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Attorneys for Defendant

IN THE SUPERIOR COURT

IN AND FOR THE COUNTY OF MARICOPA

STATE OF ARIZONA, Plaintiff, vs. **LESLIE ALLEN MERRITT, JR.**, Defendant	**CR2015-144211-001** **MOTION TO MODIFY RELEASE CONDITIONS** **(Assigned to the Honorable Warren Granville)** ***Originally filed Under Seal on April 5, 2016*** **ORAL ARGUMENT REQUESTED**

Defendant, through undersigned counsel, pursuant to Rule 7.4, Arizona Rules of Criminal Procedure, and A.R.S. §13-3967, hereby moves this Court

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for a redetermination of his release conditions based on material changes in circumstances that are more fully set forth herein.

Defendant's bond was previously set at $1,000,000.00 cash by the Initial Appearance Court on September 19, 2015. On November 16, 2015, this Court granted Defendant's Motion to Modify Release Conditions and reduced the Defendant's bond to a secured appearance bond of $150,000.00 with a caveat that if he is released, he shall be supervised by Pretrial Services with electronic monitoring.

As the Court is well aware, discovery has been ongoing as this matter is set for Trial on June 9, 2016. Substantial evidence has come to light that further proves that Defendant is not responsible for any of the shootings with which he is charged. In the interest of clarity, Defendant herein lays out a relevant statement of facts that supports this Motion and warrants the Defendant's release conditions be modified such that he is released to the supervision of Pretrial Services with electronic monitoring, without requirement that he post a bond.

STATEMENT OF FACTS

1. Generally speaking, the Defendant is charged with four separate shootings: three on August 29, 2015, and one on August 30, 2015.

2. Although there is no evidence whatsoever that places Defendant at any of the crime scenes, the State contends that forensic evidence indicates that the bullets recovered from the shootings were fired from the same gun, and that that gun belongs to the Defendant.

3. Of central relevance to this Motion is the fourth shooting which occurred on August 30, 2015. The underlying facts of that shooting are that on August 27, 2015, Victim A.H. left his home in North Scottsdale at

approximately 5:00 a.m. en route to Sky Harbor Airport. Because his plane to Chicago was departing out of Terminal 2, he took the 101 Freeway westbound to SR 51 southbound, the 1-10 eastbound, and then into the Airport. He parked in the Terminal 2 garage at approximately 5:55 a.m. according to parking garage records.

4. On the ride to the Airport, A.H. did not notice any abnormalities with his car, nor did he notice anything that would be indicative of his car being shot.

5. A.H. returned from Chicago sometime around 9:00 p.m. on Sunday, August 30, 2015. After walking to his car in the Terminal 2 garage, he did not see or hear anything abnormal, nor did he observe anything abnormal about his vehicle. A.H. told investigators that when he got into his car, the display showed all four tire pressures read 32-33 psi based on the tire pressure monitoring system (TPMS). A.H. departed the garage at 9:18 p.m., once again, according to parking garage records.

6. The defense has obtained and disclosed all of the service records from A.H.'s vehicle from North Scottsdale BMW pursuant to a Rule 15.1(g) Court Order. Those records indicate that at no time during the life of A.H.'s vehicle has it *ever* experienced a TPMS malfunction, error, or any other defect or issue requiring service.

7. As A.H. left the Airport from the west side, he got onto the I-10 westbound. As he was transitioning onto the SR 51 northbound, the TPMS on his vehicle alerted that his left front tire had lower pressure.

8. A.H. told detectives that he has never had any problems with the TPMS that have required service or suggested a malfunction.

9. A.H. stopped at the Quik Trip at 16th Street and Highland to put air in the tire. When he did so and connected the air pump to the left front tire, he heard air gushing out of the inner sidewall of the left front tire.

10. Because A.H. had "run flat" tires, that is, tires with thicker than normal sidewalls that are designed to drive 50 miles at 50 mph even with no air pressure, he did not need to get the tire serviced that night and drove home. The next morning, August 31, 2015, he drove to North Scottsdale BMW to get the tire repaired.

11. Technicians at North Scottsdale BMW recovered a copper jacket from a bullet, and the lead core which separated from the jacket in the inside of the left front tire.

12. A.H. met with detectives on September 3, 2015 at his office. He recited the above sequence of events and also gave detectives the copper jacket and lead bullet that was given to him by BMW personnel.

13. Despite A.H.'s indication of when the shooting happened, the State alleged in the Indictment against the Defendant that the shooting of A.H.'s vehicle occurred sometime between August 22nd and August 27th, 2015.

14. The timeline was generated based on the fact that the Defendant's gun was in the pawn shop until August 22nd and because the Defendant's gun was in the pawn shop as of 5:31 p.m. on Sunday, August 30, 2015 – some four hours before the shooting occurred. The State knew that if A.H. was correct, its theory that the bullet recovered from this shooting came from the Defendant's gun would be faulty so it changed the timeline. There is no other evidence to support that the shooting happened between the 22nd and the 27th.

15. Investigators conducted a second interview of A.H. on September 22, 2015. In an effort to recruit A.H. to breathe life into their new found theory about the timing of the shooting, given that the Defendant's gun was in pawn at the time at which A.H. initially reported the shooting to have occurred, they asked:

> Detective: Is it possible, I know there's nothing out of the ordinary that you heard, but that morning driving there, that something may have, the incident may have occurred and it in lodged in the side, and loosened that hole on the way home?
>
> A.H.: No idea, but there's no tire pressure no nothing issues getting to the airport at all. There's nothing that would have happened in the sense of it could have been shot there and lodged there and plunked out? I'm not an expert but I h--- think that's highly unlikely.
>
> Detective: When you got out of the car, you don't recall any of your warning lights being on at all?
>
> A.H.: When I got to the airport it was fine. Nothing had come on when I got to the airport.

Detectives then attempted to abruptly end the interview.

16. The defense has disclosed an expert opinion from Dr. John Daws, a forensics tire expert. That report is attached hereto as Exhibit 1.

17. Dr. Daws noted that, aligned with the small puncture in the sidewall made by the bullet, there is a gouge on the inner surface of the tread. The gouge is aligned with the hole in the sidewall. Dr. Daws has opined that

the bullet which entered the tire caused the gouge within a split second after it punctured the sidewall. The gouge caused the bullet's terminal deceleration and caused it to come to rest in the rotating tire.

18. Daws also performed pressure testing on A.H.'s tire after it was released to him from DPS detectives. As Daws writes in his report, the purpose of testing was to determine the rate at which A.H.'s tire would leak sufficient air to trigger the TPMS, in accordance with 49 CFR § 571.138.

19. Daws opined to a reasonable degree of engineering certainty that "the vehicle's TPMS would be able to indicate low tire pressure within *one second* of bullet penetration of the tire sidewall" (emphasis added).

20. The sum total of Daws' work, be it through the visual inspection or the pressure testing, confirms to a reasonable degree of engineering certainty that A.H.'s tire was shot on Sunday, August 30, 2016 at about 9:30 p.m. – some four hours *after* the Defendant's gun was in pawn.

ARGUMENT

The State's theory just doesn't hold water. It is impossible for the same gun to have fired the four bullets from the four shootings if the gun was in pawn at the time of one of the shootings.

The foregoing statement of facts constitutes a material change of circumstances which warrants a modification of release conditions. Based on all of the factors set forth in A.R.S. §13-3967, and in particular §3967(6), it is respectfully requested that this Court release the Defendant to the supervision of Pretrial Services with electronic monitoring pending trial.

Respectfully submitted this 5th day of April, 2016.

/s/ Jason D. Lamm
Jason D. Lamm
Attorney for Defendant

/s/ Ulises Ferragut
Ulises Ferragut
Attorney for Defendant

Original emailed for filing *Under Seal* with copy provided electronically this same date to:

Judge Warren Granville
Maricopa County Superior Court

Ed Leiter
Deputy County Attorney

By: ***/s/ Kathryn A. Miller***

EXHIBIT “1”

Daws EngineeringLLC

March 23, 2016

Jason D. Lamm, Esq.
Law Office of Jason Lamm
Biltmore Corporate Park
6245 North 24th Parkway, Suite 208
Phoenix, AZ 85016

Re: **Arizona v. Merritt**
DE Project Number: 16-1007
Project Report

Dear Mr. Lamm:

At your request, *Daws Engineering* has inspected a tire involved in this matter. Materials provided by your office, listed in Appendix A, were also reviewed. Additional study was performed on this tire. This letter summarizes my observations from those studies.

Qualifications

My Curriculum Vitae is attached hereto as Attachment 1 and incorporated as a reference. I received a Ph.D. in Mechanical Engineering from Virginia Polytechnic Institute and State University in 1979, and am registered as a Professional Engineer in Virginia. Except as otherwise indicated, the facts set forth herein are within my own personal knowledge or opinions based on my education, professional experience, and my review of facts, data, and information typically and reasonably relied upon by experts in the field.

I have served as an expert witness in many matters since 2001. I have been qualified as an expert and testified at trial on several occasions, and I have been deposed in civil actions in which I served as an expert for both plaintiffs and defendants. A list of my testimony for the past four (4) years is attached hereto as Attachment 2 and incorporated as a reference.

As outlined below, I worked for almost 20 years in an engineering and technical capacity for Michelin Tire Corp., which has included Uniroyal and BFGoodrich since 1991. I joined Michelin in 1982, and spent the next two years in France in a training assignment. During this time, I was given instruction on tire constructions, tire building machinery, and tire quality measurements. In 1984, I assumed responsibility for Michelin's Central Engineering group in North America. In this capacity, I was responsible for the development and

implementation of computer-integrated manufacturing concepts, including application of bar code and individual tire tracking during manufacturing.

In 1988, I moved to Michelin's Spartanburg tire plant in an engineering management role. At this facility, I was responsible for the engineering design and implementation of tire building equipment and plant facility equipment. I performed design and fatigue analyses of machine parts. I also participated in regular reviews of field return tires that had been analyzed and classified by company experts according to their root cause of failure. I also participated in problem-solving discussions relating to field return issues.

In 1992, I moved to Michelin Americas Research Corporation as the Operations Manager for Customer Quality Assurance. In this capacity, I was responsible for handling every original equipment (OE) customer quality complaint for all OE customers of Michelin Tire Corp. I was responsible for examining and classifying field return tires from OE customers and from the Customer Service group according to their root cause of failure. I also participated in regular reviews of field return tires that had been classified by other experts. I was responsible for producing quality reports required by OE customers, and I worked directly with the tire design groups to resolve OE customer issues, including such issues as aligning torque and cornering coefficient.

In 1996, I became a Tire Development Engineer in the OE Development Group. In this capacity, I developed tire designs, had prototypes built and tested to failure, and examined the results. I participated in development programs on electric vehicle tires for several OE manufacturers.

In 1998, I was selected to manage a new Curing Team at Michelin. In this capacity, I was responsible for all vulcanization development activity in North America, including developing and implementing curing specifications and determining the acceptability of the curing functions in every plant. This also included Michelin Retread Technologies retreading operations and pre-cured tread stock manufacturing. I studied the effects of vulcanization on many different combinations of rubber materials and wire types in different tires, and tested these combinations to failure. In addition, I worked closely with the Replacement Market Tire Design Team on their tire designs.

During my almost 20 years with Michelin, I was personally involved with tire design, development, manufacturing, testing, and failure analysis. I also developed tire-manufacturing and testing equipment, wrote tire specifications, and launched OE tires into production. I participated in vehicle handling studies. I managed the day-to-day interface with OE customers on quality issues. I personally examined over 1500 tires that had been either tested to failure or had failed in the field. I participated in developing solutions to problems identified in tires that were returned from either the field or from OE customers.

In November of 2001, I joined Exponent Failure Analysis Associates, the largest consulting engineering firm in the United States, as a Sr. Managing Engineer. In 2004, I became Director of the Vehicle Practice group for Exponent. I studied the reconstruction of accidents and the impact of vehicle equipment on handling. I performed experiments and authored technical papers on tire tread delamination and tire-vehicle interactions, including limit handling and loss of control. In 2006, I formed *Daws Engineering, LLC* (*DE*), and currently serve as the Principal Engineer for that firm. *DE* currently charges $480 per hour for my time.

Background

According to information provided by your office, on August 27, 2015, Mr. was driving a 2014 BMW 535i Luxury on SR-101 and SR-51 in Maricopa County, Arizona. Mr. was traveling from his home to the Phoenix Sky Harbor airport, where he arrived at the Terminal 2 parking garage at about 5:55 AM. He returned from his trip on August 30, 2015. On starting his vehicle, he noted that the pressure in all the tires was slightly lower than normal (about 32 psi) according to the Tire Pressure Monitoring System (TMPS) in the vehicle. Mr. left the Terminal 2 parking garage at about 9:18 PM. According to his statement to police investigators, the tire pressure in his left front tire began to drop as he was on the transition road between the I-10 and SR-51. He stated that he noticed that the TPMS indicator had changed from green to yellow after he merged onto SR-51.

Mr. further noted that he stopped at the QuikTrip at 16th Street and Highland Avenue to put air in the tire. He recounted that he filled the tire to 35-36 psi, but the air pressure had fallen to 28 psi by the time he put the nozzle back. He heard air escaping from the tire. He drove from there to 32nd Street and Camelback Road, where most of the air had escaped from the tire. He called road service and was informed that he had run-on-flat type tires, and he should take the car to a BMW dealer for assistance.

On August 31, 2015, Mr. took the vehicle to BMW North Scottsdale, where the tire was demounted. A portion of a bullet was found inside the tire.

I was asked to review the damage to the tire to see if it was consistent with the testimony of Mr. . I was also asked to make a determination of the rate at which the tire's pressure would drop, given the damage in evidence.

Mr. 's BMW had Vehicle Identification Number (VIN) 3222. BMW records indicate that the silver 4-door sedan was delivered on 2014. BMW records also indicate that the vehicle mileage at the time the left front tire was replaced was 16,002 miles. The recommended inflation pressure for the front tires was 35 psi.

Tire Reference System

In this report, tire clock positions 1:00 through 12:00 are used to denote circumferential locations around the tire. The direction progresses clockwise from the 12:00 clock position on the side of the tire imprinted with the DOT or serial number (SS for Serial Side). Clock position proceeds counter-clockwise from the 12:00 clock position on the opposite face of the tire (OSS for Opposite Serial Side). The 12:00 clock position is set at the “O” in the “DOT” that precedes the serial number on the Serial Side of the tire.

Inspection and Testing

I took possession of the tire that was determined to have been on the left front wheel position of Mr. 's vehicle. I received the tire from Det. of the Arizona Department of Public Safety (AZ DPS) on March 8, 2016. I performed a visual and tactile inspection of the tire The inspection took place at:

Daws Engineering, LLC
4535 West Marcus Drive
Phoenix, Arizona

During my inspection, I took five (5) pages of notes and 138 color photographs.

Tire Inspection Observations

The tire was a Dunlop SP Sport Maxx GT in size 245/40R19 94Y. The Department of Transportation (DOT) code for the tire was DM66 JH1R 0214, indicating that the tire had been manufactured in Dunlop's Hanau am Main, Germany, factory during the second week of 2014. This was consistent with the tire having been one of the original tires fitted to the vehicle. The run-on-flat tire was constructed with two rayon casing plies. The tread area reinforcement was made up of two steel plies and one nylon ply over the casing plies. The tire was rated for a maximum load of 1,477 lbs and a maximum inflation pressure of 51 psi. Dunlop data indicates that the tire would rotate 782 times per mile traveled. The original tread depth was given as $^{9}/_{32}$ inch. The tread design was asymmetric with the SS sidewall designated "Outside" and the OSS sidewall designated "Inside" on the vehicle.

Note that a "run-on-flat" tire is designed to support the vehicle load without any air pressure for a maximum of about 50 miles. This type of tire has been used extensively by BMW to provide extended mobility on their line of vehicles. Use of this type of tire also allows the elimination of the spare tire and jack, which reduces the sprung weight of the vehicle.

At my inspection, the average tread depth was found to be $^{6}/_{32}$ inch. Given the mileage of 16,002 miles, this would be about 5,333 mi/32nd, resulting in an

expected wear life of about 37,000 miles. This was consistent with my understanding of Original Equipment (OE) tires. Tread hardness was about 87 H_A, consistent with that generally found on summer performance tires.

The tire had an external opening below the equator in the OSS sidewall at about the 8:30 clock position, as shown in Figure 1. The opening was circumferentially oriented. Distortion of the decorative lines on the sidewall were consistent with the penetrating object travelling from the 8:00 clock position toward the 9:00 clock position when entering the sidewall. This direction is also shown in Figure 1

Figure 1. Penetration of the OSS sidewall at about the 8:30 clock position.

This opening connected to a corresponding opening on the inner surface of the sidewall. There was a gouge in the inner liner and inner body ply layer of the tire under the tread at about the 9:10 clock position, as shown in Figure 2. The gouge did not extend into the steel belts of the tread reinforcement, nor was there any corresponding exit opening in the tread area. The orientation of the gouge lined up with the penetration in the OSS sidewall, consistent with the two artifacts having been created by the same event.

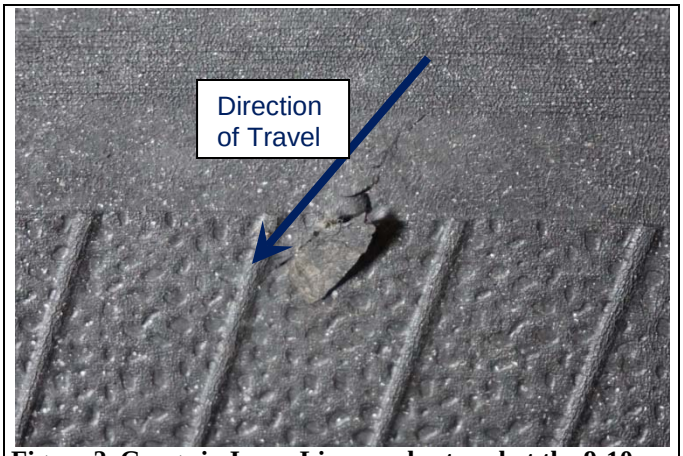

Figure 2. Gouge in Inner Liner under tread at the 9:10 clock position.

There was wrinkling of the inner liner along both shoulders of the tire. This was consistent with the tire having been run for a significant distance (relative to the tire's 50 mile maximum) without air pressure.

Leakdown Testing

In order to determine the leak rate of the tire, an exemplar 19x8.5J-EH2+ rim (BMW Part No. 7842652) was secured. This is the type of rim specified for the tire on the incident vehicle. This type of rim profile is designed to secure the beads of a run-on-flat style tire so that they do not separate from the wheel

should the tire lose air pressure. The tire was mounted on the rim and inflated to seat the beads on the rim flanges. This mounting was performed on March 16, 2016, at:

Mesa, Arizona

A surrogate vehicle, a 2014 BMW 535D, was secured for testing. The wheel was marked on the outer flange in a clockwise direction with degree positions, beginning with 0-deg at the 8:30 clock position on the tire (i.e., the opening in the OSS sidewall was located at the 0-deg clock position on the rim flange). The wheel was marked at 30-deg intervals. The leakdown testing was performed on March 17, 2016, at:

Tempe, Arizona

The marked exemplar rim with the incident tire was mounted on the left front position of the surrogate vehicle. With the weight of the vehicle fully on the tire, the tire was inflated to above 35 psi. The time for the tire pressure to drop from 35 psi to 20 psi was measured. The vehicle was raised on the lift, the tire was rotated to the next clock position, and the process was repeated.

Table 1. Leakdown time.

Position (Deg)	Leakdown Time (sec)
0	31.8
30	27.3
60	23.9
90	23.2
120	23.3
150	23.6
180	23.8
210	24.8
240	24.7
270	24.3
300	30.1
330	36.0

35 psi was taken as the start pressure for these measurements, since that was the recommended inflation pressure for the front tire on the incident vehicle. 20 psi was selected at the stop pressure for two reasons. First, there is no doubt that the vehicle's TPMS system would have flagged the tire pressure as low well before this point. By law, the TPMS system must provide an alert when the tire pressure has dropped by 25%, or to about 26 psi in this case[1]. Second, the interval of 15 psi allowed the acquisition of a sufficiently long period of time so that variations in the measurement associated with starting and stopping the timer would be *de minimus*. The data taken in this process is shown in Table 1. A replicate measurement taken at the 0-deg location indicated a measurement variation of about 3 sec (about 10%).

[1] 49CFR571.138, S4.2(a), states that the TPMS system must alert when the tire pressure is at most 25% below the recommended level, and it must do that in no more than 20 min. The actual response of any vehicle's TPMS depends upon the vehicle manufacturer's implementation.

At the conclusion of the leakdown testing, the tire was demounted from the exemplar rim. This demounting was performed at the test site. The tire was returned to Det. on March 22, 2016. Video of the tire mounting, demounting, and all leakdown testing was taken to memorialize this work.

Analysis

The physical damage to the tire suggests that the bullet or bullet fragment (hereinafter "bullet") entered the OSS tire sidewall, penetrated the tire, and then struck the underside of the tire tread before stopping. The angle of the entry and the inner liner gouge, when taken together, indicate a trajectory where the bullet is traveling from the right side of the vehicle to the left and from the rear of the vehicle to the front. The bullet traveled under the vehicle in order to create the damage observed. Given that the exposed sidewall height on the tire (i.e., the height over the wheel flange) is about 3.4 inches, the bullet had to have had entered the tire in very close proximity to the contact patch (i.e., the point where the tire tread surface touches the road surface).

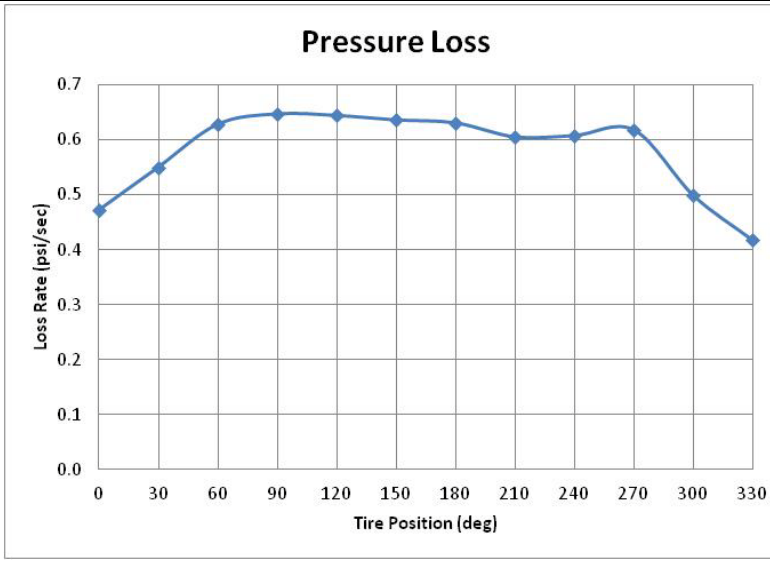

Figure 3. Measured Pressure Loss Rate.

Figure 3 shows the pressure loss rate measured on the incident tire. Loss rate is simply the pressure drop (in this case, 15 psi) divided by the time for the pressure drop to occur. It can clearly be seen in Figure 3 that when the bullet entry point is located between the wheel and the ground, there is some reduction of the leak rate. This is due to the fact that, on a run-on-flat tire, the sidewall is in compression when it is carrying the vehicle load, and this compression tends to restrict the amount of air that can escape through an opening of the type shown in Figure 1. Note that there is no static orientation where the tire will not lose air pressure rapidly. In the case where the tire is rotating, the overall loss rate would be the average of the values shown in Figure 3, or about 0.58 psi/sec. This

indicates that the vehicle's TPMS would be able indicate low tire pressure within one second of bullet penetration of the tire sidewall. The actual response time would depend upon the sampling time of the TPMS installation as implemented by the vehicle manufacturer.

Opinions

Based on my review of file materials provided (Appendix A), my investigation described above, my education and my experience, I hold the opinions stated in this report to a reasonable degree of engineering certainty.

The opinions above are based on the information presently available, and they may be supplemented should new information become available.

Sincerely,

John W. Daws, Ph.D., P.E.
Principal Engineer

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Appendix A

Materials Provided for Analysis

1. AZ-DPS General Report by Detective [0011826-0011830]
2. AZ-DPS Continuation/Supplemental Report, 9/23/2015, [011831]
3. AZ-DPS Supplemental Report, Detective 9/24/2015, [011832]
4. AZ-DPS Supplemental Report, Detective 9/22/2015, [011833-011834]
5. AZ-DPS Supplemental Report, Detective [011835]
6. AZ-DPS Supplemental Report, Detective [011836]
7. AZ-DPS, Search Warrant, [011837-011847]
8. Program Manager Screen Display, [011849]
9. AZ-DPS Supplemental Report, [011849]
10. BMW North Scottsdale Service Record, 8/31/2015, [011850]
11. AZ-DPS Evidence Records, [011851-011852]
12. BMW North Scottsdale Service records VIN 3222 [Def's Bates 0733 - Def's Bates 0773]
13. Verbal Statement of 9/22/2015, 11 min 49 sec WMA file