



Alcocoden Associates, LLC

SAMPLE

Personally addressed copy available upon request, without fee.

Re: Discovery of Data Downloads from Alcotest® 7110 Mark IIIC

Dear Attorney:

My technical expertise is based upon my study of physics, electronics, statistics, and computer programming at the college level and upon meeting the scientific requirements of the United States Patent and Trademark Office, passing the requisite exam, and becoming a Registered Patent Agent in 1976. I have practiced patent law in the mechanical, electro-mechanical, electrical, and bio-medical arts. Specific areas of technology include, inter alia, satellite and submarine components, energy storage devices, electronically controlled human mobility devices, ocean thermal energy conversion devices, embedded computer controlled devices, manufacturing equipment, and implantable electronic bio-medical devices. I worked at the Applied Physics Laboratory of The Johns Hopkins University for five years, and was honored by being named to their Senior Staff. While there I became the co-inventor of two patents pertaining to ultrasonic devices.

I have been licensed by the Federal Communications Commission since 1967 as an Amateur Radio Operator. I presently hold a General Class license, W2ESQ, and am therefore authorized to and have built, repaired, and operated various radio transmission and receiving devices, antennas, and power supplies.

My technical expertise is also based on my taking the lead for the Defense on all hardware and software issues in State v Chun, and completing the Alcotest® 7110 Mark IIIC Dräger Factory Training Course and Certification session in December 2008.

For more detailed information regarding my technical credentials, please refer to my CV, which I have enclosed. Complete copies of patents that I have prepared and/or prosecuted are available upon request.

You have inquired of me as to why it is necessary to examine the data download from the Alcotest® instrument on which your client was tested. As clearly established during State v

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Chun, the Alcotest® 7110 Mark IIIC is an instrument, electro-mechanical in nature, which is supervised by an embedded computer running on software.¹

The source code on which the instrument runs is extremely complex in nature and comprises 53,774 lines of code or approximately 896 pages.² As is common knowledge, and well known in the industry, no software is error free.³

The Supreme Court established in State v Chun that it is the State's burden to show that the device "was in working order"⁴ Operability of an imbedded computer and the electro-mechanical hardware that it supervises can only be determined by watching how an instrument performs its intended task and also how it performs such task repetitively over time.

This information is available and is stored in the memory of the Alcotest® until it is downloaded by a State Breath Test Coordinator. The Breath Test Coordinators periodically download this test information and burn it onto two compact discs, one of which is left at the location of the Alcotest® instrument and the other which is kept by the State. Current protocol requires the data to be downloaded before it exceeds 500 tests, even though the instrument is capable of retaining the "results of a 1000 tests."⁵

This data is stored in a common computer format and is readily readable by several commercially available programs. Based upon my examination of data downloads from at least a dozen jurisdictions, the data includes 310 fields of information, many of which are not shown on the AIR.

By examining this data, it is possible to ascertain whether the instrument in question is executing reliably over a period of time and/or whether anomalies repeatedly occur or have occurred in a particular defendant's testing sequence.

Further, there is information in the data downloads relevant to each test performed that does not appear on an AIR. Specifically and most importantly, inter alia, there are two diagnostic checks performed by the Alcotest® which appear in columns 307 and 308 of the data downloads and are called "pre-test diagnostic check" and "post-test diagnostic check". These checks are described by the manufacturer as verifying that the test records are correct and that all diagnostics checks were performed.

Also appearing in column 309 of the data download is a recordation of any errors that may occur. The Alcotest® operator's manual contains a long chart that lists all of the possible errors that may be recorded in this column. The data stored within the Alcotest® memory also includes a time stamp of each event which occurred within the breath testing sequence, the individual IR and EC results, and any aborted tests.⁶

¹ 194 N.J. 54, 78

² First Special Master's Report (SMR1 at p.67 also see SMR Exhibit D42)

³ First Special Master's Report (SMR1 p.194)

⁴ 194 N.J. 54, 134

⁵ 194 N.J. 54, 84 (FN 16)

⁶ Second Special Master's Report (SMR2 p.75-76)

In order to be certain that the Alcotest[®] was functioning properly, it is important to verify that the data recorded for any individual test corresponds with the data that appears on the AIR, without corruption. Although the Alcotest[®] has been ruled reliable by the Court, it is clear that anomalies exist as a result of software errors. The existence of such anomalies⁷ would be apparent in a data download, but would not necessarily be apparent on an AIR.

One of the State's witnesses proffered as a software expert in State v Chun, Mr. Norman Dee, during the first hearing in Chun, testified that errors in software coding were "rampant" and for that reason a lot of systems had self-checking capabilities.⁸ The "pre-test diagnostic check" and "post-test diagnostic check" in the Alcotest[®] are such self-checking capabilities.

Recognizing the necessity for the Defense to examine the data downloads and upon recommendation of the Special Master, the Supreme Court in State v Chun in Order Section 3B explicitly ordered that the State "create and maintain a centralized state-wide database, comprised of downloaded Alcotest[®] results, and shall make the data, following appropriate redactions of personal identification as needed, available to defendants and counsel." This is a clear recognition of the importance of making data downloads available to the Defense.

Although the centralized database has not been established, data downloads presently exist for each individual instrument and contain potentially exculpatory evidence, which can be easily and inexpensively provided. The Supreme Court, at the suggestion of amicus NJSBA, explicitly stated that "Defendants should have access to previously downloaded, centrally collected data."⁹ Recognizing this obligation, the New Jersey Attorney General has promulgated instructions¹⁰ for providing such data to defense attorneys and their experts.

It is my considered opinion that examination of such data is essential to be certain that any particular Alcotest[®] instrument is operating properly.

Based on the testimony of Thomas A. Brettell, Ph.D., Forensic Laboratory Director, Office of Forensic Sciences of the New Jersey State Police during State v Chun comparing AIR's to the data downloads and examining the data downloads was the exact procedure he employed, in part, to verify operability of the Alcotest[®] instruments in Middlesex County. Tabulations and analysis of these results were provided by Dr. Brettell in a report captioned "Report on the Status of the Use of the Alcotest[®] 7110 Mark IIIC Instrument in the New Jersey State Breath Alcohol Program." During the first hearing in State v Chun, four exhibits (S37, S38, S39, and S40), were introduced by the State from this report.

Examining the data downloads was proper scientific method for the State and continues to be proper scientific method for the Defense.

⁷ Second Special Master's Report (SMR2 p.78)

⁸ First Special Master's Report (SMR1 p.194)

⁹ 194 N.J. 54, 90 (FN20)

¹⁰ Memorandum of April 29, 2008 from Gregory A. Paw, Director, Division of Criminal Justice, Department of Law and Public Safety (p.5)

During the first hearing in State v Chun, evidence was introduced pertaining to a breath test program in the State of Alabama, which exclusively employs Alcotest® 7110's Statewide. D41, in that proceeding, was the rules of the Alabama Department of Forensic Sciences Chemical Test for Intoxication, which specify that a "data pack" (data download) be provided to Defendants.

As of the time of the first hearing in State v Chun, based on its review and examination of those data packs, the Department of Forensic Sciences of the State of Alabama had modified the software twenty three times¹¹, largely to correct problems in their software found as a result of their data analysis.

Data analysis in New Jersey is no less relevant.

In conclusion, it is essential that data downloads be examined in each and every Alcotest® case to determine the operability of a particular instrument when a breath test is administered.

Respectfully submitted,

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¹¹ First Hearing State v Chun (D100)