

BRIEF FILED  
WITH MOTION

IN THE SUPREME COURT OF APPEALS OF WEST VIRGINIA

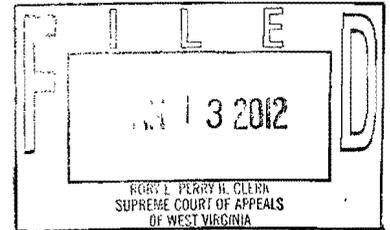
JOE J. WHITE, JR.

Petitioner,

No.: 11-0171

JOE MILLER, COMMISSIONER;  
WEST VIRGINIA DIVISION OF MOTOR  
VEHICLES,

Respondent.



PETITIONER'S SUPPLEMENTAL BRIEF

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Respondent.

SUPPLEMENTAL BRIEF

INTRODUCTION

On November 15, 2011, this honorable issued a supplemental briefing order requiring the parties to submit supplemental briefs on the following issues: “(1) West Virginia’s adoption of the National Highway transportation Safety Administration’s (NHTSA) standards for field sobriety tests; (2) discussion of any peer reviewed articles regarding the foundation, administration, and *Daubert* considerations of the horizontal gaze nystagmus test; and (3) discussion of cases from other states on issues regarding the admissibility of the horizontal gaze nystagmus test.” In response thereto, the Petitioner’s argument is submitted below.

ARGUMENT

I. ISSUES RAISED BY THIS APPEAL AND THE COURT’S SUPPLEMENTAL BRIEFING ORDER

What appears to be straight forward and simple issues regarding the issue of the admissibility<sup>1</sup> of the Horizontal Gaze Nystagmus (HGN) test is actually quite complex involving

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<sup>1</sup>As a threshold matter, Petitioner suggests that the admissibility issues should be considered in the context of the new DUI license revocation law which, among other things,

multiple issues as follows:

1. Is the HGN test a scientific test?
2. If scientific, do the standards enunciated in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993), as adopted by this court in a series of cases, govern its admissibility?
3. Regardless of whether or not it is scientific, as a foundation for admission, does the State have to show that it was administered and scored properly by an adequately trained officer? In other words, as some states put it, does the officer have to qualify as an expert in administering the test and demonstrate that he administered it in compliance with his training?
4. If admissible, what do the failed results of an HGN test establish or what limitations, if any, should be put on its evidentiary weight or meaning?
  - a. Can the results be admitted to establish a particular blood alcohol level (BAC) or that a driver is above the legal limit?
  - b. Can the results be admitted as direct evidence of intoxication or impairment?
  - c. Are the results limited to circumstantial evidence of impairment?
  - d. Are the results limited to establishing that the subject may have consumed alcohol and/or may be impaired?
  - e. Should the results be limited to the issue of probable cause only?
  - f. Connected to the above issues, is whether the methodology sanctioned by the National Highway Traffic and Safety Administration (NHTSA) a valid method to generate the conclusion that a driver is impaired by alcohol? To put it another way, can the HGN reliably distinguish between those who have consumed alcohol and those who had consumed too much?

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created a new adjudicative organization to decide DUI license revocation issues. Police officers are now very effectively and aggressively represented by the Attorney General's Office.

II. THIS COURT CAN TAKE JUDICIAL NOTICE OF THE APPLICABILITY OF NHTSA  
FIELD SOBRIETY TRAINING MANUALS AND THEIR REQUIREMENTS TO LAW  
ENFORCEMENT IN WEST VIRGINIA.

Before addressing the questions as articulated above pursuant to the Supreme Court's directive, it is necessary to address the applicability of the NHTSA field sobriety test standards to this jurisdiction.

Pursuant to Rule 201(b) of the *West Virginia Rules of Evidence*, "A judicially noticed fact must be one not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.

Pursuant to paragraph (d) of that rule, judicial notice is "mandatory" under the following circumstances: "A court shall take judicial notice of request by a party and supplied with the necessary information." The necessary information includes the following:

- a. The court can readily ascertain from the cases cited herein that the NHTSA field sobriety test standards are universally applicable to every state in the United States.
- b. Enclosed herein as an Exhibit "A" is the expert testimony under oath and subject to cross examination of expert witness, William Mitchell Taylor,<sup>2</sup> at the suppression hearing in *State v. Whittaker*, Case No.: 04M-894. Mr. Taylor is a former Georgia police officer who was certified by the National Highway Traffic and Safety Administration (NHTSA) to train officers how to conduct field sobriety tests and who, in fact, trained instructors on how to teach the field sobriety tests. He is a nationally recognized expert on standardized field sobriety tests and has testified in at least 14 states on these tests. See pages 8-12 of Exhibit A. Mr. Taylor testified that these tests, which includes the horizontal gaze nystagmus test ("HGN"), the walk and turn ("WAT"), and the one-leg stand ("OLS") are standardized

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<sup>2</sup>To avoid burdening the court, the petitioner has only included Taylor's testimony with respect to the HGN test on direct and cross. Should the court deem it necessary to be provided the full transcript, petitioner will be happy to do so.

throughout the United States and are applicable, of course, in West Virginia. *Id.*, pgs. 12-13. Mr. Taylor testified to the historical development of the field sobriety tests, how the tests are required to be administered and scored, and what non-alcoholic factors interfere with a person's ability to perform these tests. *Id.*, pgs. 16-41.

- c. Also enclosed as Defendant's Exhibit "B" is the testimony under oath of Corporal Mike Holstein in the case of *State v. Robertson*, File No. 212959A (1998) who testified before the DMV in April of 1998. Holstein was a State Trooper and a certified NHTSA instructor who was responsible for training police officers in West Virginia on DUI detection and field sobriety testing. He testified that all law enforcement officers in the state receive the same training under the standards and procedures developed by NHTSA. He testified that field sobriety tests must be administered in a particular way. (Tr. 77). He also described the history of field sobriety testing and their reliability. (Tr. 79-80, 82-83). He also testified that the standards have remained basically the same since they were initially developed. (Tr. 81). He testified to how each test must be administered and the conditions that interfere with the performance of the test. (Tr. 87-104).
  
- d. It must also be stressed that the National Highway Traffic Safety Administration ("NHTSA") is an agency under the U. S. Department of Transportation and was established by the Highway Safety Act of 1970. The mission of NHTSA is to carry out safety programs under the National Traffic and Motor Vehicle Safety Act of 1966 and the Highway Safety Act of 1966. NHTSA also carries out consumer programs established by the Motor Vehicle Information 2<sup>nd</sup> Cost Savings Act of 1972. The U. S. Secretary of Transportation has delegated authority to the NHTSA administrator to exercise authority in the administration of laws pertaining to highway, traffic, and motor vehicle safety. 49 C. F. R. §5.1.2. In that connection, NHTSA is responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes. This is accomplished by setting and enforcing safety performance stands for motor vehicles and motor vehicle equipment, and through grants to state and local governments to enable those governments to conduct effective local highway safety programs. See, 23 U. S. C. Chapter 4, Highway Safety. As such, courts are required to take judicial notice of standards promulgated under the authority of the federal highway safety statutes pursuant to Rule 201 and 202, *West Virginia Rules of Evidence*. See, *Myers v. State Workman's Compensation Cm'r.*, 39 S. E. 2d 124, 160 W. Va. 766 (1977).

Thus, pursuant to Rule 201 of the *West Virginia Rules of Evidence* and the above-cited authority, Petitioner requests this court can take judicial notice of the applicability of the NHTSA DUI detection standards to this jurisdiction, as contained in the training manual periodically issued by NHTSA and, in particular, the 2002 NHTSA training manual which is the one relevant to the issues raised herein.

III. REGARDLESS OF WHETHER OR NOT COURTS HAVE DETERMINED THAT THE HGN TEST IS SCIENTIFIC, THERE IS NEAR UNANIMITY OF OPINION THAT IN ORDER FOR THE TEST TO BE ADMITTED INTO EVIDENCE, THE STATE MUST FIRST ESTABLISH THAT THE OFFICER WAS ADEQUATELY TRAINED TO ADMINISTER THE TEST AND THAT HE ACTUALLY ADMINISTERED THE TEST PURSUANT TO THE REQUIREMENTS OF THAT TRAINING.

Turning to the substantive issue involved in this court's supplemental briefing order, it is appropriate to first deal with the issue of foundation requirements regardless of whether or not the HGN test is scientific.

Almost every jurisdiction in this country, as a predicate to admission, require the state to establish that the officer who administered the test be adequately trained and to show that he administered the test in conformity therewith. See, e.g., *State v. Baue*, 258 Neb. 968; 607 N. W. 2d 191, 205; 2000 Neb. LEXIS 53. “. . . (Police officer may testify to the results of HGN testing if it is shown that the officer has been adequately trained in the administration and assessment of the HGN test and has conducted the testing and assessment in accordance with that training.” ) *Williams v. State*, 710 So. 2d 24, 32 (Fla. App. 1998) (noting that “HGN test results. . .are admissible into evidence once a proper foundation has been laid that the test was correctly administered by a qualified [person]”); *State v. Taylor*, 694 A. 2d 907 (Me. 1997) (holding proper foundation for admission of HGN test is evidence that administrator of test is trained in

procedure and test properly administered); *People v. Berger*, 217 Mich. App. 213; 551 N. W. 2d 421; (Mich. 1996), (test is admissible upon a showing that test was properly performed and officer administering test qualified to perform it); *Schultz v. State*, 106 Md. App. 145; 664 A 2d 60; (Md. 1995) (holding that the State must establish that the officer was properly qualified and test conducted properly); *State v. Carson*, 941 S. W. 2d 518 (Mo. 1997) (HGN admissible when properly administered by adequately trained personnel); *State v. Armstrong*, 561 So. 2d 883 (La. App. 1990) (proper foundation for admitting HGN test is showing officer trained in procedure, certified in its administration, and procedure properly administered); *Fargo v. McLaughlin*, 512 N. W. 2d 700, 708 (N. D. 1994) (To be admissible, state must establish officer's "training and experience in administering the test and a showing that the test was in fact properly administered. . ."); *State v. Torres*, 127 N. M 20; 1999 N. M. S. C. 10; 976 P. 2d 20, 35; 1999 N. M. LEXIS 55; 38 N. M. St. B. Bull 10 (New Mexico Supreme Court holds that in order to qualify a witness as an expert in the "administration" of the test "there must be a showing: (1) that the expert has the ability and training to administer the HGN test properly and (2) that the expert did, in fact, administer the HGN test properly. . ."); *People v. Gallup*, 302 A. D. 2d 681, 684; 755 N. Y. S. 2d 498; 2003 N. Y. App. Div. LEXIS 1255 (Finding by New York Supreme Court that while test was admissible under *Frye*, foundation requirements consisted of determining whether "accepted techniques were actually employed. . .and the testers qualifications. . ."); *Oregon v. O'Key*, 321 Ore. 285; 899 P. 2d 663, 689-690; 1995 Ore. LEXIS 51 (Oregon Supreme Court holds that, . . .subject to a foundation showing that the officer who administered the test was properly qualified, the test was administered properly, and the test results were recorded accurately, the HGN test is admissible in a DUI proceeding. . ." but not to establish a BAC level.);

*Commonwealth v. Sands*, 675 N. E. 2d 370, 373 (Mass. 1997), (A Supreme Court decision holding that, “there must be a determination as to the qualifications of the individual administering the HGN test and the appropriate procedure to be followed if the HGN test results are to be admitted at trial.”); *State of South Dakota v. Hullinger*, 649 N. W. 2d 253, 260-261 (S. D. S. C. 2002), (District Court finds the HGN is admissible under *Daubert* standard “if it can be shown the test was properly administered by a trained officer.”); *People v. McKown* (McKown II), 924 N. E. 2d 941, 957 (Ill. 2010) (Decision by Illinois Supreme Court holding that to be admitted, the State must establish that the test was “performed according to NHTSA protocol by a *properly* trained officer. . .”); *State v. Boczar*, 113 Ohio St. S. E. 3d 148, 153; 2007 Ohio 1251; 863 N. E. 2d 155; 2007 Ohio LEXIS 800, (Ohio Supreme Court holds that “the results are admissible without expert testimony so long as the proper foundation has been shown as to the administering officer’s training and ability to administer the test and as to the actual technique used by the officer in administering the test.”); *Oregon v. Ingram*, 243 P. 3d 488 (Ore. App. 2010) (Trial court erred in admitting test as evidence demonstrated test was not administered properly in accordance with officer’s training manual.)

In light of the above authority, Petitioner hereby respectfully requests that in a license revocation hearing, as a predicate to admission, the court find that the state be required to establish that the officer administering the HGN test was adequately trained and that he administered the test in conformity with that training.

#### IV. IS THE TEST SCIENTIFIC?

##### A. Preliminary Consideration

###### 1. What Is Nystagmus?

Nystagmus is the “[i]nvoluntary back-and-forth cyclical movements of the eyes. . . often. . . most noticeable when the patient gazes at objects moving by rapidly or at fixed objects in the peripheral field of view.” *Taber’s Cyclopedic Medical Dictionary*, 21<sup>st</sup> ed. 1613 (2005).

Nystagmus is the “rapid involuntary oscillation of the eyeballs.” *Schultz v. State*, 106 Md. App. 145, 148 n.1, 664 A 2d 60, 61 n.1 (1995) (Citation omitted).

###### 2. Historical Development Of The HGN And Standardized Field Sobriety Tests.

The background of the development of field sobriety tests is succinctly described by the Court of Appeals of New Mexico in *State of New Mexico v. Lasworth*, 131 N. M. 739; 2002 NMCA 29; 42 P. 3d 844-845; 2001 N. M. LEXIS 129, as follows:

“HGN has come to be a principal component of standardized field sobriety tests (FSTs) as the result of a series of studies conducted under the auspices of the National Highway Traffic Safety Administration (NHTSA). In the mid-1970’s, Drs. Marcelline Burns and Herbert Moskowitz, doing business as the Southern California Research Institute, were awarded a contract by the NHTSA to conduct laboratory studies of various FSTs then in use around the country, with the goal of identifying the most effective battery of FSTs. The results of the research were published in 1977. M. Burns and H. Moskowitz, *Psychological Tests for DWI Arrest, Final Report, No. DOT-HS-802-424 (1977)* (hereafter the 1977 Report). The 1977 Report recommended a battery of three FSTs: one-leg-stand, walk-and-turn, and HGN. According to Dr. Burns and Dr. Moskowitz, the combined scores from the proposed three-test FST battery correctly discriminated between subjects having blood alcohol concentrations (BACs) below 0.10 percent and those having BAC’s at or above 0.10 percent eighty-three percent of the time.” (Emphasis supplied).

“NHTSA sponsored a further study to standardize administration and scoring of the FSTs. The results of this second study were published in 1981. V. Tharp, M. Burns, and H. Moskowitz, Development and Field Test of Psychophysical Tests for DWI Arrest, No. DOT-HS-805-864 (1981). The researchers reported that in the laboratory, police officers trained in the administration of the three-test battery were able to discriminate between subjects whose BAC was below 0.10 percent and those whose BAC was at or above this level eight-one percent of the time.

NHTSA funded a third study. The purpose of this study was to evaluate the effectiveness of the the three-test battery in the field. Researchers concluded that a properly-administered HGN test would correctly identify a suspect as having a BAC at or above 0.10 percent seventy-seven percent of the time, and that when the HGN and walk-and-turn results were combined using a decision matrix, the two tests would correctly identify a suspect as having a BAC at or greater than 0.10 percent eighty percent of the time. T. Anderson, R. Schweitz, and M. Snyder, Field Evaluation of a Behavioral Test Battery for DWI, No. DOT-HS-806-475 (1983).

There have been further studies validating the NHTSA standardized FST battery, including studies in Colorado, M. Burns and E. Anderson, A Colorado Validation Study of the Standardized Field Sobriety Test (SFST) Battery, Final Report, submitted to Colorado Department of Transportation (1995) (hereafter 1995 Colorado Report); Florida, M. Burns and T. Dioquino, A Florida Validation Study of the Standardized Field Sobriety Test (S.F.S.T.) Battery, (1998); and California, J. Stuster and M. Burns, Validation of the Standardized Field Sobriety Test Battery at BAC's Below 0.10 Percent, Final Report, submitted to U. S. Dept. of Transportation, NHTSA (1998) (hereafter 1998 Final Report). In the 1998 Final Report, researchers concluded that the NHTSA's three-test FST battery enabled officers in the field to accurately estimate whether a motorist's BAC was at or above 0.08 percent ninety-one percent of the time.<sup>3</sup>

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<sup>3</sup>As discussed elsewhere in this brief, these studies and the methodology utilized by Dr. Burns and others in these studies have never been published in any peer review journal. Also, as will be seen by the discussion elsewhere in this brief, these validity claims in all these studies are highly suspect.

### 3. How The Test Is Administered.

Since the 1980's, NHTSA has periodically published and republished field sobriety test training manuals. For instance, it published one in 1984, 1987, 1989, 1990, 1992, 1995, 2000, 2002, 2004, and 2006. While there have been small changes and modifications over the years with respect to the administration and scoring of the three tests, they have basically remained unchanged. The manual under which the officer was trained in this case, which was admitted into evidence at the DMV hearing, requires the officer to first check the eyes for a possible medical impairment such as “[r]esting nystagmus,” “[t]racking ability,” and “[p]upil size” which, if present, invalidates the test.<sup>4</sup> The procedure for starting the test and determining those signs are as follows. The officer instructs the suspect as follows:

- “○ I am going to check your eyes.
- Keep your head still and follow this stimulus with your eyes only.
- Keep following the stimulus with your eyes until I tell you to stop.”

*Principles*, at VIII-6.

Next, the officer is to determine if the suspect has a medical condition that would make the test invalid by holding

“ . . .the stimulus approximately 12-15 inches from the suspect’s nose and slightly above eye level. You may observe Resting Nystagmus at this time. Check the suspect’s eyes for the ability to track together. Move the stimulus smoothly across the suspect’s entire field of vision. Check to see if the eyes track the stimulus together or one lags behind the other. If the eyes don’t track together it could indicate a possible medical disorder, injury or blindness.”

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<sup>4</sup>*Principles and Techniques of Training in Standardized Field Sobriety Testing, Student-Instructor Manual*, (hereafter FST manual, 2002) Department of Transportation HS178 R1/02, VIII-5. (Admitted into evidence at DMV hearing as file exhibit 15).

*Id.*

He then has to perform another medical condition test by “checking to see that both pupils are equal in size. If they are not, this may indicate a head injury.” *Id.*

If no medical condition is evidenced by the above procedures, the officer then moves the stimulus “at a speed that requires approximately two seconds to bring the suspect’s eye as far to the side as it can go [to]. . .determine whether it is able to pursue smoothly.” With respect to each eye, he moves the stimulus back and forth twice at the above speed. *Id.*, at VIII-7. (Emphasis in original).

The second part of the test requires the officer to “check the eyes for distinct nystagmus at maximum deviation,” again moving the object “to the suspect’s left side” as far as the eye can go. The officer must hold the eye in that position “for a minimum of four seconds.” The nystagmus must not only be “distinct” but “sustained.” Again, both eyes are checked twice in the above manner. *Id.* (Emphasis in original).

The manual contains a warning that if the eye is held at maximum deviation for too long, “more than 30 seconds,” that, in itself, could create nystagmus. *Id.*

Finally, the officer must “check for onset of nystagmus prior to 45 degrees” by moving the object at a speed that takes “approximately four seconds for the stimulus to reach the end of the suspect’s shoulder.” The officer then must “watch the eye carefully for any sign of jerking.” Again, the procedure is repeated twice for each eye. Nystagmus prior to 45 degrees is suppose to indicate a blood alcohol level of 0.10 or above. The instructions warn that “it is important to use the full four seconds. . .” *Id.*

The manual says, “based on the original research. . .four or more clues” constitutes a

failure. Based on the above criteria, the manual says that the officer “will be able to classify about 77% of your suspects accurately.” *Id.*, at VIII-8.

The manual stresses the importance of knowing how to estimate the 45 degrees accurately,

“It is important to know how to estimate a 45-degree angle. How far you position the stimulus from the suspect’s nose is a critical factor in estimating a 45-degree angles. (i.e., If the stimulus is held 12" in front of the suspect’s nose, it should be moved 12" to the side to reach 45 degrees. Likewise, if the stimulus is held 15" in front of the suspect’s nose, it should be moved 15" to the side to reach 45 degrees.)”

*Id.*, at VIII-6.

Determining the 45 degree angle is so important NHTSA recommends that officers practice estimating the angle with a template. “With practice you should be able to recognize the angle without using the template.” *Id.*

Other requirements include performing the test “outside of the automobile in a well lit area.” If the suspect is wearing glasses, “they should be removed to ensure proper observation. . . . If the suspect wears hard contact lenses, the test should not be administered because the lenses may dislodge and interfere with eye movement. . . .” *State of Maryland v. Blackwell*, 08 Md. 677, 971 A. 2d 296, 302; 2009 Md. LEXIS 62. See also, *United States v. Horn*, 185 F. Supp. 2d 530. (D. Md. 2002); *State v. Witte*, 251 Kan. 313, 316-317; 836 P. 2d 1110; 1992 Kan. LEXIS 147; U. S. L. W. 2110.

#### B. Seminal Decisions On Whether Or Not The Test Is Scientific.

In *State v. Superior Court*, 149 Ariz. 269; 718 P. 2d 171, 172-173, 1986 Ariz. LEXIS 207, 60 A. L. R. 4<sup>th</sup> 1103 (1986), the Arizona Supreme Court had to determine whether the HGN

test was “sufficiently reliable to establish probable cause” for a DUI arrest and whether it was “sufficiently reliable to be introduced into evidence at trial. At that time, the legal limit in Arizona was 0.10 and the arresting officer had testified that the results of the HGN test indicated that the defendant’s BAC results were likely above that level. At the evidentiary hearing on admissibility, the state presented the testimony of Dr. Marcelline Burn who, as noted above, along with Herbert Moskowitz had performed the initial studies on field sobriety testing under a grant from NHTSA. Also testifying for the state were several law enforcement personnel. The state also offered into evidence the NHTSA training manual that resulted from the studies of Burns and Moskowitz. 718 P. 2d at 173-174.

The defendant offered no rebuttal evidence. Nevertheless, the trial court ruled that HGN represented a new scientific principle but was unreliable under *Frye v. United States*, 293 F. 1013 (D. C. 1923) and, therefore, could not form the basis of probable cause.”<sup>5</sup> *Id.*, at 174.

On appeal, the Arizona Supreme Court agreed that it was a scientific test. The court concluded that “the testimony presented at the evidentiary hearing. . .establishes that in the hands of a trained officer, the test is reasonably trustworthy and may be used to help establish probable cause<sup>6</sup> to arrest.” *Id.*, at 178.

With respect to whether the evidence was admissible on the issue of guilt or innocence, the court concluded that *Frye* was applicable. Noting that the defendant presented no rebuttal evidence with respect to both the merits of expert testimony and the issue of general acceptance

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<sup>5</sup>The probable cause issue arose because the results of the other field sobriety tests were insufficient, by themselves, to establish probable cause as the officer testified that the defendant’s performance on those tests was “fair.”

<sup>6</sup>The court also held that *Frye* did not apply to probable cause issues.

and relying on their own research (See Exhibit B attached to the court's decision at 182-184), the court found that the test was generally accepted in the scientific community. The court determined that "with proper foundation as to the techniques used and the officer's ability to use it (sic). . . testimony of defendant's nystagmus is admissible on the issue of a defendant's blood alcohol level as would be other field sobriety results *on the question of the accuracy of the chemical analysis.*" *Id.*, at 181. (Emphasis supplied).

However, the court dismissed the notion it could be used to show a blood alcohol level in the absence of a chemical analysis as such a use would raise a number of due process issues as follows:

"The arresting officer's 'reading' of the HGN test cannot be verified or duplicated by an independent party. The test's recognized margin of error provides problems as to criminal convictions which require proof of guilt beyond a reasonable doubt. The circumstances under which the test is administered at roadside may affect the reliability of the test results. Nystagmus may be caused by conditions other than alcohol intoxication. And finally, the far more accurate chemical testing devices are readily available."

*Id.*, at 181 (Citation omitted).

The court concluded that without a chemical test, the defendant could not be convicted of the per se DUI offense of driving with a blood alcohol level of 0.10 or above, but it was "admissible as other evidence of defendant's behavior, to prove that he was 'under the influence.'" *Id.*, at 182.

Six years later in *State v. Witte, supra*, at 320-321, the Kansas Supreme Court had occasion to visit the issue. The prohibited BAC level in Kansas, at that time, was also 0.10. Witte had been convicted for driving with a blood alcohol level on or above that level. After

taking a critical view of the few states that had held the test was not scientific, the court noted that “the majority of states that have considered the issue have held that the HGN test is scientific evidence,<sup>7</sup> most requiring that the *Frye* foundation for admissibility be satisfied.” (Citations omitted).

The court has discussed in detail the holding in *Superior* and stressed the fact that since that decision, many articles critical of the HGN test had been published in peer review articles. “If the Arizona Supreme Court had had this evidence before it,” said the court, “it may not have held that HGN evidence satisfies *Frye*. . .” *Id.*, at 329.

The court proceeded to catalog critical articles that appeared after the decision in *Superior* or had not been considered by the Arizona court. 251 Kan. at 327-329.

Based on this evidence, that court concluded that,

“The reliability of the HGN test is not currently a settled proposition in the scientific community. This court holds that HGN evidence requires a *Frye* foundation for admissibility. If the *Frye* foundation is established to this court’s satisfaction, HGN evidence will be admitted in other cases without the need to satisfy the *Frye* test each time. Before this court rules on whether HGN evidence satisfies the *Frye* admissibility requirements, a trial court first should have an opportunity to examine, weigh, and decide disputed facts to determine whether the test is sufficiently reliable to be admissible for any purpose in Kansas.”

*Id.*, at 329-330. (Emphasis supplied).

Determining that admitting the results of the HGN test was not harmless error, the court

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<sup>7</sup>Most states relied on the fact that the testing procedure and probative results were beyond common knowledge and experience

reversed and remanded the case for a new trial.<sup>8</sup>

### C. Current State Of The Law.

In 1999, the Intermediate Court of Appeals of Hawaii catalogued the state of law around the country as to whether or not the test was scientific as follows:

“A minority of jurisdictions have held that HGN testing is based on a police officer’s personal observations of a driver’s physical characteristics and is not scientific in nature. These jurisdictions view HGN tests as no different from other FSTs, such as the walk-and-turn or the one-leg-stand, and admit HGN test results into evidence without scientific foundation or expert interpretation. . . . A second group of courts have concluded that unlike the walk-and-turn and the one-leg-stand FST’s, which are grounded in common knowledge that excessive alcohol can cause coordination, balance, and mental agility problems. HGN testing is based on a scientific principle not generally known by lay jurors. Due to this scientific nature, HGN test results are not admitted by these courts unless expert testimony meeting the criteria set forth in *Frye v. United States*, 293 F. 1013 (D. C. Cir. 1923); *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U. S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993); or a pertinent state rule of evidence is adduced to demonstrate the reliability and acceptability of the test. (Citation omitted). . . . A third group of courts, while agreeing that HGN testing is scientific in nature, have determined, based on a review of relevant case law and scientific publications, that the HGN test is a reliable and accepted indicator of intoxication and, therefore, HGN test results are admissible without further expert testimony as to the scientific validity and reliability of HGN testing, as long as proper foundation as to the techniques use and the police officer’s training, experience, and ability to administer the test has been laid.”

*State v. Ito*, 90 Haw. 225; 978 P. 2d 191, 199-200; 1999 Haw. App. LEXIS 84.

Since *Ito*, more and more courts have adopted the majority view, including a number of state supreme courts, some of whom have conducted an exhaustive and detailed examination of

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<sup>8</sup>There does not appear to be any published decision dealing with the ultimate outcome of this case.

the case law and scientific evidence. See: *State v. Blackwell*, 408 Md. 677, 971 A. 2d 296, 307; 2009 Md. LEXIS 62 (Md. 2009). (The Maryland Court of Appeals held that the HGN was a scientific test under Rule 702 and the state first must determine through expert testimony that there is a correlation between alcohol consumption and nystagmus.); *State v. Baue*, 258 Neb. 968; 607 N. W. 2d 191; 2000 Neb. LEXIS 53 (Based on the unopposed testimony of three witnesses called by the State, the Nebraska Supreme Court held that HGN was scientific evidence and admissible under *Frye*.); *State v. Dahood*, 148 N. H. 723; 814 A. 2d 159; 2002 N. H. LEXIS 179. (New Hampshire Supreme Court held HGN test results were scientific evidence but, after reviewing the case law in other jurisdictions, determined that such evidence satisfied the *Daubert* standards of admissibility); *State v. Doriguzzi*, 334 N. J. Super. 530, 540; 760 A. 2d 336; 2000 N. J. Super. LEXIS 367. (The court adopted the majority view that HGN evidence is scientific, but after surveying, the state of law and evidence around the country, concluded that it did not provide the court “with a level of certainty necessary to approve HGN testing for future cases.”) *State v. Hullinger*, 2002 SD 83; 649 N. W. 2d 253, 260-261; 2002 S. D. LEXIS 99 (The Supreme Court of South Dakota held that HGN was scientific and based on expert witness testimony at a suppression hearing, concluded the test meets the requirement of *Daubert*.); *United States v. Nguyen*, 2008 U. S. Dist. LEXIS 57088; 75 Fed. R. Evid. Serv. (Callaghan) 1018 (E. D. Calif. 2008) (HGN test is scientific but, relying on published cases across the country, held that a *Daubert* hearing was not required.); *Nebraska v. Casillas*, 279 Neb. 820; 782 N. W. 2d 882, 897; 2010 Neb. LEXIS 56 (The Supreme Court of Nebraska noted that the HGN test is a scientific test and proof of reliability under *Daubert* required.); *People v. Gallup*, 302 A. D. 2d 681; 755 N. Y. S. 2d 498, 501-502; 2003 N. Y. App. Div. LEXIS 1255 (New York Appellate

Court held the HGN was scientific and subject to *Frye* standards.) ; *State v. Maida*, 332 N. J. Super. 564; 753 A. 2d 1240; 2000 N. J. Super. LEXIS 276 (Holding that HGN was scientific but unchallenged testimony of State’s experts in trial court and cases in other jurisdictions, establish it is generally accepted under *Frye* as a reliable test.); *State v. Blackwell*, 408 Md. 677; 971 A. 2d 296; 2009 Md. LEXIS 62 (HGN differs “substantially from other tests,” and is scientific evidence.); *People v. McKown*, 226 Ill. 2d 245; 875 N. E. 2d 1029; 2007 Ill. LEXIS 1163; 314 Ill. Dec. 742 (*McKown I*) (After exhaustive and detailed analysis and consideration of cases in other jurisdictions, the Illinois Supreme Court determined HGN is scientific, was “novel” for purposes of *Frye* and therefore, to be admissible, State must establish it meets *Frye* standards. After examining the conflicting decisions and other jurisdictions and the disputed scientific evidence, the court refused to take judicial notice of its general acceptance. *McKown I*, at 1036-1046).

Thus, since the Hawaiian decision cataloguing the state of the law regarding whether the HGN test was scientific, virtually every jurisdiction has held that the HGN is scientific and as a prerequisite to its admissibility, the state must establish that it meets *Frye* or *Daubert* requirements. Petitioner urges this court to adopt the same position.

#### D. Establishing Admissibility Of Scientific Evidence In This Jurisdiction.

In *Witte v. Buracker*, 191 W. Va 39; 443 S. E. 2d 196 (1993), the court abandoned the *Frye* general acceptance standard and adopted the more liberal *Daubert* criteria. As gatekeeper, the court said the fact finder must not only determine whether scientific, technical, or specialized evidence is relevant, but whether it is reliable. Limiting *Daubert* to situations where the expert evidence “cannot be judicially noticed,” the court ratified the analysis recommended by the

Supreme Court in *Daubert* and held that in analyzing “expert testimony under Rule 702. . .[t]he trial court’s initial inquiry must consider whether the testimony is based on an assertion or inference derived from scientific methodology. Moreover, the testimony must be relevant to a fact at issue. Further assessment should then be made in regard to the expert’s testimony reliability by considering its underlying scientific methodology and reasoning. This includes an assessment of, (a) whether the scientific theory and its conclusion can be and have have been tested, (b) whether the scientific theory has been subjected to peer review and publication, (3) whether the scientific theory’s actual or potential rate of error is known, and (d) whether the scientific theory is generally accepted within the scientific community.” *Id.*, at 203. See also, *Gentry v. Mangum*, 195 W. Va. 512; 466 S. E. 2d 171; 1993 W. Va. LEXIS 233. Subsequently, in *State v. Aubrey*, 212 W. Va. 57, 569 S. E. 2d 133; 2002 W. Va. LEXIS 98, a decision by Justice Davis, this approach was reaffirmed. Justice Davis emphasized, quoting syllabus pt. 6 of *Gentry*, that “admissibility. . .only arises if it is first established that the testimony deals with ‘scientific knowledge’. . .[which] implies a grounding of the methods and procedures of science while ‘knowledge’ notes more than subjective belief or unsupported speculation.” 569 S. E. 2d at 144. Finally, in *San Francisco v. Wendy’s International, Inc.*, 221 W. Va. 734; 656 S. E. 2d 485; 2007 W. Va. LEXIS 112, the court pointed out that the above ‘checklist’ for determining reliability was not exclusive and that the trial court could consider other factors as well as what other courts have done. 221 W. Va. at 742.

One court, in addressing the admissibility of the HGN test under *Daubert*, in addition, included the following factors: (a) The technique’s general acceptance in the field; (b) The expert’s qualifications and stature; (c) the use which has been made of the technique; (d) the

potential rate of error; (e) The existence of specialized literature; (f) The novelty of the intervention; and (g) The extent to which the technique relies on the subjective interpretation of the expert.” *State v. O’Key*, 321 Ore. 285; 899 P. 2d 663, 676; 1995 Ore. LEXIS 51.

Some courts have limited the *Daubert* analysis to novel scientific evidence. However, the approach has been authoritatively rejected. In *State of Oregon v. O’Key*, 321 Ore. 285; 899 P. 2d 663, 673; 1995 Ore. LEXIS 51, the court addressed the question as to whether *Daubert* was limited to “novel” scientific evidence. “We agree,” the court said, “with the following observation by Professor Strong:

‘The chief difficulty with novelty as a limitation is that it too strongly suggests a focus upon the subject matter of the testimony as opposed to the real matter of concern, the particular general propositions relied upon by the witness. Moreover, no particular reason of logic or good sense exists to immunize particular areas or principles simply on the basis of longevity or the fact that their introduction antedated imposition of the new standard. Supposedly valid ‘science’ has not infrequently been unmasked. Nor is such a limitation needed in order to avoid wasting time on foundation proof for sufficiently established principles. Judicial notice should suffice to obviate this need, at least until such time as a challenge on reliability grounds had been mounted.’ *Strong*, 71 Or. L. Rev at 367.”

The court went on to emphasize that in making this analysis, the court must determine whether “the methods in question are capable of measuring what they purport to measure” *Id.*, at 678, and that issue deals with the question of validity and reliability. “Validity describes how well the scientific method reasons to its conclusion, reliability describes the ability of the scientific method procedure consistent results when replicated.” *Id.*, at 678. Crucial to the issue of scientific reliability and validity “is whether the theory or technique in question can be and has been tested. This consideration includes an evaluation of the testing procedure used, the number

of studies undertaken, and criticisms of those procedures.” *Id.*, at 678-679.

As will readily be concluded from the discussion below, the scientific reliability and validity of the HGN test, especially as a field sobriety test, is permeated with error and problems.

V. SCIENTIFIC EVIDENCE RELIED UPON IN RECENT AUTHORITATIVE CASES IN WHICH THE RELIABILITY AND VALIDITY OF THE HGN TEST HAS BEEN HEAVILY CRITICIZED.

A. *State v. Horn*

The first most authoritative case to deal with the issue after *Witte* was *State v. Horn*, 185 F. Supp. 2d 530; 2002 U. S. Dist. LEXIS 1712 (D. Md. 2002). That case dealt with the admissibility of all three field sobriety tests including, of course, HGN. The reliability, validity and methodology were examined in exhaustive detail. In that case the court had to consider the admissibility of the field sobriety tests under Rule 702 as revised and the *Daubert/Kumho Tire* tests. The court noted that field sobriety tests could be “potentially” admitted for the following purpose:

“(1) to establish probable cause to arrest and charge a defendant with DWI/DUI, (2) as direct evidence of the specific BAC of a defendant who performed the SFSTs or (3) as circumstantial proof that a defendant was driving while intoxicated or under the influence of alcohol.”<sup>9</sup>

*Id.*, at 534.

In conformity with the vast majority of cases, *Horn* stipulated the field sobriety tests could be used to establish probable cause, while the government stipulated they could not be used to determine a BAC level which was again in conformity with the almost universal position of state

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<sup>9</sup>At the time, Maryland’s law stated that a blood alcohol concentration between 0.07-0.08 was prima facie evidence of impairment while a BAC of .08 was per se intoxication.

courts. 185 F. Supp at 534.

The court recognized it must examine the scientific evidence with great care as, in most state courts, the determination of reliability relied upon the unrebutted testimony of Dr. Burns and law enforcement officers who have vested interests in finding these tests reliable, and the various studies authorized by Dr. Burns and others under NHTSA sponsorship.

As evidence, the state produced the 1977 Final Report produced by Drs. Burns and Moskowitz at the behest of NHTSA, the March 1981 follow up report prepared by Burns, the September 1983 NHTSA Technical Report prepared by Theodore E. Anderson and others, the 1995 Colorado Validation Study, and the undated Florida Validation Study again conducted by Dr. Burns and a sergeant. All of these studies were produced on behalf of NHTSA. 185 F. Supp. at 535-536.

After summarizing the procedure for administering the test and scoring criteria and noting that the purpose of the test is to determine whether the subject's BAC is above 0.10, the court stated ". . . it is readily apparent that much depends on the investigating officer properly performing the HGN test procedures and on his or her subjective evaluation of the presence of the 'standardized clues.'" The court then emphasized the warning in the fields sobriety test manual that says that, if the tests are not performed or scored in the standardized manner, the validity of the test results are suspect. "If any one of the standardized field sobriety test elements is changed, the validity is compromised." *Id.*, at 537. (Quoting from relevant manual.)

While the undersigned hesitates to burden this court with extensive quotes from the *Horn* decision, in order to fully appreciate the scientific evidence relied upon by *Horn* in limiting the admissibility of the HGN test as well as the other "standardized" tests, i.e., the WAT and OLS, it

is necessary to quote that evidence in detail.

The experts relied upon by *Horn* challenging the reliability and validity of the state's evidence were as follows:

“ . . .Horn produced four experts, three of whom submitted affidavits, and two of whom also testified: Yale Caplan, Ph.D. (Former chief toxicologist for the State of Maryland and former scientific director of the Maryland Alcohol Testing Program); Spurgeon Cole, Ph.D. (Professor of Psychology, Clemson University and author of a series of articles critical of the SFSTs); Harold P. Brull (a licensed psychologist and consultant specializing in industrial/organizational psychology, particularly the definition and measurement of human attributes in employment and related settings); and Joel Wiesen, Ph.D. (An industrial psychologist with special expertise in experimental psychology, psychometrics and statistics. Dr. Wiesen worked for more than ten years fo the Massachusetts Division of Personnel Administration, developing and validating civil service examinations and is an independent consultant in the field of development and validation of human performance tests)

185 F. Supp. 2d at 539.

The court proceeded to summarize the evidence of Horn's expert which consisted of their testimony and publications.

The court first addressed the evidence from Dr. Cole who was “highly” critical of the reliability of all the field sobriety tests to establish their intended purpose, i.e., “to prove the precise level of a suspect's alcohol intoxication or impairment.” *Id.*, at 539. The court noted that Dr. Cole had analyzed NHTSA's original studies as contained in their 1977, 1981 reports, the 1983 Field Evaluation Report and the subsequent reports, i.e., the Colorado, Florida and San Diego field validation studies performed by Dr. Burns.<sup>10</sup> The undersigned will not repeat all of

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<sup>10</sup>All of Dr. Cole's research and critical studies were published in peer review journals.

the evidence summarized by the court on pages 539-546 of the court's decision but some of the high points are as follows:

Dr. Cole first testified to the unreliability of the original laboratory studies conducted by Dr. Burns and others emphasizing the very high false arrest rates of 47 and 32 percent. *Id.*, at 539.

Dr. Cole then reported that,

“[The SFSTs] must be held to the same standards the scientific community would expect of any reliable and valid test of behavior. This study brings the validity of field sobriety tests into question. If law enforcement officials and the courts wish to continue to use field sobriety tests as evidence of driving impairment, then further study needs to be conducted addressing the direct relationship of performance on these and other test with driving. To date, research has concentrated on the relationship between test performance and BAC and officers' perception of impairment. This study indicates that these perceptions may be faulty.”

*Id.*, at 540. (Citation omitted).

Dr. Cole was also highly critical of the so called validation studies:

“Dr. Cole. . .also testified about the Colorado, Florida and San Diego studies performed by Dr. Burns, styled as ‘field validation studies.’ This testimony echoed Dr. Cole’s written criticisms about the SFSTs’ reliability as precise predictors of the level of alcohol intoxication and the SFST’s validity as a measure of driver impairment in his 1994 article, co-authored with Ronald H. Nowaczyk, titled “Separating Myth from Fact: A Review of Research on the Field Sobriety Tests” and published in the *Champion* journal of the South Carolina Bar Association.

Dr. Cole’s primary criticisms, as discussed in his 1994 article, include, first, that the 1981 Final Report published by the NHTSA claims an 80% accuracy rate for users of the SFSTs. This is misleading because when the actual data is examined with respect to the success rate of using the SFSTs to differentiate between drivers with BACs above 0.10 and those without, the critical

population, the officers had a 50/50 chance of being correct just on the basis of guessing.”

*Id.*, at 539.

Next, Dr. Cole pointed out that,

“ . . .the SFSTs have a combined test-retest reliability rates of .77, while the scientific community “expects reliability coefficients to be in the upper .80s or .90 for a test to be scientifically reliable.” *Id.*, at 540. When different officers tested the same subjects at the same BAC dose level on different days the reliability was only .59- -a 41% error rate. . .

Third, Dr. Cole argued that in order for the SFSTs to be valid predictors of BAC they must “not only identify individuals about a BAC level of 0.10 as ‘failing,’ but also identify individuals below .10 as ‘passing.’” *Id.*, at 541. The data from the NHTSA 1977 Report, however, shows that the validity of the HGN, OLS and WAT SFSTs was “.67, .48, and .55, respectively, with a combined validity coefficient of .67.” *Id.* This means that use of the SFSTs results in an unacceptably high erroneous arrest rate, if the tests are used by the officer to make arrest decisions based on BAC levels being in excess of .10.”

*Id.*, at 540-541.

Next, Dr. Cole addressed NHTSA’s field validation claims.

“ . . .Dr. Cole was particularly critical of claims that the NHTSA SFSTs have been “validated” in a “field setting.” In this regard, he stated that the 1977 and 1981 NHTSA studies were done in a laboratory setting, and the difference in conditions in a controlled lab are dramatically dissimilar from field conditions that can be expected when officers employ SFSTs at all times of day and night in widely disparate weather and traffic conditions and where issues of officer safety may influence how the test is performed. . .Dr. Cole stated that the NHTSA 1983 Field Evaluation purported to be a field validation study, but it failed to meet the recommendations of the authors of the NHTSA 1981 Final Report that the SFSTs be validated in the field for eighteen months in locations across the country. Dr. Cole also stated that Dr. Burns herself has testified that the SFSTs adequately have not been field tested.”

*Id.*, at 541.

Finally, Dr. Cole refuted claims that the NHTSA studies had been published in peer review journals.

“The 1977 and 1981 field studies were published in technical reports by NHTSA, but those reports excluded the “methods and results” sections because they were thought to be too lengthy. . . Cole concluded “it is difficult to see how the NHTSA could claim that the FST is accepted in the scientific community, when results of studies on the validation of the FST have never appeared in a scientific peer reviewed journal, which is a basic requirement for acceptance by the scientific community. . .”

*Id.*

Dr. Cole concluded as follows:

“Because of its widespread use, the FST battery has been **assumed** to be a reliable and valid predictor of driving impairment. NHTSA has done little to dispel that assumption. Law enforcement cannot be blamed for its use of the FST battery. Training documents refer to NHTSA reports and provide what appears to be supporting evidence for the validity of the FST battery. In addition, there is little doubt that individuals who have high BAC levels will have difficulty in performing the FST battery. However, *what the law enforcement community and the courts fail to realize is that the FST battery may mislead the officer on the road to incorrectly judge individuals who are not impaired.* The FST battery to be valid must discriminate accurately between the impaired and non-impaired driver. NHTSA’s own research on that issue. . .has not been subjected to peer review by the scientific community. In addition, a careful reading of the reports themselves provides support for the inadequacy of the FST battery. The reports include how reliability estimates for th tests, false arrest rates between 32 and 46.5 percent, and a field test of the FST that was flawed because the officers in many cases had breathalyzer results at the time of the arrest. NHTSA clearly ignored the printed recommendations of its own researchers in conducting that field study.”

*Id.*, at 541-542. (Bold in original) (Italics added) (Footnotes and citations omitted).

*Horn's* next evidence was provided by Dr. Joel P. Wiesen whose qualifications were described by the court as follows:

“ . . . Dr. Wiesen is an industrial psychologist with special expertise in experimental psychology, psychometrics and statistics. His experience includes more than ten years working with the Commonwealth of Massachusetts developing civil service examinations and an equal number of years as an independent consultant in the area of test development and validation. In addition, he is a published author of a mechanical aptitude test used nationwide. Although he is most familiar with written tests, he does have experience in the development of human performance tests.”

*Id.*, at 542.

The court then pointed out that,

“Dr. Wiesen reviewed the NHTSA 1977 Report, the 1981 Final Report, the 1983 Field Evaluation, the 1995 Colorado Validation Study, the undated Florida Validation Study, and the NHTSA student manual for the SFSTs. He was highly critical of these studies.”

*Id.*, at 542. (Footnotes and citations omitted).

Dr. Wiesen's criticism of the NHTSA studies is documented in table form on pgs. 542 of the *Horn* decision. Dr. Wiesen then rendered the following conclusion:

“[T]he studies give only a general indication of the level of potential validity of the tests as described in the NHTSA manual. . . . Rather than the five studies supporting each other, they evaluate somewhat different combinations of test content and test scoring. The differences are large enough to change the validity and accuracy of the tests. The older studies are probably less germane, due to the changes in test content and scoring over time. The reports for the newer studies are grossly inadequate. Given this, and in light of the specific critiques above (which are not exhaustive), I can only conclude that the field sobriety tests do not meet reasonable professional and scientific standards.”

*Id.*, at 543.

*Horn*'s next witness was Harold P. Brull who

“is a licensed psychologist with many years experience consulting in connection with the design and implementation of procedures to measure human attributes, especially in employment settings. He has designed and evaluated tests and procedures measuring human characteristics for over twenty years. . .”

*Id.*, at 544.

Brull also reviewed the NHTSA studies and the officers training manual.

“Among his general observations of these materials was the opinion that there was a complete absence of evidence which would allow one to predict a know error rate in the field, where there is no ability to control the performance of the SFSTs like there is in a laboratory setting. *He was especially critical of the assertions in the Florida and Colorado studies regarding the reliability of the SFSTs, primarily because of their use at lower BAC thresholds (0.05 and above instead of 0.10)*, the fact that the population of drivers evaluated were those stopped because of unsafe driving and the complete absence of any data in the reports to enable meaningful evaluation. . .He further expressed the opinion that none of the reports was published in peer review literature. While Brull was not critical of the methodology used in the 1977 and 1981 laboratory studies, he stated that the results from these studies were inconclusive, and the subsequent field tests simply do not contain sufficient detail or rigor to support any hypothesis that field sobriety studies, as conducted by police officers in the field, are valid and reliable. . .”

*Id.*, (Emphasis supplied).

Next, the court noted that,

“Brull’s evaluation of the data contained in the 1977 and 1981 reports was consistent with that of Dr. Cole and Dr. Wiesen. Regarding the 1981 Final Report, he observed that ‘*the degree of predictive error in the field appeared to be substantially larger than in the laboratory,*’ and that “while training clearly brought about improvement, it does not compare favorably to the

laboratory condition and is [sic] a margin of error substantially higher than one would find acceptable for predicting with any degree of certainty.”

*Id.*

Brull then turned to the Colorado and Florida validation studies of which he was highly critical. .

“He noted that they “are merely summary reports, without foundation, of findings,” and suffered from a “serious methodological flaw,” in that the tests were done on actual motorists stopped by officers because their driving was unsafe, leading the officers automatically to suspect that they were intoxicated. *Id.* Use of this population likely will produce results that Brull characterized as “highly inflated.” *Id.* He further noted that these field studies predicted 90% accuracy in identifying drivers with BAC’s above 0.05, a level only one half that used in the earlier tests and below the level of legal intoxication. While the validation studies provided no data to assess the accuracy of the SFSTs in identifying drivers with BACs of 0.10 or higher, Brull suspected that the accuracy rate would be far lower than 90%.”

*Id.*, at 544.

The court summarized Brull’s conclusions as follows:

- (1) the laboratory studies that form the foundation of the SFSTs (the 1977 and 1981 studies) were well designed;
- (2) the accuracy of the SFSTs, even under laboratory conditions, is less than desired and below the level expected for tests of human performance;
- (3) the field studies were not well documented, produced unknown error rates, but which, if known, likely would have been unacceptable in real world situations;
- (4) the error rate of SFSTs as actually performed by officers in the field is unknown;

(5) the only peer review article analyzing the SFST's was written by Dr. Cole and is highly critical of the accuracy of the SFSTs."

*Id.*, at 544-545 (Except below, footnotes omitted)

In a footnote, the court noted that,

"The concern about the reliability of SFSTs performed by officers in the field under actual stop and detain conditions is not fanciful, given the fact that the NHTSA officer training manual itself cautions that the reliability of the SFSTs depends on strict compliance with the standardized procedures. . . Further, there is clear evidence that given the conditions under which SFSTs actually are performed in real life situations, officers often do not follow the prescribed methodology. . . ("End-position nystagmus as an indicator of ethanol intoxication," *Science and Justice Journal* 2001) (*author studied videotapes of actual traffic stops where HGN test was administered. Over 98% of the roadside HGN tests were improperly conducted*); 1981 Final Report at 18-19 (stating that officers did not necessarily follow the standardized decision criteria used with the SFSTs). The fact that officers may not perform the SFSTs properly in the field has special significance when evaluated under Rule 702, as the third factor in that rule requires the court to find that the opinion testimony is based on reliable methods or principles that reliably were applied to the facts of the particular case. Thus, *if reliable methods exist, but are not used in a particular instance, the results of the misapplication of the methodology are not admissible.*"

f.n. 23 (Emphasis supplied)

Finally, *Horn* relied upon evidence from Yale H. Caplan, Ph.D. who had

"more than thirty years experience in the field of forensic toxicology and alcohol and drug testing. He served for many years as the chief toxicologist for the Maryland Medical Examiner's office and now is a consultant in the field of toxicology."

*Id.*, at 545.

In his affidavit, Caplan said:

“Although physiological assessments (e.g. standardized field sobriety tests) when coupled with the odor of alcohol on breath and alcohol’s relatively high epidemiological prevalence in drivers may suggest alcohol as the causative agent, the use of drugs or the concomitant use of alcohol and drugs or other medical conditions must be considered as causes for the impairment. In fact, field sobriety tests alone were never designed for or demonstrated to be unequivocally capable of indicating alcohol impairment.

He expressed the following opinions: (1) that field sobriety tests can be used to define impairment but that a specific blood/breath alcohol test is needed to confirm that the cause of the impairment is alcohol ingestion; (2) that an alcohol test of a suspect’s breath or blood can alone be used to establish impairment, but field sobriety tests alone cannot establish alcohol impairment ‘with absolute certainty.’”

*Id.*, at 543.

Aside from the NHTSA sponsored studies referenced above,

“the Government introduced the affidavit of Lieutenant Colonel Jeff C. Rabin, O. D., Ph.D., a licensed optometrist on active duty in the Army, assigned as the Director of Refractive Research at the Walter Reed Army Institute for Research, Walter Reed Army Medical Center. . . Colonel Rabin, who also testified at the Rule 104(a) hearing, has testified as an expert witness on the effects of alcohol and drugs on eye movements, given presentations to Army doctors and optometrists on this subject and reviewed the NHTSA publications regarding the HGN and other SFSTs. . . His affidavit and trial testimony confirmed the fact that alcohol ingestion can *enhance the presence of nystagmus in the human eye at BAC levels as low as .04*. He expressed the opinion that “there is very good correlation between the results of the . . .[HGN} test and breath analysis for intoxication.” *Id.* He also stated that the three “clues” that officers are taught to look for in connection with the HGN SFST ‘*are indicative of alcohol consumption with possible intoxication*’. . . Colonel Rabin expressed his belief that police officers *could* be trained *adequately* to administer the HGN test and interpret its results.”

*Id.*, at 541. (Emphasis supplied).

In terms of *Daubert* consideration, the scientific evidence in *Horn* establishes the following:

1. The studies were not designed to determine impairment but to establish a BAC level.
2. The studies have never been published in peer review articles.
3. Nevertheless, the scientists who have managed to examine these studies have determined that the error rates are unacceptable.
4. The scientific validity and reliability of the HGN test, as well as the psychomotor tests, are not accepted in the scientific community as a reliable indication of intoxication.
5. The reliability and validity of these tests as field tests are especially problematic..
6. The reliability and validity of these tests as low BAC levels are also especially problematic.
7. The training of police officers is inadequate.

#### B. *State v. Lasworth*

In 2001, the *Horn* case was followed by another important case. The New Mexico Court of Appeals in *State v. Lasworth*, at 849, was critical of the NHTSA sponsored studies especially the Colorado Validation Study. It is also worth quoting the court at length.

“Evidence that Dr. Burns was qualified in the abstract to design and conduct studies of HGN does not mean that she in act designed and conducted scientifically sound studies. See Modern Scientific Evidence, supra, §1-3.3.3 (observing that ‘even the highest quality [scientific] journals sometimes publish work that is later found to be wrong.’) The district court appears to have been concerned that without a more detailed understanding of the causes of HGN, the court could not be sure the results obtained by Dr. Burns and other HGN researchers were not a ‘coincidence.’

We share the district court's concern. In the 1995 Colorado study, 234 motorists who were stopped subsequently submitted to a breath or blood test, thereby enabling the researchers to compare the subject's measured BAC with the arrest-release decision dictated by the FSTs. 1995 Colorado Report at 13. At the time of the Colorado study, a BAC of 0.05 percent or greater provided grounds for arrest under Colorado law. *Id.*, at v. The mean BAC of the 234 motorists was 0.152 percent, or over three times the statutory limit under Colorado law. *Id.*, at 16. Of the 234 motorists, 184 had BAC's at or above the statutory limit of 0.05 percent, *Id.*, at 14, table 4, and, of these 184 motorists, 133 had BAC's at or above 0.10, or over twice the statutory limit, *Id.*, at 17. The driving behaviors that let the officers participating in the study to stop a motorist in the first place clearly were selecting out of the general driving population a highly intoxicated group of test subjects. If the officers had simply arrested every one of the 234 motorists, without even administering the FSTs, seventy-nine percent (184 of 234) of their arrest-release decisions would have been correct. In the action study, the researchers concluded that arrest-release decisions based on the FSTs were correct eighty-six percent of the time. *Id.*, at 14. Thus, administration of the FSTs did not dramatically improve the overall percentage of correct decisions. Further, among motorists whose BAC's fell in the range between 0.03 to 0.07 percent (0.05 percent plus or minus 0.02 percent), arrest-release decisions based on the FSTs were correct only 57 percent (21 of 37) of the time. 1995 Colorado Report, Appendix IV. We share the district court's concern that some coincidental factor, such as the driving behaviors that led an officer to stop a motorist in the first place, were largely responsible for the claimed ability of the FSTs to discriminate between motorists above and below the statutory BAC. . .

Further, Dr. Burns stated in the 1995 Colorado Report that '*it is possible that lack of smooth pursuit and distinct nystagmus at maximum deviation occur at low BAC's with some subjects but not with others, or on some occasions but not others. . . Research has not yet clearly defined HGN signs for low BAC's.*' 1995 Colorado Report at 21. Dr. Burns noted that there is evidence that 'smooth pursuit movement breaks down at BAC's as low as 0.04%' and that 'controlled laboratory research at low BAC's is needed to examine the three HGN signs.' *Id.*, at 20. These statements suggest that the HGN FST may be prone to false positives. . . We think that it would have been reasonable for the district court to

want to know more about the effects of relatively low alcohol levels on the physiological mechanisms that produce HGN.

Lastly, we note that although the HGN FST was originally validated as a means of discriminating between BAC's below 0.10 percent and those at or above 0.10 percent, in the 1995 Colorado Report the FST battery was used to discriminate between BAC's below 0.05 percent and those at or above 0.05 percent. Further, in the 1995 Colorado Validation Study, Dr. Burns suggested that the standardized FSTs also are effective when the criterion for arrest is 0.08 percent. 1995 Colorado Report at 15. The district could reasonably have wanted to hear a more detailed scientific explanation of how the physiological cues that make up the HGN FST vary with a subject's BAC in such a remarkable manner that the HGN FST can provide statistically valid and reliable evidence at varying criterion BAC's."<sup>11</sup>

Again, as the court did in *Horn*, the court in *Lasworth* was highly critical of the NHTSA studies, especially the Colorado Validation Study and the evidence from Dr. Burns, herself, establishes the unreliability of the test as low BAC levels.

### C. State v. McKown

Finally, the issue of the reliability and validity of the HGN test was most recently and most authoritatively litigated in a case decided by the Illinois Supreme Court in 2010.

After remanding the case back to the trial court (See *McKown I*) for an evidentiary hearing on the scientific reliability of the HGN test, the case came back to the Illinois Supreme Court on appeal. In 2010, the court issued a decision based on the scientific evidence produced in the court below (*McKown II*). Again, the expert evidence relied upon by the court in upholding the trial court's decision is worth repeating in detail.

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<sup>11</sup>In other words, how can the exact same test be valid for distinguishing suspects with a blood alcohol level above and below 0.10 and then valid for distinguishing suspects with a blood alcohol above or below 0.80, and then valid for determining those who have a blood alcohol level between 0.05 and 0.08?

The expert testimony presented by both sides is described by the court is as follows:

“Dr. Joseph Citron testified that he is a board-certified ophthalmologist who received his clinical training at the Mao Clinic in Rochester, Minnesota. He practices in Atlanta, Georgia, and has over 30 years experience in emergency medical care including the care of intoxicated patients. In 1999, he completed the National Highway Transportation Safety Administration (NHTSA) training course in field-sobriety testing, which included training in the HGN test. He has 10 years of experience as an instructor on field-sobriety testing for the Atlanta police department and other agencies. He also holds a law degree. . .”

*McKown II*, 924 N. E. 2d at 945-946.

Dr. Citron testified that there were multiple causes of nystagmus, “at least 29.” *Id.*, at 946.

In connection with law enforcement,

“ . . . Citron explained that the test is not performed in the same manner as the test a physician would perform during the examination of a patient. He then explained that the NHTSA, which is a division of the United States Department of Transportation, has promulgated standards for performing the HGN test as a field-sobriety test. These standards must be observed ‘in the same fashion every time by everybody’ and individual test results would be invalid if the test were not performed in the ‘prescribe standardized fashion.’

Citron testified that based on a ‘failed’ HGN test alone, one could not form an opinion that the cause of the failure was alcohol. The test is a ‘preliminary test.’ It is ‘the beginning of an evaluation, not the conclusion.’ Further, if one offered an opinion that the failure of the test was caused by alcohol, that opinion would be conjecture or speculation. Finally, Citron testified that a failed HGN test is a sign that the subject’s central nervous system (CNS) is depressed. While the cause of CNS depression might be recent consumption of alcohol, the failed test is *not* an indicator of actual impairment due to alcohol. (Emphasis supplied).

On cross-examination by the State, Citron reiterated that HGN can be an indicator of alcohol consumption and that an officer who

observes a failed HGN test can ‘put the presence of alcohol as a central nervous system depressant on a list of possible causes for these findings.’” *Id.*, 286-287.

Master Sergeant Lebron, who had a bachelors degree in law enforcement administration and had been trained in the administration of the standardized field sobriety tests next testified for the state.<sup>12</sup>

“ . . .He testified that he spent 16 years as a patrol officer. Lebron estimated that over the course of his career, he has conducted close to 500 DUI investigations. Prior to taking his current supervisory position, Lebron served as the breath-alcohol section supervisor at the State Police Academy. In this capacity, he was responsible for training new recruits in standardized field-sobriety testing, including administration of the HGN test using the NHTSA manual. . . .

Lebron described conducting workshops at the Academy during which some volunteers would consume differing amounts of alcohol and others would be given a placebo as a control. The volunteers would take Breathalyzer tests to measure their blood-alcohol levels. Then the trainees would perform field-sobriety tests on the volunteers. During these workshops, he observed that volunteers who had consumed a sufficient amount of alcohol displayed HGN as well as a degree of reduced motor skills. He has observed 400 to 500 volunteers being examined in such workshops.

He then testified that the HGN test, if performed according to the standardized protocol, is generally accepted in the law enforcement community as a reliable indicator of impairment due to alcohol. After a defense objection, he clarified this statement to say that, in his opinion, a failed HGN test is an *indicator that the person has consumed alcohol*.

On cross-examination, Lebron acknowledged that he has seen individuals fail all three of the field-sobriety tests when they had absolutely no alcohol in their systems.” *Id.*, at 946-947 (Emphasis

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<sup>12</sup>For reasons unexplained by the court, while the state carried the burden of proof, Dr. Citron’s testimony was taken out of order.

supplied).

Dr. Karl Citek, an optometry professor, also testified for the state. He trained law enforcement officers to

“ . . .perform standardized field-sobriety tests and has observed these tests being performed in controlled conditions. On one occasion, he accompanied patrol officers and performed an HGN test in the field. On questioning by defense counsel regarding his expert credentials, he acknowledged that as an optometrist, he was not qualified to diagnose or treat any of the several dozen conditions that may cause nystagmus.

. . .Citek testified that optometrists have a “better feel for the test” than ophthalmologists because ‘when nystagmus occurs because of an outside influence visual function is reduced.’ He also testified regarding a resolution<sup>13</sup> adopted in 1993 by the American Optometric Association (AOA) House of Delegates endorsing the HGN test as a valid and reliable field-sobriety test. He stated that the resolution was renewed in 2006 and that he agrees with the resolution.

On cross-examination, Citek acknowledged *that lack of smooth pursuit could be exhibited by a subject with a blood-alcohol concentration as low as 0.02 and that nystagmus at maximum deviation could be exhibited by a subject with a blood-alcohol concentration as low as 0.04.* Thus, a subject could be given a “failing score” on the HGN test with a blood-alcohol concentration at half the statutory limit of 0.08. . .Citek noted, however, that some individuals could be intoxicated at this level.

With regard to officer training, Citek acknowledged that an officer could pass the standard written test following training in field-sobriety testing by answering 16 of 20 questions correctly and that only four of the 20 questions related to HGN testing. Thus, an officer could answer all questions concerning HGN testing incorrectly and still receive certification in field-sobriety testing. Citek noted that in addition to passing the written test, officers must perform HGN test at a live workshop to demonstrate proficiency before being certified. He was unable to answer

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<sup>13</sup>Upon the defendant’s objection, the court did not consider the resolution in its decision.

further questions about the test and the testing procedure because, although he had read the NHTSA training manual, he himself had not completed the training.

On the question of the American Optometric Association resolution, Citek testified that he was not present at the 1993 annual meeting at which the resolution was adopted. He did not know if the resolution was debated prior to being voted upon or how the vote was taken, by head count or by acclamation.”

*Id.*, at 947. (Emphasis supplied).

The state’s next witness was Dr. Zeon Zuk,

“ . . . medical director of the Los Angeles County/University of Southern California Employee Health Care System. Zuk was previously employed as staff physician at the Los Angeles County jail, where he performed more than 7,000 medical evaluations on arrestees admitted to the jail. These evaluations included an assessment of whether the arrestee was under the influence of alcohol or other drugs.

Zuk testified that, in his opinion, a finding of HGN is generally accepted in the medical community as an indicator of alcohol-induced CNS impairment. If he were to observe HGN during the examination of a patient, he would inquire about the ingestion of drugs and/or alcohol within in the previous 12 to 24 hours. He stated that he could not make a diagnosis solely on the basis of HGN, but that the test is a ‘linchpin’ in determining whether a patient’s CNS is impaired.

He also testified that police officers can be trained to administer the test correctly and to observe the presence of HGN. He opined that the HGN test used by law enforcement is ‘more rigid,’ ‘more formal,’ and ‘more methodical’ than the HGN test used by physicians.

Zuk stated that there are 35 to 40 different forms of nystagmus and explained at length how these can be distinguished from HGN. On cross-examination, however, he acknowledged that nystagmus might be a symptom of as many as 125 diseases or conditions. He stated on redirect examination that while these conditions could cause nystagmus, it would not manifest ‘in the exact same way as

HGN.’ Further many of the diseases or conditions on this list are rare and perhaps 80% of them would not be seen by a practicing physician ‘In a lifetime of practice.’

Finally, Zuk acknowledged, that the HGN test was originally validated as a test for estimating a person’s blood-alcohol concentration, not as a measure of driving impairment.”

*Id.*, at 948.

The next witness for the state was an experienced police officer who had trained others to administer the test and interpret the results.

“ . . .He opined that the test is ‘universally’ accepted within the law enforcement community as a reliable indicator of alcohol impairment.

He testified that in his experience, the presence of HGN has corresponded to the presence of an impairing level of alcohol in the subject’s system. He did not, however, provide any data in support of this statement. He acknowledged that he could not speak to the question of general acceptance of HGN testing within the scientific or medical communities.”

*Id.*

At this point, the Defendant presented her remaining witnesses.

“Dr. Ronald Henson is a former police officer who was among the first officers to receive NHTSA training on HGN testing in Illinois. His doctorate is in the field of applied management and decision sciences. He has been an instructor on field-sobriety testing at the Police Training Institute at the University of Illinois and has taught the physiology and pharmacology of alcohol at Bradley University. He is familiar with HGN research, having collected papers and articles on the subject for over 25 years, and he has written and lectured on the subject.

He testified that the test was designed to estimate the subject’s blood-alcohol concentration, not to reveal impairment, and that it has not been accepted in the academic community as reliable indicator of alcohol impairment because it *cannot discriminate*

*between those who have merely consumed alcohol and those who have consumed too much.* (Emphasis supplied).

He further testified to his opinion that Illinois' training of police officers on the subject of field-sobriety testing is inadequate. While the NHTSA recommends a 24-hour course, Illinois devotes only four to six hours to the entire three-test battery of field-sobriety tests. Only one hour is devoted to HGN. Further, the NHTSA-approved written test contains 20 questions on field-sobriety tests while the Illinois test contains six or fewer such questions. Illinois does not require that officers undergo retraining or recertification in field-sobriety testing. Based on his review of videotapes of actual Illinois arrests, he opined that only 1 in 100 field HGN tests is properly administered."

*Id.*, at 948-945.

Finally, Dr. Steven Rubenzer, a board certified forensic psychologist, who had completed both the NHTSA student and instructor courses and had published peer reviewed articles on HGN testing, testified for the Defendant.

"Based on a survey of psychologists that he conducted, he testified that HGN testing is not generally accepted in his field as an indicator of intoxication and that there are no academic studies validating the test as a measure of impairment.

He pointed out the lack of peer-reviewed literature on the subject by ophthalmologists and optometrists and to what he described as flaws in the methodology of the original research study on this subject. See M. Burns & H. Moskowitz, *Psychophysical Tests for DWI Arrest*, DOT HS-802 424, June 1977, U. S. Department of Transportation, National Highway Traffic Safety Administration. *A later article by Burns stated that a more recent study showed that 20 out of 26 people who failed the test had a blood-alcohol concentration below 0.08, which he described as a false positive error rate of 67%.* He also described a 1981 study showing "interrater reliability" of only 0.66. That is, when the subject was examined by two police officers, the officers' judgment of impairment was the same in only two-thirds of cases. He opined that a interrater reliability coefficient of less than 0.80 rendered the test unreliable.

On cross-examination, Rubenzer acknowledged that his peer-reviewed article cited a journal called "Journal of Optometry and the Law," which does not exist. He further acknowledged that he has not conducted any research studies on the HGN test and that he has no medical training. His survey of psychologists was conducted on-line. Of 64 board-certified psychologists who responded to his query, 53 stated that they believed that HGN testing was not generally accepted in their field."

*McKown II*, at 949. (Emphasis supplied).

As can be seen from the above, the most authoritative experts came to basically the same conclusions that the experts came to in *Horn* and *Lasworth*.

#### VI. SUMMARY OF SCIENTIFIC EVIDENCE ESTABLISHING THE UNRELIABILITY AND INVALIDITY OF HGN TESTING TO ESTABLISH INTOXICATION OR IMPAIRMENT.

Aside from testimony from members of the relevant scientific community is adduced in *Horn*, *Lasworth*, *McKown II*, and other authoritative cases, the scientific evidence, some of which was relied upon in these cases, regarding defects in the methodology, reliability, and validity of the HGN test include the following.

##### A. There Is No Agreement That The 45 Degree Angle Is The Appropriate Angle.

1. One medical study detected a cut off of 30 degrees and concluded that horizontal gaze nystagmus is one of the least sensitive eye measures of alcohol intoxication. Umeda, Saitamo and Sakata, *Alcohol and the Ocularmotor System*, 87 ANN Otol Rhino 392 (1978).

2. Another researcher has reported that subjects with a BAC of .10% do not exhibit HGN until a lateral deviation of 51 degrees is reached. Lehti, *The Effect of Blood Alcohol Concentration on the Onset of Gaze Nystagmus* 13 *Blutalkohol* 411 (1976).

3. As noted above, NHTSA's own studies concluded that the angle of onset was around 40 degrees.

4. The angle of onset varies. A study by Burns and Moskowitz that determined that due to a person's circadian rhythms, the angle of onset would decrease by 5° after midnight. See Tharp, Moskowitz, and Burns, *Circadian Effects on Alcohol Gaze Nystagmus*, 18 *Psychophysiology* 193 (1981).<sup>14</sup>

5. The court in *Witte* also noted that,

“A prosecution-oriented group in California conducted its own research: The study measured the correlation of police officer estimations of the angle of onset of nystagmus against chemical tests involving breath and blood samples. The data in the study revealed that there was virtually no correlation between the actual value of blood alcohol concentration and the predicted value based upon the angle of onset of nystagmus.

... This study points out the fact that horizontal gaze nystagmus tests should never be intended as a substitute for actual blood or breath alcohol testing. The purpose of the procedure, if any is strictly a field screening function, like other presumptive tests.”

836 P. 2d at 1119-1120. See J. L. Norris of the Santa Clara County Laboratory of Criminology, recorded in the Journal of Forensic Science Society, *Correlation of Angle of Onset of Nystagmus, The Blood Alcohol Level: Report of a Field Trial*, 25 (no.6) *Journal of Forensic Science Society* 476 (1985).

6. Still another researcher has observed that HGN appears at a threshold BAC of .06%, at a lateral deviation of the eye, of only 40 degrees. Aschan, *Different Types of Alcohol Nystagmus*, 140 *ACTA-OTO-Larynologica Supp.* 69 (1957), Aschan, *Positional Nystagmus in Man During and After Alcohol Intoxication*, 17 *QJ Studies On Alcohol*, 381-405 (1956).

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<sup>14</sup>Burns, more than any other researcher, is most responsible for the development of field sobriety test standards and the training manuals resulting therefrom. Nevertheless, the decrease in the angle of onset after midnight, which is, of course, when most DUI arrest are made, was never disclosed in any of the manuals and officers are not trained to make any adjustment.

B. End-Point Nystagmus Is A Highly Unreliable Sign Of BAC Level, Intoxication, Or Impairment.

1. Recently, an independent study compared volunteers who were sleep deprived with those who had consumed alcohol. The results were as follows:

- a. “The baseline error (up to 55 percent false positives for fatigued, non-drinking subjects) for the end-position nystagmus component of the HGN test is high, especially considering that the result of the test is often used without a confirming chemical assay as the primary evidence that alcohol is present at a concentration greater than 0.10 w/v% (100 milligrams per 100 millilitres).”
- b. “The dose-response relationship of alcohol and distinct end position nystagmus varies widely (37 percent to 68 percent in the very low BAC subjects) according to whether the subject is absorbing or eliminating alcohol -- a factor impossible to determine in field situations.”
- c. “Distinct end-position nystagmus is exhibited by more than half the test subjects an hour or more after the subject’s BAC returned to 0.00 percent (zero milligrams per 100 millilitres). . .”

J. L. Booker, *End-Position Nystagmus as an Indicator of Ethanol Intoxication*, Science and Justice 2001: 41: 113-116, at 116 (2001).

2. Another scientific study was quoted as follows:

“ . . . *Unsustained end-point nystagmus* is described as the most frequently encountered physiologic nystagmus. All experienced clinicians recognize that a few beats of nystagmus are within perfectly normal limits at gave deviations of 30 degrees or more. *Sustained end-point nystagmus* begins immediately or within several seconds after reaching an eccentric lateral-gave position. It has been found in over 60 percent of normal subjects with horizontal gaze maintenance greater than 40 degrees.”

Taylor and Oberman, *Drunk Driving Defense*, 6<sup>th</sup> §4.04[e], 269. (Citing William

Tasman, M. D. and Edward A. Jager, M. D. eds., *Duane’s Clinical Ophthalmology*, Vol. 2, 20

(2004) (Emphasis in original).

3. Still another study found the following: “. . . [Fifty] to 60 percent of normal individuals will exhibit nystagmus when the eyes are deviated to the lateral extreme.” William A. Pangman, *Horizontal Gaze Nystagmus: Voodoo Science*, *DWI Journal Law and Science*, Vol. 2., No. 3, 411-416, at 415, March 1987. (Quoting Toglea, *Electronystagmography: Technical Aspects and Atlas* (1976)).

C. Smooth Pursuit Is Not A Reliable Indicator Of Intoxication, Impairment Or BAC Level.

1. The court in *O’Key* quoted the following study: “. . . [A]s most optometrists know, many suspects will have jerky eye movements even with a 0.00 [percent] BAC.” *O’Key*, at 683. (Quoting Eric Harperin and Robert L. Yolton, *Is the Driver Drunk? Oculomotor Sobriety Testing*, *J. Am. Optometric Ass’n.*, 654, 657 (1986))

2. NHTSA’s own studies stress the unreliability of parts of the test: “Smooth pursuit. . . is the least reliable of the three signs. . . The officer’s manner of moving the stimulus could itself cause impaired pursuit.” Taylor and Oberman, *Drunk Driving Defense*, 6<sup>th</sup> ed. 2007-2 Cum. Supp. §406, 43-44 (Citing V. Tharp. Et al. *Psychophysical Tests for DUI Arrest* DOT-HS-8-01970 (1981)).

D. Nystagmus Can Occur In Individuals With A Very Low BAC Level Or At Zero Level.

Again, the court in *O’Key* cites an authoritative article:

“A study published in 1956<sup>15</sup> found nystagmus commenced in individuals with a BAC as low as 0.018 percent; in half the cases studied, nystagmus was displayed an average of 50 minutes after all alcohol had left the blood.”

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<sup>15</sup>Aschan, M. D., Gergstedt, M. D., et al., *Positional Nystagmus in Man During and After Alcohol Intoxication*, 17 *Quarterly Journal of Studies on Alcohol*, 381-405 (1956).

*O'Key*, at 683 (Citing *Rouleau*; 4 Am. Jr. Proof of Facts, 3d at 439-454). See also *State v. Witte*, 836 P. 2d 1110, 1119-21.

E. The Test Is Highly Subjective And Unreliable.

1. One other authoritative source said the following:

“The absurdity of this subjective procedure as it affects the reliability of results is best illustrated by one of the most recent studies conducted by a prosecution-oriented research group in Santa Clara County, California.<sup>16</sup> The study measured the correlation of police officer estimations of the angle of onset of nystagmus against chemical tests involving breath and blood samples. The data in the study revealed that there was virtually no correlation between the actual value of blood alcohol concentration and the predicted value based upon the angle of onset of nystagmus. However, a correlation did develop between the breath alcohol reading and the level predicted by the alcohol gaze nystagmus. Interestingly, the study concluded that this was caused by the very subjective nature of the test itself.

Since the police officers are the ones operating the breath testing equipment, it appears that, at least in some of the cases, an already known breath alcohol value may have influenced the determination of the angle of onset.

Simply put, the cops fudged the horizontal gaze nystagmus determination to correspond with the already known correct answer determined by the breath test result. However, since they did not know what the correct answer was when the blood sample was tested (since someone else did the analysis), they could not come close to the correct BAC. These were highly trained California police officers, experienced and familiar with the test procedures and aware that their results were being scrutinized for accuracy and cross-checked against actual BAC determinations. This study points out the fact that horizontal gaze nystagmus tests should never be intended as a substitute for actual blood or breath alcohol testing. The purpose of the procedure, if any is strictly a field screening function, like other presumptive tests. Its admissibility

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<sup>16</sup>Norris, *The Correlation of Angle of Onset of Nystagmus with Blood Alcohol Level: Report of a Field Trial, supra.*

should be no more expansive than other presumptive tests such as preliminary breath tests, which usually may only be admitted on the issue of probable cause and not submitted for consideration by the trier of fact in the case-in-chief.”

Pangman, *Horizontal Gaze Nystagmus: Voodoo Science*, at 413-414.

2. In a report commissioned by NHTSA, researchers compared the HGN test and the psychomotor tests (WAT and OLS) and concluded,

“Nystagmus, on the other hand, was not a highly-rated test. . . First, Burns and Moskowitz evaluated tests with respect to the relationship between performance on the test and blood alcohol concentration (BAC). A close relationship between these two variables does not necessarily imply a close relationship between performance on the nystagmus test and driving performance, or between test performance and accidents. Specifically, it is not apparent that performance on the nystagmus test reflects any skills related to driving. In addition, examining a driver for nystagmus may be difficult operationally and somewhat unsafe. Scoring is *quite objective* and would require *careful* training for the test administrator.”

K. J. Snapper, D. A. Seaver, J. P. Schwartz, *An Assessment of Behavioral Tests to Detect Impaired Drivers*, Final Report DOT HS-806-211, pg. 4-1, December 1981. (Emphasis supplied).

3. The subjective nature of the test, its unreliability, and the inadequacy of law enforcement HGN training is evidenced by the fact that in *every* case represented by the undersigned, in which the driver has been charged with driving under the influence of marijuana, the arresting officer has failed the individual on the test. See West Virginia DUI Information Sheets with names and identifying information redacted enclosed herein as Exhibits C, D, E, and F. However, according to the NHTSA training manual, marijuana will generally not produce nystagmus, “no nystagmus usually will be present.” *Drugs That Impair Driving Student Manual*

included as part of most of the NHTSA training manuals included herein as Exhibit G. See also, Richard E. Erwin, *Defense of Drunk Driving Cases*, 3<sup>rd</sup> edition, §8B.04, 8B-24 (1972) (“Horizontal Gaze Nystagmus. . .not present.”)

F. The Field Sobriety Tests, Including The HGN Test Were Never Meant To Be Admissible As Evidence Of BAC Level Or Intoxication.

It is uncontested that the result of the HGN test was meant to be limited to the issue of probable cause.

“Very few attorneys or judges realize that the National Highway Traffic Safety Administration (NHTSA), which sponsored the most scientific examination of these procedures and developed the three best procedures for forensic use, recommends that these procedures be used *solely* during the roadside stop to establish probable cause for further investigation. Even after their refinement, the procedures recommended by the NHTSA were never meant to be introduced as evidence in the prosecution’s case -- even when they were performed and scored properly -- because there was no proof of their specificity and relevance.”

9 Am. Jur. Proof of Facts, 3<sup>rd</sup> series, Vol. 9, *Proof of a Disproof of Alcohol-Induced Driving, Impairment Through Evidence of Observable Intoxication and Coordination Testing*, Jonathan D. Cowan, Ph.D. Susannah C. Jaffe (1990). §10, 488.

G. The Scientific Community Does Not Accept Field HGN Testing As A Reliable Indication Of Intoxication.

1. The following statement from a noted nystagmus expert was quoted by Taylor and Oberman:

“Dr. L. F. Dell’Osso, professor of neurology at Case Western Reserve University School of Medicine and director of the Ocular Motor Neurophysiology Laboratory at the Veterans Administration Medical Center in Cleveland, Ohio, is a noted expert in the area of nystagmus. In his article, ‘Nystagmus, Saccadic Intrusions/Oscillations and Oscillopsia,’ 3 current neuro-

ophthalmology 147 (1989), listing 47 different kinds of nystagmus, he commented:

Using nystagmus as an indicator of alcohol intoxication is an unfortunate choice, since many normal individuals have physiologic end-point nystagmus; small doses of tranquilizers that would not interfere with driving can produce nystagmus; nystagmus may be congenital or consequent to neurologic disease; and without a neuro-ophthalmologist or someone knowledgeable about sophisticated methods of eye movement recordings, it is difficult to determine whether the nystagmus is pathologic. It is unreasonable that such difficult judgments have been placed in the hands of minimally trained officers.”

Quoted in Lawrence Taylor and Steven Oberman, *Drunk Driving Defense*, 6<sup>th</sup> ed.,

§4.04[e], 267.

2. The methodology is suspect:

a. The NHTSA research studies have been criticized for a number of reasons including the “failure to describe the conditions under which the field tests were given.” *O’Key*, at 683 (Citing: Comment; 84 J. Crim L and Criminology, at 211).

b. “From the videotapes viewed for this paper, more than 98% of the roadside HGN tests administered to drivers by police officers were improperly conducted, implying that either the test protocol or the training procedure employed for police officers in inadequate to assure proper administration of the test when it is applied to drivers suspected of being intoxicated.”

J. L. Booker, *End-Position Nystagmus as an Indicator of Ethanol Intoxication*, 41:113-116, at 126 (2001).

3. The results are unreliable:

“As part of a roadside sobriety checkpoint study by NHTSA in which the horizontal gaze nystagmus procedure was administered,

the results showed that at each blood alcohol concentration used, a much higher percentage of subjects 'failed' this procedure than showed any indication of impaired driving. Contrary to claims that sober people will almost always 'pass' this 'test,' 15 percent of the sober drivers and 64 percent of those with blood alcohol concentrations from 0.05 percent to 0.09 percent 'failed!' This study demonstrated that using the horizontal gaze nystagmus procedure as an indicator of blood alcohol concentration or driving impairment will generally net more innocent victims than it will impaired inebriates, considering the larger number of drivers with blood alcohol concentrations below 0.10 percent on the road.

The scientific community has never generally accepted these dexterity demonstrations as relevant, specific, accurate, and valid indicators of driving impairment or blood alcohol concentration.”

*Proof of Facts, supra*, at 495.

#### H. There Are Multiple Non-Alcoholic Causes Of Nystagmus.

See *Schultz v. State*, 106 Md. App. 145, 148 n.1, 664 A 2d 60, 61 n.1 (1995).

### VII. DAUBERT CONSIDERATIONS

#### A. Whether The Theory Or Technique Has Been (And Can Be) Tested.

According to the court in *O'Key*, this consideration “. . . includes an evaluation of the testing procedures used, the number of studies undertaken, and criticisms of those procedures.”<sup>17</sup> 889 P. 2d at 678-679. It is highly significant that none of the reports funded by NHTSA and which form the basis of the field sobriety test manuals were published in peer review publication. Nevertheless, the methodology, testing procedures, and the conclusions drawn from those studies have been heavily criticized. The most authoritative scientific evidence establishes that the HGN test is neither reliable nor valid.

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<sup>17</sup>The *Daubert* court admonished fact finders to be cognizant of other applicable evidentiary rules such as 403 which permits the exclusion of scientific evidence if its probative value is outweighed by the danger of unfair prejudice. 113 S. Ct. at 2797-98.

### B. Whether The Theory Or Technique Has Been Subject To Peer Review And Publications.

This issue raises the question as to what extent experts in the field have had, “the opportunity. . .to examine and critique the reasons and methodology behind scientific theory.” *O’Key*, 899 P. 2d at 679. Or, as the *Daubert* court put it, “. . .[s]ubmission to the scrutiny of the scientific community is a component of ‘good science,’ in part, because it increases the likelihood that substantive flaws will be detected.” 113 S. Ct. at 2797, 125 L. Ed. 2d at 483 (Citation omitted). Since none of the NHTSA studies were published in peer review journals, and since in many of the studies the methodology used in conducting the studies were omitted or under reported for many years, the peer review of the theory and technique has been minimal. However, over the years as scientists have gradually been able to examine the methodology and the data used by the NHTSA scientists to arrive at their conclusions, the unreliability and invalidity of the results have been exposed. In other words, “substantial flaws” have been detected.

### C. The Known Potential Rate Of Error.

The know or potential error rate has gradually been illuminated and the error rate is very substantial.

### D. Degree Of Acceptance In The Scientific Community.

The more recent and most authoritative cases and the scientific evidence have established that, as a field sobriety test, the methodology for detecting either blood alcohol level or impairment has not been accepted in the scientific community.

## VIII. PURPOSE FOR WHICH THE TEST IS TO BE ADMITTED.

### A. McKown II

Because of the court's detailed look at the scientific evidence, including the most recent evidence not considered by other courts, the most recent and authoritative decision, McKown II, the court adopted the trial conclusions as follows:

- “1. HGN testing satisfies the *Frye* standard in Illinois.
2. HGN testing is but one facet of field sobriety testing and is admissible as a factor to be considered by the trier-of-fact on the issue of alcohol or drug impairment.
3. A proper foundation must include that the witness has been adequately trained, has conducted testing and assessment in accordance with the training, and that he administered the particular test in accordance with his training and proper procedures.
4. [Testimony regarding] HGN testing results should be limited to the conclusion that a ‘failed’ test suggests that the subject may have consumed alcohol and *may [have] be[en]* under the influence. There should be no attempt to correlate the test results with any particular blood-alcohol level or range or level of intoxication.
5. In conjunction with other evidence, HGN may be used as a part of the police officer's opinion that the subject [was] under the influence and impaired.” (Emphasis in original.)”

*McKown II*, at 950.

The court specifically said the test must be performed according to the NHTSA protocol.

*Id.*, at 957. The court further cautioned that,

“[t]he admissibility of HGN evidence in an individual case will depend on the State's ability to lay a proper foundation and to demonstrate the qualifications of its witness, subject to the

balancing of probative value with the risk of unfair prejudice.”

*Id.*, at 961.

### B. Horn

A different approach was taken by the court in *Horn*. With respect to all three field sobriety tests, the court held that the officer must first establish he was qualified to administer the tests and that they were properly administered. The results of the tests could only be used as “circumstantial evidence” of impairment or intoxication. Unless qualified as an expert, he could not testify to the “reliability of the methods and principles underlying the [tests]” nor to the “causal nexus between alcohol consumption and exaggerated HGN.” Further, the court held that the officer could not use such terms as “test,” “standardized clues,” or “express an opinion of whether Horn passed or failed” as the government failed to establish under Rule 702 and *Daubert/Kumho Tire* that these conclusion are based on sufficient facts or data and are derived from reliable methods or principles.” 185 F. Supp. 2d at 560-561.

Further, the court held,

“The government may prove the causal connection between exaggerated HGN in Horn’s eyes and alcohol consumption by one of the following means” asking the court to take judicial notice of it under Rule 201; the testimony of an expert qualified under Rule 702; or through learned treatises, introduced in accordance with Rule 803 (18). In response to proof of the causal connection between alcohol consumption and exaggerated HGN, Horn may prove that there are other causes of HGN than alcohol by one of the following methods: asking the court to take judicial notice of this fact under Rule 201; cross-examining any expert called by the government; by calling a defense expert witness, qualified under Rule 702, or through learned treatises, introduced in accordance with Rule 803.

*Id.*, at 561.

Finally,

“Assuming the government can establish the elements of Rule 701, Officer Jarrell may give lay opinion testimony that Horn was intoxicated or impaired by alcohol. Such testimony must be based on Officer Jarrell’s observations of Horn and may not include scientific, technical or specialized information.”

*Id.*

#### C. Lasworth

In *Lasworth*, because the test was designed to establish a BAC level and not driving impairment and the connection between the two was a separate issue requiring different research methods, the court upheld the trial court’s holding that the results of the HGN test were inadmissible.

#### D. Other Authoritative Cases.

In *State v. Baue*, 258 Neb. 968; 607 N. W. 2d 191; 2000 Neb. LEXIS 53, at trial, the only expert who testified on the reliability of the test was state experts. Nevertheless, based on its review of the evidence adduced at the hearing, the Nebraska Supreme Court concluded that the “basic scientific principle upon which the HGN test is based, i.e., that alcohol consumption causes nystagmus, is under *Frye*, generally accepted in the relevant scientific community. . . . However, because, “nystagmus can be caused by factors other than alcohol and that intoxication cannot be established by the HGN test alone, we agree with other courts which have placed limitations upon the purposes for which HGN test results are admissible. . . .” Accordingly, said the court. . . . “*when the test is given in conjunction with other field sobriety tests, the results are admissible for the limited purpose of establishing that a person has an impairment which may be caused by alcohol.*” *Baue*, 607 N. W. 2d at 204. (Emphasis supplied).

In *Ballard v. State*, 955 F. 2d 931; 1998 Alas. App. LEXIS 17, after expert testimony from both the State and defendant, the trial judge ruled that the test met the *Frye* standard for admissibility but not for the purpose of determining a blood alcohol level. On appeal, the Alaska Appellate Court noted that most courts from other states do not allow HGN evidence is evidence of a particular blood alcohol level but did allow the evidence admissible under *Frye* if the “results are admitted for the more modest purpose of indicating that the person has consumed alcohol and is potentially under the influence.” *Id.*, at 938. The court said that “[e]ven assuming that the HGN test is reliable only 60 percent of the time” as expert testimony had indicated, “this is a sufficient level of reliability for the HGN test to be admitted as an indicator of potential intoxication.” *Id.* Thus, the court held that the test results were admissible . . . for the limited purpose of establishing that a person has consumed alcohol and is therefore potentially impaired” but the results “may not, of itself, be sufficient to establish intoxication.” *Id.*, at 940.

In *Torres, supra*, the New Mexico Supreme Court observed that it is “not surprising that HGN testimony has been ruled admissible in Arizona without any additional testimony as Arizona has rejected *Daubert* in favor of *Frye* and HGN has been ruled admissible for years prior to *State v. Superior Court*, 149 Ariz. 269; 718 P. 2d 171, 181 (Ariz. 1986) (en banc). Further, . . . part of the reason the Arizona courts may regard such additional testimony as unnecessary is that they only admit HGN evidence for limited purposes such as establishing probable cause and corroborating the results of more reliable sobriety tests such as chemical testing. . . See *Superior Court*, 718 P. 2d 181-82.” *Id.*, at 31-32. *Whitson v. State*, 314 Ark. 458; 863 S. W. 2d 794, 788 (Ark. 1993) (holding that admission of HGN evidence for the limited purpose of showing unquantified levels of alcohol consumption did not require a preliminary inquiry regarding novel

scientific knowledge.)” *Torres*, at 37.

#### E. Limits On The Admissibility In License Revocation Cases.

There are a dearth of license revocation cases dealing with this issue, perhaps because in many states the criminal courts deal with both the license revocation and criminal charges. The earliest one is *Hulse v. State of Montana, Department of Justice, Motor Vehicles Division*, 1998 MT 108: 289 Mont. 1; 961 P. 2d 75; 1998 Mont. LEXIS 78; 55 Mont. St. Rep. 415 (1998). In that case, the driver challenged the admission of the HGN test under *Daubert* on the basis that the State failed to show that its requirements were met. After a lengthy discussion of the requirements of *Daubert* and its previous cases analyzing admissibility under those standards, the court concluded that *Daubert* was limited to “novel scientific evidence.” Rejecting cases to the contrary, including a Ninth Circuit decision, *Claar v. Burlington Northern Railroad Co.*, 29 F. 3d 499, 501 n.2 (9<sup>th</sup> Cir. 1994), *Hulse*, at 91-93, the court turned to the foundation requirements if any, of HGN testing.

The court then noted that it had already recognized that HGN was a scientific test but because it agreed with the line of the cases that held that it was not novel scientific evidence, the court determined that a *Daubert* analysis was not required. Nevertheless, it

“recognize[d] that the relationship between alcohol consumption and nystagmus, the underlying scientific principles of the test is still beyond the range of ordinary training or intelligence. Therefore, a district court must conduct a conventional Rule 702. . . analysis. . .”

*Id.*, at 94.

The court also held, relying on a prior decision, that before the test is admitted, the officer administering the test “must show that [he] was properly trained to administer the HGN test and

that he administered the test in accordance with this training.” *Id.* (Citation omitted).

The court held that, at trial, the officer carried that burden but he was not qualified to testify to the scientific reliability. Thus, the court concluded as follows:

“This testimony shows that Officer Kennedy was trained to administer the HGN test and, in fact, administered the HGN test on Hulse in accordance with this training, and, therefore, he was qualified to testify as to both his administration of the HGN test and his evaluation of Hulse’s performance. However, nothing in the evidence establishes that Officer Kennedy what special training or education nor adequate knowledge qualifying him as an expert to explain the correlation between alcohol consumption and nystagmus, the underlying scientific basis of the HGN test. Accordingly, we conclude there was insufficient foundation for the admission of evidence concerning the HGN test and the District Court abused its discretion when it summarily denied Hulse’s motion in limine and allowed Officer Kennedy to testify as to Hulse’s HGN test results.”

*Id.*, at 95.

Subsequently, in 2000, the Wyoming Supreme Court had occasion to decide the issue of admissibility of HGN evidence in the context of a license revocation hearing. In *Smith v. State of Wyoming ex rel. Wyoming Department of Transportation*, 11 P. 3d 931, 933-935; 2000 Wyo. LEXIS 202, the court, as a threshold matter, noted that scientific and technical evidence in a judicial proceeding is governed by W. R. E. 702 and the four part *Daubert* test. Nevertheless, because of the less strict applicability of the rules of evidence in administrative “judicial or quasi judicial” proceedings, it concluded that a *Daubert* analysis was unnecessary. *Id.*, at 935. The court stressed that it had previously “permitted a hearing examiner to rely on field sobriety tests, including the horizontal gaze nystagmus test to determine whether the officer had *probable cause*. . .” (Emphasis supplied). Relying on a line of cases in the criminal context which had

held HGN admissible if a proper foundation was laid as to the officer's training experience and ability to administer the test and evidence that the test was, in fact, properly administered, the court said,

“it is reasonable to apply a similar standard in the less stringent evidentiary environment of an administrative hearing. The field sobriety test results are the type of evidence commonly relied upon by reasonably prudent men in the conduct of their serious affairs. We conclude that, if the evidence establishes the tests were properly administered by a qualified person, the foundation is sufficient for admission in an administrative hearing.”

*Id.*, at 935.

For the purpose of establishing *probable cause*, the court also rejected a standard of strict compliance with NHTSA procedures in favor of substantial compliance.<sup>18</sup> (Emphasis supplied).

Finally, in *Mooney v. Shahan*, 2001 Del. C. P. LEXIS 67 (Del. 2001), the driver asserted that the hearing officer improperly admitted the results of the HGN test into evidence. The court noted that the admission of the HGN results were limited to the issue of probable cause. Citing *State v. Ruthardt*, 680 A. 2d 349, 362; 1996 Del. Super. LEXIS 84; (1996), the court said a,

“less stringent evidentiary determination applies to a probable cause determination. Although expert testimony is required for the admission of the HGN test at trial, such testimony is not necessary to establish probable cause. *State v. Ruthardt* at 362.”

*Id.*, at \*5-\*6.

Because “the police officer presented her certificate for administering the HGN tests and she testified concerning the administration of such a test, the court held that the requisite foundation was established. . .for the purpose of determining probable cause.” *Id.*, at \*6.

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<sup>18</sup>The court stressed the requirements enunciated above applied to all field sobriety tests, not just the HGN.

## IX. SUMMARY

A. The vast majority of cases regard the HGN test as a scientific test. This is the definite position of all of the courts that have examined the issue in any degree of detail.

B. Regardless of whether or not the test is considered scientific, there is near unanimity that, as a foundation of admission, the officer administering the test must establish by training and experience that he is qualified as an expert to administer the test and that he administered and scored the test in accordance with NHTSA sanctioned standards and procedures.

C. Those jurisdictions that have concluded that the test is scientific have required the state to demonstrate that the tests meet the admissibility requirements under *Frye* or *Daubert*. Some jurisdictions have ruled the test admissible by taking judicial notice of cases in other jurisdictions and/or scientific studies. However, as the years have progressed and more and more studies have been uncovered or published critical of the methodology, validity, and reliability of the test, the most recent and authoritative cases, the ones that have examined the issue most closely, put substantial limits on its admissibility.

D. Some of the information that has surfaced include the following:

(1) The test<sup>19</sup> was never intended to be used as evidence of impairment or intoxication but only to establish probable cause for the arrest.

(2) The test was never intended to measure impairment but only to be used as corroborating evidence of a person's BAC level. Nevertheless, there is near judicial unanimity that the tests cannot be equated to a BAC level or to a conclusion that a suspect is above (or below) a certain BAC.

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<sup>19</sup>As well as the other field sobriety tests.

(3) The chances that someone could be falsely arrested and convicted or could have his or her driver's licence revoked, especially at low BAC levels, and especially at BAC levels below the legal limit is very high.<sup>20</sup>

(4) The test is highly subjective<sup>21</sup> in that it requires the officer to determine whether the nystagmus is enhanced or "distinct" and "sustained" and it requires the officer to "estimate" a 45 degree angle.

(5) The 45 degree angle is suppose to be the "key" part of the test because, according to NHTSA, nystagmus prior to 45 degrees indicates a blood alcohol level of 0.10 or above. However, NHTSA's own studies show that the key angle is around 40 degrees. Other studies demonstrate otherwise. Thus, there is no consensus in the scientific community on the appropriate angle.

(6) The reliability percentages of 77% accuracy for the HGN (and 65% for the OLS and 68% for the WAT) were derived from tests conducted inside adequately lit rooms and with the "suspects" head immobilized in an apparatus. However, independent evaluation in peer review journals have shown that even these relatively low accuracy rates are invalid and misleading.

(7) There is a relationship between alcohol consumption and prominent nystagmus in that it can be a sign that the suspect has consumed alcohol but it is a poor test for determining

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<sup>20</sup>The research by Drs. Cole and Nowaczyk, which was published in a peer review journal, demonstrated that experienced officers were wrong in their judgment of suspect's impairment about 50% of the time.

<sup>21</sup>The subjective nature of the test and obvious high error rate is demonstrated by the fact that, in this case, even though Dr. White, at most, had a blood alcohol level of only .07, the officer, nevertheless, determined that he had nystagmus prior to 45 degrees. See W. Va. DUI Information Sheet admitted into evidence at the DMV hearing as an exhibit.

how much alcohol or whether the suspect is impaired.

(8) As failure constitutes 4 points or more, a suspect could fail the test by receiving negative scores for lack of smooth pursuit and nystagmus at maximum deviation which, at best, indicated that, in the fairly recent past, the suspect may have consumed alcohol.

(9) Police officers receive minimal training on the administration of the HGN test and rarely comply with the procedures for administering the test.

(10) There are multiple non-alcoholic causes of nystagmus including common substances..

(11) If Dr. Burns and other government experts are so confident of the conclusions of their studies, why haven't *any* of the NHTSA sponsored studies been published in peer review journals?

#### X. CONCLUSION

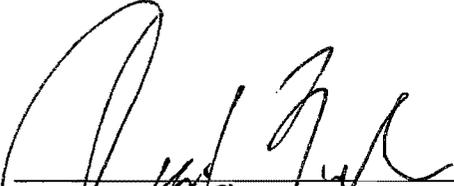
Dr. White respectfully requests this honorable court to find that the HGN test is scientific, that the court take judicial notice that its reliability and validity, as well as the methodology used by law enforcement, is highly questionable, that its admissibility in license revocation proceedings be limited to probable cause or, if this honorable court should reject this position, to limit its admissibility to the conclusion that the driver may have consumed alcohol, that it cannot be used to establish a BAC level or determine whether the driver is below or above the legal limit, and that before the results of the test can be admitted for any purpose, the State must establish that the officer administering the test has been adequately trained and that he

administered the test properly.

Respectfully submitted,

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IN THE SUPREME COURT OF APPEALS OF WEST VIRGINIA

JOE J. WHITE, JR.

Petitioner,

No.: 11-0171

JOE MILLER, COMMISSIONER;  
WEST VIRGINIA DIVISION OF MOTOR  
VEHICLES,

Respondent.

**CERTIFICATE OF SERVICE**

I, Carter Zerbe, counsel for Petitioner, do hereby certify that I have served a true and exact copy of the foregoing PETITIONER'S SUPPLEMENTAL BRIEF and MOTION TO EXCEED THE FORTY PAGE LIMIT by depositing a true copy thereof in the United States Mail, postage prepaid, in an envelope addressed to:

Janet James, Asst. Attorney General  
DMV - Office of the Attorney General  
P. O. Box 17200  
Charleston, WV 25317

on this 13th day of January 2012.

  
Carter Zerbe