2009 SENATE TRANSPORTATION

SB 2188

2009 SENATE STANDING COMMITTEE MINUTES

Bill/Resolution No. 2188

Senate Transportation Committee

☐ Check here for Conference Committee

Hearing Date: January 23, 2009

Recorder Job Number: 7652

Committee Clerk Signature Jody Haug

Minutes:

Senator Lee opened the hearing on SB 2188 relating to window tinting in motor vehicles.

Senator Bakke introduced SB 2652 and stated that she brought it before the committee on behalf of a constituent. Mr. Bird is asking that the law be modified to allow for additional tinting of vehicle windows when medically necessary. Written Testimony #1.

Opposing Testimony

Dr. Brian Beattie opposed the passage of SB 2188. He said he had four major reasons for opposing the bill. Written Testimony #2. Also included more information on state laws, and research.

Senator Potter said he agreed with him on using tint as sunglass but as someone with a skin condition he said he didn't always want to be wearing gloves and skin protection clothes in his car. If this bill was restrict to skin conditions and transparent sunscreen materials, not tinted, he said he didn't see a problem with it.

Dr. Beattie said he could speak to the science of this and as an optometrist he has expertise in light transmission and UV transmission. He said you do not have to tint your window to get UV protection. Tint does not equal UV protection. There is clear 3 M material that can be used.

Michael McMerty, Bismarck Police Department testified in opposition to SB 2188. He spoke on the safety issues and the history of this law being on the books and then removing it. The tint does not protect from UV nor does it serve any medical purpose. As an officer they like to see the occupant when approaching. There is a product out there that is not tinted that will solve this problem.

The clerk handed out a letter from Nancy Kopp representing the North Dakota Optometric Association opposing SB 2188.

Discussion followed on if you needed a prescription for this product or how to get the information out to the public about the clear 3M product.

Senator Lee closed the hearing on SB 2188.

Senator Potter moved a Do Not Pass.

Senator Nodland seconded.

Roll call vote on a Do Not Pass: 6-0-0

Senator Potter is the carrier.

Date: 1-23-09
Roll Call Vote #: 1

2009 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 2188

Senate Transportation Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken ☐ Do Pass ☒ Do Not Pass ☐ Other

Motion Made By Senator Potter Seconded By Senator Nodland

Senator	Yes	No	Senator	Yes	No
Chairman Senator Gary Lee	✓		Senator Tom Fiebiger	✓	
Senator George Nodland	✓		Senator Richard Marcellais	✓	
Senator Dave Nething	✓		Senator Tracy Potter	✓	

Total (Yes) 6 No 0

Absent 0

Floor Assignment Senator Potter

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2188: Transportation Committee (Sen. G. Lee, Chairman) recommends **DO NOT PASS** (6 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). SB 2188 was placed on the Eleventh order on the calendar.

2009 TESTIMONY

SB 2188

SB2188 – Relating to window tinting in motor vehicles.

Chairman Lee and members of the Transportation committee, for the record my name is Senator JoNell Bakke and I represent district 43. I bring before you today, SB 2188 on behalf on one of my constituents.

Mr. Jim Bird suffers from a medical disease called Vitiligo which means that he is losing the cells in his skin that allow for tanning and protection from ultraviolet light rays. It has no known treatment or cure.

During a 12 minute car ride in 2001, he suffered from second degree sun burn on his arm from the sun coming in the side window of his car. With support from his medical doctor (through a prescription) he had the side windows of his vehicle tinted. Recently, he was stopped by a highway patrolman and told that the tinting of his windows was illegal. Without this tinting Mr. Bird is not able to drive his vehicle without experiencing skin damage from the sun. Mr. Bird is asking that the law be modified to allow for addition tinting of vehicle windows when medically necessary.

Thank you for your consideration of this matter and I will stand for questions.

#2

Dr. Brian C. Beattie
3218 Crocus AV
Bismarck, ND 58501

Re: SB 2188

Dear Mr. Chairman and Committee Members:

My name is Dr. Brian Beattie. I have practiced optometry in Bismarck for 28 years. I am here to voice my opposition to SB 2188.

I have 4 reasons to be opposed to the change proposed in the window tinting statute.

1. In my opinion window tinting to the darkness proposed in this bill cannot be supported for visual, medical reasons. A tint on the window may cut glare during the day light hours but is not as effective as a pair of sunglasses. Non-prescription wrap around sunglasses are readily available in any price starting from under $30. Wrap around sunglasses can be made with prescription power covering 80- 90% of all prescriptions. There are also fit-over sunglasses that start at under $30. Window tinting is not removed in poor lighting conditions or at night. This means that during the most challenging visual situations, poor light or darkness, the driver will have reduced vision. This means reduced reaction times and more difficulty recognizing obstacles or obstructions.

There is no visual condition that is better managed with a window than with proper sunglasses. The sunglasses can be purchased for less money than the cost of a window tint.

2. Defensive driving skills become more difficult when the driver of another vehicle is not visible. It is much easier to predict what another driver is going to do if you can see him and what he is looking at.

As an avid bicyclist I always want to see what the driver on a side street is looking at before I ride in front of him or her. There is no such thing as a fender bender to a bicyclist. I never assume that a driver has seen me if I haven't seen him look at me.

3. Window tints also make it difficult to see traffic on the other side of an adjacent car. An example of this is pulling into the right turn lane and looking through the vehicle beside to look for car or pedestrian traffic.

The most vulnerable traffic, pedestrians and bicycles, are also the hardest to see particularly at night. Window tinting makes them harder to see. They are typically to the side of the car and viewed through the side window not through the windshield.

4. In the past the law had the same provision that is proposed in SB 2188. The majority of requests for medical wavers for window tinting came form drivers that had already been ticketed for an illegal tint. The car owner than would call his eye doctor and ask for a letter for medical necessity. Most doctors would say they don't write such letters. The car owner than points out that he, his wife, and 2 kids are patients and he will take his business elsewhere.

I granted one waver under the old law after being pressured to do so. I withdrew the waver when I learned from police that the tint he had applied was 5%, commonly called a limo tint.
In my opinion SB 2188 serves no visual, medical purpose.

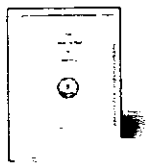
Window tinting is more a safety liability than a safety enhancement.

It has the potential degrade doctor patient relationships by encouraging extortion to receive the medical waiver.

I encourage the committee to vote Do Not Pass for SB2188.

Respectfully;

Brian C. Beattie, O.D.



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Senate Document No. 06

PUBLICATION YEAR 1994

Document Title
Effects of Motor Vehicle Window Tinting on Traffic Safety and Enforcement

Author
Department of Motor Vehicles; Department of State Police

Enabling Authority
SJR 293 (1993)

Executive Summary
All across the United States, the issue of whether motor vehicle window tinting should be allowed and how much tinting should be allowed has been the source of fractious debate in state legislatures. Federal regulations govern all matters concerning motor vehicle window glass for new vehicles. Except for motor vehicle glass that is installed behind the driver in trucks, buses, and multi-purpose vehicles, the glass on all motor vehicles must allow for at least70% of the light to pass through. However, there are no federal standards that apply to aftermarket applied window tint films.

There is a demand for tinted window films. The window film industry argues that window tinting creates lower interior vehicle temperatures, mini-mizes sun-related damage to upholstery and dashboards, provides protection for persons harmed by, or sensitive to, sunlight, and adds some measure of privacy to the vehicle. Also, tinting may enhance the aesthetic appeal of a vehicle, especially when color coordinated with the vehicle's exterior paint.

The enforcement and traffic safety communities, on the other hand, take strong exception to the use of what they might consider excessively dark window films. There is the belief that window tinting may increase the incidence of traffic crashes. Also, dark window films are considered to be a threat to the safety of police officers. There is a

desire to afford police officers the opportunity to see contraband or what might be the threatening actions of a person who may be obscured by darkly tinted glass.

In the 1993 Session of the General Assembly, measures designed to change Virginia's laws relating to the application of aftermarket tinted window films to motor vehicle glass were debated. House Bill 1990 (HB 1990), which lessened Virginia's restrictions on tinted glass for vehicles, was passed. As a result, effective July 1, 1993, vehicles are allowed to have window tinting treatments that do not reduce the transmittance of light below 35% for rear and rear side windows and 50% for front side windows. However, no aftermarket tinting may be applied to windshields. House Bill 1436 (HB 1436) also was passed; it allowed individuals with a medical waiver to apply tinted window film on the windshield to reduce total light transmittance to as low as 70% and on other windows to as low as 35% in the vehicles in which they generally travel.

The concerns of industry and the traffic safety community were balanced by the adoption of Senate Joint Resolution 293 (SJR 293). This resolution directed the Virginia Departments of Motor Vehicles (DMV) and State Police(VSP) to "examine Virginia's laws relating to tinted motor vehicle glass and related subjects and the enforcement of these laws and make such legislative and other recommendations as may be appropriate.

The study found that there is no pattern that characterizes the various state laws on window tinting. Virginia's current laws on window tinting are more restrictive than those of 27 states and less restrictive than those of 8 others, with the remaining 14 states having greater restrictions on some windows and less on others. However, the 1993 changes to Virginia's window tinting laws have facilitated enforcement by authorizing the Division of Purchases and S-up-ply to establish standards for equipment to measure light transmittance, which has resulted in permitting the use of a meter to test light transmittance for evidentiary purposes. A survey of 10 state motor vehicle inspection stations revealed that over 80% of the surveyed vehicles that had aftermarket window tinting were in violation of Virginia's new law. The average level of light transmittance on tinted front side windows was 33% and that for rear side windows was 27%.

The study also found that window tinting reduces the ability to detect tar-gets that would be difficult to see through clear glass, and this can be a liability when ambient lighting is low. In addition, the adverse effects of window tinting become increasingly pronounced as transmittance goes below 70%, particularly for people who wear spectacles and for older drivers. There is no evidence, how-ever, that reduced visibility significantly affects drivers' performance during well-illuminated daytime hours. The difficulties are more likely to be manifested at night.

By reducing the amount of light transmittance, window tinting reduces the ability of an outside observer to see into a vehicle, which has led to the concerns about the safety of police officers. However, window tinting also diminishes the ability to see into a tinted vehicle in part by increasing reflectance. Reflected light masks the transmitted light in proportion to the ratio of reflected to transmitted light. Thus, window tinting reduces the amount of light emanating from the interior of a vehicle while increasing the proportion of light reflected off of its surface

from the outside. Unfortunately, because the disruptive effects of reflections are situation ally specific, it is not possible to determine whether Virginia's new laws compromise the safety of police officers.

On the other hand, window tinting can reduce discomfort glare, which is the unpleasant feeling that accompanies exposure to a source of glare. Further, window tinting films do not reduce contrast. Since window tinting films reduce transmittance proportionately, the target/background contrast is constant across all transmittance levels. Also, window tinting has been shown to reduce vehicle interior temperatures.

Although there are only limited optical benefits to be derived from window tinting and there are a number of potential optical detriments, there is no empirical evidence to indicate that the tinting allowed under Virginia's current laws creates a safety hazard in terms of driver performance. Thus, it is recommended that Virginia's new laws on window tinting not be changed unless compelling evidence that the standards compromise safety is found in the future. However, further research is recommended on the effect of window tinting on facial communication, the performance of drivers, and the safety of police officers.

It is also recommended that federal regulations and/or action by the states to achieve national uniformity be encouraged in order to promote uniformity in laws and regulations concerning aftermarket window tinting. Such action would remove the burden of changing applications of window tinting by military personnel and other individuals who relocate from one state to another.

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Front side window tinting visual light transmittance requirements

MRJ Baldock, AJ McLean, CN Kloeden

CASR REPORT SERIES
CASR002
April 2004

THE UNIVERSITY
OF ADELAIDE
AUSTRALIA

Report documentation

REPORT NO.	DATE	PAGES	ISBN	ISSN
CASR002	April 2004	13	1 920947 03 5	1449-2237

TITLE

Front side window tinting visual light transmittance requirements

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ABSTRACT

The Australasian Branch of the International Window Film Association has lobbied for approval for tinting of front side windows of cars down to a level such that 35% of incident visible light is transmitted through to the driver. South Australia currently has a minimum level of visible light transmittance of 70% for front side windows. This Report explores the safety implications of the proposed greater levels of tinting on front side windows and concludes that road safety would be adversely affected by allowing such a move.

KEYWORDS

Tinted glass, vehicle window, vision, road safety.

Summary

The Australasian Branch of the International Window Film Association (IWFAA), representing the interests of the window tinting industry, has lobbied for approval for tinting of front side windows of cars down to a level such that 35% of incident visible light is transmitted through to the driver (IWFAA, 2000). This level of tinting has been accepted in other states of Australia but South Australia has thus far resisted pressure from the tinting industry and maintained a minimum level of visible light transmittance (VLT) of 70% for front side windows, as required by the Australian Design Rules for Motor Vehicle Safety (ADR 8.01 and AS/NZS 2080, 1995).

The IWFAA claims that the visual tasks performed through the front side windows are different from those performed through the windshield in such a way that, unlike the windshield, tinting the front side windows down to a VLT level of 35% would not be detrimental to road safety.

The tasks performed through the front side windows are, however, important in the safe operation of a vehicle. Tinting of the front side windows would be make it harder for a driver to see cyclists and pedestrians at night, particularly when the driver is turning, and when dealing with the glare of headlights.

Dark tinting of the front side windows also poses problems for other road users who need to see into the car to assess the intentions of the driver or to see that the driver has seen them. It also makes it particularly difficult for a driver to see through the front side windows of a car alongside them at an intersection. This last problem, that of seeing through cars, would be of concern in shaded areas during daylight hours, when the benefit of the headlights of oncoming vehicles is absent, as well as at night when an approaching cyclist would be very difficult to detect. This is because the VLT is reduced from 49% (70% x 70%) to 12% (35% x 35%).

Contents

1 Introduction

From 1970 to 1991, it was specified by the Australian Design Rules (ADR 8/00) that 85% of incident visible light be transmitted by windshields in the Primary Vision Area of the driver. As the windshield itself absorbed up to 15% of incident light, this requirement effectively prohibited any tinting, in recognition of the central role played by visual information in the ability of drivers to safely operate their vehicles. However, increasing pressure from glass manufacturers, who began to export to other countries, resulted in the regulation for minimum visible light transmittance (VLT) of windshields being lowered from 85 to 75%, even though the scientific evidence indicated that this would result in a lower level of safety.

Once windshields had been allowed to be tinted down to a VLT value of 75%, the Australasian Branch of the International Window Film Association (IWFAA), representing the interests of the window tinting industry, lobbied for the tinting of front side windows down to a VLT level of 35%. The South Australian Government, on safety grounds, resisted industry lobbying to accept this lower level of visual light transmittance. However, it continues to be under pressure to reconsider its position in the interests of national uniformity.

As part of its argument for darker tinting of front side windows, the IWFAA has claimed that the visual tasks performed through the front side windows are different to those performed through the windshield in such a way that tinting of the front side windows to a darker level than that of the windshield will not be detrimental to safety. Although a substantial body of literature exists demonstrating the negative effects on visual performance of the decreased levels of visible light produced by window tints, the literature review that follows discusses only the types of visual tasks performed through the front side windows. These tasks are discussed in terms of the likelihood that they would be affected by having to be performed through windows with a VLT of 35 percent.

2 Visual tasks through the front side windows

Proponents of tinting, because of the fact that they are lobbying for decreases of such a profound nature (a relative decrease of 50%) in the minimum VLT level of the front side windows, have argued that the considerations of visibility that apply to the windshield do not apply to the front side windows. Specifically, they have argued that the visual tasks performed through the front side windows do not require the maximum visibility afforded by the clear glazing of the windshield.

Dain (1994) has been prominent in promulgating this claim. He argues that the visual tasks performed through the side and rear windows are different from those performed through the windshield and that laboratory experiments related to windshield VLT levels have no bearing on the VLT debate about other windows. Furthermore, Dain claims that the tasks performed through the windshield are by far the most important. The conclusion is that the VLT levels of other windows can be lowered substantially without compromising road safety.

In an attempt to substantiate these claims, Dain (1994) provides a list of factors relevant to visual performance and safety and how they relate to the tasks performed through each of a car's windows (the windshield, front side windows, rear side windows and rear windows). For example, Dain points to the windshield being the only car window through which the driver will be required to view vehicles with a relative velocity of up to 220 km/h and stationary objects with a relative velocity of up to 110 km/h. It is also, claims Dain, the only window involving short decision times.

Dain's (1994) analysis, however, neglects many aspects of the tasks a driver must engage in when looking through windows other than the windshield. The lowering of the VLT of the front side windows, in particular, to 35% will have a deleterious effect on safety in tasks, and in situations, that Dain has not considered.

One major aspect of road safety affected by tinting that was not referred to by Dain (1994) is the need for drivers and other road users to see into, and through, a car's front side windows. Tinting of these windows will make both of these tasks much harder.

2.1 Looking through other vehicles

There are many commonly occurring driving situations in which the driver needs to look *through* other cars in order to detect possible road hazards. These tasks will become more difficult if the vehicles through which the driver is trying to see have heavily tinted windows (35% VLT).

One common situation requiring the driver to look through other vehicles is that of turning into, or crossing, a main road at an unsignalised intersection. For example, as shown in Figures 2.1 and 2.2, a driver turning left onto a main road, will often have to look through the two front side windows of a car alongside to see if there is traffic coming from the right. Proponents of tinting would respond to this by saying that the turning vehicles would have the benefit of seeing the headlights of the oncoming traffic. But, this ignores the problem of detecting cyclists at night, many of whom do not have a headlight fitted to their bicycles This situation would pose a problem in shaded areas during daylight hours, a lighting condition most writers on this topic, Dain included, do not consider.

Furthermore, it is not only drivers of cars who will be inconvenienced by the need to see through cars with heavily tinted windows. Child pedestrians will also be placed in situations in which cars with 35% VLT tinted windows parked on the side of a road will make it difficult to see traffic approaching from the right, thus necessitating the potentially dangerous ploy of moving into the line of traffic in order to obtain an unimpeded view (Gregory, 1995).

Another situation where through-car visibility is a factor in safe driving is that which occurs when two cars facing in opposite directions are waiting to turn at traffic islands in the middle of a main road. The cars involved may be waiting to turn right into a side street or to perform a U-turn. In order to see oncoming traffic, to which the drivers must give way, they need to be able to see through a combination of windows of the other car. If these windows are heavily tinted then the losses in VLT will be compounded and seeing oncoming traffic in these situations during the day, when headlights will not be able to be used as a cue, will become very difficult. To edge out into the line of oncoming traffic in order to get a better view would involve placing the driver at risk of a crash.

2.2 Looking into other vehicles

Another problem posed to other road users by heavily tinted windows is that they do not afford adequate visibility *into* cars fitted with them.

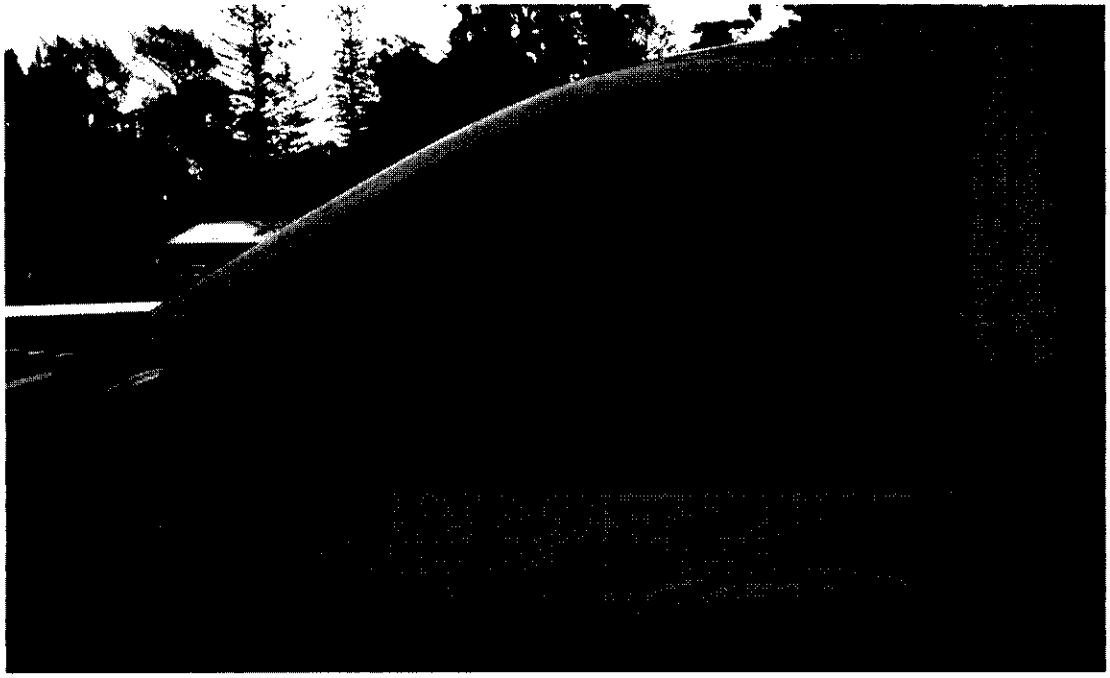
As pointed out by Proffitt et al. (1995), the ability to see into cars is adversely affected by window tinting in two ways. First, tinting lowers the amount of light emanating from the interior of the vehicle. If the VLT value of the front side windows is 35%, then the amount of visible light being transmitted into the car via these windows to illuminate its interior is 35% and the amount of interior light that is able to be transmitted through these windows to an external observer is also 35%. Thus, the amount of available visible light that an external observer can see when looking into the car through the front side window is affected by reductions in light entering through the windows and reductions in light exiting through the windows.

The second way in which window tinting creates problems for into-vehicle visibility is by increasing reflectance. That is, a larger proportion of incident visible light is reflected directly back to an external observer. This greater reflectance causes problems because the reflected light masks the light transmitted from the interior of the vehicle. As the VLT value of windows decreases, there will be an increase in reflectance (Proffitt et al., 1995). This means that an external observer sees an increased amount of incident light reflected back to him or her that masks the already decreased amount of light transmitted from the vehicle interior. As the degree of masking is related to the ratio of reflected light to transmitted light, lowering levels of VLT will involve progressively more pronounced losses in the ability to see inside the vehicle (Proffitt et al., 1995).

One common reason why drivers need to see into another vehicle is to make eye contact with the other driver in order to establish acknowledgement of one another's presence and recognition of one another's intentions, particularly in give way situations (Clark, 1996; Kotsiris, 1992; Lane, 1994; NHTSA, 1991). Clark (1996), in a self-count of deliberate fixations to see if other drivers were aware of the situation of the author's vehicle, found that eye contact could occur once a minute when driving through busy back streets and that in many of these cases, the eye contact necessitated looking through the driver's side window of the other car. When eye contact with pedestrians was necessary, the author noted that the pedestrians would often have to look through the driver side window of the car. Pedestrians, especially the elderly, would be disadvantaged by tinting because they need eye contact with drivers of cars at crossings to make sure that they have been seen (Clark, 1996). Pedestrians, unaware that they have not been seen, could unknowingly place themselves at risk by then walking across the road.

Figure 2.1
View of a cyclist through three front side windows: no tint film and minimal reflection[1]

Figure 2.2
View of a cyclist through three front side windows: 35% VLT tint film and minimal reflection[1]



It is not only pedestrians who wish to make eye contact with drivers of cars. Cyclists also commonly need to be able to see into cars. Cyclists should never assume that they have been seen by a driver and so they need to make eye contact so that they know that the

[1] Photographs were taken with a digital camera. The exposure was set manually and locked to the same setting for both photographs

driver is aware of their presence. One common scenario in which a cyclist would want to be able to see inside a car is when the cyclist is entering an intersection along a road into which a car is about to make a left turn from the intersecting road. Cyclists in such a situation would want to be able to see the driver of the car to be sure that they have been seen. With dark window tinting, this would be more difficult (Gregory, 1995).

Eye contact with other drivers is also useful because it allows a form of social interaction on the road. Dark window tinting would not allow drivers to see one another's facial expressions and, without drivers being able to interact in this way, more antisocial driving behaviours would be likely to be exhibited (Allen, 1970).

2.3 Detection of other road users

Returning to the point of view of the drivers of cars with window tinting, another problem with Dain's (1994) analysis is that it concentrates on the driver's need to perceive other cars. It ignores the need to detect the presence of pedestrians and cyclists: the low contrast road users who have always been the focus of discussions by opponents of window tinting. This is an important issue, given that a high percentage of pedestrian accidents occur at night when visibility is already compromised by lower levels of ambient light. Drivers turning into an intersecting road need to look through their front side windows to detect the presence of pedestrians or cyclists. Dain (1994) claims that visibility through side windows is not a problem because the driver always has the benefit of being able to see the headlights or signals of other cars but this will not help in the recognition of the presence of pedestrians or of many cyclists, as shown in Figures 2.3 and 2.4.

For example, a driver turning right into a T-junction or unsignalised intersection must look through the front side window in order to detect pedestrians crossing the road into which the car is intending to turn. Such turning manoeuvres have been shown to be of greater difficulty for drivers with decreased visual acuity and contrast sensitivity (McGwin Jr, Chapman & Owsley, 2000), and this greater difficulty would be exacerbated even further by dark window tinting. These turns may also be made more difficult by the presence of glare from the headlights of an oncoming car entering the intersection from the opposite direction and it is known that tinting offers no advantage for combating the effects of disability glare (Allen, 1970; McFarland & Domey, 1958).

The front side window would also come into play when turning left. The driver would need to be able to see pedestrians crossing to the other side of the street by looking through the left front side window and cyclists approaching from the right would have to be detected through the driver's right front side window. Another point to consider with regard to left turns is that there will be occasions when the road being turned into is curved in such a way that the driver of the car must turn through a greater arc. In such situations the driver will be required to look through the front side window for a longer period of time and it will also take longer before any road users such as pedestrians are illuminated by the headlights.

Another problem with the dark tinting of front side windows will arise when the driver must quickly glance through a front side window with a VLT value of 35% after having been looking through a windshield with a VLT of 75%. The large difference in VLT values for the two windows will mean that the driver's eyes must dark adapt in a very short space of time (NHTSA, 1991).

Proponents of 35% VLT window tinting also claim that unlike the raked windshield, the front side windows of cars are not positioned at a large rake angle and so visual light is not as substantially reduced by having to travel a longer distance through the glass before reaching the driver's eyes. This means, it is claimed, that drivers are provided with more light through the side windows than through the windshield, other things being equal, because they are looking through the side window at 90 degrees but at a more acute angle through the windshield. This, however, ignores the fact that a lot of the essential visual information that is provided through the front side windows can only be obtained by looking through the window at an angle. This is the case when looking at side wing mirrors, for example.

Figure 2.3
View of a pedestrian through the front side window: no tint film

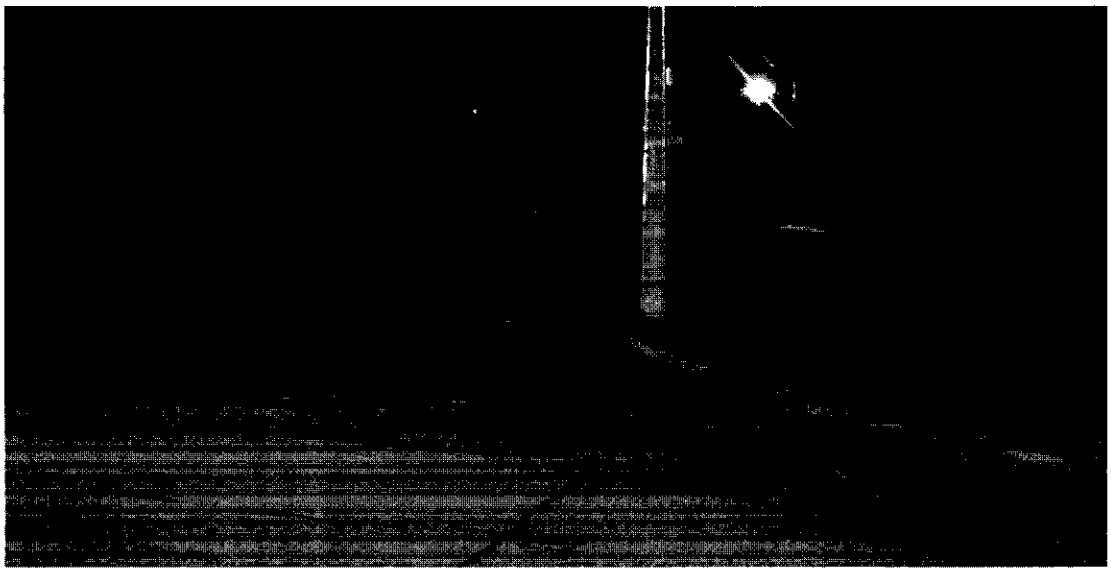
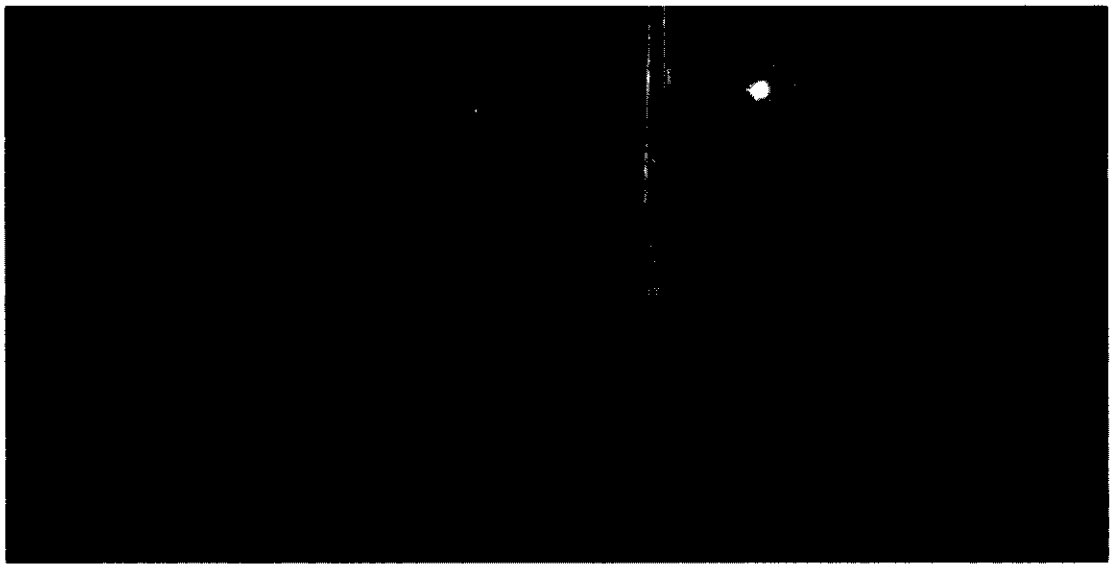


Figure 2.4
View of a pedestrian through the front side window: 35% VLT tint film



3 Conclusions

Drivers, cyclists and pedestrians are all often in situations in which they need to be able to see through a car's windows, a task that will become more difficult if dark tinting is permitted, especially as looking through a car usually involves seeing through more than one window, thus compounding the losses in visible light with each window (Allen, 1970; Gregory, 1995; Kotsiris, 1992; NHTSA, 1991).

It is also often necessary for other road users to be able to see into a car and this will become increasingly difficult as the degree of tinting of car windows increases because of the adverse effect of tinting on both visual light transmittance and reflectance (Allen, 1970; Clark, 1996; Gregory, 1995; Kotsiris, 1992; Lane, 1994; NHTSA, 1991; Proffitt et al, 1995).

There are also a number of situations in which the driver has to look through the front side windows to check for the presence of pedestrians and cyclists. As shown in Figures 2.3 and 2.4, 35% VLT tinting of these windows will exacerbate the difficulties of detecting these low contrast road users at night and in the presence of glare from oncoming headlights which do not illuminate the pedestrian.

Consideration must also be given to the effect window tints will have on the difference in the VLT level of the windshield and other windows as it pertains to dark adaptation (NHTSA, 1991).

4 Recommendations

Claims that the visual tasks performed through front side windows as opposed to windshields are different in such a way as to preclude the necessity to require a high degree of visual light transmittance for these windows cannot be supported. Such claims ignore the needs of other road users and, particularly, the need to look both through and into other cars, a need that will be hampered by the presence of dark tinting of front side windows. On safety grounds, the minimum VLT for front side windows should remain at 70%, as required by the Australian Design Rules for Motor Vehicle Safety.

Acknowledgements

This study was funded by Transport SA through a Project Grant to the Centre for Automotive Safety Research. The Transport SA Project Manager was Michael White.

Our thanks go to Sally Edwards and Rae Tyler for their help in taking the photographs in this Report.

The opinions expressed here are those of the authors and do not necessarily reflect those of Transport SA.

References

Allen, M.J. (1970). Vision and highway safety. New York: Chilton Book Co.

Clark, B.A.J. (1996). Mismatches between driver capabilities and road vehicle standards. DSTO Air Operations Division, Aeronautical and Maritime Research Laboratory, Melbourne.

Dain, S.J. (1994). Visual aspects of automotive window films. In M.J. Griffiths & C.J. Jones (Eds), Window Tinting and Road Safety: Proceedings of a Symposium held in Sydney, Australia 10 May 1994 (pp 21-26). New South Wales: Roads and Traffic Authority.

Gregory, P. (1995). The darker side of window tinting. Cyclist, June-July, 20-21.

IWFAA (2000). On the need to harmonise South Australia's Automotive Tinting Requirements with the Rest of Australia and New Zealand. Submission to the Hon Diana Laidlaw MLC, Minister for Transport and Urban Planning, Minister for the Arts, Minister for the Status of Women.

Kotsiris, L. (1992). VOS position on automotive tint film. Minutes forming enclosure to DRT No. V3521-92.

Lane, M. (1994). Window tinting - a police perspective. In M.J. Griffiths & C.J. Jones (Eds), Window Tinting and Road Safety: Proceedings of a Symposium held in Sydney, Australia 10 May 1994. pp 27-30. New South Wales: Roads and Traffic Authority.

McFarland, R.A. & Domey, R.G. (1958). Experimental studies of night vision as a function of age and changes in illumination. Highway Research Board Bulletin, 191, 17-32.

McGwin Jr, G., Chapman, V. & Owsley, C. (2000) Visual risk factors for driving difficulty among older drivers. Accident Analysis and Prevention 32(6), p735-744.

National Highway Traffic Safety Administration (1991). Report to Congress on Tinting of Motor Vehicle Windows. Silver Spring MD: Accents Publications Service.

Proffitt, D.R., Joseph, J. E., Bhalla, M., Durgin, F.H., Bertamini, M., Lynn, C. & Jernigan, J.D. (1995). External viewing of vehicle contents under varying window tinting and illumination conditions. Virginia Transportation Research Council. (Final Report No. VTRC 95-R3).

#3

SB 2188

Chairman Gary Lee and Members of the Senate Transportation Committee.

As I will be out of state on the date of hearing on SB 2188, relating to window tinting in motor vehicles, I would like to offer written testimony on behalf of the North Dakota Optometric Association in opposition to SB 2188.

For the record, my name is Nancy Kopp, I represent the North Dakota Optometric Association and 128 out of approximately 150 practicing optometrists that serve patients in 39 out of 53 counties in North Dakota.

In a survey of NDOA members, the following is a sampling of the opposition, by the eyecare provider responses:

1. The majority of medical eye conditions covering photophobia would be better controlled and managed with appropriate sunwear.
2. The tint creates dangers for night driving. It also does not allow other drivers or law enforcement to see inside the vehicle.
3. Most patients requesting a medical authorization have no good reason.
4. I am unaware of any of my patients being significantly adversely affected with the current statute as written.
5. It is my opinion that 70% is not enough transmittance for the windshield and 50% is definitely to dark for side windows. I would prefer 90/10 front, 80/20 sides and no exceptions by "authorized medical authorities".

For reasons noted above, the North Dakota Optometric association and its members respectfully request a do not pass recommendation on SB 2188.