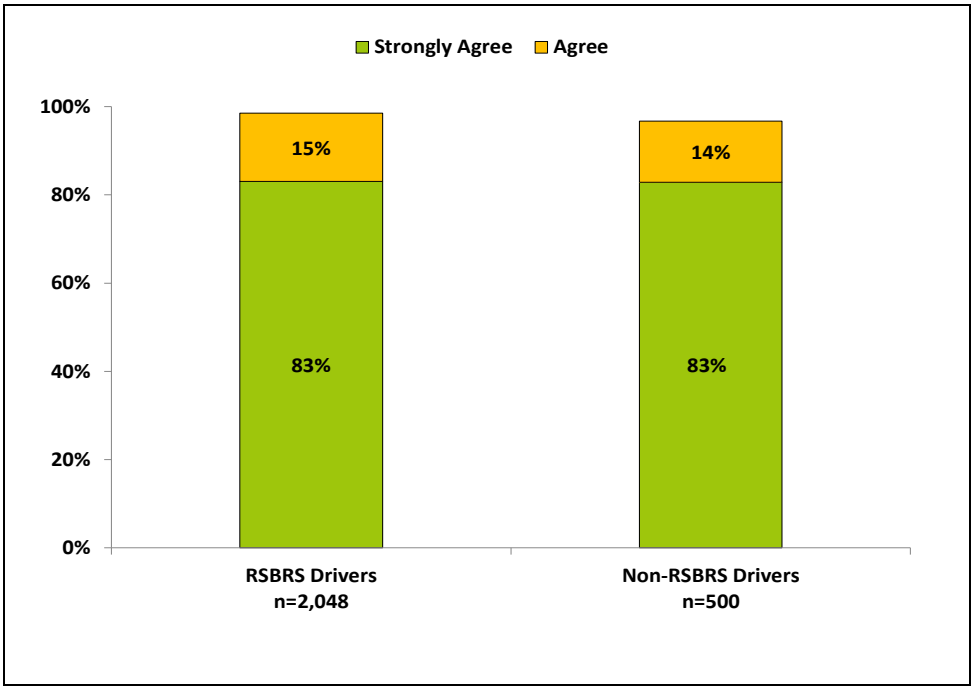
6. Drivers' Seat Belt Usage and Views on Seat Belt Use

Most respondents (97%), regardless of whether or not they own a vehicle equipped with a RSBRS, indicated that they wear their seat belt 91-100% of the time. Previous studies[4,5] have identified some factors that affect belt use rates, such as, gender, age, race, vehicle type, etc. These results show that seat belt use was more likely to be reported for older persons, women, Caucasians, and individuals with greater incomes, which highly correlates with the demographics of the drivers that participated in this survey. In turn, it can be inferred that the study surveyed individuals who are very safety-conscious, and their demographic characteristics do not reflect the general U.S. driver population.

When asked about their awareness of seat belt laws in their region, almost all respondents (93%) reported being aware of their state seat belt laws.

Respondents were also asked whether it is important to them that all their passengers, front and rear seat combined, wear a seat belt (Figure 6-1). Almost all of the respondents (97-98%) at least agree that it is very important to them that all their passengers fasten their seat belt, which suggest that survey respondents are safety-conscious individuals and are concerned about their safety and the safety of their passengers.

Figure 6-1: Importance of Passengers Wearing Their Seat Belt



Q38/QNR16. Please tell me if you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with each of the following statements.
A. It is very important that all my passengers buckle their seat belts.
Base: All respondents
Unweighted N=See Chart
($p<0.001$)

[4] Lerner EB1, Jehle DV, Billittier AJ 4th, Moscati RM, Connery CM, Stiller G. The influence of demographic factors on seat belt use by adults injured in motor vehicle crashes. Accid Anal Prev. 2001 Sep;33(5):659-62.
[5] Pickrell TM and Ye TJ. Seat Belt Use in 2008—Demographic Results. Traffic Safety Facts, DOT HS 811 183, August, 2009.

7. Types of Rear SBRS Alerts

7.1 GM and Volvo RSBRSs

The background research that was done prior to designing the questionnaire found that Volvo and GM RSBRSs have slight differences in the way they inform the driver of the status of the rear seats. Visual alerts in the Chevrolet Volt (GM) illuminate a steady green icon representing a rear seat position once the rear passenger has fastened the seat belt at the beginning of a trip (See Image 1). The green icon turns grey after thirty seconds or so. If the rear passenger unbuckles the seat belt while the car is in motion, the RSBRS will flash a red icon and will chime until the seat belt is refastened.

Volvo's RSBRS also provides information about which seat belts are fastened in the rear seat. The Volvo RSBRS displays a short message on the dashboard, such as, "left rear belt used" (Image 2). The system also provides an audible and visual signal in the event of a change of seat belt status during a trip. Some more recent Volvo vehicles utilize a seating configuration display and flash a red seat belt icon when there is a change of seat belt status in a particular seating position (Image 3).

Image 1: Visual Alerts on Chevrolet Volt (MY 2015) Dashboard

Image 1 shows that the passenger sitting behind the front passenger has fastened a seat belt (green icon) while the driver is not wearing one (red icon). The green icon is a steady icon and stays on for about 30 seconds. If a rear passenger unfastens the seat belt, the icon will flash red and the RSBRS will emit a chime.

Image 2: Warning Message on Volvo S60 (MY 2012) Dashboard

Image 2 shows that the rear passenger sitting behind the driver has fastened a seat belt. The message is being displayed on the dashboard for several seconds.

Image 3: Visual Alerts When There is a Change of Status of a Rear Seat Belt on Volvo S60 (MY 2014)

Image 3 shows that the rear passenger seated behind the front passenger is wearing a seat belt while the one seated in the middle seat has unbuckled the seat belt. The RSBRS flashes a red icon representing the rear seat position in which the unbuckled passenger is seated and emits a sound when there is a change of status of a rear seat belt.

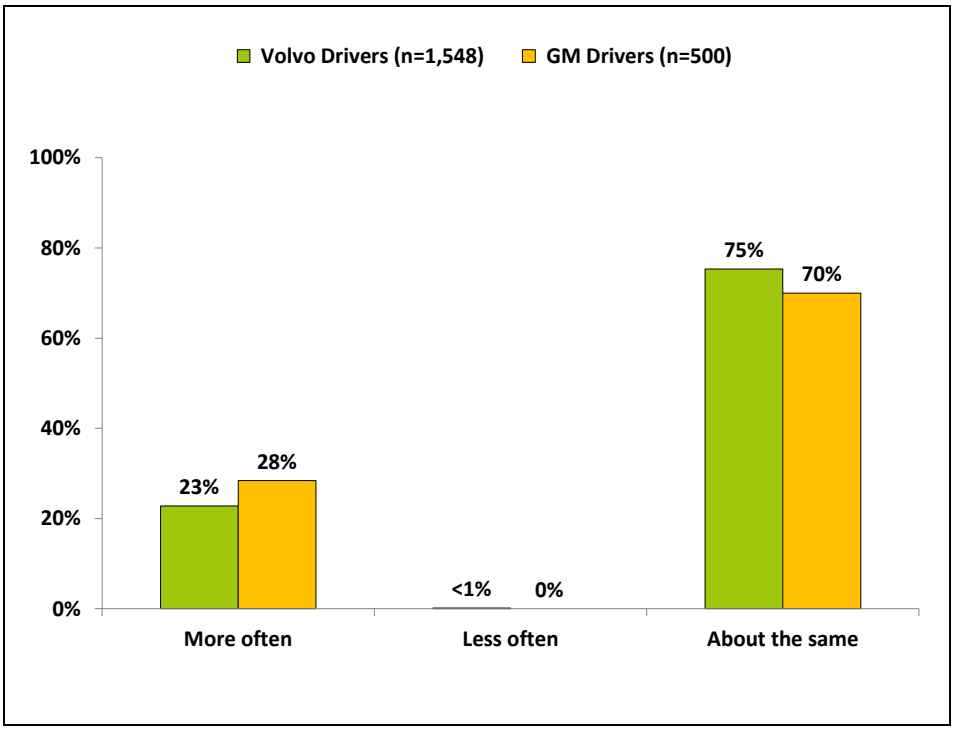
8. Effectiveness of Rear/Front SBRS

8.1 Change in Rear Seat Belt Usage since Driving the RSBRS Vehicle

The RSBRS is intended to encourage rear passengers to fasten their seat belts. Moreover, it is hoped that rear passengers will develop better seat belt habits in order to avoid the warning alerts or driver intervention. Nearly three in ten GM drivers (28%) have noticed an increase in rear seat belt usage, and close to one quarter (23%) of Volvo drivers reported an increase. Three-quarters of Volvo drivers (75%) and 70 percent of GM drivers said that it had stayed the same (Figure 8-1).

A NHTSA study has showed that, as in previous years, seat belt use in 2013 was lower in the rear seat than in the front seat (76% vs. 87%).[6]

Figure 8-1: Has Seen a Change in Rear Seat Belt Use

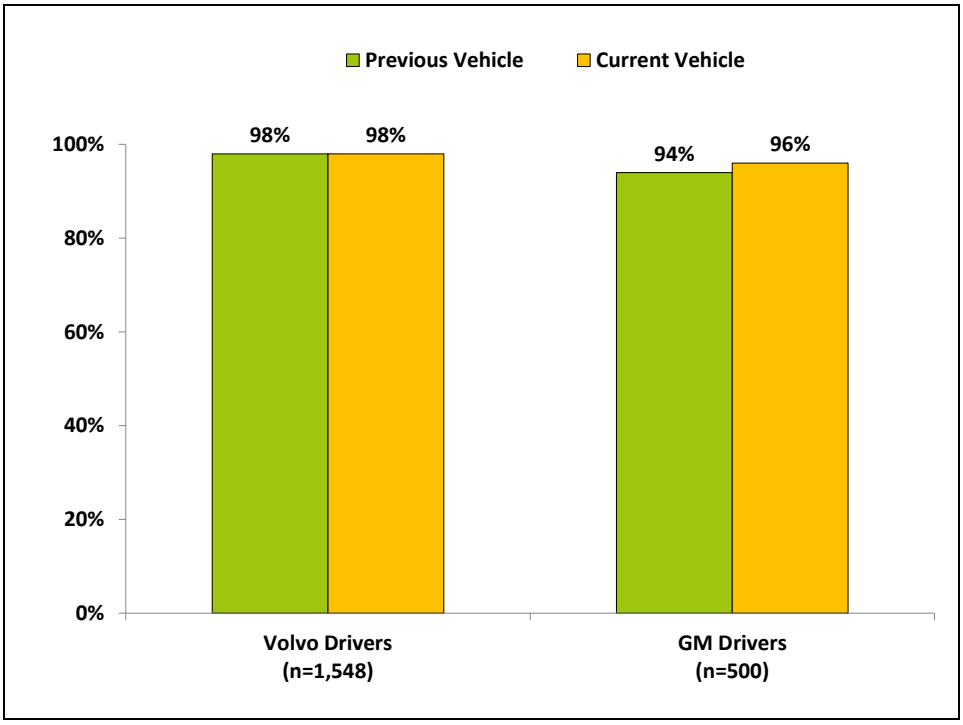


Q33. Since you began driving a vehicle equipped with a rear SBRS, would you say that the rear passengers are wearing their seat belt more often, less often, or is it about the same compared to your last vehicle without a reminder?
Base: Respondents who drive a vehicle WITH a RSBRS
Unweighted N=See Chart

[6] Timothy M. Pickrell & Cejun Liu, Occupant Restraint Use in 2013: Results from the National Occupant Protection Use Survey Controlled Intersection Study. DOT HS 812 080 at 6 (January 2015).

Figure 8-2 shows the difference in rear seat belt usage since RSBRS drivers have started driving a vehicle that is equipped with a RSBRS. Drivers who reported that their rear passengers wore their seat belt 91-100% of the time in their current vehicle that is equipped with a RSBRS, were asked how often this same passenger wore a seat belt in their previous one without a RSBRS. Like the results on driver's seat belt use, the driver reported seat belt use for the rear seats was very high. Over nine in ten respondents indicated that their rear passengers wear their seat belt 91-100%, and therefore, rear passengers who wear a seat belt less than 91% of the time were excluded from this analysis. GM drivers have seen a slight increase in rear seat belt use since they began driving a vehicle with a RSBRS. The seat belt usage rate of rear passengers increased by 2 percentage points since GM drivers have started driving a RSBRS equipped vehicle. Given the high self reported seat belt use for both before and after driving a RSBRS equipped vehicle, it is difficult to obtain an accurate effectiveness estimate, however, it does not mean that the RSBRS is not effective as the previous results (Figure 8-1) indicate.

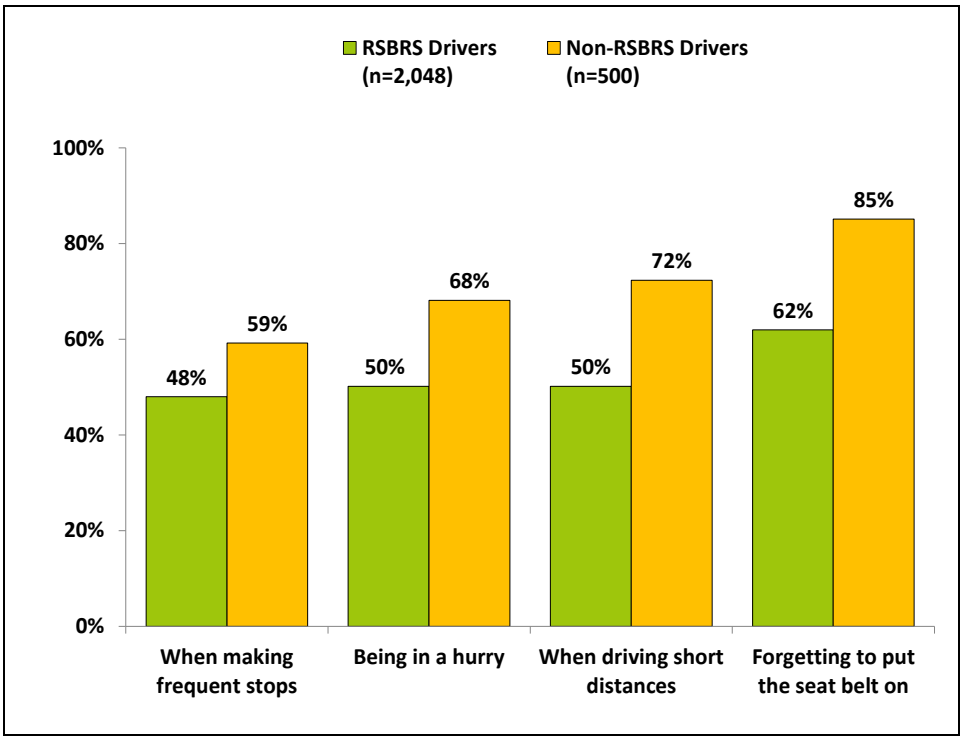
Figure 8-2: Seat Belt Use Compared to Seat Belt Use in Previous Vehicle Without RSBRS



Q7 and Q7a. How often does this passenger wear a seat belt? (passenger loop question)
Q8. How often did this passenger wear a seat belt in your previous vehicle? (passenger loop question)
Base: Passengers who were reported sitting in the rear by respondent
Unweighted N= See Chart

All respondents were asked if they thought that the RSBRS had increased or would increase the use of rear seat belts in specific driving situations. The objectives of this question were to gauge the effectiveness of RSBRS according to RSBRS drivers, as well as to measure the perceptions of driving a vehicle equipped with a RSBRS among non-RSBRS drivers. Three out of five (62%) RSBRS drivers said that the RSBRS has helped increase seat belt use when a rear passenger forgets to fasten the seat belt while 85 percent of non-RSBRS drivers said it would increase seat belt use when a passenger forgets to put it on. Almost half of RSBRS drivers (48%) have seen an increase in seat belt use when they are making frequent stops. Close to six-in-ten non-RSBRS drivers (59%) believed that a RSBRS would increase seat belt use in this particular driving scenario. Although, non-RSBRS have never experienced the RSBRS, Figure 8-3 shows that a large majority of non-RSBRS drivers perceive a RSBRS as an effective system.

Figure 8-3: Rear SBRS Has Increased/Would Increase Seat Belt Use



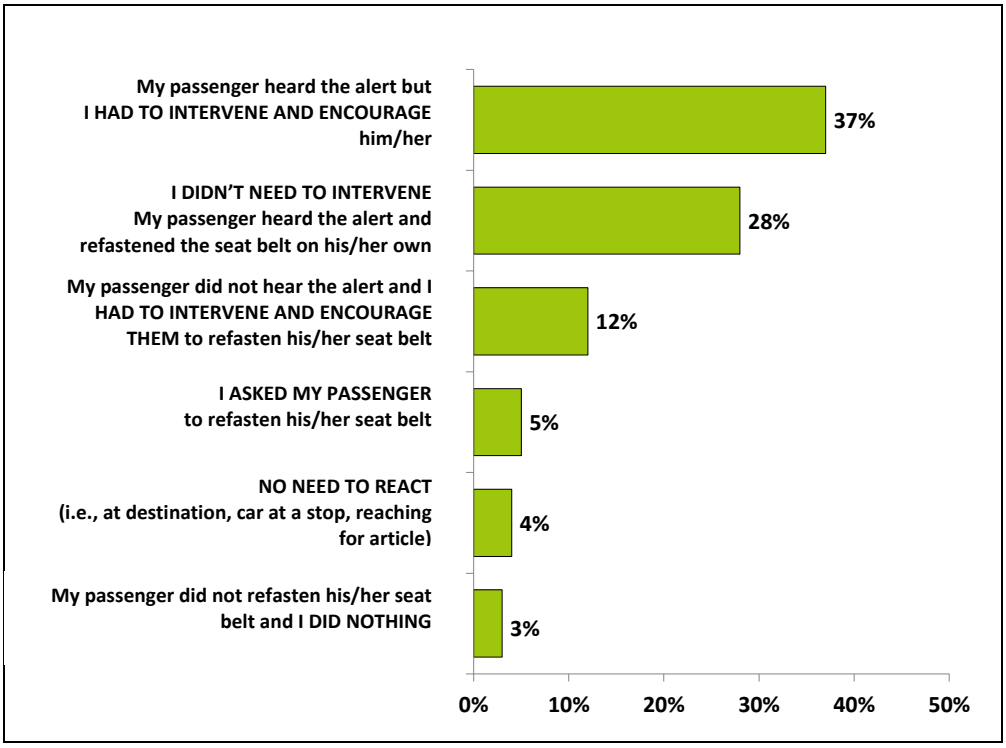
Q34/QNR9. For each of the following situations, please tell me whether the rear SBRS has increased/would increase the use of seat belts in the rear seat.
Base: All respondents
Unweighted N= See Chart
($p<0.001$)

8.2 Change of Seat Belt Buckle Status Alert

If a rear passenger unfastened his/her seat belt while the vehicle is in a drive gear, Volvo and GM RSBRSs will flash a red icon representing the seat position on the dashboard. Some Volvo models also display a message on the dashboard. These alerts will not stop until the passenger refastens his/her seat belt. Both systems also emit an auditory alert, however, the GM RSBRS will only chime for several seconds. When asked about their experience with the change of seat belt buckle status alert close to half of RSBRS drivers (49%) said that their system has indicated that a passenger had unfastened his/her seat belt within the past year.

Those who experienced a change of seat belt status alert within the past year (49%) were asked what their reaction to the alert was, and over one-third of drivers who reported experiencing a change of seat belt status alert said that, despite the passenger hearing the alert, they had to intervene and encourage them to refasten their seat belt (37%). One in three (28%) did not need to intervene as the unbuckled passenger heard the alert and refastened his/her seat belt independently. Only 3 percent did not have any reaction when this occurred. Overall, of those who reported experiencing a change of seat belt status alert (49%), over three-quarters of these drivers (77%) said that the unbuckled passenger eventually did refasten his/her seat belt. These results suggest that the function of informing the driver of a change of seat belt status is very useful and efficient. The change of seat belt status alert informs and may prompt the driver to intervene and ensure that everyone remains belted during a trip.

Figure 8-4: Driver's Reaction When Rear SBRS Indicated a Change of Status



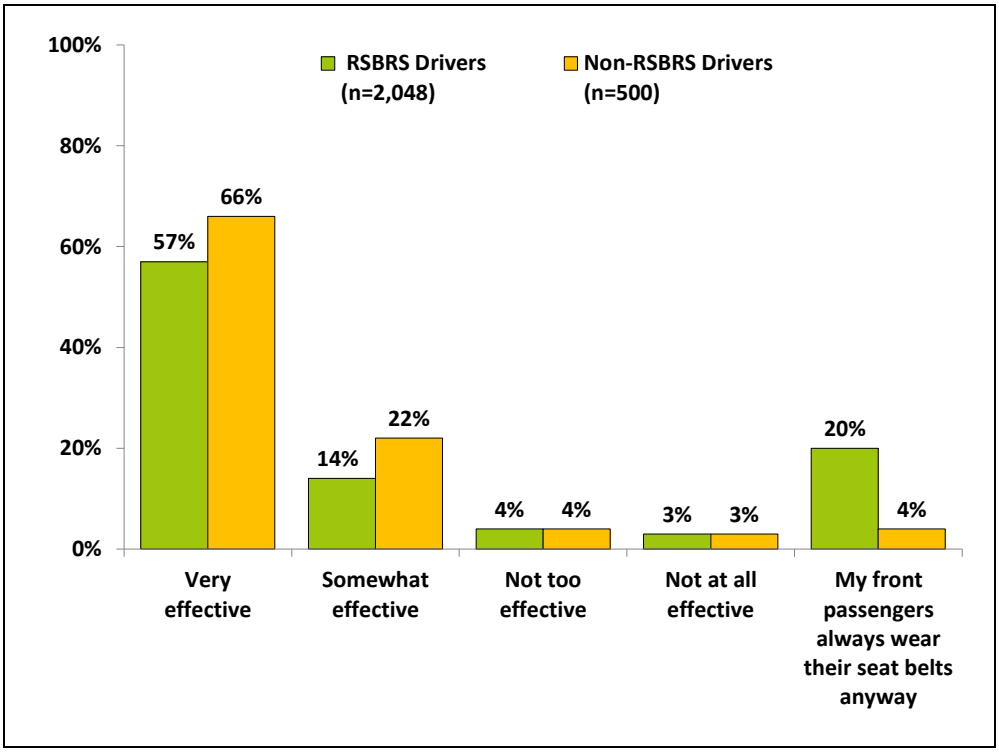
Q20. What was your reaction the last time this occured?
Base: Respondents who drive a vehicle WITH a RSBRS and who indicated a change of status
Unweighted N=1,025

8.3 Effectiveness of Front SBRS in Getting Passengers Buckled

A front SBRS provides visual and/or audible signals to prompt the driver and front outboard passenger to use his/her seat belt. In most vehicles, when the seat belt is unbuckled and the vehicle is on, the SBRS displays or emits an alert for a predetermined duration or until the seat belt is buckled. The majority of respondents reported that the front SBRS is very effective in getting passengers who do not normally fasten their seat belt to buckle up. Non-RSBRS drivers were more likely than RSBRS drivers to say that the front SBRS is effective with two-thirds (66%) of non-RSBRS drivers and 57 percent of RSBRS drivers responding that it is very effective. However, one-fifth of RSBRS drivers (20%) reported that their front passengers always wear their seat belt. Therefore, the effectiveness rating for the RSBRS vehicles could be lower due to the fact that the targeted front passengers are much more likely to buckle their safety belt and hence the SBRS would not activate a warning (Figure 8-5).

A follow-up question was asked to the RSBRS drivers who do not find front SBRSs effective (7%) to understand the reasons why the SBRS is not effective at getting passengers to buckle up. Drivers said that those same passengers refuse to wear a seat belt and/or do not see the benefits of wearing one, and therefore, decide to ignore the alerts. "Personal choice/don't want to buckle up" was the most frequent response as to why these RSBRS drivers do not find the front SBRS very effective in getting front passengers to buckle up (42%).

Figure 8-5: Effectiveness of Front Passenger SBRS By Type of Vehicle



Q26/QNR15. For those passengers who do not normally buckle up, how effective is the FRONT SBRS in getting those in the front to buckle up?
Base: All Respondents
Unweighted N=See Chart
($p<0.001$)

9. Perceived Effectiveness of Current SBRSs Characteristics

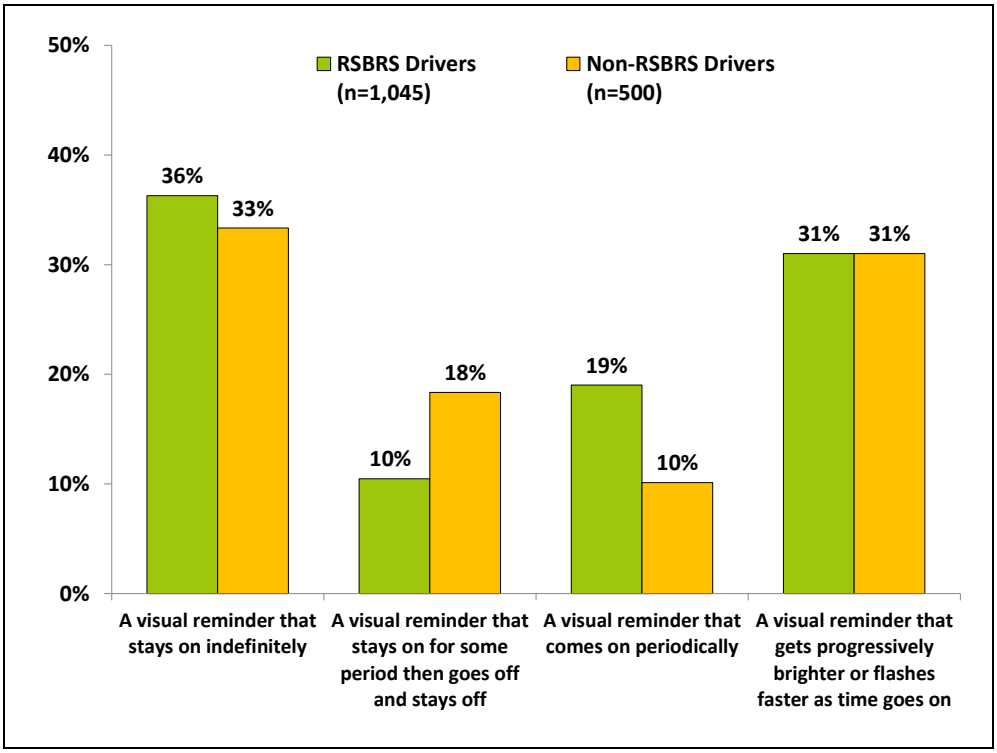
9.1 Rear SBRS

9.1.1 RSBRS Visual Alerts

All respondents were asked which visual alerts would be the most effective in encouraging a rear passenger to wear a seat belt. Over one-third of both RSBRS and non-RSBRS drivers said that a visual reminder that stays on indefinitely would be the most effective alert in encouraging rear passengers to fasten their seat belts and to keep it on during a trip (36% and 33%, respectively). Three in ten (31%) drivers also chose a "visual reminder that gets progressively brighter or flashes faster as time goes on" as the most effective alert. Respondents said an alert that stays on for a short period of time then goes off and stays off is not attention-getting enough, and can be intentionally or unintentionally ignored by the vehicle occupants (Figure 9-1).

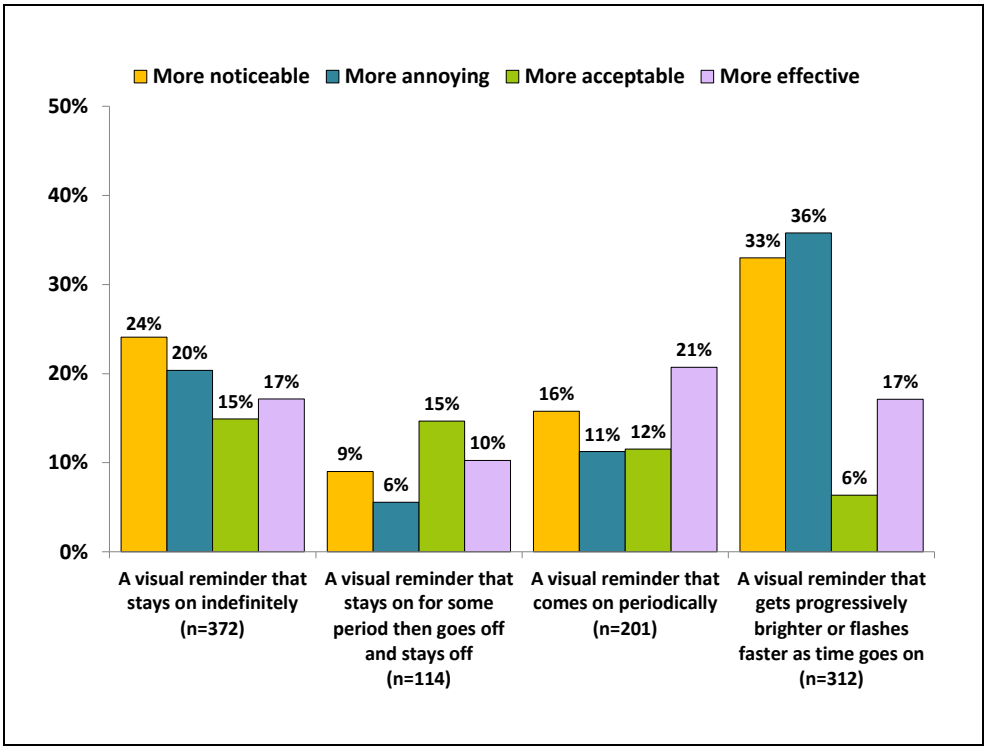
All drivers were asked a follow-up question on why they selected this particular option. About one-quarter of RSBRS drivers chose a visual reminder that stays on indefinitely as the most effective alert because it is more noticeable (24%), more annoying (20%), more effective (17%), and more acceptable (15%) (Figure 9-2). Non-RSBRS drivers, however, were more likely to think that a continuous visual alert was more noticeable (34%), 26 percent think it was a more effective alert, and 22 percent said it is more annoying. Only 8% of them said it was more acceptable (Figure 9-3). Although respondents were not asked to evaluate the acceptability, effectiveness, annoyance, and noticeability of each alert, and only rated the alert they had selected, respondents tended to select an indefinite alert rather than a progressive one. A larger proportion of respondents perceived indefinite alerts as more noticeable and more acceptable. However, this perception may not remain when confronted with an indefinite or progressive alert in actuality.

Figure 9-1: Perceived Effective of Rear SBRS Visual Alerts



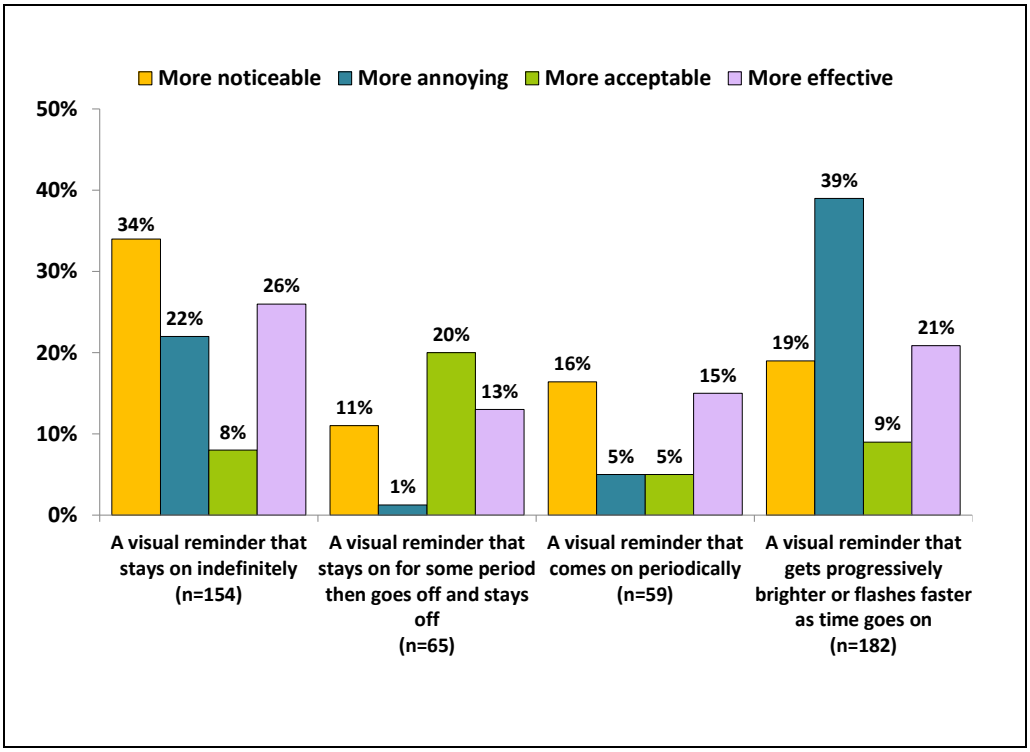
Q29a/QNR4. If a Rear passenger is not wearing his or her seat belt, which of the following VISUAL alerts do you think you would be the most effective in encouraging him or her to fasten the seat belt and to keep it on during a trip?
Base
RSBRS drivers: Respondents who reported that a visual alert would be more effective in getting rear passengers to fasten their seat belt
Non-RSBRS drivers: All respondents
Unweighted N=See Chart
($p<0.001$)

Figure 9-2: Top 4 Reasons for Selecting Visual Alert (RSBRS Drivers)



Q29b. Why did you select that one?
Base: Respondents who drive a vehicle WITH a RSBRS
Unweighted N=See Chart

Figure 9-3: Top 4 Reasons for Selecting Visual Alert (Non-RSBRS Drivers)



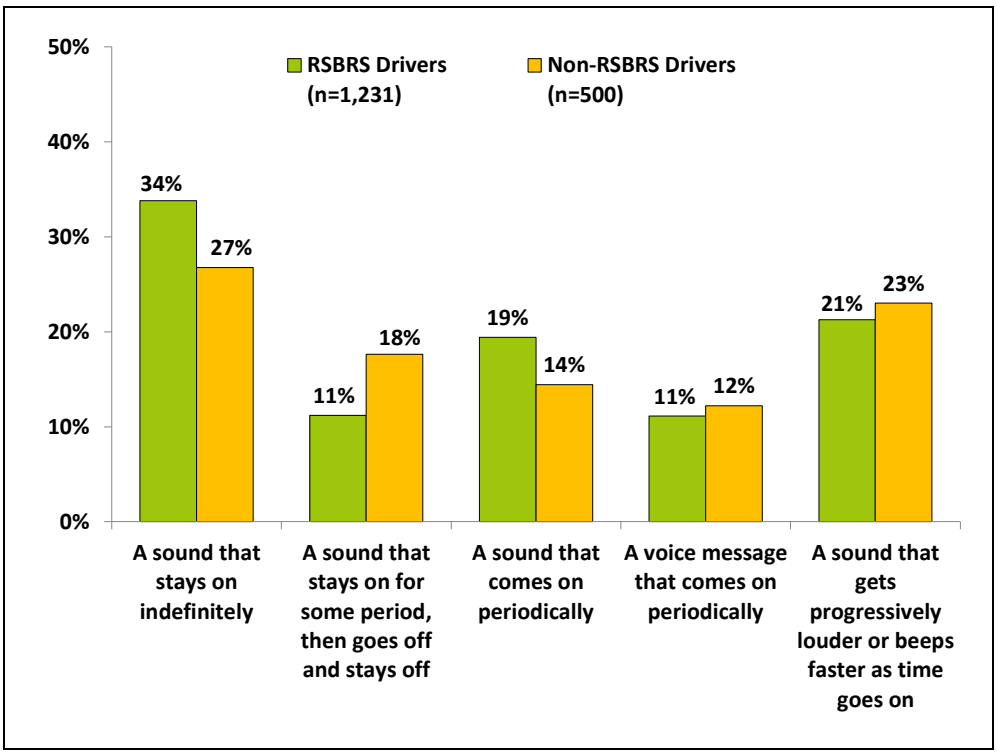
QNR5. Why did you select that one?
Base: Respondents who drive a vehicle WITHOUT a RSBRS
Unweighted N=See Chart

9.1.2 RSBRS Audible Alerts

One-third of RSBRS drivers selected "a sound that stays on indefinitely" as the most effective audible alert to encourage rear passengers to fasten their seat belt. Although an indefinite sound was the most frequent answer, non-RSBRS drivers were less likely to choose this option than were RSBRS drivers, with 27 percent of them who thought that this audible alert would be the most effective in encouraging a rear passenger to fasten his/her seat belt and to keep it on during a trip. Over one-fifth of RSBRS drivers (21%) chose the option of "a sound that gets progressively louder or beeps faster as time goes on" while nearly one-quarter of non-RSBRS drivers (23%) selected the same audible alert. One-fifth of RSBRS drivers (19%) also reported that a rear passenger would be more likely to fasten his/her seat belt in response to "a sound that comes on periodically," which is the audible alert of most rear SBRSs when a seat belt is unbuckled. Sound reminders "that stay on for some period, then go off and stay off" or "come on periodically" received higher scores than did visual alerts with the same characteristics. Unlike visual alerts, which are mainly located on the dashboard and mainly visible to the driver, an audible alert can be heard by everyone in the vehicle and will typically be more effective (Figure 9-4).

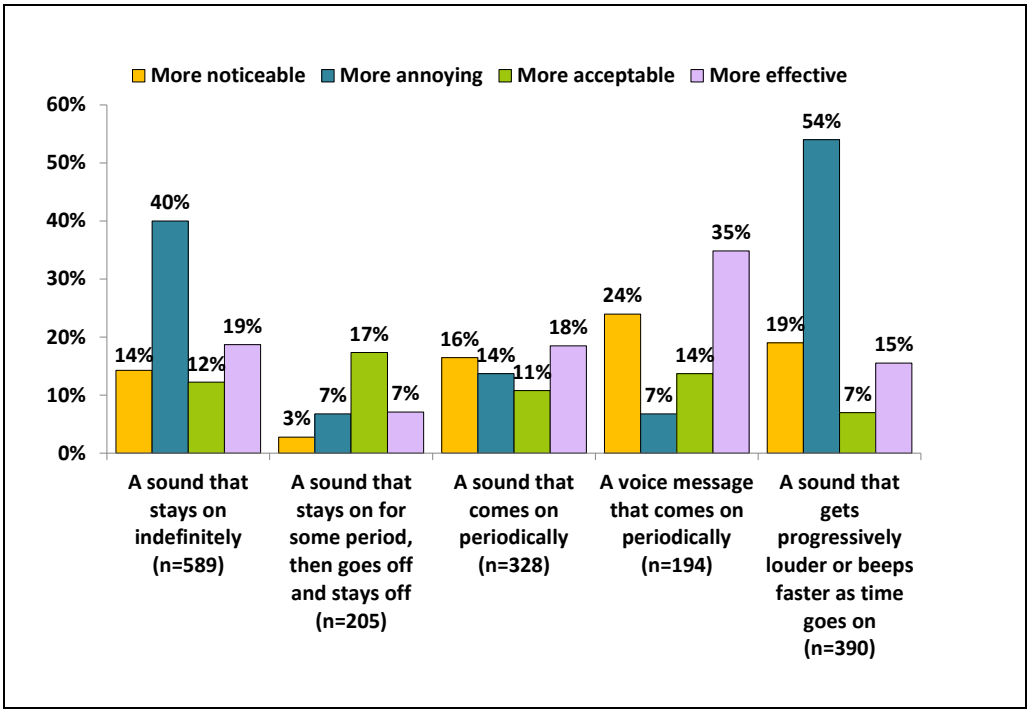
RSBRS and non-RSBRS drivers who chose "a sound that stays on indefinitely" as a more effective alert think this option is more annoying (40% and 32 %, respectively) and more effective (19% and 32%, respectively). Despite the fact that a majority of drivers designated an indefinite sound as the most effective alert in encouraging a rear passenger to buckle up, only a few of them did it because it is acceptable or noticeable (Figures 9-5 and 9-6).

Figure 9-4: Perceived Effective of Rear SBRS Audible Alerts



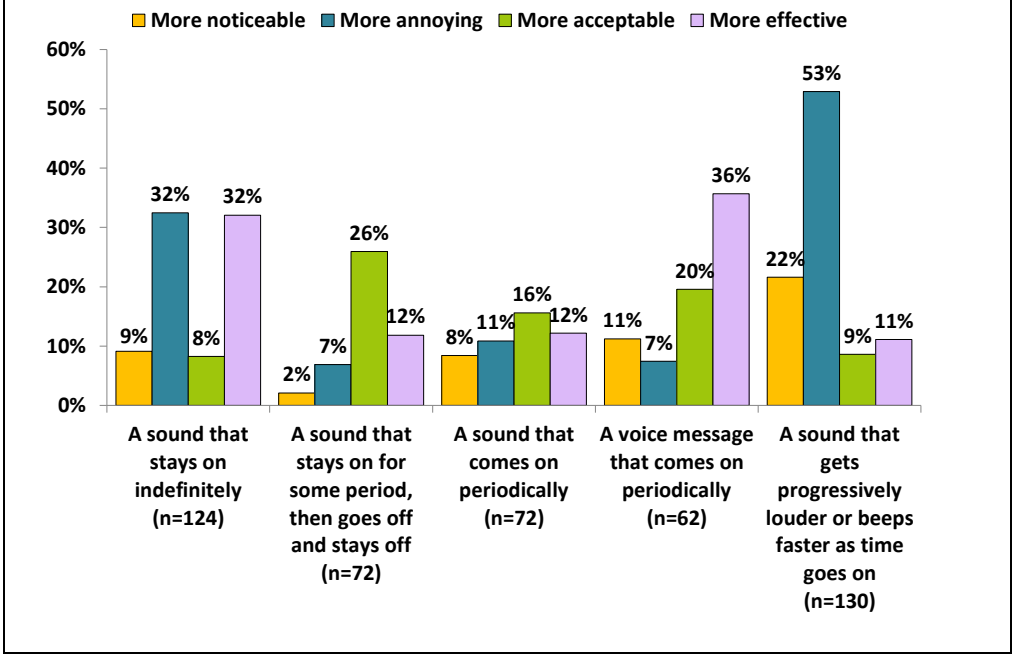
Q30a/QNR6. If a REAR passenger is not wearing his or her seat belt, which of the following AUDIO alerts do you think you would be the most effective in encouraging him or her to fasten the seat belt and to keep it on during a trip?
Base
RSBRS drivers:
Respondents who reported that a visual alert would be more effective in getting rear passengers to fasten their seat belt
Non-RSBRS drivers:
All respondents
Unweighted N=See Chart
($p<0.001$)

Figure 9-5: Top 4 Reasons for Selecting Audible Alert (RSBRS Drivers)



Q30b. Why did you select that one? Base: Respondents who drive a vehicle WITH a RSBRS Unweighted N=See Chart

Figure 9-6: Top 4 Reasons for Selecting Audible Alert (Non-RSBRS Drivers)

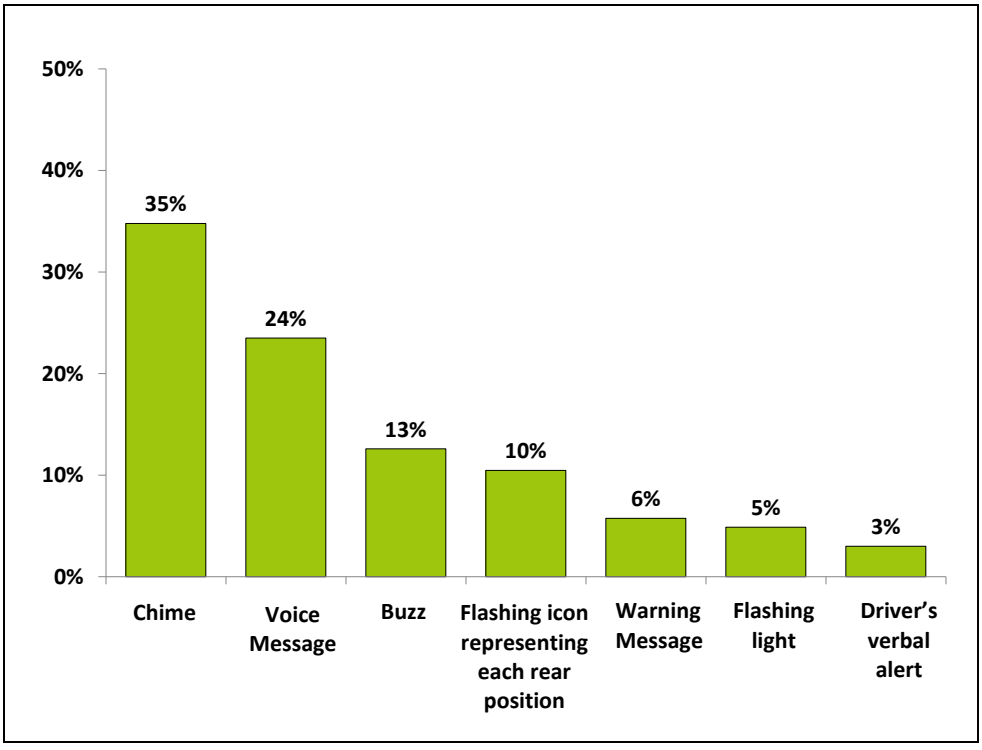


QNR7. Why did you select that one? Base: Respondents who drive a vehicle WITHOUT a RSBRS Unweighted N=See Chart

9.1.3 Perceived Effectiveness of RSBRS by Drivers of Vehicles without a RSBRS

Non-RSBRS drivers were asked which indicators would be the most likely to get the rear passengers to fasten their seat belt in order to get views from those who have never driven a vehicle equipped with a RSBRS and are unfamiliar with the system. Over one-third of them (35%) said that a chime would be the most effective alert to get rear passengers to fasten their seat belt. The second most frequent answer was a voice message (24%). A sizable number of respondents also said that a buzz would be an effective RSBRS alert (13%). In conclusion, the three alerts that were most commonly cited as being effective alerts were all auditory alerts (72%) (Figure 9-7). Unlike visual alerts that are mostly located on the dashboard and can mainly be seen by the driver, auditory alerts can be heard by everyone in the vehicle. The driver or any vehicle occupant can intervene to encourage an unbuckled passenger to refasten his/her seat belt if they do not react to the audible signal voluntarily.

Figure 9-7: Most Effective Rear SBRS Alert



QNR2. Which of these indicators do you think you would be the most likely to get the rear passengers to fasten their seat belt?
Base: Respondents who drive a vehicle WITHOUT a RSBRS
Unweighted N=See Chart

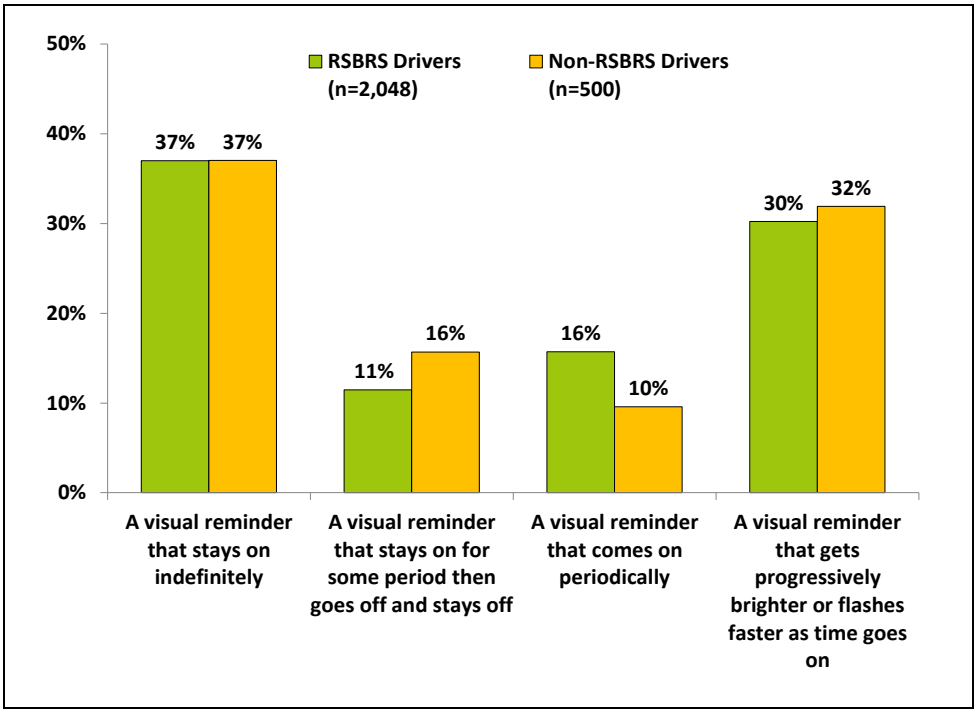
9.2 Front SBRS Alerts

Only the driver's seat is currently required to be equipped with a SBRS, but over the years vehicle manufacturers have voluntarily equipped the front outboard passenger seat with a SBRS. All respondents were asked which visual and audible alerts would be the most effective in encouraging a front passenger to wear a seat belt.

9.2.1 Front SBRS Visual Alerts

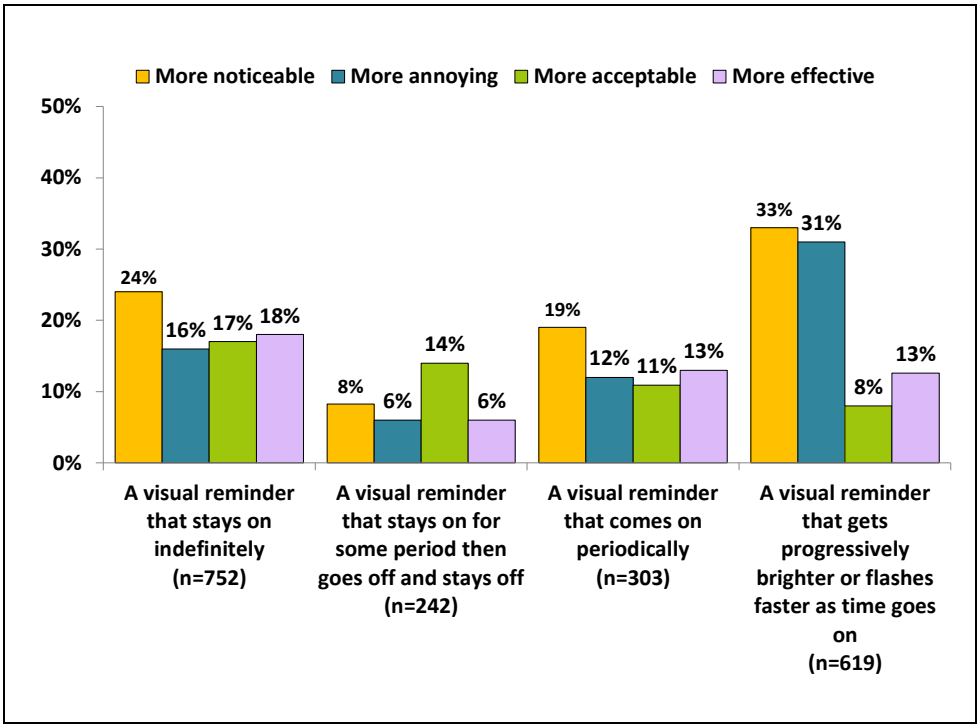
Respondents were asked what they perceived as the most effective visual alert for the front seats as well. Overall, the results did not differ significantly between front and rear SBRSs. Over one-third of all drivers said that "a visual reminder that stays on indefinitely" would be the most effective alert in encouraging passengers to fasten their seat belts and to keep it on during a trip (37%). Close to three-in-ten also chose an aggressive visual signal "that gets progressively brighter or flashes faster as time goes on." Fewer drivers see visual reminders that "stay on for some period and then go off and stay off" and "come on periodically" as effective alerts (Figure 9-8). A follow-up question was asked to help understand the reasons why drivers perceived the visual reminder they selected as effective. Nearly one-third of those who selected a "visual reminder that gets progressively brighter or flashes faster as time goes on" think it is more noticeable (33%) and more annoying (31%) to the driver and the front passenger. Not surprisingly, only 8 percent see this alert characteristic as more acceptable. Nearly one quarter of those who see an indefinite visual alert as effective think it is more noticeable (24%), more effective (18%), more acceptable (17%), and more annoying (16%). As mentioned in the RSBRS alerts section, a reminder seen as highly effective may also be judged as highly attention-getting and annoying, and hence not acceptable in the vehicle (Figure 9-9). However, whether the perceived effectiveness/noticeability and acceptability would be true of a real system is not known. The same follow-up question was asked of non-RSBRS drivers to determine whether non-RSBRS drivers answered differently. The result patterns across the two groups of drivers were somewhat similar, nearly one-quarter of non-RSBRS drivers chose a visual alert that stays on indefinitely because it is more noticeable (24%). They also perceive this alert as more effective (19%), more annoying (16%), and more acceptable (14%) (Figure 9-10).

Figure 9-8: Perceived Effectiveness of Front SBRS Visual Alerts



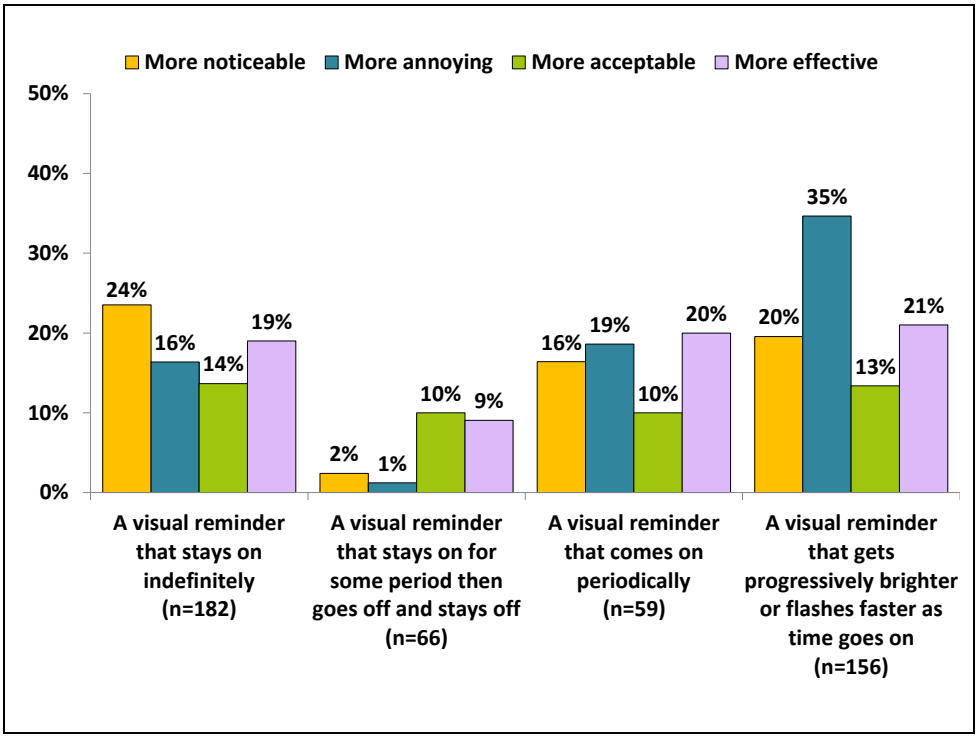
Q24a/QNR11. If a front passenger is not wearing his or her seat belt, which of the following VISUAL alerts do you think you would be the most effective in encouraging him or her to fasten the seat belt and to keep it on during a trip?
Base: All Respondents
Unweighted N=See Chart
($p<0.001$)

Figure 9-9: Top 4 Reasons for Selecting Visual Alert (RSBRS Drivers)



Q24b. Why did you select that one?
Base: Respondents who drive a vehicle WITH a RSBRS
Unweighted N=See Chart

Figure 9-10: Top 4 Reasons for Selecting Visual Alert (Non-RSBRS Drivers)



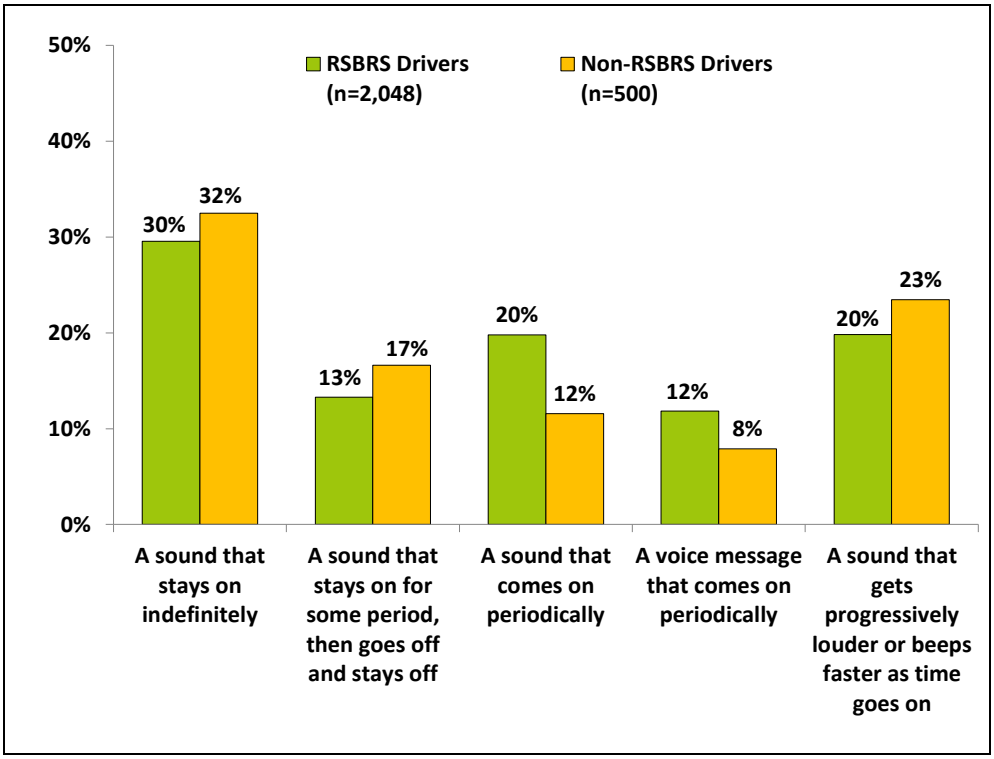
QNR12. Why did you select that one?
Base: Respondents who drive a vehicle WITHOUT a RSBRS
Unweighted N=See Chart

9.2.2 Front SBRS Audible Alerts

Like the visual alerts, a sound that stays on indefinitely was perceived as the most effective alert to encourage a front passenger to buckle up. Close to one-third of non-RSBRS drivers (32%) and 30 percent of RSBRS drivers selected this alert. One-fifth of RSBRS drivers (20%) chose the option of "a sound that gets progressively louder or beeps faster as time goes on" while nearly one-quarter of non-RSBRS drivers (23%) selected the same audible alert. One-fifth of RSBRS drivers (20%) reported that a front passenger would be more likely to fasten his/her seat belt in response to "a sound that comes on periodically." Sound reminders "that stay on for some period, then go off and stay off" or "come on periodically" received higher scores than did visual alerts with the same characteristics. Unlike visual alerts, which are mostly located on the dashboard and mainly visible to the driver, an audible alert can be heard by everyone in the vehicle and will typically be more effective since any vehicle occupants can intervene to encourage the unbuckled passenger to refasten his/her seat belt (Figure 9-11). Like the perceived effectiveness of front SBRS visual alert results, the figure below shows that perceived effectiveness and annoyance of alerts are correlated. When respondents were asked why the alert they chose was more effective, about one-third of RSBRS drivers (34%) chose a sound that stays on indefinitely as the most effective audible alert because it is more annoying. Other respondents also chose this alert as the most effective because they thought an indefinite sound was more effective (19%), more acceptable (16%), or more noticeable (14%) (Figure 9-12). An indefinite audible alert was perceived as more effective in encouraging a front passenger to buckle up by a majority of non-RSBRS drivers as well. Nearly

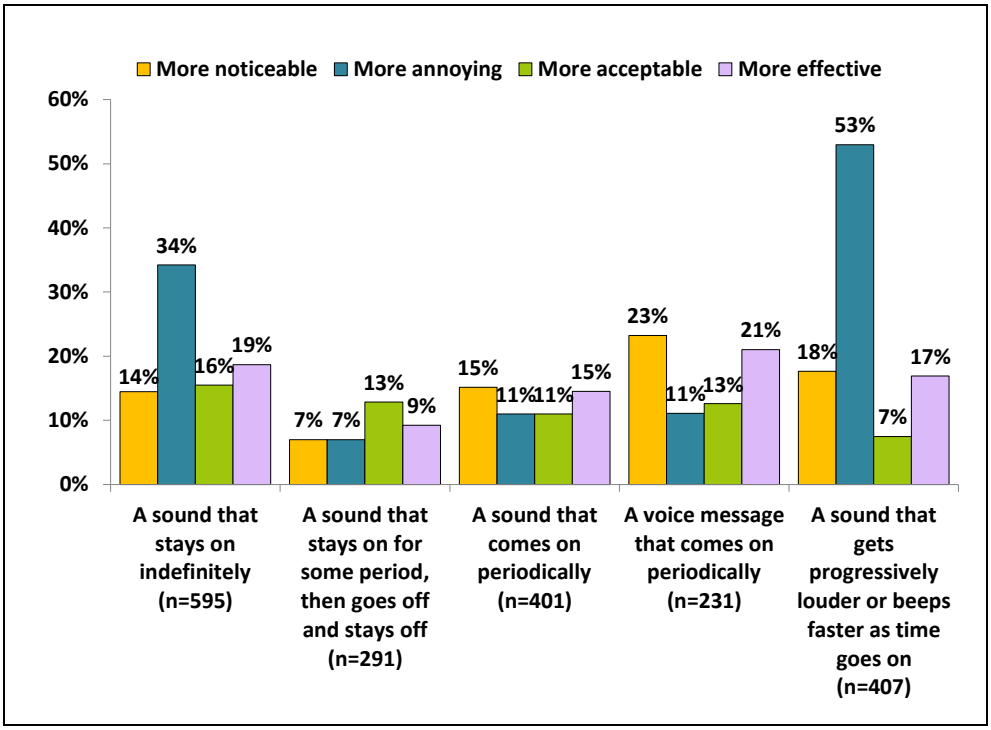
one-third of these drivers (30%) selected this alert because it is more annoying. Respondents also thought that it was more effective (21%), more acceptable (11%), and more noticeable (11%) (Figure 9-13).

Figure 9-11: Perceived Effectiveness of Front SBRS Audible Alerts



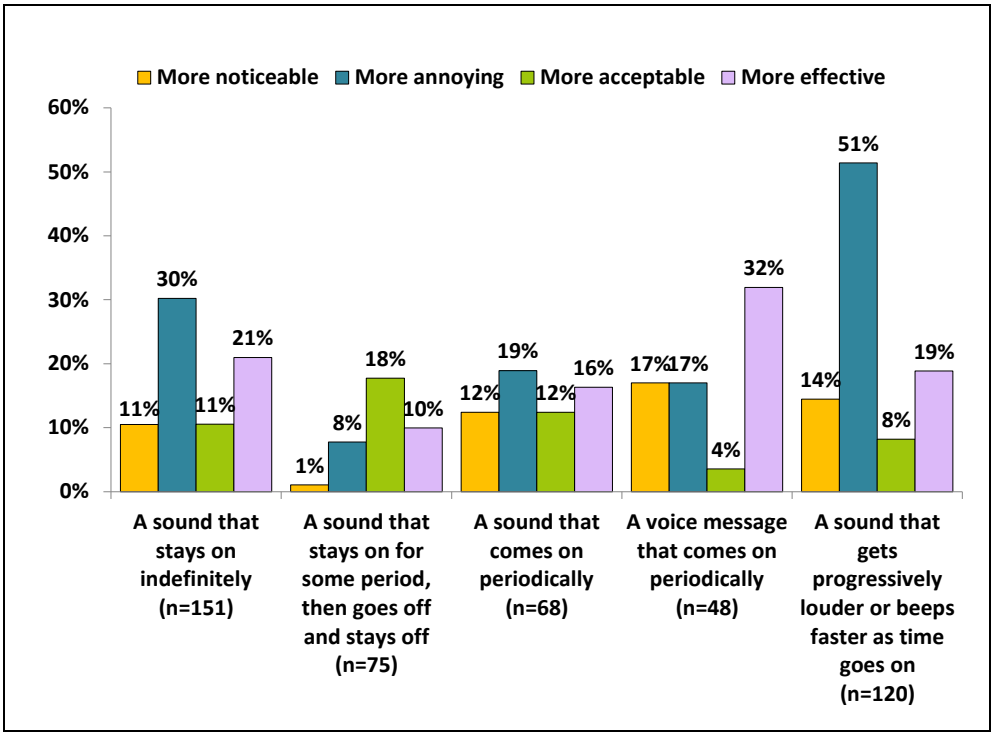
Q25a/QNR13. If a front passenger is not wearing his or her seat belt, which of the following AUDIO alerts do you think you would be the most effective in encouraging him or her to fasten the seat belt and to keep it on during a trip?
Base: All Respondents
Unweighted N=See Chart
($p<0.001$)

Figure 9-12: Top 4 Reasons for Selecting Audible Alert (RSBRS Drivers)



Q24b. Why did you select that one?
Base: Respondents who drive a vehicle WITH a RSBRS

Figure 9-13: Top 4 Reasons for Selecting Audible Alert (Non-RSBRS Drivers)



QNR14. Why did you select that one?
Base: Respondents who drive a vehicle WITHOUT a RSBRS
Unweighted N=See Chart

10. Utility of SBRSs

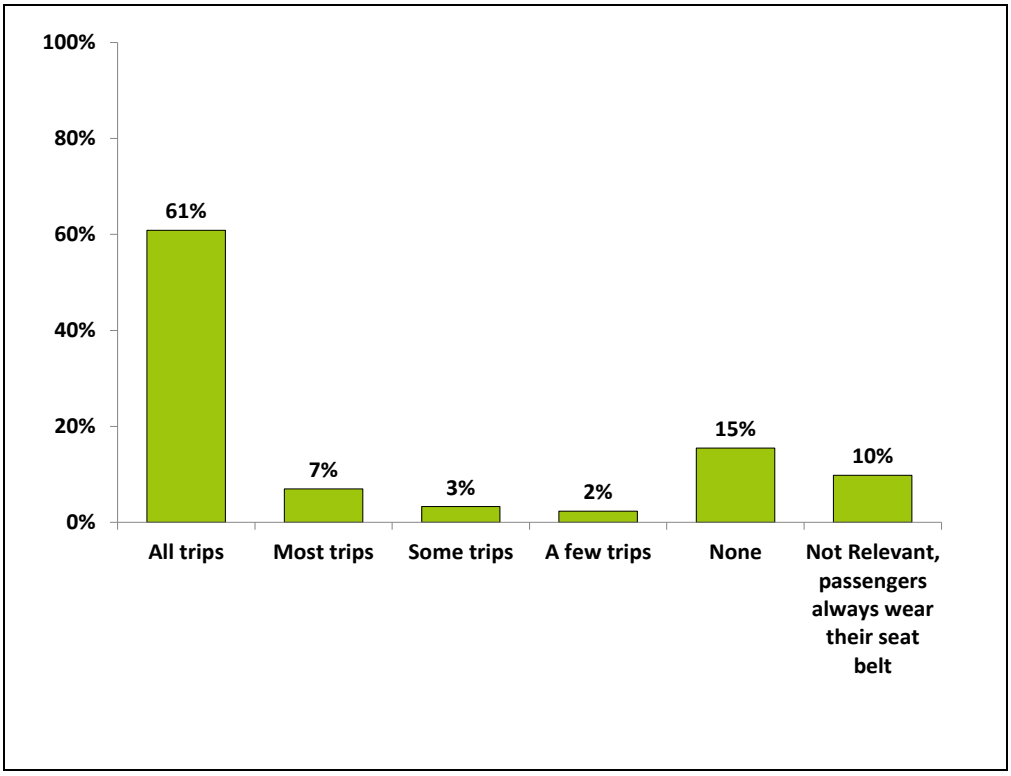
10.1 Awareness of RSBRS

The survey asked RSBRS drivers whether they were aware that their vehicle was equipped with a RSBRS when they bought or leased it. Nearly one half of RSBRS drivers (47%) were aware that their new vehicle came with a RSBRS. Respondents who were aware that the vehicle they bought or leased came with a RSBRS were asked whether having a RSBRS was a factor that influenced them in making the decision to purchase this specific vehicle model. Overall, the RSBRS is not a factor that influenced respondents in making the decision to purchase this specific vehicle model. Only, one-fifth of Volvo drivers (20%) reported that the RSBRS was a factor that influenced their purchase decision whereas 11 percent of GM drivers said it was.

10.2 Reliance on RSBRS to Determine the Seat Belt Status of Passengers

In order to determine the drivers' reliance on the RSBRS's warnings at the beginning of a trip, RSBRS drivers were asked how often they check the RSBRS to find out the status of the rear seat belts. Nearly two-thirds of drivers (61%) reported checking the RSBRS on all trips, approximately one in six RSBRS drivers (15%) said they never check the RSBRS, and 10% voluntarily reported that their passengers always wear their seat belt, and therefore, could not answer the question.

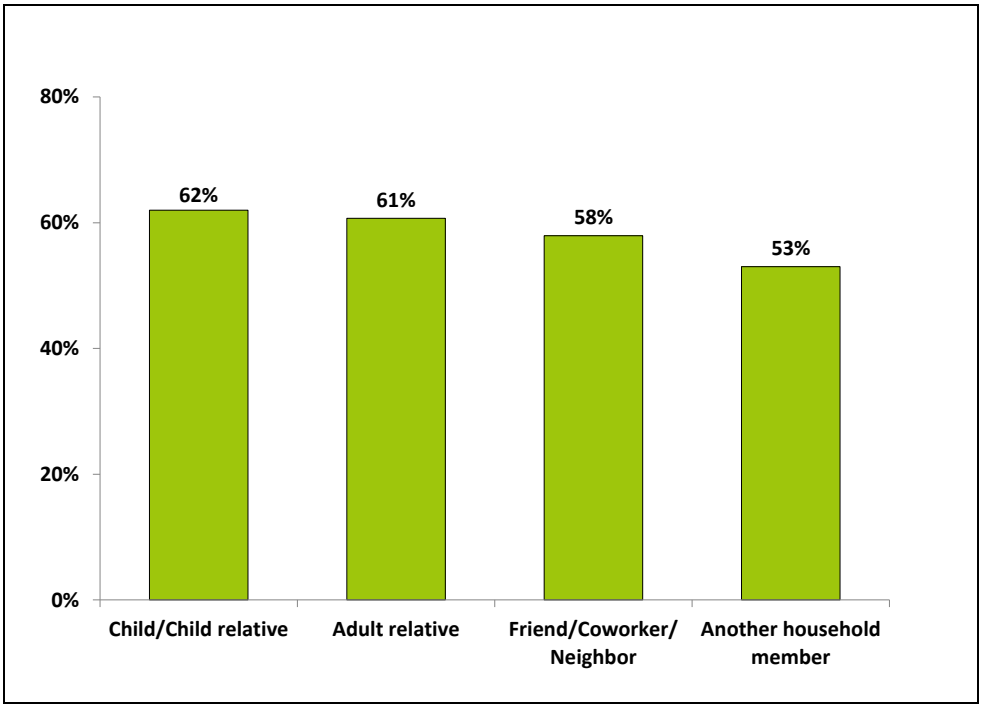
Figure 10-1: Reliance on the Alerts



Q10. When you transport passengers in the rear seat, on how many trips do you check the rear SBRS to find out the status of the rear seat belts?
Base: Respondents who drive a vehicle WITH a rear SBRS
Unweighted N=2,048

When looking at reliance on the alerts by passenger relationship, nearly two-thirds of drivers reported checking the RSBRS on all trips when they are transporting their child or a family related child (62%) or an adult relative (e.g., spouse, parents) (61%).

Figure 10-2: Check Alerts on ALL TRIPS by Passenger Relationship



Q10. When you transport passengers in the rear seat, on how many trips do you check the rear SBRS to find out the status of the rear seat belts?
Base: Respondents who drive a vehicle WITH a rear SBRS
Unweighted N=2,048

Table 10-1 shows the frequency of checking the RSBRS by demographic characteristics. Of those who indicated that checking the RSBRS was not relevant as their passengers always wear a seat belt, nearly two-thirds of respondents were female, which suggest that female drivers might pay more attention to the status of the rear seat belts before they turn the engine on and still perform visual checks.

Table 10-1
Reliance on the Alerts
By Demographic Characteristics

	Unweighted N[1]	All Trips	Most Trips	Some Trips	A Few Trips	None	Not Relevant, Passengers always wear seat belt
Gender							
Male	1,002	49%	48%	43%	61%	45%	38%
Female	1,046	51%	52%	57%	39%	55%	62%
Total	2,048	100%	100%	100%	100%	100%	100%
Age							
18-24	16	1%	2%	0%	3%	1%	0%
25-34	38	2%	3%	0%	0%	2%	0%
35-44	250	9%	21%	15%	21%	11%	9%
45-54	596	27%	31%	34%	27%	37%	24%
55-64	554	30%	17%	23%	21%	25%	26%
65+	562	29%	26%	28%	27%	23%	39%
Total	2,016	98%	100%	100%	99%	99%	98%
Race[3]							
American Indian or Alaska Native	18	1%	<1%	0%	1%	1%	0%
Asian	34	1%	1%	0%	2%	3%	1%
Black or African American	90	7%	8%	1%	1%	4%	4%
Native Hawaiian or Other Pacific Islander	6	<1%	0%	0%	0%	1%	1%
White	1,812	86%	88%	98%	95%	92%	87%
Total	1,960	95%	97%	99%	99%	101%	93%
Ethnicity							
Hispanic	63	4%	2%	0%	3%	3%	1%
Non-Hispanic	1,942	95%	97%	100%	97%	96%	95%
Total	2,005	99%	99%	100%	100%	100%	96%

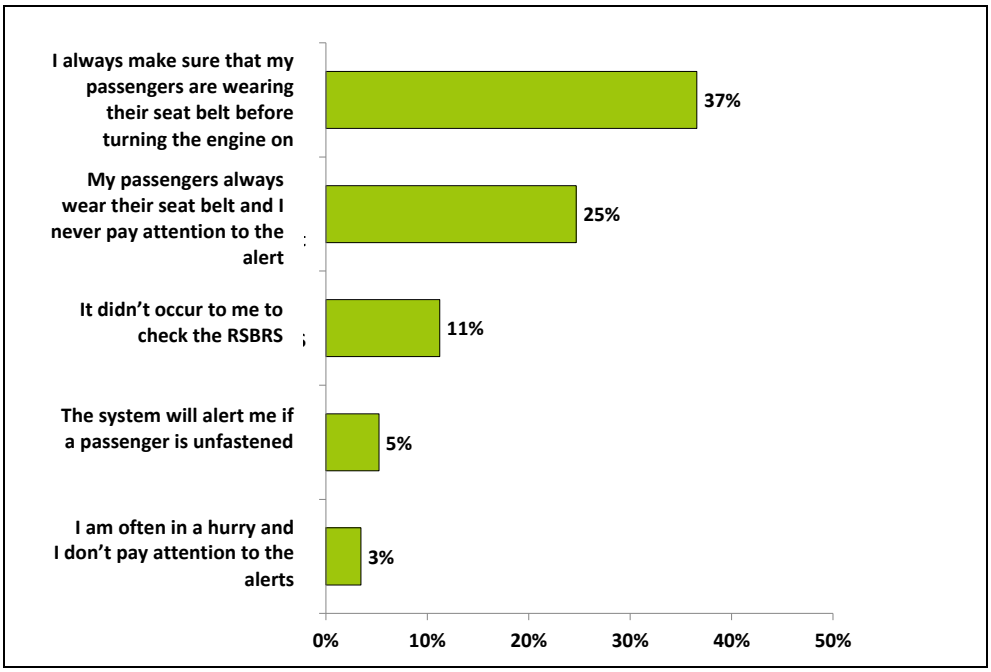
[1] Some Ns may not add to 2,048 due to Don't Know or Refused responses
[2] Some totals may not add to 100% due to Don't Know/Refused responses or may exceed 100% due to rounding
[3] For Multiple Response questions, respondents were allowed to select more than one category; hence, the percentages may add to more than 100%
[4] Respondents reported voluntarily being disabled when asked about employment

Table 10-1 (Continued)
Reliance on the Alerts
By Demographic Characteristics

	Unweighted N[1]	All Trips	Most Trips	Some Trips	A Few Trips	None	Not Relevant, Passengers always wear seat belt
Education							
Less than High School	11	1%	0%	0%	0%	<1%	0%
High School Diploma	316	21%	16%	9%	15%	16%	25%
Associates Degree	126	7%	11%	13%	3%	6%	6%
Bachelors Degree	742	36%	36%	45%	42%	40%	34%
Graduate Degree	836	35%	36%	34%	39%	37%	35%
Total	2,031	100%	99%	101%	99%	99%	100%
Income							
Less than $15,000	7	1%	0%	0%	0%	<1%	0%
$15,000 - $29,999	22	2%	0%	0%	0%	0%	2%
$30,000 - $49,999	65	5%	6%	2%	3%	3%	2%
$50,000 - $74,999	151	10%	12%	11%	3%	7%	9%
$75,000 - $99,999	204	11%	16%	9%	9%	13%	9%
$100,000 or more	1,159	52%	50%	64%	55%	55%	47%
Total	1,608	81%	84%	86%	70%	78%	69%
Marital Status							
Married	1,768	86%	83%	81%	85%	88%	85%
Divorced	56	3%	3%	2%	3%	2%	3%
Separated	5	<1%	0%	0%	0%	<1%	0%
Widowed	104	7%	5%	17%	6%	4%	6%
Single	89	3%	7%	0%	6%	5%	6%
Total	2,022	99%	98%	100%	100%	99%	100%
Children under 18 in Household							
Yes	788	35%	49%	43%	42%	36%	30%
No	1,239	64%	51%	57%	58%	64%	68%
Total	2,027	99%	100%	100%	100%	100%	98%
Employment[3]							
Employed Full Time	1,142	53%	60%	48%	61%	56%	47%
Employed Part-Time	205	8%	4%	15%	11%	12%	12%
Unemployed and looking for work	17	1%	2%	4%	1%	1%	1%
Retired	559	32%	28%	27%	23%	25%	33%
Going to School	12	1%	4%	0%	0%	0%	0%
Homemaker	86	4%	2%	6%	5%	5%	5%
Disabled[4]	6	<1%	0%	0%	0%	<1%	1%
Total	2,027	99%	100%	100%	101%	99%	101%

An additional question was asked to drivers who do not check the RSBRS on all trips to understand the reasons for not checking the system on their most recent trip with rear passengers. The two main reasons for not checking the RSBRS were "I always make sure that my passengers are wearing their seat belt before turning the engine on" (37%) and "never pay attention to the alerts as passengers always wear their seat belt" (25%).

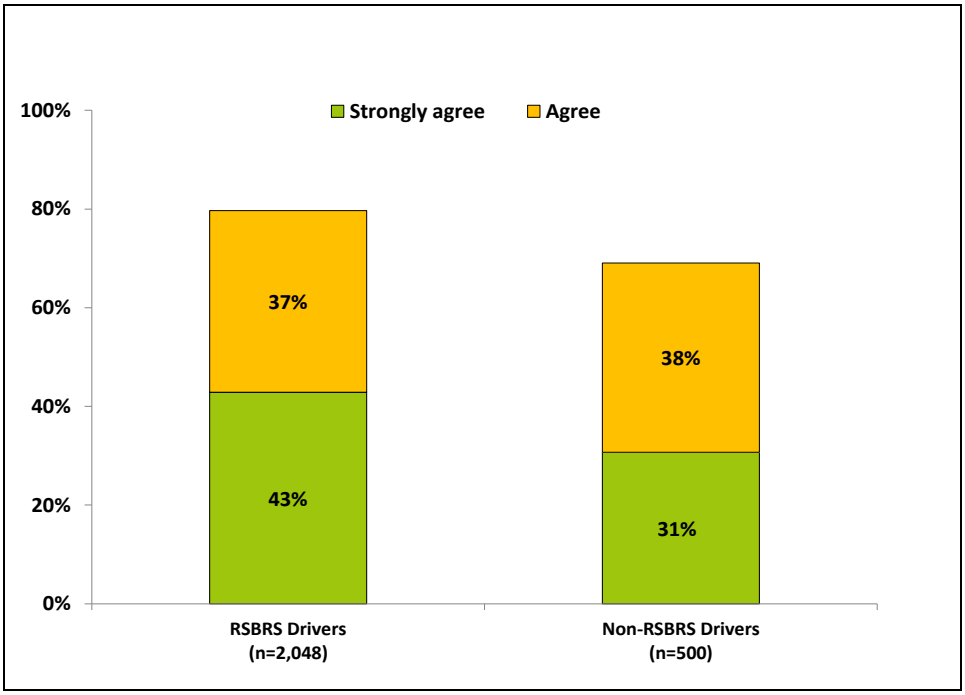
Figure 10-3: Reasons for not Checking the RSBRS on All Trips



Q11. During the last trip you transported rear passengers and you did not check the rear SBRS to know about the status of the rear seat belts, what were the reasons for this?
Base: Respondents who drive a vehicle WITH a RSBRS
Unweighted N=596

All respondents were asked whether they agree with a statement on their vehicle's overall SBRS (Front and rear SBRS) reliance. RSBRS drivers were more likely than non-RSBRS drivers to rely on the SBRS to let them know if a passenger is not wearing a seat belt. Eight in ten RSBRS drivers (80%) and 69% of non-RSBRS drivers agree or strongly agree that they rely on the SBRS to let them know if any passengers are not wearing their seat belt, which show that SBRSs are well incorporated in the respondents' driving routine (Figure 10-4).

Figure 10-4: Rely on SBRS to Find Out Status of Seat Belts

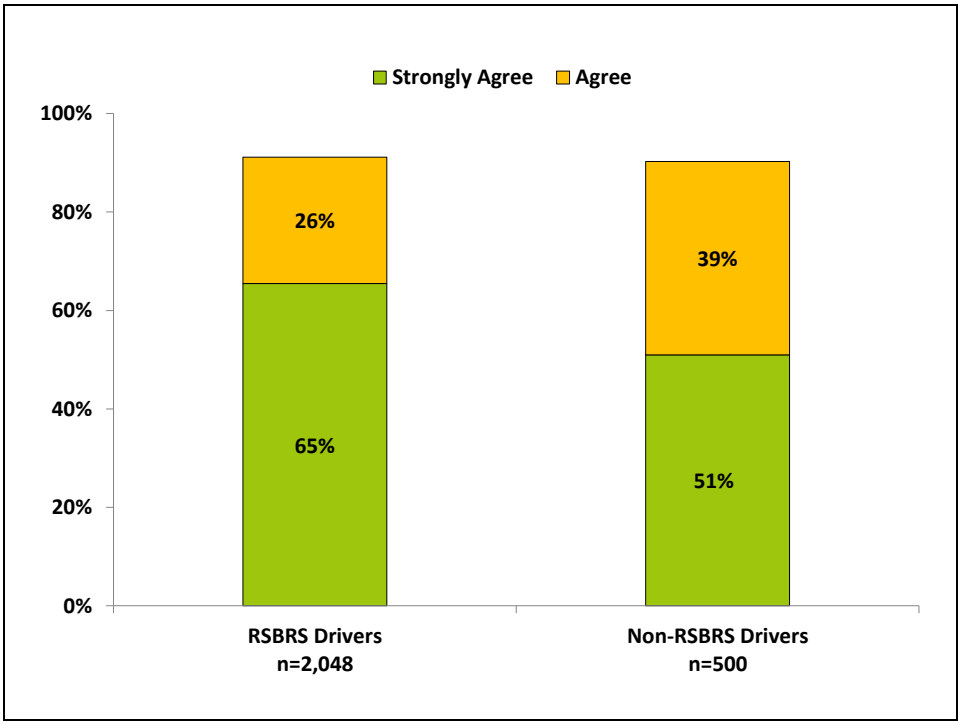


Q38/QNR16. Please tell me if you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with each of the following statements?
D – I rely on the SBRS to let me know if any of my passengers are not wearing their seat belt
Base: All respondents
Unweighted N= See Chart
($p<0.001$)

10.3 Aid in Encouraging Passengers to Buckle up

SBRSs motivate reluctant vehicle occupants to fasten their seat belts in order to avoid or stop signals from activating, which explain that almost all drivers think that SBRSs make it easier for them to encourage their passengers to fasten their seat belt. Overall, 91 percent of RSBRS drivers and 90 percent of non-RSBRS drivers at least agree with this statement (Figure 10-5).

Figure 10-5: SBRSs Make it Easier to Encourage Passengers to Buckle Up

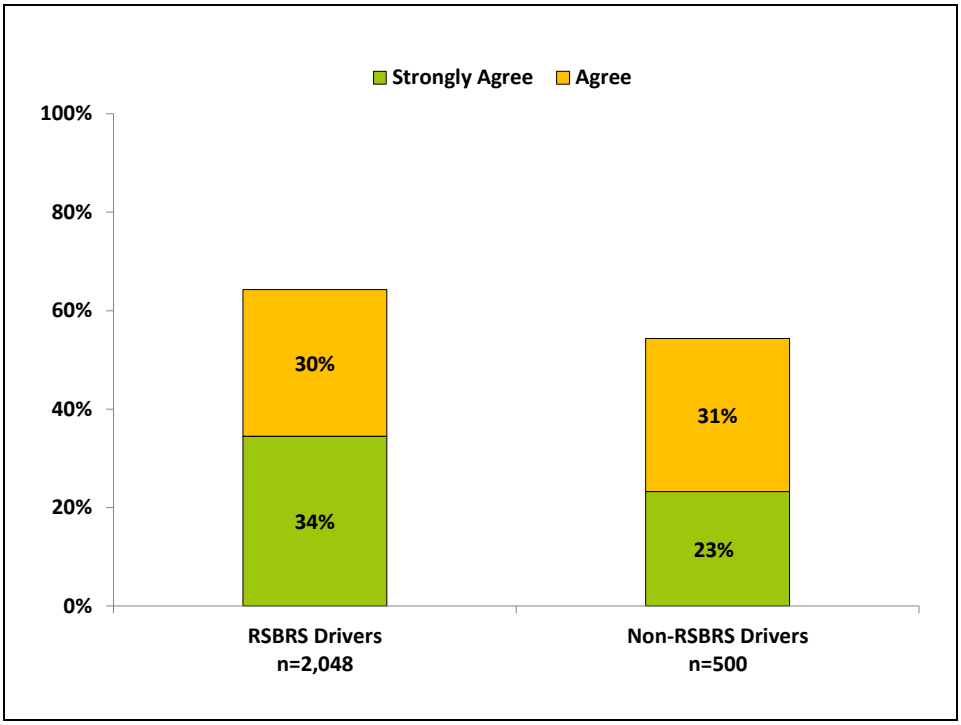


Q38/QNR16 . Please tell me if you strongly agree, agree, neither agree nor disagree, diagree or strongly disagree with each of the following statements:
C – The SBRS makes it easier for me to encourage my passengers to fasten their seat belt concentrate on the road with a rear SBRS in my vehicle
Base: All respondents
Unweighted N= See Chart
($p<0.001$)

10.4 Aid in Having a Better Concentration on the Road

RSBRS drivers are better able to concentrate on the road with a RSBRS in their vehicle (64%), and non-RSBRS drivers indicated that they would be (54%). Having children under the age of 18 had no effect on being able to concentrate on the road better with a RSBRS in the vehicle. The difference between the two groups of drivers can be attributed to the fact that non-RSBRS drivers have never experienced the rear system, and may not be able to accurately predict what their driving behavior would be like in a vehicle with a RSBRS.

Figure 10-6: Can Better Concentrate on the Road with a RSBRS in the Vehicle



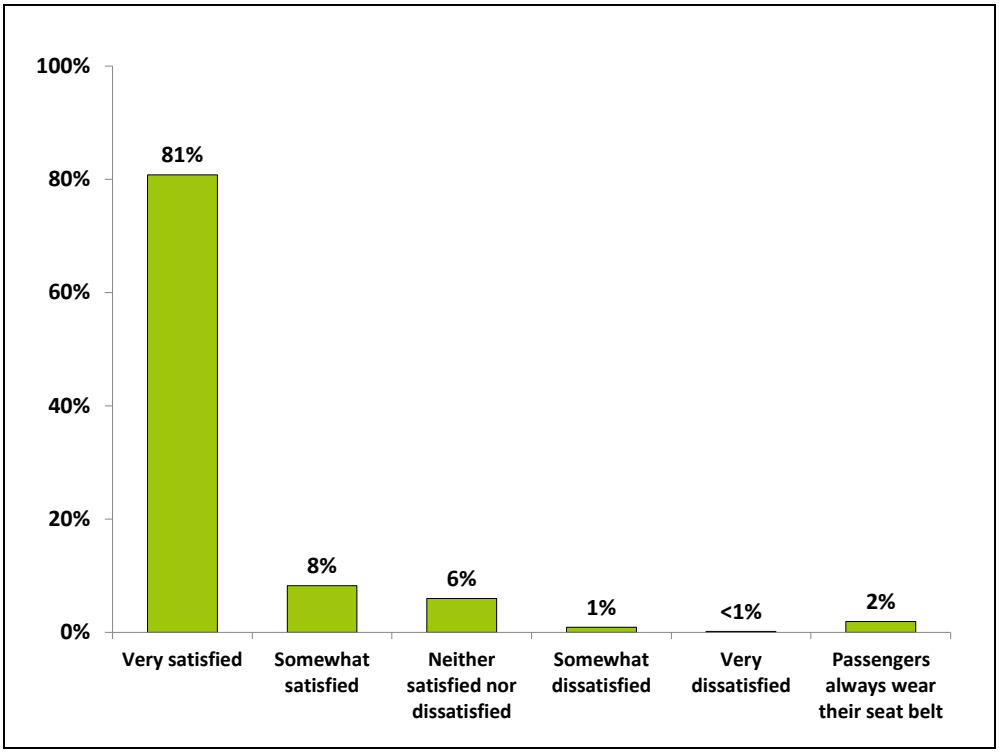
Q38/QNR16 . Please tell me if you strongly agree, agree, neither agree nor disagree, diagree or strongly disagree with each of the following statements:
E – I am able to better concentrate on the road with a RSBRS in my vehicle
Base: All respondents
Unweighted N= See Chart
($p<0.001$)

11. Satisfaction with Vehicle's SBRS

11.1 Satisfaction with RSBRS at the Beginning of a Trip

A RSBRS alerts the driver and/or other vehicle occupants when a rear seat belt is being used at the beginning of a trip, and provides an audio and visual reminder if one of the passengers has unfastened their seat belt during a trip. Nearly eight in ten drivers are very satisfied with their current RSBRS at the beginning of a trip (81%). A very small number of drivers voluntarily indicated that their passengers always wear their seat belt and, therefore, could not measure their satisfaction with the RSBRS. Percentage distributions for selected demographic groups are provided on the following pages.

Figure 11-1: Satisfaction with Rear SBRS at the Beginning of a Trip



Q15. How satisfied are you with your current rear SBRS in terms of how well it notifies you whether a rear seat belt is being used when you start a vehicle?
Base: Respondents who drive a vehicle WITH a RSBRS
Unweighted N=2,048

Table 11-1 shows the level of satisfaction with the RSBRS at the beginning of a trip by demographic characteristics. There was a statistically significant relationship between the level of satisfaction with the RSBRS and the age of the respondent ($p<0.02$). Of those who expressed a high level of satisfaction with the RSBRS, respondents aged 45 or more were the most likely to say that they were very satisfied with the RSBRS at the beginning of a trip (86%). Similarly, nearly two-thirds of female respondents (63%) reported that their passengers always wear a seat belt and could not gauge their level of satisfaction with the RSBRS, which may indicate that women tend to make sure that

Table 11-1
Satisfaction with Rear SBRS at the Beginning of a Trip
By Demographic Characteristics

	Unweighted N[1]	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Passengers Always Wear Their Seat Belt
Gender							
Male	1,002	47%	50%	48%	57%	50%	37%
Female	1,046	53%	50%	52%	43%	50%	63%
Total	2,048	100%	100%	100%	100%	100%	100%
Age							
18-24	16	1%	0%	4%	0%	0%	0%
25-34	38	2%	1%	1%	0%	0%	0%
35-44	250	10%	13%	16%	8%	0%	0%
45-54	596	29%	28%	34%	54%	50%	12%
55-64	554	28%	28%	24%	31%	0%	42%
65+	562	29%	29%	21%	8%	50%	42%
Total	2,016	99%	99%	100%	101%	100%	96%
Race[3]							
American Indian or Alaska Native	18	1%	0%	2%	0%	0%	1%
Asian	34	1%	2%	1%	11%	0%	0%
Black or African American	90	6%	5%	6%	3%	0%	0%
Native Hawaiian or Other Pacific Islander	6	<1%	<1%	0%	0%	0%	0%
White	1,812	88%	84%	92%	86%	100%	91%
Total	1,960	96%	91%	101%	100%	100%	92%
Ethnicity							
Hispanic	63	3%	3%	1%	0%	0%	0%
Non-Hispanic	1,942	95%	94%	98%	100%	100%	93%
Total	2,005	98%	97%	99%	100%	100%	93%

[1] Some Ns may not add to 2,048 due to Don't Know or Refused responses

[2] Some totals may not add to 100% due to Don't Know/Refused responses or may exceed 100% due to rounding
[3] For Multiple Response questions, respondents were allowed to select more than one category; hence, the percentages may add to more than 100%
[4] Respondents reported voluntarily being disabled when asked about employment

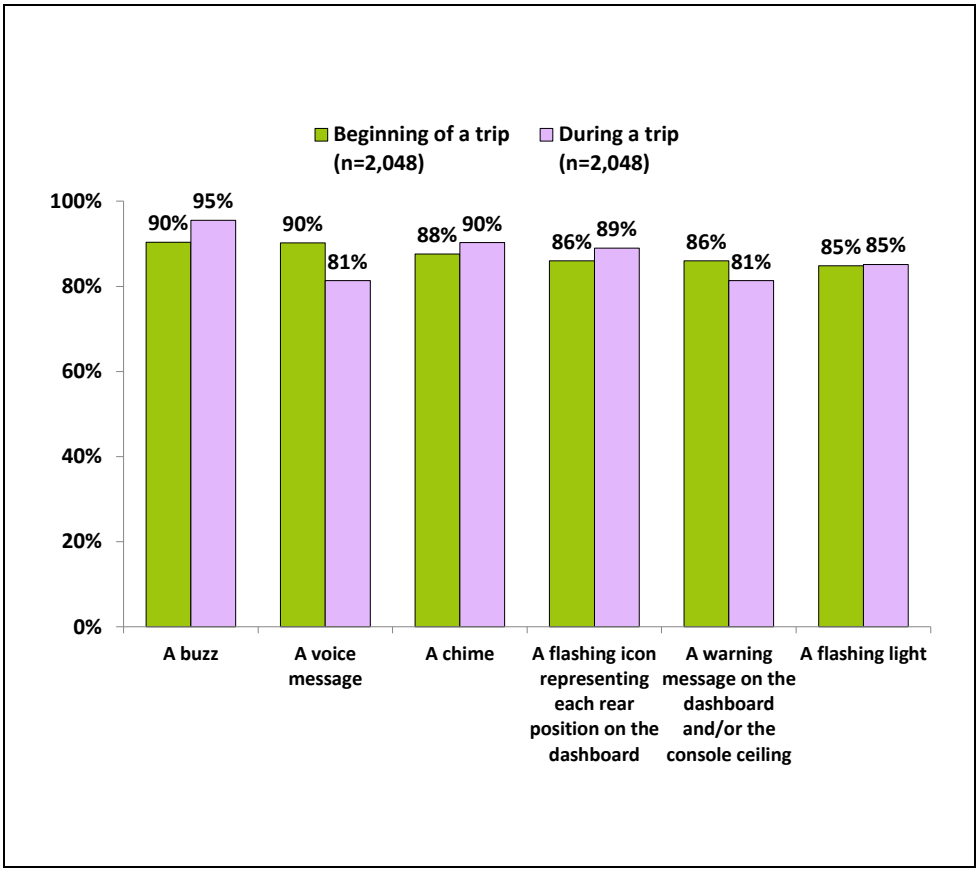
Table 11-1 (Continued)
Satisfaction with RSBRS at the Beginning of a Trip
By Demographic Characteristics

	Unweighted N[1]	Very Satisfied	Somewhat Satisfied	Neither Satisfied nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Passengers Always Wear Their Seat Belt
Education							
Less than High School	11	1%	0%	0%	0%	0%	0%
High School Diploma	316	20%	23%	15%	14%	0%	24%
Associates Degree	126	7%	9%	5%	0%	0%	0%
Bachelors Degree	742	37%	30%	41%	36%	50%	28%
Graduate Degree	836	35%	37%	38%	50%	50%	44%
Total	2,031	100%	100%	99%	100%	100%	96%
Income							
Less than $15,000	7	1%	0%	0%	0%	0%	0%
$15,000 - $29,999	22	1%	2%	0%	0%	0%	0%
$30,000 - $49,999	65	4%	3%	2%	0%	0%	0%
$50,000 - $74,999	151	10%	12%	8%	0%	0%	0%
$75,000 - $99,999	204	11%	15%	8%	0%	0%	8%
$100,000 or more	1,159	51%	50%	60%	77%	100%	54%
Total	1,608	78%	82%	78%	77%	100%	62%
Marital Status							
Married	1,768	85%	86%	84%	100%	100%	89%
Divorced	56	3%	4%	1%	0%	0%	0%
Separated	5	<1%	0%	1%	0%	0%	0%
Widowed	104	7%	4%	2%	0%	0%	7%
Single	89	4%	4%	8%	0%	0%	0%
Total	2,022	99%	98%	96%	100%	100%	96%
Children under 18 in Household							
Yes	788	36%	34%	44%	54%	50%	19%
No	1,239	63%	64%	55%	46%	50%	77%
Total	2,027	99%	98%	99%	100%	100%	96%
Employment[3]							
Employed Full Time	1,142	53%	54%	56%	81%	61%	46%
Employed Part-Time	205	10%	4%	11%	14%	0%	8%
Unemployed and looking for work	17	1%	2%	<1%	0%	0%	2%
Retired	559	31%	31%	27%	0%	18%	42%
Going to School	12	1%	1%	0%	0%	0%	0%
Homemaker	86	4%	4%	4%	4%	22%	2%
Disabled[4]	6	<1%	<1%	0%	0%	0%	0%
Total	2,027	100%	97%	99%	100%	100%	99%

11.2 Satisfaction with RSBRS by Alert Types

Figure 11-2 examines the type of RSBRS alerts that produce the highest level of satisfaction. Although, almost all RSBRS drivers reported being very satisfied with their current RSBRS at the beginning of a trip (81%) and during a trip (78%), those respondents who drive a vehicle equipped with a RSBRS that emits a buzz (90%) and/or a voice message (90%) were the most satisfied with their RSBRS at the beginning of a trip. When looking at alerts that generate the highest level of satisfaction during a trip, drivers of vehicles that emit a buzz (95%) and/or a chime (90%) were the most satisfied with their current RSBRS in terms of how well it notifies them when a rear passenger has unbuckled his/her seat belt during a trip. While audible alerts at the beginning of a trip are not necessarily solely part of the RSBRS but the overall SBRS, Figure 11-2 shows that audio alerts yield a slightly higher level of satisfaction with the RSBRS than visual alerts do.

Figure 11-2: Satisfaction with RSBRS at the Beginning of a Trip/During a Trip by Alert



Q14. How does the RSBRS in your <vehicle> alert you that a rear passenger is not wearing the seat belt before you begin a trip? Does it alert you with...

Q15. How satisfied are you with your current rear SBRS in terms of how well it notifies you whether a rear seat belt is being used when you start a vehicle?

Q21. How satisfied are you with your current rear SBRS in terms of how well it notifies you when a rear passenger has unbuckled his or her seat belt during a trip?

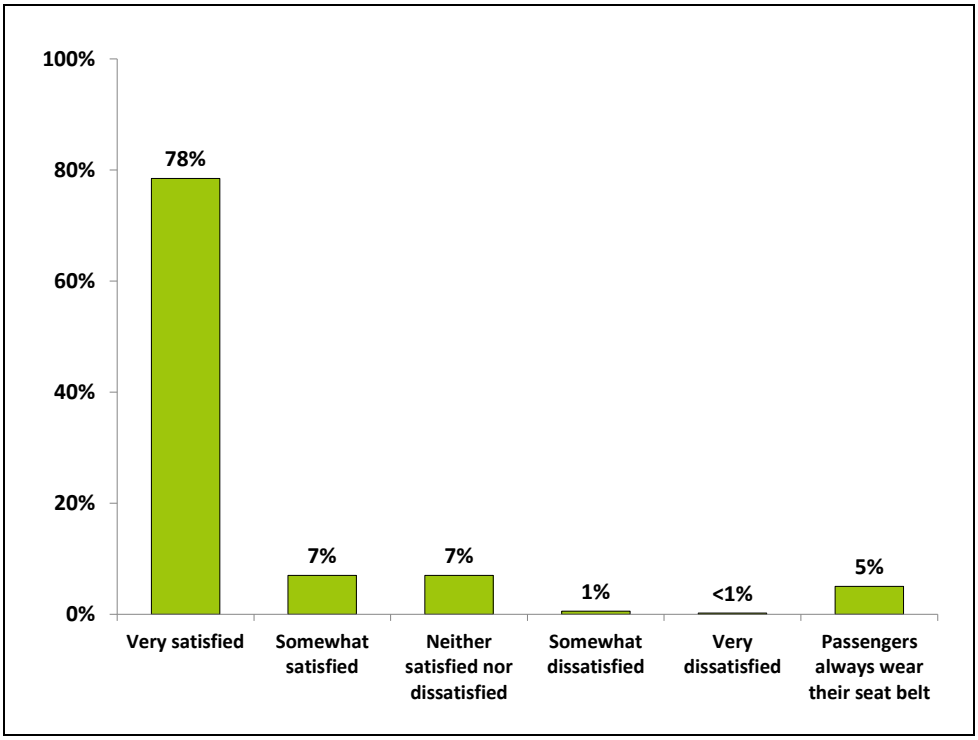
Base: Respondents who drive a vehicle WITH a RSBRS

Unweighted N= See Chart

11.3 Satisfaction with Change of Seat Belt Status Alert

The RSBRS emits an audible alert and displays a visual alert on the dashboard when a passenger has unbuckled his/her seat belt (See Chapter 7). The audio alert can be heard by everyone in the vehicle. Overall, RSBRS drivers were satisfied with the RSBRS in terms of how well it notifies them when a rear passenger has unbuckled his or her seat belt during a trip, with 78 percent reporting being very satisfied and 7 percent who are somewhat satisfied. Less than one in ten said they were neither satisfied nor dissatisfied (7%). Five percent could not rate their level of satisfaction with the system when there is a change of status because their passengers always wear their seat belt and keep it on during a trip.

Figure 11-3: Satisfaction with Change of Status



Q21. How satisfied are you with your current rear SBRS in terms of how well it notifies you when a rear passenger has unbuckled his or her seat belt during a trip?
Base: Respondents who drive a vehicle WITH a RSBRS
Unweighted N=2,048

11.4 Satisfaction with Overall SBRS

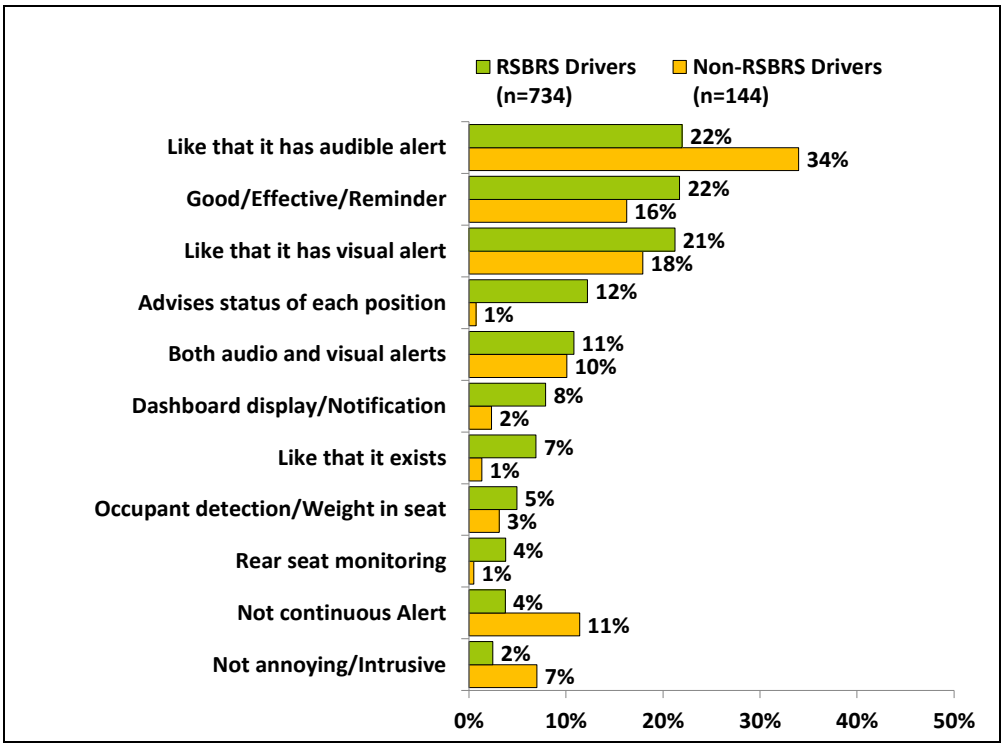
RSBRS and non-RSBRS drivers were asked questions about their satisfaction with the overall SBRS in their vehicle which includes the front and rear SBRS. Over one-third of RSBRS drivers (37%) said they liked specific features about their current SBRS. Less than one-third of non-RSBRS Drivers (28%) reported the same. Overall, RSBRS drivers were more satisfied with their current SBRS than were non-RSBRS drivers. RSBRS drivers reported a high rate of satisfaction with the RSBRS at the beginning of a trip and during a trip, which may explain the reason why fewer non-RSBRS liked specific features with their current SBRS.

All drivers were asked an open-ended question, which gave respondents an opportunity to express their thoughts on their current SBRSs. The three most commonly cited opinions among RSBRS

drivers were "I like that it has an audible alert" (22%), "effective/good reminder" (22%), and "I like that it has a visual alert" (21%). Non-RSBRS drivers liked "that it has an audible alert" (34%), and "a visual alert" (18%) as well. A sizable number of RSBRS drivers also mentioned RSBRS attributes such as "advises status of each position" (12%) (Figure 11-4).

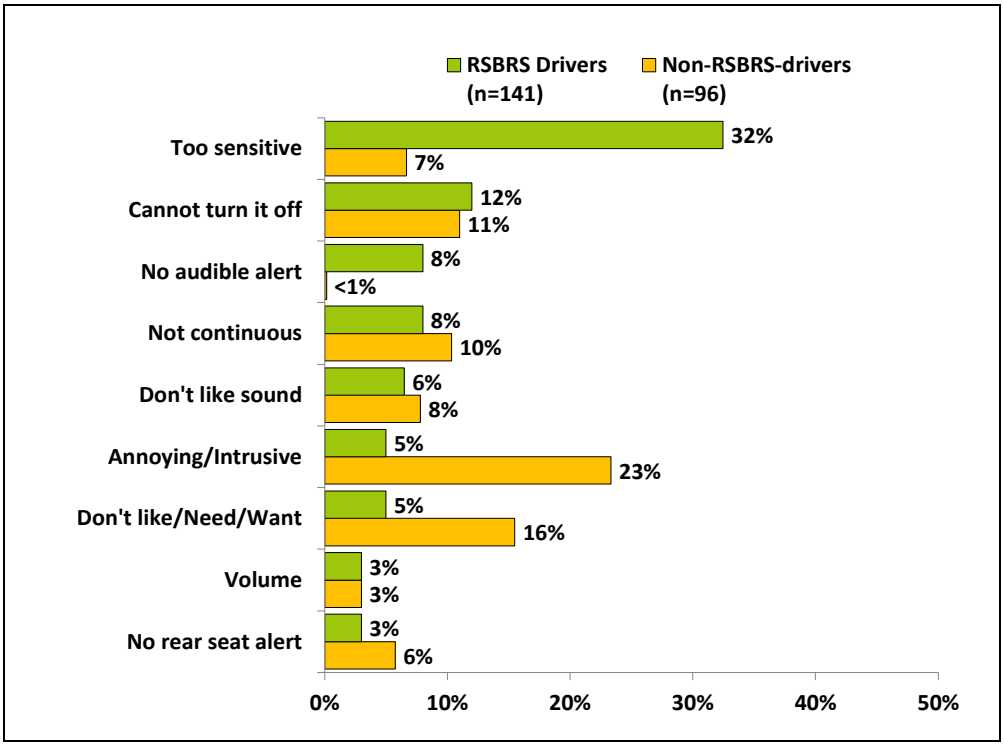
Almost three times as many non-RSBRS drivers (20%) said they disliked a particular feature of their SBRS compared to RSBRS drivers (7%). One-third of RSBRS drivers (32%) disliked the sensitivity of the front occupant detection of their current SBRSs. They also mentioned not being able to turn it off (12%). Among non-RSBRS drivers, the most frequent answer was their current SBRS is "annoying/intrusive" (23%) (Figure 11-5). They also said that they do not need/want a SBRS in their vehicle (16%). Although respondents indicated that they disliked certain features of their current SBRSs, 97 percent wear their seat belt 91-100% of the time.

Figure 11-4: Top 11 Features Drivers Like About Their Current SBRS



Q39a/QNR17b. What are they?
Base: Respondents who like particular features about their current SBRS
Unweighted N=See Chart
($p<0.001$)

Figure 11-5: Top 9 Features Drivers Dislike About Their Current SBRS



Q40a/QNR18b. What are they?
Base: Respondents who dislike particular features about their current SBRS
Unweighted N=See Chart
($p<0.001$)

12. Acceptability of RSBRS

12.1 Background

In the early 1970s, NHTSA required new passenger vehicles to be equipped with new technological approaches to increase seat belt use (e.g., seat belt interlock, seat belt reminder system). However, because of complaints from the public, NHTSA was subsequently prohibited from issuing a safety standard that would require either an interlock system or a continuous buzzer-light of more than eight seconds to indicate that seat belts are not in use. Since 1975, FMVSS No. 208 requires new vehicles to be equipped with a driver seat belt warning system that activates, under circumstances when the driver's seat belt is not buckled, a continuous or intermittent audible signal for a period of not less than 4 seconds and not more than 8 seconds. It must also have, depending on which option of FMVSS No. 208, S7.3 the manufacturers chooses to comply with, a warning light for not less than 60 seconds after the ignition switch is turned on or not less than 4 seconds and not more than 8 seconds after the ignition switch is turned on.

Acceptability of SBRS is often linked to annoyance – the more annoying the alerts are; the less acceptable it is to have a reminder system in the vehicle and vice versa. However, an annoying alert is likely to be more effective in getting vehicle occupants to wear a seat belt. The objectives of current research undertaken by NHTSA are to determine which alerts, alert presentation methods, and systems would be most likely to get front and rear passengers to buckle up and would be acceptable to have in a vehicle. Preliminary research is crucial to avoid the 1970s experience with the ignition interlock and intrusive seat belt reminder systems, which were not well received by the public.

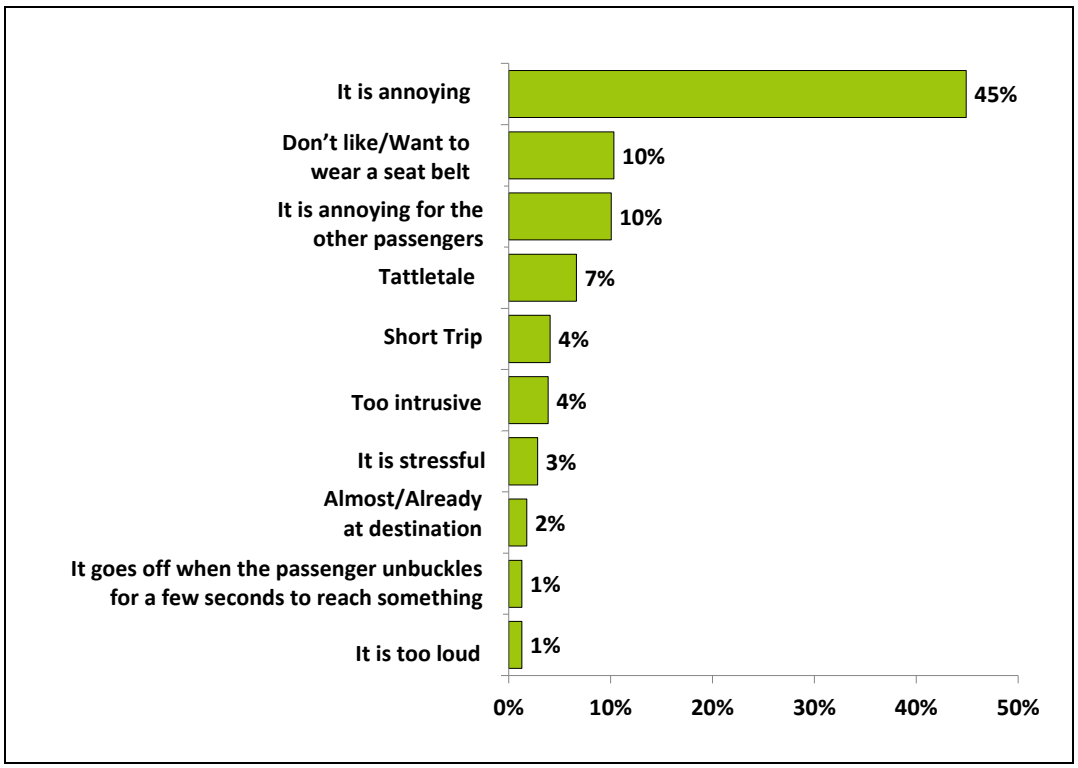
12.2 Acceptability

In an attempt to gauge the acceptabililty of RSBRS, RSBRS drivers were asked whether they had ever tried to take action to disable the RSBRS. Less than 1% of drivers have tried to disable the rear SBRS, which is not surprising since most respondents were satisfied with their RSBRS at the beginning of a trip (81%) and during a trip (78%).

Overall, RSBRS passengers' attitudes towards the RSBRS are generally positive. The vast majority of RSBRS drivers (94%) indicated that they have not heard any complaints from their passengers since they started driving a vehicle equipped with a RSBRS.

Drivers who had heard complaints from their passengers (5%) were questioned about the types of complaints they had received (Figure 12-1). The most common complaint was "it's annoying" (45%), followed by "don't like/want to wear seat belt" (10%), and "it's annoying for the other passengers in the vehicle" (10%). Annoyance from passengers is understandable as the system is designed to provide some levels of displeasure to get people to fasten their seat belt and to change their behavior.

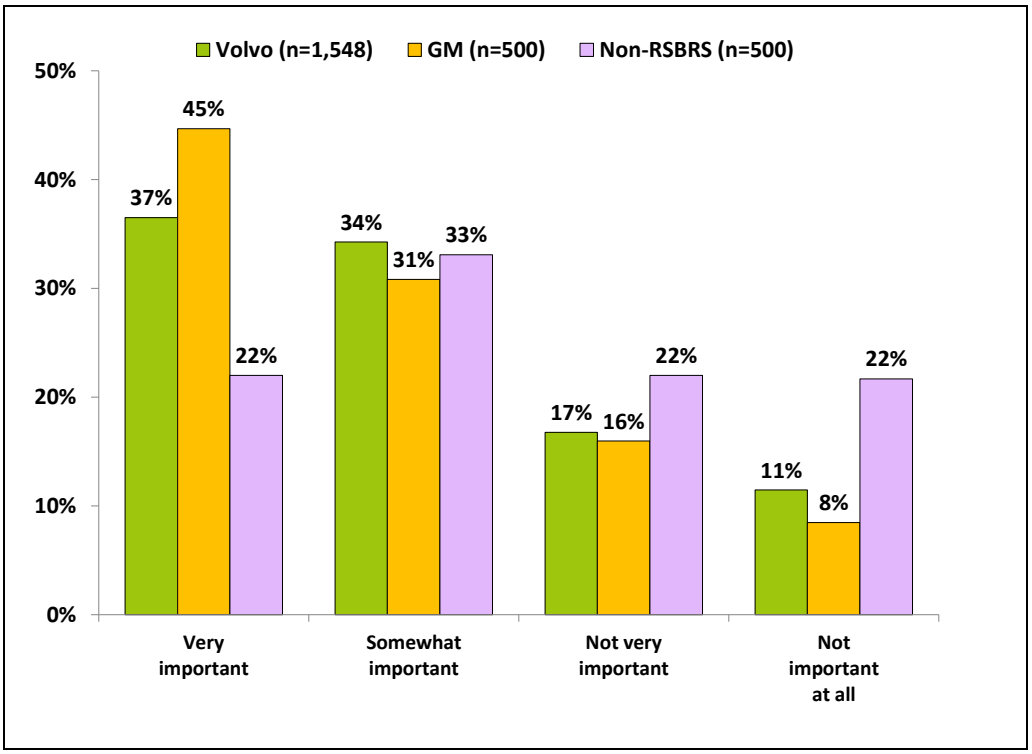
Figure 12-1: Complaints Driver Has Heard From Passengers



Q36. What are they?
Base: Respondents who have heard complaints from their passengers
Unweighted N=100

In addition, all drivers were asked how important it was to them that the next vehicle they purchase come with a RSBRS. This question aimed to measure the acceptability of having a RSBRS in the vehicle, and determine future drivers' interest in having a RSBRS. Figure 12-2 shows the results broken down by driver type and vehicle manufacturers, as GM and Volvo RSBRSs have slight differences. GM drivers (45%) were more likely to say that having a RSBRS in the next vehicle they purchase was very important than were Volvo drivers (37%). Overall, 71 percent of Volvo drivers and 76 percent of GM drivers said that it was at least somewhat important that their new vehicle come with a RSBRS. Non-RSBRS drivers were less likely to say that purchasing a vehicle equipped with a RSBRS was very (22%) or somewhat (33%) important.

Figure 12-2: Would Want a Rear SBRS in Next Vehicle



Q31/QNR10. When purchasing or leaving your next vehicle, how important is it that the vehicle you choose come with a rear SBRS?
Base: All respondents
Unweighted N=See Chart
($p<0.001$)

Table 12-1 shows the degree of importance of having a RSBRS in the next vehicle the respondent will purchase/lease by demographic characteristics. There was a relationship between the importance of having a RSBRS in the next vehicle and gender ($p<0.001$). Female respondents (62%) were more likely to say that having a RSBRS in their next vehicle is very important than were male respondents (38%). Surprisingly, having a child under the age of 18 in the household was not a factor in desiring these systems.

Table 12-1
Would Want a Rear SBRS in Next Vehicle
By Demographic Characteristics

	Unweighted N[1]	Very important	Somewhat important	Not very important	Not important at all
Gender					
Male	1,254	38%	46%	51%	44%
Female	1,294	62%	54%	49%	56%
Total	2,548	100%	100%	100%	100%
Age					
18-24	23	1%	1%	1%	1%
25-34	42	1%	2%	0%	1%
35-44	319	9%	11%	13%	8%
45-54	751	22%	25%	28%	32%
55-64	666	27%	25%	26%	32%
65+	703	38%	34%	29%	23%
Total	2,504	98%	98%	97%	97%
Race[3]					
American Indian or Alaska Native	25	1%	1%	1%	1%
Asian	55	4%	3%	2%	1%
Black or African American	105	9%	3%	2%	1%
Native Hawaiian or Other Pacific Islander	7	<1%	<1%	0%	<1%
White	2,251	81%	90%	88%	97%
Total	2,443	95%	97%	93%	100%
Ethnicity					
Hispanic	80	4%	3%	1%	1%
Non-Hispanic	2,410	94%	96%	92%	97%
Total	2,490	98%	99%	93%	98%

[1] Some Ns may not add to 2,548 due to Don't Know or Refused responses
[2] Some totals may not add to 100% due to Don't Know/Refused responses or may exceed 100% due to rounding
[3] For Multiple Response questions, respondents were allowed to select more than one category; hence, the percentages may add to more than 100%
[4] Respondents reported voluntarily being disabled when asked about employment

Table 12-1 (Continued)
Would Want a Rear SBRS in Next Vehicle
By Demographic Characteristics

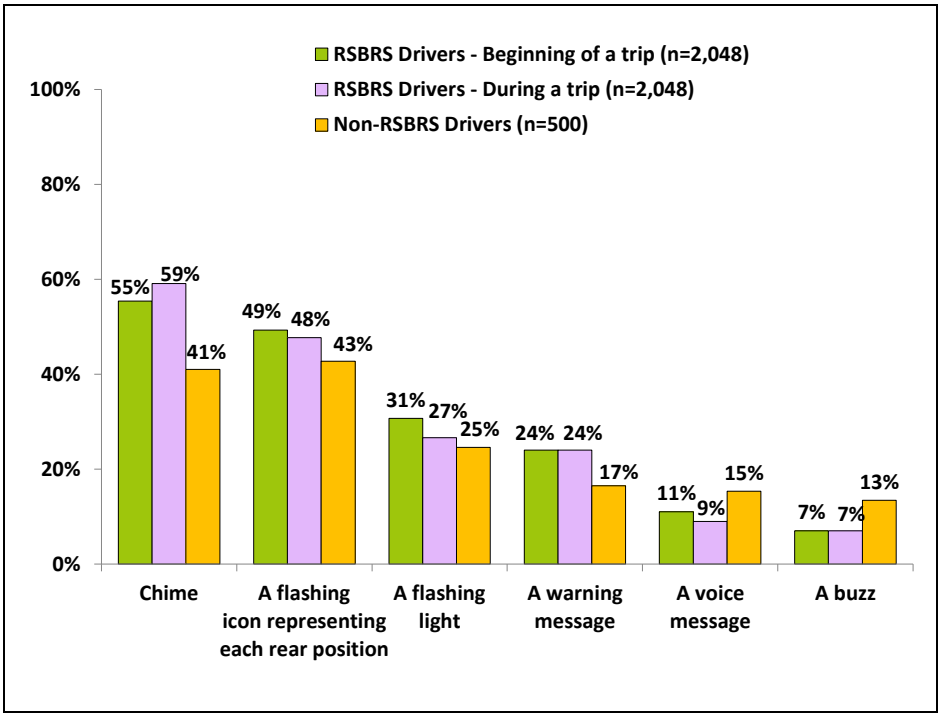
	Unweighted N[1]	Very important	Somewhat important	Not very important	Not important at all
Education					
Less than High School	13	1%	<1%	0%	<1%
High School Diploma	375	23%	15%	15%	16%
Associates Degree	151	6%	6%	5%	4%
Bachelors Degree	934	33%	39%	39%	43%
Graduate Degree	1,046	37%	38%	37%	36%
Total	2,519	100%	98%	96%	99%
Income					
Less than $15,000	9	<1%	1%	0%	<1%
$15,000 - $29,999	32	2%	1%	1%	0%
$30,000 - $49,999	88	9%	2%	2%	1%
$50,000 - $74,999	190	11%	10%	4%	4%
$75,000 - $99,999	254	12%	12%	8%	7%
$100,000 or more	1,433	45%	51%	55%	58%
Total	2,006	79%	77%	70%	70%
Marital Status					
Married	2,193	81%	87%	90%	92%
Divorced	72	3%	2%	3%	1%
Separated	7	<1%	0%	0%	0%
Widowed	125	11%	4%	3%	1%
Single	114	4%	5%	3%	6%
Total	2,511	99%	98%	99%	100%
Children under 18 in Household					
Yes	1,011	30%	36%	38%	32%
No	1,508	69%	63%	61%	68%
Total	2,519	99%	99%	99%	100%
Employment[3]					
Employed Full Time	1,398	45%	46%	54%	51%
Employed Part-Time	248	6%	10%	12%	14%
Unemployed and looking for work	23	1%	1%	1%	1%
Retired	698	41%	35%	26%	19%
Going to School	19	0%	1%	1%	0%
Homemaker	122	5%	7%	6%	11%
Disabled[4]	8	1%	<1%	0%	4%
Total	2,516	99%	99%	101%	100%

13. Preferred Rear SBRS Characteristics and Features

13.1 Preferred RSBRS Alert Characteristics

All respondents were asked which type of alert the driver would prefer in his/her vehicle to let them know about the status of the rear seat belts. This question was asked of drivers who own a vehicle equipped with a RSBRS and drivers who own a vehicle without RSBRS and who are unfamiliar with the system. Regardless of the type of system the respondents had in their vehicles, a variety of alerts were presented and rated by each respondent. The majority of RSBRS drivers would prefer a chime to let them know about the status of the rear seat belts at the beginning of a trip (55%) and during a trip (59%). Only 41 percent of non-RSBRS drivers would prefer a chime as an indicator of the status of the rear seat belts. This pattern was also observed for "a flashing icon representing each rear position," "a flashing light," and a "warning message," although the gap between the two groups was smaller.

Figure 13-1: Preferred Indicators and Options



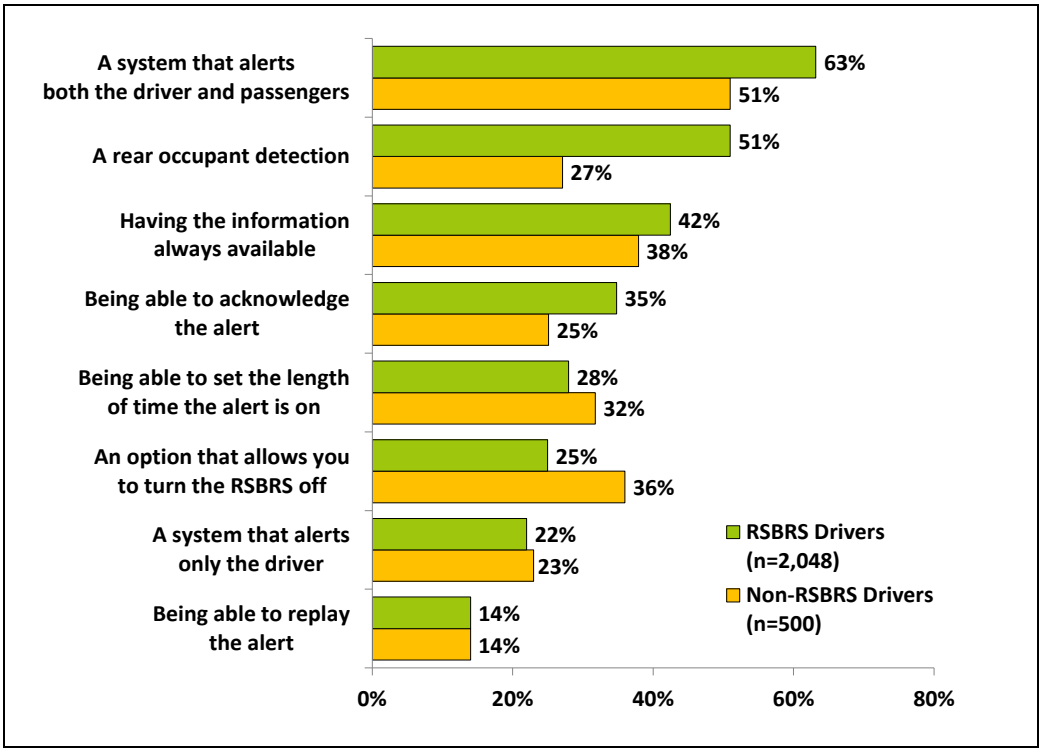
Q17. Which of these indicators would you prefer in your vehicle to let you know about the status of the rear seat belts when you start your vehicle?
Q23. Which of these indicators would you prefer in your vehicle to let you know that a rear passenger has unbuckled his or her seat belt?
QNR1. Which of these alerts would you prefer in your vehicle to let you know that the rear passenger is not wearing his or her seat belt?
Base: All respondents
Unweighted N=See Chart

All drivers were asked what options and features they would like the RSBRS in their vehicle to have. A majority of RSBRS drivers (63%) and non-RSBRS drivers (51%) would like to have "a system that alerts both the driver and passengers" in their vehicle. Fifty-one percent of RSBRS drivers also said that they would like to have rear seat occupant detection to inform them of the status of the rear seat belts in occupied seats. A RSBRS that employs seat occupant detection can sense the presence of an occupant in the seat and thus rather than just providing a visual signal that indicates how many or which seat belt is buckled, it can provide seat belt status of occupied seats and emit an audiovisual signal until the occupied rear seats have fastened seat belts.

Current Volvo and GM RSBRSs do not employ rear seat occupant detection. The current detection method is based on a seat belt buckle sensor. If a rear passenger never fastens his/her seat belt when they get into the vehicle, the RSBRS will not provide any signals at the beginning of a trip, nor will it indicate any change of status throughout the trip. Among the non-RSBRS drivers, occupant detection was only desired by 27% of the drivers, for these drivers "having the information always available" (38%) and "having the option to turn the RSBRS off" (36%) was more desired.

The difference between RSBRS drivers and non-RSBRS drivers can be attributed to the fact that RSBSR drivers have experienced the RSBRS, and as a result, are choosing options that would improve the system and increase their level of satisfaction. Non-RSBS drivers, on the other hand, have never experienced the RSBRS and have limited knowledge of how the RSBRS works.

Figure 13-2: Desired Options/Features

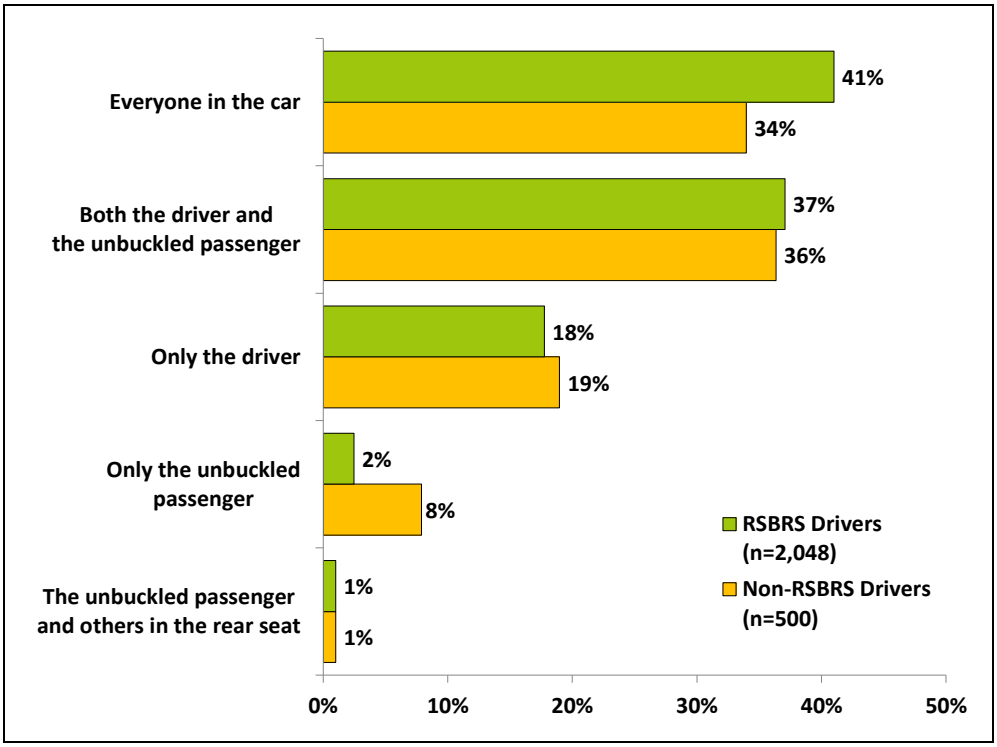


Q32/QNR8. Which of the following features or options would you like to have available on the rear SBRS in your vehicle?
Base: All respondents
Unweighted N=See Chart
($p<0.001$)

13.2 Preferred Target Audience

When drivers were asked who should receive the SBRS alerts two out of five (41%) of RSBRS drivers said that the RSBRS should alert everyone in the vehicle whereas a third (34%) of non-RSBRS said so. Current RSBRSs only provide an audible alert that alerts everyone in the vehicle when there is a change of seat belt status. Over one third of RSBRS drivers (37%) and non-RSBRS drivers (36%) would prefer a RSBRS that alerts only the driver and the unbuckled passenger to avoid annoyance to other vehicle occupants. Eight percent of non-RSBRS drivers would prefer a RSBRS that only informs the unbuckled passenger. Targeted alerts would limit the type of alert to visual alerts since audible alerts would not target particular passengers and would alert everyone in the vehicle.

Figure 13-3: Preferred Audience

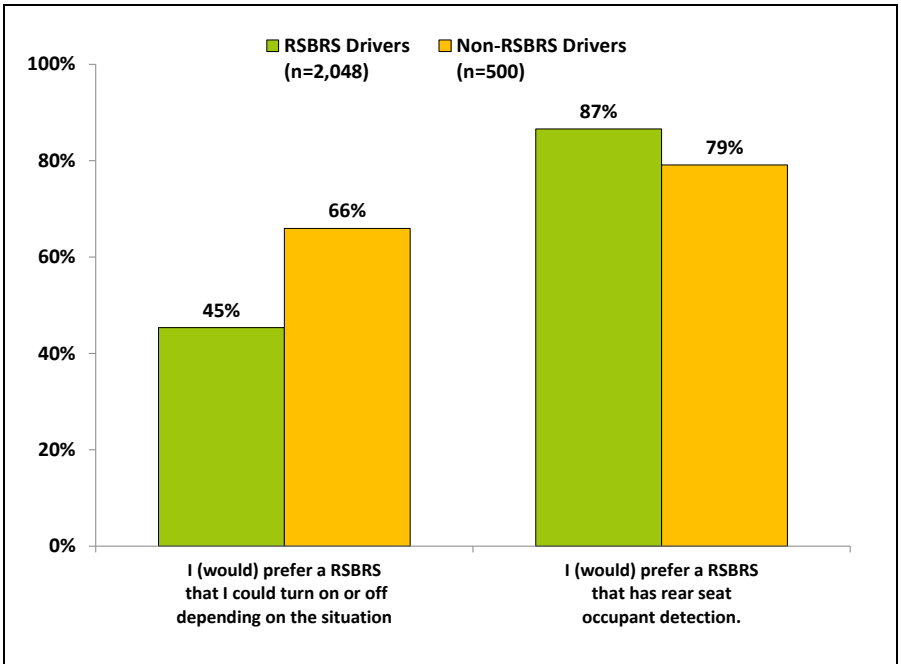


Q37. Who would you prefer the rear SBRS to alert?
QNR3. Who should the rear SBRS to alert?
Base: All respondents
Unweighted N=See Chart
($p<0.001$)

13.3 Preferred RSBRS Features

All respondents were asked to indicate whether they agree with several statements relating to preferred RSBRS features. Figure 13-4 illustrates two of those statements. Over six in ten of non-RSBRS drivers would prefer a RSBRS that could be turned on or off depending on the situation whereas less than half of RSBRS drivers said they prefer this feature. Like the previous figure on desired options and features, the large difference is because non-RSBRS drivers have never experienced the RSBRS, and therefore, may see it as a more intrusive system than it actually is. Another result of interest is that a vast majority of drivers across both groups reported they (would) prefer to have rear seat occupant detection. Like a front SBRS, a RSBRS with occupant detection could emit warnings that would not stop until the rear passenger fastens his/her seat belt. This may aid in getting rear passengers to wear their seat belt as soon as they get in the vehicle. Currently, if a rear passenger does not fasten a seat belt at the beginning of a trip, the RSBRS will not provide information on rear seat belt status during a trip, which explains that this feature is desired by the majority of the drivers (87%-79%).

Figure 13-4: Desired Options/Features



Q38/QNR16 . Please tell me if you strongly agree, agree, neither agree nor disagree, diagree or strongly disagree with each of the following statements:
F – I (would) prefer a rear SBRS that I could turn on or off depending on the situation, for example I could turn it on if I am carrying passengers
G – I (would) prefer a rear SBRS that has a rear seat seat occupant detection
Base: All respondents
Unweighted N= See Chart
($p<0.001$)

14. Conclusion and Discussion

Individuals who participated in the 2015 Survey of Principal Drivers of Vehicles with a RSBRS are concerned about their safety and the safety of their passengers. Almost all respondents wear their seat belt when driving a vehicle (97%) and indicated that it is very important to them that all their passengers wear their seat belt as well (98%). Overall, RSBRS and non-RSBRS drivers both see benefits of having a RSBRS in their vehicle.

RSBRS drivers are very satisfied with their current RSBRS (80%), and have noticed that their rear passengers wear their seat belt more often (26%). In addition, over three-quarters of RSBRS drivers (77%) reported that the alerts emitted when there is a change of seat belt status led the passenger to refasten his/her seat belt during a trip.

The utility and acceptability of such a system were important aspects of the study as well. Almost all respondents (94%) indicated that they have never heard complaints from their passengers since they started driving a vehicle equipped with a RSBRS. In addition, the perceived utility of having a RSBRS in the vehicle was high. Nearly three quarters of RSBRS drivers indicated that it was at least somewhat important that the next vehicle they purchase come with a RSBRS (73%). A majority of RSBRS drivers also indicated that they check the RSBRS signals on all trips (61%). Overall, RSBRS drivers seem to support the introduction of the RSBRS, and have come to rely on the system.

The non-RSBRS drivers' attitudes towards the RSBRS are generally positive as well. Almost all respondents who have never experienced driving a vehicle equipped with a RSBRS believe in the potential of RSBRS in increasing seat belt use when a rear passenger has forgotten to buckle up (85%), driving short distances (72%), being in a hurry (68%), or making frequent stops (59%). The majority of them (55%) indicated that it was important to them that their next vehicle be equipped with a RSBRS, which shows a potential interest in having a system that monitors the status of the rear seat belts among drivers who have never experienced a RSBRS.

The study also aimed to determine the type of alerts that would be the most effective in getting a rear passenger to buckle up, as well as the most acceptable type of alerts to have in a vehicle in order to increase rear seat belt use without being rejected by the public. Auditory alerts were perceived as more effective than visual alerts. Ultimately, the study findings suggest that a rear seat occupant detection system and audible and visual alerts that can be seen by more than just the driver may contribute to designing highly effective and acceptable RSBRSs.

Limitations

- The demographic characteristics of the survey respondents are very homogenous and highly correlate with the demographics of those with expected high seat belt usage; over eight-in-ten respondents are white, married, and have at least a bachelor degree, and a majority of them come from a household earning more than $100,000 a year. Therefore, it can be inferred that the study surveyed individuals who are very safety-conscious and thus would be amenable to a safety system such as SBRSs. The penetration of vehicles with RSBRSs in the U.S. fleet is so low that it is difficult to obtain results that accurately reflect the general U.S. population and difficult to evaluate the positive and negative aspects of RSBRSs.
- Because of state restrictions, which prevent the release of registration data for survey purposes without permission from the vehicle manufacturer, Volvo drivers (both RSBRS and non-RSBRS drivers) were the only nationally representative sample in the survey population. The conclusions of this report will not translate to the entire GM RSBRS population since data collection could only occur in the 36 states that do not require permission from General Motors to release registration information.
- Answers on effectiveness in getting rear passengers to buckle-up from non-RSBRS drivers may be less accurate as respondents cannot be expected to reliably predict the behavior of other vehicle occupants.
- The purpose of the survey was to determine which alert characteristics and features would be the most likely to get rear passengers to fasten their seat belt and the most acceptable to have in the vehicle. However, effectiveness and acceptability can be at odds with one another in designing an optimal rear reminder system; a reminder system seen as highly effective, will generally also be judged as highly attention-getting and annoying and hence not be widely accepted.

RSBRS Design Considerations

The findings of this study were used to generate a set of considerations for the design of an RSBRS. These are not intended to be system recommendations since the results of the study do not accurately reflect the opinions of the general U.S. population and costs and implementation issues have yet to be evaluated for RSBRSs. Furthermore, additional research should be undertaken to further examine the contributions and characteristics of RSBRS attributes to improve seat belt use; however, given the limited penetration of vehicles with RSBRSs in the U.S. fleet further research would probably be unlikely to yield a more nationally representative sample.

Type of Signals

Visual Alerts. "A flashing icon representing each rear position" and/or "a flashing light" were visual alerts that were the most commonly cited as the preferred visual alerts by both RSBRS and non-RSBRS drivers. Flashing alerts are more attention-getting and motivating than steady ones. The center console/ceiling/infotainment screen, due to its size and location, can be an effective place to present seat belt information to rear seat occupants.

Audible Alerts. The RSBRS informs the driver of the status of the rear seat belts by displaying a message or flashing an icon at the beginning of a trip. Visual alerts are needed but are not necessarily the most effective signal at the beginning of a trip. Currently, RSBRSs do not have seat occupant detection and only emit auditory alerts when a rear passenger unfastens his/her seat belt when the vehicle is in motion. A majority of RSBRS drivers would prefer a chime to let them know about the status of the rear seat belts at the beginning of a trip (55%). Moreover, based on the results presented in figure 6-2, auditory alerts are perceived as the most effective alerts in getting rear passengers to buckle up by non-RSBRS drivers (30%). Auditory alerts can be heard by everyone in the vehicle, and any vehicle occupant can intervene to encourage the unbuckled passenger to refasten his/her seat belt if they have not done so voluntarily. In order for the RSBRS to emit audible alerts to encourage rear passengers to wear a seat belt at the beginning of a trip, the rear seat will require a rear seat occupant detection system that would ensure that an audible alert is only activated when a rear passenger is present. The audible alerts for seat belt reminders (front and rear) should also be distinguishable from any other in-vehicle alerts so it should have a unique sound.

Target Audience

The respondents said that they would prefer a RSBRS that alerts the unbuckled passenger at the beginning of a trip. Visual alerts should ideally also be located on the console ceiling so that they can be seen by everyone and not just the driver. A change in seat belt buckle status should also activate an audiovisual alert that is visible to all vehicle occupants so that they can encourage the unbelted passenger to refasten his/her seat belt.

Features

A RSBRS with occupant detection capabilities was desired by the vast majority of respondents. The current detection method is based on a seat belt buckle sensor. In the current RSBRS, the drivers are alerted of seat belt use rather than non-use, hence, if a rear passenger never fastens his/her seat belt when they get into the vehicle, the rear system will not indicate any seat belt status information or change of seat belt status throughout the trip. Occupant detection can allow for alerts that are more informative and the ability to implement audible alerts at the beginning of a trip.

APPENDIX A: Questionnaire

2015 Survey of Principal Drivers of Vehicles with a Rear Belt Reminder System
Questionnaire

CELL SAMPLE

SC1. Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study about seat belt safety.

Are you currently driving?

1 Yes	**SKIP TO SCR2**
2 No	
9 Refused	**SKIP TO SCR2**

SC2. Are you in a safe place to talk right now?

1 Yes	
2 No, call me later	**SKIP TO SCR2**
3 No, CB on land-line	**RECORD NUMBER**
4 Cell phone for business only	**THANK AND END - BUSINESS#**
9 Refused	**SKIP TO SCR2**

LANDLINE AND CELL SAMPLE

SI1. [**CELL SAMPLE:** As I mentioned,] I am _____ calling on behalf of the U.S. Department of Transportation and we are conducting a national study about driver's attitudes towards the use of seat belts and opinions regarding Seat Belt Reminders in your vehicle.

This collection of information is voluntary and will be used for statistical purposes only. The interview will take approximately 15 minutes. Any answers you give are kept strictly private.

[If necessary read: Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2127-0696. If you would like to learn more about the survey, you can call our toll-free number at 1.866.898.5285 or visit the DOT website at www.nhtsa.gov/beltremindersurvey]

S1. May I please speak with <NAME>?

1 Respondent on the line	**SKIP TO S3a**
2 Respondent called to phone	
3 Respondent unavailable	**SCHEDULE CALLBACK**
4 Respondent not interested but person on the phone is	**SKIP TO S3a**
9 Refused	**THANK AND END**

SI2. Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study about driver's attitudes towards the use of seat belts and opinions regarding Seat Belt Reminders in your vehicle.

This collection of information is voluntary and will be used for statistical purposes only. The interview will take approximately 15 minutes. Any answers you give are kept strictly private.

[**IF NECESSARY READ:** Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2127-0696. If you would like to learn more about the survey, you can call our toll-free number at 1.866.898.5285 or visit the DOT website at www.nhtsa.gov/beltremindersurvey]

S2. First, may I confirm that your name is <NAME>?

1 Yes
2 No
8 (VOL) Don't Know
9 (VOL) Refused

S3a. Can you please confirm that you are a driver, 18 years of age or older?

1 Yes	
2 No	**SKIP TO SCR1**
8 (VOL) Don't Know	**SKIP TO SCR1**
9 (VOL) Refused	**SKIP TO SCR1**

IF S1=4, INSERT "someone in your household owns
IF S1<3, INSERT "you own"
S4a. Our records indicate that "insert" a <VEHICLE_FULL>. Is this correct?

1 Yes	
2 No, I have never owned it	**SKIP TO SCR1**
3 No, I no longer own it	**SKIP TO SCR1**
4 (VOL) I do not own a vehicle	**SKIP TO SCR1**
8 (VOL) Don't know	**SKIP TO SCR1**
9 (VOL) Refused	**SKIP TO SCR1**

IF S4a=1, QUAL=1

S5. Do you transport passengers in the rear seat of the <VEHICLE_FULL> at least once a month?

1 Yes **SKIP TO SA3**
2 No
8 (VOL) Don't know
9 (VOL) Refused

IF S5=1, QUAL=2

S6. Is there someone in your household who transports passengers in the rear seat of the <VEHICLE> at least once a month?

1 Yes
2 No **SKIP TO SCR1**
8 (VOL) Don't know **SKIP TO SCR1**
9 (VOL) Refused **SKIP TO SCR1**

IF S6=1, QUAL=3

S7. May I speak with that person please?

1 Respondent called to phone
2 Respondent unavailable **SCHEDULE CALLBACK**
9 Refused **THANK AND END**

SI3. Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study about driver's attitudes towards the use of seat belts and opinions regarding Seat Belt Reminders in your vehicle.

This collection of information is voluntary and will be used for statistical purposes only. The interview will take approximately 15 minutes. Any answers you give are kept strictly private.

[**IF NECESSARY READ:** Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2127-0696. If you would like to learn more about the survey, you can call our toll-free number at 1.866.898.5285 or visit the DOT website at www.nhtsa.gov/beltremindersurvey]

S3b. Can you please confirm that you are a driver, 18 years of age or older?

1 Yes
2 No **SKIP TO SCR1**
8 (VOL) Don't Know **SKIP TO SCR1**
9 (VOL) Refused **SKIP TO SCR1**

S5b. Can you please confirm that you transport passengers in the rear seat of the <VEHICLE> at least once a month?

1 Yes
2 No **SKIP TO SCR1**
8 (VOL) Don't know **SKIP TO SCR1**
9 (VOL) Refused **SKIP TO SCR1**

SA3. Record gender from observation (Ask only if necessary)

1 Male
2 Female

QUAL=4

S8. HOW OFTEN do you drive the <VEHICLE>? **READ LIST**.

1 Almost every day/everyday
2 Few days a week
3 Few days a month
4 Few days a year **SKIP TO SCR1**
5 Less than few days a year **SKIP TO SCR1**
6 Never **SKIP TO SCR1**
7 (VOL) Other (**SPECIFY**)
8 (VOL) Don't Know **SKIP TO SCR1**
9 (VOL) Refused **SKIP TO SCR1**

S9. When you drive the <VEHICLE>, how often do you transport passengers in the rear seat, **not including those who use a child safety seat**? Is it… **READ LIST.**

1 Almost every day/Everyday
2 A few days a week
3 Once a week
4 A few times a month
5 Once a month
6 Less than once a month **SKIP TO SCR1**
7 Never **SKIP TO SCR1**
8 (VOL) Don't know **SKIP TO SCR1**
9 (VOL) Refused **SKIP TO SCR1**

IF S9<6, QUAL=5

S10. Is your <VEHICLE> equipped with a reminder which <SPECS OF SPECIFIC VEHICLE> to inform you of the status of the rear seat belts?

1 Yes
2 No **SKIP TO SCR1**
8 (VOL) Don't know **SKIP TO SCR1**
9 (VOL) Refused **SKIP TO SCR1**

Seat Belt Usage Habits

Now, I'm going to ask you some questions about how often you use your seat belt as a driver. Please answer the following questions thinking ONLY about trips when you were driving the <VEHICLE>.

Q1. When you drive your <VEHICLE>, how often do you wear your seat belt? Please provide a percentage. Your best estimate is fine.

ENTER PERCENTAGE: _____ [RANGE 0-100]
998 – DON'T KNOW
999 = REFUSED

IF Q1 > 90, SKIP TO Q3.

Q2. Those times you don't wear your seat belt while driving the <VEHICLE>, what is the main reason that you don't wear your seat belt?
DO NOT READ. SINGLE RECORD.

1 Only driving short distances
2 Driving in light traffic
3 In a rush
4 Forget to put it on
5 Don't want my clothes to get wrinkled
6 Seat belt is uncomfortable
7 Probability of being in a crash is too low
8 People I am with are not wearing seat belts
9 Don't like being told what to do
10 Seat belt hurts <body part>
11 May cause injury/trap
12 Was in an accident where seat belt caused injury
13 Know someone injured/killed because of seat belt
14 Doesn't fit
15 Medically exempt
16 (VOL) Can't say one is most important/all important
17 (VOL) Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Demographics of Passengers

Now, I would like to know more about the FRONT and the REAR passengers that you transport in your vehicle once a month or more often. I'm also going to ask you some questions about their seat belt usage habits. Please answer the following questions thinking ONLY about trips when you were driving the <VEHICLE> and transporting at least one passenger in the rear seat.

Q3. During trips when there are passengers in the rear seat, how many total passengers, front and back seat combined, do you transport?

ENTER NUMBER: _____
RANGE: 1 to 7
7=7 or more
8 (VOL) Don't know **LOOP TWICE**
9 (VOL) Refused **SKIP TO Q9**

IF Q3<8, READ "Now, I am going to ask you about these passengers one at a time."
IF Q3=8, READ: "Now, I am going to ask you about passengers you transport in your vehicle."

CATI: LOOP QUESTIONS 4 THRU 8. # OF LOOP BASED ON ANSWER TO Q3

IF LOOP COUNT>1, DISPLAY "next"
Q4. What is the age of the (next) oldest passenger you transport on a regular basis?

ENTER AGE: _____
RANGE: 1 to 97
97=97 or older
98 (VOL) Don't know
99 (VOL) Refused

Q5. Please tell me which seat this passenger sits in most of the time in the <VEHICLE>?
SINGLE RECORD. READ LIST.
1 Front passenger seat
2 Rear seat behind driver
3 Rear seat behind passenger
4 Rear seat center
5 Third row behind driver
6 Third row behind passenger
7 Third row center
8 Other (**SPECIFY**)
98 (VOL) Don't Know
99 (VOL) Refused

Q6a. What is this passenger's relationship to you?
MULTIPLE RECORD. READ ONLY IF NECESSARY.

1 Your child
2 Your spouse
3 Your parent
4 Another member of your household
5 Adult relative
6 Child relative
7 Co-worker
8 Neighbor
9 Friend
10 Other (**SPECIFY**)
98 (VOL) Don't Know
99 (VOL) Refused

Q6b. How often do you transport this passenger in your vehicle? **READ LIST.**

1 Almost every day/everyday
2 A few days a week
3 Once a week
4 A few times a month
5 Once a month
6 Less than once a month
7 Never
8 (VOL) Don't know
9 (VOL) Refused

Q7. How often does this passenger wear a seat belt? Please provide a percentage. Your best estimate is fine.

ENTER PERCENTAGE: _____ [RANGE 0-100]
998 – DON'T KNOW
999 = REFUSED

IF Q7 > 90, SKIP TO Q8

IF Q7=998 OR Q7=999, ASK Q7a, ELSE SKIP TO NEXT QUESTION

Q7a. Can you tell me which of the following categories would best describe how often this passenger wears a seat belt?

1 91-100%
2 81-90%
3 61-80%
4 41-60%
5 40% or less
8 (VOL) Don't know
9 (VOL) Refused

Q7b. In your opinion, what is the main reason that this passenger doesn't wear a seat belt all of the time? **DO NOT READ. SINGLE RECORD.**

1 Only driving short distances
2 Driving in light traffic
3 In a rush
4 Forget to put it on
5 Don't want their clothes to get wrinkled
6 Seat belt is uncomfortable
7 Probability of being in a crash is too low
8 People in the vehicle are not wearing seat belts
9 Doesn't like being told what to do
10 Seat belt hurts <body part>
11 May cause injury/trap
12 Was in an accident where seat belt caused injury
13 Knows someone injured/killed because of seat belt
14 Doesn't fit
15 Medically exempt
16 (VOL) Can't say one is most important/all important
17 (VOL) Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

ASK IF Q5>=2 AND Q5<= 7

Q8. How often did this passenger wear a seat belt in your previous vehicle**?** Please provide a percentage. Your best estimate is fine.

1 91-100%
2 81-90%
3 61-80%
4 41-60%
5 40% or less
6 (VOL) I didn't transport passengers in the rear seat
7 (VOL) I didn't own/lease a vehicle previously
8 (VOL) Passenger not around during ownership of previous vehicle
98 (VOL) Don't know
99 (VOL) Refused

END LOOP

IF STYPE=1, CONTINUE, ELSE SKIP TO NI

Rear SBRS Drivers Acceptability and Preferences

Now, I would like to ask you a few questions about Rear Seat Belt Reminders. A Rear Seat Belt Reminder alerts the driver or other occupants of the vehicle when a rear seat belt is being used at the beginning of a trip and provides a reminder if one of the rear passengers has unbuckled their seat belt during a trip.

Q10. When you transport passengers in the rear seat, on how many trips do you check the Rear Seat Belt Reminder to find out the status of the rear seat belts? **READ LIST**.

1 All trips **SKIP TO Q12**
2 Most trips
3 Some trips
4 A few trips
5 None
6 (VOL) Not Relevant, Passengers always wear their seat belt **SKIP TO Q12**
8 (VOL) Don't know
9 (VOL) Refused

Q11. During the last trip when you transported rear passengers and you did NOT check the Rear Seat Belt Reminder to know about the status of the rear seat belts, what were the reasons for this?
MULTIPLE RESPONSE. DO NOT READ LIST.

1 I always make sure that my passengers are wearing their seat belts before turning the engine on
2 The Rear Seat Belt Reminder doesn't alert me and I still have to make sure that my passengers are wearing their seat belts
3 My passengers always wear their seat belts and I never pay attention to the alert
4 It does not work properly
5 It is broken
6 I am often in a hurry and I don't pay attention to the alerts
7 It does not stay on long enough
8 I ignore the alerts
9 It didn't occur to me to check the Rear Seat Belt Reminder System
10 (VOL) Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Q12. When you bought or leased the <VEHICLE>, were you aware it was equipped with a Rear Seat Belt Reminder?

1 Yes
2 No **SKIP TO Q14**
3 (VOL) I did not buy/lease this vehicle **SKIP TO Q14**
8 (VOL) Don't know **SKIP TO Q14**
9 (VOL) Refused **SKIP TO Q14**

Q13. And when you bought or leased the <VEHICLE>, was the Rear Seat Belt Reminder a factor that influenced you in making the decision to purchase this specific model?

1 Yes
2 No
8 (VOL) Don't know
9 (VOL) Refused

Now, I am going to ask you specific questions about your Rear Seat Belt Reminder **when you first get in the <VEHICLE> and begin a trip**.

Q14. How does the Rear Seat Belt Reminder in your <VEHICLE> alert you that a rear passenger is not wearing the seat belt before you begin a trip? Does it alert you with . . .
READ LIST. MULTIPLE RECORD.

1 A chime
2 A buzz
3 A flashing light
4 A flashing icon representing each rear position on the dashboard
5 A warning message on the dashboard and/or the console ceiling
6 A voice message
7 Anything else? (**SPECIFY**)
8 (VOL) Don't know
9 (VOL) Refused

Q15. How satisfied are you with your current Rear Seat Belt Reminder in terms of how well it notifies you whether a rear seat belt is being used when you start your vehicle? Are you…**READ LIST.**

1 Very satisfied	**SKIP TO Q17**
2 Somewhat satisfied	**SKIP TO Q17**
3 Neither satisfied nor dissatisfied	**SKIP TO Q17**
4 Somewhat dissatisfied	
5 Very dissatisfied	
6 (VOL) Passengers always wear their seat belts	**SKIP TO Q17**
8 (VOL) Don't know	**SKIP TO Q17**
9 (VOL) Refused	**SKIP TO Q17**

Q16. Why are you dissatisfied with your current Rear Seat Belt Reminder in this situation? **DO NOT READ. MULTIPLE RECORD.**

1 It does not alert me
2 It does not alert the concerned passenger
3 I still need to check if my passengers are buckled/tell my passengers to buckle
4 It is annoying
5 I can hardly see/hear the alerts
6 It does not stay on long enough
7 It is hard to understand/too complicated
8 It is useless
9 It does not work/reset properly after dropping off a passenger
10 I have no information about which seat belt is being used
11 Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Q17. Which of these indicators would you prefer in your vehicle to let you know about the status of the rear seat belts when you start your vehicle? **READ LIST. MULTIPLE RECORD.**

1 A chime
2 A buzz
3 A flashing light
4 A flashing icon representing each rear position
5 A warning message
6 A voice message
7 Anything else? (**SPECIFY**)
8 (VOL) None of these
98 (VOL) Don't know
99 (VOL) Refused

Now, I am going to ask you specific questions about your Rear Seat Belt Reminder **during a trip.**

Q18. During a trip, how does the Rear Seat Belt Reminder in your <VEHICLE> alert you that a rear passenger has unbuckled the seat belt? Does it alert you with . . .

READ LIST. MULTIPLE RECORD.

1 A chime
2 A buzz
3 A flashing light
4 A flashing icon representing each rear position on the dashboard
5 A warning message on the dashboard/console ceiling
6 A voice message
7 Anything else? (**SPECIFY**)
8 (VOL) Don't know
9 (VOL) Refused

Q19. Within the past year, did the Rear Seat Belt Reminder indicate a passenger had unbuckled his or her seat belt during a trip?

1 Yes
2 No **SKIP TO Q21**
8 (VOL) Don't know **SKIP TO Q21**
9 (VOL) Refused **SKIP TO Q21**

Q20. What was your reaction the last time this occurred? **DO NOT READ LIST.**

1 My passenger heard the reminder and refastened his or her seat belt on his or her own and I did not need to intervene
2 My passenger heard the reminder but I had to intervene and encourage him or her to refasten his or her seat belt, after which they refastened their seat belt
3 My passenger did not hear/see the reminder and I had to intervene and encourage him or her to refasten his or her seat belt, after which they refastened their seat belt
4 My passenger did not refasten his or her seat belt, I tried to encourage him or her but I gave up
5 My passenger did not refasten his or her seat belt and I did nothing
6 (VOL) Other (**SPECIFY**)
8 (VOL) Don't Know
9 (VOL) Refused

Q21. How satisfied are you with your current Rear Seat Belt Reminder in terms of how well it alerts you when a rear passenger has unbuckled his or her seat belt during a trip? Are you…**READ LIST.**

1 Very satisfied **SKIP TO Q23**
2 Somewhat satisfied **SKIP TO Q23**
3 Neither satisfied nor dissatisfied **SKIP TO Q23**
4 Somewhat dissatisfied
5 Very dissatisfied
6 (VOL) My passengers never unbuckle during a trip **SKIP TO Q23**
8 (VOL) Don't know **SKIP TO Q23**
9 (VOL) Refused **SKIP TO Q23**

Q22. Why are you dissatisfied with your Rear Seat Belt Reminder in this situation?
DO NOT READ. MULTIPLE RECORD.

1 I still need to check if my passenger refastens his or her seat belt
2 I still need to tell my passenger to refasten his or her seat belt
3 I don't know which of my passengers has unbuckled his or her seat belt
4 It does not alert the unbuckled passenger
5 I hardly see/hear the alerts
6 It is too stressful
7 It is too annoying
8 It is too distracting
9 It is too intrusive
10 It does not work properly
11 It does not stay on long enough
12 It too long
13 It is too loud
14 It is too bright
15 Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Q23. Which of these indicators would you prefer in your vehicle to let you know that a rear passenger has unbuckled his or her seat belt? **READ LIST. MULTIPLE RECORD.**

1 A chime
2 A buzz
3 A flashing light
4 A flashing icon representing each rear position on the dashboard
5 A warning message on the dashboard
6 A voice message
7 Anything else? (**SPECIFY**)
8 (VOL) Don't know
9 (VOL) Refused

These next few questions are about FRONT Seat Belt Reminders.

Q24a. If a front passenger is not wearing his or her seat belt, which of the following VISUAL alerts do you think would be the most effective in encouraging him or her to fasten the seat belt and to keep it on during a trip?

READ LIST. SINGLE RECORD.

1 A visual reminder that stays on continuously
2 A visual reminder that stays on for some period then goes off and stays off
3 A visual reminder that comes on periodically
4 A visual reminder that gets progressively brighter or flashes faster as time goes on
5 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO Q25a**
9 (VOL) Refused **SKIP TO Q25a**

Q24b. Why did you select that one? [SBRS]

MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

Q25a. If a front passenger is not wearing his or her seat belt, which of the following AUDIO alerts do you think would be most effective in encouraging him or her to fasten their seat belt and to keep it on during a trip?

READ LIST. SINGLE RECORD.

1 A sound that stays on continuously
2 A sound that stays on for some period, then goes off and stays off
3 A sound that comes on periodically
4 A voice message that comes on periodically,
5 A sound that gets progressively louder or beeps faster as time goes on
6 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO Q26**
9 (VOL) Refused **SKIP TO Q26**

Q25b. Why did you select that one?
MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

Q26. For those passengers who do not normally buckle up, how effective is the FRONT Seat Belt Reminder in getting those in the front seat to buckle up?
READ LIST.

1 Very effective	**SKIP TO Q28**
2 Somewhat effective	**SKIP TO Q28**
3 Not too effective	
4 Not at all effective	
5 (VOL) My front passengers always wear their seat belts anyway	**SKIP TO Q28**
8 (VOL) Don't Know	**SKIP TO Q28**
9 (VOL) Refused	**SKIP TO Q28**

Q27. Why is the FRONT Seat Belt Reminder not effective in getting those in the front seat to buckle up?
DO NOT READ. MULTIPLE RECORD

1 It does not stay on long enough
2 The front passenger can barely hear/see the alerts
3 It goes off randomly
4 The occupant seat detector is not sensitive enough
5 It will stop regardless of whether the passenger refastens his or her seat belt
6 It doesn't work
7 Other (**SPECIFY**)
8 (VOL) Don't know
9 (VOL) Refused

Now I would like to ask some questions about the effectiveness of the REAR Seat Belt Reminder.
Q28. Among the following types of alerts, which one do you think would be the most likely to get your rear passengers to fasten their seat belts? **READ LIST. SINGLE RECORD.**

1 Visual alert
2 Audio alert
3 Both
4 Anything else? (**SPECIFY**) **SKIP TO Q31**
8 (VOL) Don't know **SKIP TO Q31**
9 (VOL) Refused **SKIP TO Q31**

IF Q28=1 OR Q28=3, ASK Q29a, ELSE SKIP TO INSTRUCTION BEFORE Q30a
Q29a. If a REAR passenger is not wearing his or her seat belt, which of the following VISUAL alerts do you think would be the most effective in encouraging him or her to fasten their seat belt and to keep it on during a trip?
READ LIST. SINGLE RECORD.

1 A visual reminder that stays on continuously
2 A visual reminder that stays on for some period then goes off and stays off
3 A visual reminder that comes on periodically
4 A visual reminder that gets progressively brighter or flashes faster as time goes on
5 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO Q30a**
9 (VOL) Refused **SKIP TO Q30a**

Q29b. Why did you select that one?
MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

IF Q28=2 OR Q28=3, ASK Q30a, ELSE SKIP TO Q31

Q30a. If a rear passenger is not wearing his or her seat belt, which of the following AUDIO alerts do you think would be most effective in encouraging him or her to fasten their seat belt and to keep it on during a trip?

READ LIST. SINGLE RECORD.

1 A sound that stays on continuously
2 A sound that stays on for some period of time, then goes off and stays off
3 A sound that comes on periodically
4 A voice message that comes on periodically
5 A sound that gets progressively louder or beeps faster as time goes on
6 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO Q31**
9 (VOL) Refused **SKIP TO Q31**

Q30b. Why did you select that one?

MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

Q31. When purchasing or leasing your next vehicle, how important is it that the vehicle you choose come with a Rear Seat Belt Reminder? **READ LIST.**

1 Very important
2 Somewhat important
3 Not very important
4 Not important at all
5 (VOL) I don't intend to buy or lease a vehicle in the future
8 (VOL) Don't know
9 (VOL) Refused

Q32. Which of the following features or options would you like to have available on the Rear Seat Belt Reminder in your vehicle? **READ LIST. MULTIPLE RECORD.**

1 An occupant detection sensor for the rear seat
2 Being able to set the length of time the alert is on
3 A system that alerts only the driver
4 A system that alerts both the driver and the passengers
5 An option that allows you to turn off the Rear Seat Belt Reminder
6 Being able to acknowledge the alert
7 Being able to replay the alert
8 Having the information always available
9 Anything else? (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Q33. Since you began driving a vehicle equipped with a Rear Seat Belt Reminder, would you say that the rear passengers are wearing their seat belt more often, less often, or is it about the same compared to your last vehicle without a reminder?

1 More often
2 Less often
3 About the same
4 (VOL) It is the first vehicle I have driven
8 (VOL) Don't know
9 (VOL) Refused

Q34. For each of the following situations, please tell me whether the Rear Seat Belt Reminder has increased the use of seat belts in the rear seat.
(READ AND ROTATE A-F)

A. When driving short distances
B. When making frequent stops
C. Driving in residential areas
D. Driving on major highways
E. Being in a hurry
F. Forgetting to put the seat belt on

1 Yes
2 No
3 (VOL) I do not drive on these types of roads (C and D ONLY)
8 (VOL) Don't know
9 (VOL) Refused

Q35. Since you began driving a vehicle equipped with a Rear Seat Belt Reminder, have you heard any complaints from your passengers?

1 Yes
2 No **SKIP TO Q37**
8 (VOL) Don't know **SKIP TO Q37**
9 (VOL) Refused **SKIP TO Q37**

Q36. What are they? **DO NOT READ. MULTIPLE RECORD**

1 It is annoying
2 It is stressful
3 It is too intrusive
4 It is too loud
5 The passenger hardly see/hear the alerts
6 It is annoying for the other passengers
7 The passenger cannot switch seats while the vehicle is in motion
8 It goes off when the passenger unbuckles for a few seconds to reach something
9 Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Q37. Who would you prefer the Rear Seat Belt Reminder to alert?
READ LIST. SINGLE RECORD.

1 Only the driver
2 Only the unbuckled passenger
3 Both the driver and the unbuckled passenger
4 The unbuckled passenger and others in the rear seat
5 Everyone in the vehicle
8 (VOL) Don't know
9 (VOL) Refused

Q38. Please tell me if you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with each of the following statements.
(READ A – G)

A. It is very important that all my passengers buckle their seat belts.
B. When the Seat Belt Reminder notifies me that my seat belt is unfastened, I buckle up right away.
C. The Seat Belt Reminder makes it easier for me to encourage my passengers to fasten their seat belt.
D. I rely on the Seat Belt Reminder to know about the status of the rear seat belts.
E. I am able to better concentrate on the road with a Rear Seat Belt Reminder in my vehicle.
F. I prefer a Rear Seat Belt Reminder that I could turn on or off depending on the situation, for example I could turn it on if I am transporting passengers.
G. I prefer a Rear Seat Belt Reminder that has rear seat occupant detection.

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree
8 (VOL) Don't know
9 (VOL) Refused

Q39. Are there any features you particularly LIKE about your current Seat Belt Reminder?

1 Yes	
2 No	**SKIP TO Q40**
8 (VOL) Don't know	**SKIP TO Q40**
9 (VOL) Refused	**SKIP TO Q40**

Q39a. What are they? Anything else?
[OPEN END]

Q40. Are there any features you particularly DISLIKE about your current Seat Belt Reminder?

1 Yes	
2 No	**SKIP TO Q41**
8 (VOL) Don't know	**SKIP TO Q41**
9 (VOL) Refused	**SKIP TO Q41**

Q40aa. What are they? Anything else?
[OPEN END]

Q41. Have you ever tried to take action to disable the Rear Seat Belt Reminder System of the <VEHICLE>? **DO NOT READ LIST.**

1 Yes
2 No **SKIP TO DH1**
8 (VOL) Don't know **SKIP TO DH1**
9 (VOL) Refused **SKIP TO DH1**

Q42. Why did you try to disable the Rear Seat Belt Reminder System?
DO NOT READ. MULTIPLE RECORD.

1 It is annoying
2 It is stressful
3 It is too intrusive
4 It is too loud
5 The passenger hardly see/hear the alerts
6 It is annoying for the other passengers
7 The passenger cannot switch seats while the vehicle is in motion
8 It goes off when the passenger unbuckles for a few seconds to reach something
9 The rear passengers won't buckle regardless of hearing/seeing the alerts
10 I have to tell my passengers to buckle up anyway.
11 Other (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

Non-Rear SBRS Drivers Acceptability and Preferences

READ NI IF STYPE=2, ELSE SKIP TO Instruction before NI2.

NI. Now, I am going to ask you some questions about Rear Seat Belt Reminders. A Rear Seat Belt Reminder alerts the driver or other occupants of the vehicle when a rear seat belt is being used at the beginning of a trip and notifies those in the vehicle if one of the rear passengers has unbuckled their seat belt during a trip.
I realize you may not have such a reminder in your vehicle, however please answer each question the best you can.

IF STYPE=2 GO TO NR1.

READ IF STYPE=1 AND Q9>1, ELSE SKIP TO DH1.

NI2. I realize you may not have such a reminder in your vehicle, however I would like to ask you some questions about Rear Seat Belt Reminders in general. Please answer each question the best you can.

NR1. Which of these alerts would you prefer in your vehicle to let you know that the rear passenger is not wearing his or her seat belt? **READ LIST. MULTIPLE RECORD.**

1 A chime
2 A buzz
3 A flashing light
4 A flashing icon representing each rear position
5 A warning message
6 A voice message
7 Anything else? (**SPECIFY**)
8 (VOL) None
98 (VOL) Don't know
99 (VOL) Refused

NR2. Which of these indicators do you think would be the most likely to get the rear passengers to fasten their seat belts? **READ LIST. SINGLE RECORD.**

1 A chime
2 A buzz
3 A flashing light
4 A flashing icon representing each rear position
5 A warning message
6 A voice message
7 Anything else? (**SPECIFY**)
8 (VOL) None
98 (VOL) Don't know
99 (VOL) Refused

NR3. Who should the Rear Seat Belt Reminder alert? **READ LIST.**

1 Only the driver
2 Only the unbuckled passenger
3 Both the driver and the unbuckled passenger
4 The unbuckled passenger and others in the rear seat
5 Everyone in the vehicle
8 (VOL) Don't know
9 (VOL) Refused

NR4. If a REAR passenger is not wearing his or her seat belt, which of the following VISUAL alerts do you think would be the most effective in encouraging him or her to fasten their seat belt and keep it on during a trip?

READ LIST. SINGLE RECORD.

1 A visual reminder that stays on continuously
2 A visual reminder that stays on for some period then goes off and stays off
3 A visual reminder that comes on periodically
4 A visual reminder that gets progressively brighter or flashes faster as time goes on
5 Other (Specify)
8 (VOL) Don't know **SKIP TO NR6**
9 (VOL) Refused **SKIP TO NR6**

NR5. Why did you select that one?

MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

NR6. If a rear passenger is not wearing his or her seat belt, which of the following AUDIO alerts do you think would be most effective in encouraging him or her to fasten their seat belt and keep it on during a trip?

READ LIST. SINGLE RECORD.

1 A sound that stays on continuously
2 A sound that stays on for some period of time, then goes off and stays off
3 A sound that comes on periodically
4 A voice message that comes on periodically
5 A sound that gets progressively louder or beeps faster as time goes on
6 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO NR8**
9 (VOL) Refused **SKIP TO NR8**

NR7. Why did you select that one?

MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

NR8. Which of the following features or options would you like to have available on the Rear Seat Belt Reminder in your vehicle? **READ LIST. MULTIPLE RECORD.**

1 A rear occupant detection
2 Being able to set the length of time the alert is on
3 A system that alerts only the driver
4 A system that alerts both the driver and the passengers
5 An option that allows you to turn off the Rear Seat Belt Reminder
6 Being able to acknowledge the alert
7 Being able to replay the alert
8 Having the information always available
9 Anything else? (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

NR9. For each of the following situations, please tell me whether you think a Rear Seat Belt Reminder would increase the use of seat belts in the rear seat.
(READ AND ROTATE A-D)

A. Driving short distances
B. Making frequent stops
C. Being in a hurry
D. Forgetting to put the seat belt on

1 Yes
2 No
8 (VOL) Don't know
9 (VOL) Refused

NR10. When purchasing or leasing your next vehicle, how important is it that the vehicle you choose come with a Rear Seat Belt Reminder? **READ LIST.**

1 Very important
2 Somewhat important
3 Not very important
4 Not important at all
5 (VOL) I don't intend to buy or lease a vehicle in the future
8 (VOL) Don't know
9 (VOL) Refused

Now, I would like to ask you some questions about FRONT Seat Belt Reminders in general. Please answer each question the best you can.

NR11. If a FRONT seat passenger is not wearing his or her seat belt, which of the following VISUAL alerts do you think would be the most effective in encouraging him or her to fasten the seat belt and to keep it on during a trip?
READ LIST. SINGLE RECORD.

1 A visual reminder that stays on continuously
2 A visual reminder that stays on for some period then goes off and stays off
3 A visual reminder that comes on periodically
4 A visual reminder that gets progressively brighter or flashes faster as time goes on
5 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO NR13**
9 (VOL) Refused **SKIP TO NR13**

NR12. Why did you select that one?
MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

NR13. If a front passenger is not wearing his or her seat belt, which of the following AUDIO alerts do you think would be most effective in encouraging him or her to fasten the seat belts and to keep it on during a trip?
READ LIST. SINGLE RECORD.

1 A sound that stays on continuously
2 A sound that stays on for some period, then goes off and stays off
3 A sound that comes on periodically
4 A voice message that comes on periodically
5 A sound that gets progressively louder or beeps faster as time goes on
6 Other (**SPECIFY**)
8 (VOL) Don't know **SKIP TO NR15**
9 (VOL) Refused **SKIP TO NR15**

NR14. Why did you select that one?
MULTIPLE RESPONSE. DO NOT READ.

1 More acceptable
2 Safer
3 Less annoying
4 Less stressful
5 Less distracting
6 Less intrusive
7 Other (**SPECIFY**)
10 More annoying
11More noticeable
12 More effective
13 More intrusive
8 (VOL) Don't know
9 (VOL) Refused

NR15. For those passengers who don't buckle up, how effective is the FRONT Seat Belt Reminder in encouraging those in the front seat to fasten their seat belt?
READ LIST.

1 Very effective
2 Somewhat effective
3 Not too effective
4 Not at all effective
5 (VOL) My front passengers always wear their seat belt anyway
8 (VOL) Don't Know
9 (VOL) Refused

NR16. Please tell me if you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with each of the following statements.
READ A – G

A. It is very important that all my passengers buckle their seat belt.
B. I am more likely to buckle up if the Seat Belt Reminder reminds me to fasten my seat belt.
C. The Seat Belt Reminder makes it easier for me to encourage my passengers to fasten their seat belt.
D. I rely on the Seat Belt Reminder to let me know if any of my passengers are not wearing their seat belt.
E. I would be able to better concentrate on the road with a Rear Seat Belt Reminder in my vehicle.
F. I would prefer a Rear Seat Belt Reminder that I could turn on or off as required depending on the situation, for example I could turn it on if I am carrying passengers.
G. I would prefer a Rear Seat Belt Reminder that has rear seat occupant detection.

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree
8 (VOL) Don't know
9 (VOL) Refused

NR17a. Are there any features you particularly LIKE about your current Seat Belt Reminder?

1 Yes
2 No **SKIP TO NR 18a**
8 (VOL) Don't know **SKIP TO NR 18a**
9 (VOL) Refused **SKIP TO NR 18a**

NR17b. What are they? Anything else?
[OPEN END]

NR18a. Are there any features you particularly DISLIKE about your current Seat Belt Reminder?

1 Yes
2 No **SKIP TO DH1**
8 (VOL) Don't know **SKIP TO DH1**
9 (VOL) Refused **SKIP TO DH1**

NR18b. What are they? Anything else?
[OPEN END]

Driving Habits and Seat Belt Law Awareness

DH1. When driving your vehicle and transporting passengers in the rear seat, do these trips occur mostly during the

READ LIST. MULTIPLE RECORD.

1 Spring
2 Summer
3 Fall
4 Winter
5 School year
6 All year long
7 (VOL) I just bought/leased my vehicle
8 (VOL) Don't Know
9 (VOL) Refused

DH2. Are you aware of any existing seat belt laws in your State, county, or city?

DO NOT READ LIST.

1 Yes
2 No
8 (VOL) Don't know
9 (VOL) Refused

Demographics

Now, I have just a few last questions for classification purposes only.

D1. What is your age?
ENTER AGE: _____
RANGE: 18 to 97
97=97 or older
98 Don't know
99 Refused

If DK or RF in D1 Continue, ELSE SKIP TO D2
D1a. Please stop me when I reach the category that includes your age?
READ LIST.
1 18 to 24
2 25 to 34
3 35 to 44
4 45 to 54
5 55 to 64
6 65 to 74, or
7 75 or older
8 (VOL) Don't know
9 (VOL) Refused

D2. Are you currently employed full-time, part-time, un-employed and looking for work, retired, going to school, a homemaker, or do you do something else? **MULTIPLE RECORD.**
1 Employed full-time
2 Employed part-time
3 Unemployed and looking for work
4 Retired
5 Going to school
6 Homemaker
7 (VOL) Disabled
8 Something else (**SPECIFY**)
98 (VOL) Don't know
99 (VOL) Refused

D3. What is the highest grade or year of school you have completed?
DO NOT READ LIST.
1 No formal education
2 First through 7th grade
3 8th grade
4 Some high school
5 High school graduate or GED
6 Some college
7 2-year technical/Associates degree
8 Four-year college graduate
9 Some graduate school
10 Graduate degree
98 (VOL) Don't know
99 (VOL) Refused

D4. Are you currently married, divorced, separated, widowed, or single?
1 Married
2 Divorced
3 Separated
4 Widowed
5 Single
8 (VOL) Don't Know
9 (VOL) Refused

D5. Do you have any children, under the age of 18, living in your household?
1 Yes
2 No
8 (VOL) Don't know
9 (VOL) Refused

D6. Are you of Hispanic or Latino origin or descent?
1 Yes
2 No
8 (VOL) Don't know
9 (VOL) Refused

D7. Which of the following racial categories describes you? You may select more than one.
READ LIST AND MULTIPLE RECORD.
1 American Indian or Alaska Native
2 Asian
3 Black or African American
4 Native Hawaiian or Other Pacific Islander
5 White
6 (VOL) Hispanic/Latino
7 (VOL) Other (**SPECIFY**)
8 (VOL) Don't know
9 (VOL) Refused

IF D7=6, ASK D7a, ELSE SKIP TO D8
D7a. Do you consider yourself to be white-Hispanic or black-Hispanic?
1 White-Hispanic
2 Black-Hispanic
3 (VOL) Hispanic/Respondent refused to discriminate
4 Other (**SPECIFY**)
8 (VOL) Don't know
9 (VOL) Refused

D8. Which of the following categories best describes your total household income before taxes in 2014? Your best estimate is fine. Would it be . . .

READ LIST.

1 Less than $5,000
2 $5,000 to less than $15,000
3 $15,000 to less than $30,000
4 $30,000 to less than $50,000
5 $50,000 to less than $75,000
6 $75,000 to less than $100,000, OR
7 $100,000 or more
8 (VOL) Don't know
9 (VOL) Refused

READ: That completes the survey. Thank you very much for your time and cooperation. If you would like information about traffic safety, please visit www.nhtsa.gov.

SCR1. I am sorry but you are not eligible to participate in the survey today. Thank you for your cooperation and I hope you have a pleasant evening.

SCR2. Thank you, we will call back at a later time.