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Constitutional Law - Search and Seizure: Supreme Court Addresses Advances in Technology and Rules That Thermal Imaging Devices May Not Be Used without a Search Warrant

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CONSTITUTIONAL LAW—SEARCH AND SEIZURE: SUPREME COURT ADDRESSES ADVANCES IN TECHNOLOGY AND RULES THAT THERMAL IMAGING DEVICES MAY NOT BE USED WITHOUT A SEARCH WARRANT

Kyllo v. United States, 533 U.S. 27 (2001)

I. FACTS

In 1991, William Elliot (Elliot), an agent with the United States Department of the Interior, came to suspect that Danny Kyllo (Kyllo) was growing marijuana in his home, which was part of a triplex in Florence, Oregon.[1] High-intensity lamps, which mimic the sun's radiation, are usually needed to grow marijuana indoors.[2] These lamps can be detected through the use of a thermal imager.[3] Elliot used an Agema Thermovision 210 thermal imager to scan the triplex to determine whether the amount of heat emanating from the home was consistent with the use of such lamps.[4]

A thermal imager detects infrared radiation.[5] All objects emit infrared radiation, but it is not visible to the naked eye.[6] The scan revealed that parts of the Kyllo home were relatively warmer than the rest of the house and substantially warmer than neighboring homes in the triplex.[7] Elliot correctly concluded that Kyllo was using high-intensity lamps to grow marijuana in his home.[8] Based on the thermal scan, tips from informants, and utility bills, a federal magistrate judge issued a search warrant for Kyllo's home.[9] Upon execution of this warrant, Elliot found an indoor marijuana growing operation consisting of more than 100 plants.[10]

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1. Kyllo v. United States, 533 U.S. 27, 29 (2001).

2. *Id*; State v. Siegal, 934 P.2d 176, 180 (Mont. 1997) (stating that incandescent heat lamps are used by indoor marijuana growers to mimic the sun's radiation). The scan of the house was performed at 3:20 a.m. on January 16, 1992, from the passenger seat of the agent's car and only took a few minutes. *Kyllo*, 533 U.S. at 29.

3. *Kyllo*, 533 U.S. at 29-30. "[A] thermal imaging device is 'a passive, nonintrusive system which detects differences in temperature at surface levels.'" People v. Deutsch, 52 Cal. Rptr. 2d. 366, 367 (Cal. Ct. App. 1996). The differences in temperature are then displayed visually. United States v. Ford, 34 F.3d 992, 993 (11th Cir. 1994).

4. *Kyllo*, 533 U.S. at 29-30.

5. *Id.* at 29.

6. *Id.*

7. *Id.* at 30.

8. *Id.*

9. *Id.*

10. *Id.*

Kyllo was indicted on one count of manufacturing marijuana, a violation of 21 U.S.C. § 841(a)(1).[11] After an unsuccessful attempt to suppress the evidence found at his home, Kyllo entered a conditional guilty plea.[12]

Kyllo appealed the court's ruling to the Ninth Circuit Court of Appeals, which in turn remanded the case back to the district court for an evidentiary hearing to determine whether the use of a thermal imager was too intrusive.[13] The district court found that the thermal imager was a non-intrusive device because it did not show any people or activity within the home and could not observe any intimate details of the home.[14] Accordingly, on remand the district court upheld the warrant's validity and reaffirmed its denial of Kyllo's motion to suppress.[15] A divided court of appeals initially reversed,[16] but it later affirmed the district court's decision, holding that Kyllo had shown no subjective expectation of privacy because he made no attempt to conceal the heat emanating from the home.[17] Even if Kyllo had concealed the heat, the court also stated there was no objectively reasonable expectation of privacy because the hot spots on the roof and exterior wall did not expose any intimate details of Kyllo's life.[18]

Kyllo appealed the court of appeal's ruling, and the United States Supreme Court granted certiorari.[19] The United States Supreme Court *held* that when the government uses a device that is not available for use by the general public, to explore details of the home that would not otherwise be known without physical intrusion, the surveillance is a search and is presumptively unreasonable without a warrant.[20]

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11. *Id.*; *see also* 21 U.S.C. § 841(a)(1) (2000) (stating that it is unlawful for any person knowingly or intentionally "to manufacture, distribute, or dispense, or possess with intent to manufacture, distribute, or dispense, a controlled substance").

12. Kyllo v. United States, 533 U.S. 27, 30 (2001). Kyllo's conditional guilty plea would be withdrawn if an appellate court found the search to be unconstitutional. *Id.*

13. *Id.*; *see also* Kyllo v. United States, 37 F.3d 526, 531 (9th Cir. 1994).

14. *Kyllo*, 533 U.S. at 31 (citing the district court's findings on remand).

15. *Id.*

16. *Id.* at 30. The court's composition changed after the initial ruling, so when the matter was reheard by a different panel, a different decision was made. *Id.* at 31.

17. Kyllo v. United States, 190 F.3d 1041, 1046 (9th Cir. 1999) (noting the importance of a subjective expectation of privacy because that is the first part of the *Katz* test, which determines whether or not a search has taken place); *see also* Katz v. United States, 389 U.S. 347, 361 (1969) (Harlan, J., concurring).

18. *Kyllo*, 190 F.3d at 1046-47. An objective expectation of privacy is important because it is the second part of the *Katz* test; that is, even if a person has a subjective expectation of privacy, this privacy expectation must also be one that society would recognize as reasonable before a "search" will be found to have taken place. *Katz*, 389 U.S. at 361.

19. *Kyllo*, 533 U.S. at 31.

20. *Id.* at 40.

II. LEGAL BACKGROUND

The roots of search and seizure law lie within the Fourth Amendment, which states:

> The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.[21]

A. HISTORY OF SEARCH AND SEIZURE LAW

Fourth Amendment rights are preserved by requiring law enforcement officials to have probable cause and to obtain a warrant from an independent judicial officer before conducting a search.[23] The United States Supreme Court has given citizens a high degree of privacy in their homes, holding that "the right of a man to retreat into his own home and there be free from unreasonable governmental intrusion stands at the 'very core' of the Fourth Amendment."[24] The exceptions to the warrant requirement for searches of a home are very limited.[25]

There used to be a clear line between a surveillance and a search because for many years the Fourth Amendment cases associated a search with common-law trespass.[26] It followed that visual surveillance of a home could not be considered a trespass because "the eye cannot by the laws of England be guilty of trespass."[27] The Court has since separated searches

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21. U.S. CONST. amend. IV.

23. California v. Carney, 471 U.S. 386, 390 (1985). A warrant was not required in this case, however, because the Court held that the vehicle exception to the warrant requirement also applies to mobile homes. *Id.* at 394.

24. Silverman v. United States, 365 U.S. 505, 511 (1961); Payton v. New York, 445 U.S. 573, 590 (1980) (holding search and seizures in a person's home are treated differently from public search and seizures because police officers do not usually have access to private premises without a warrant).

25. *See* Illinois v. Rodriguez, 497 U.S. 177, 181 (1990) (noting that one of these exceptions is when voluntary consent is obtained by either the property owner or a third party that possesses common authority over the home); *Payton*, 445 U.S. at 586-87 (explaining that seizing property that is in plain view is an exception to the warrant requirement).

26. *See* Goldman v. United States, 316 U.S. 129, 134 (1942) (holding that the use of a detectaphone was not a trespass because there was no physical intrusion of the home); *see also* Olmstead v. United States, 277 U.S. 438, 466 (1928) (holding that the wire tapping of a person's phone lines was not a search because there was no actual physical invasion of his home).

27. Boyd v. United States, 116 U.S. 616, 628 (1885).

from trespass law, recognizing that the protection of the Fourth Amendment depends not on the person's property right, but upon his expectation of privacy in the invaded place.[28] This change in philosophy required the Court to develop a test to determine what constitutes a Fourth Amendment search.[29]

In *Katz v. United States*,[30] the Court articulated its current test.[31] Justice Harlan's concurrence stated that a search requires "that a person have exhibited an actual [subjective] expectation of privacy and, second, that the expectation be one that society is prepared to recognize as '[objectively] reasonable.'"[32] The Court went on to hold that "[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected."[33]

The protection of the Fourth Amendment was not extended beyond the house into open fields.[34] Protection was, however, provided to the curtilage.[35] Curtilage was defined as "the land immediately surrounding and associated with the home."[36] This area is considered part of the home for Fourth Amendment purposes because intimate activities associated with the home often take place here.[37] Courts look to the facts of each case to determine whether a place that has been searched is within the curtilage.[38] A court may consider the following factors: its proximity to the dwelling,

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28. Rakas v. Illinois, 439 U.S. 128, 143 (1978).

29. This test was developed in Justice Harlan's concurrence in *Katz v. United States*, 389 U.S. 347, 361 (1967).

30. 389 U.S. 347 (1967).

31. *Katz*, 389 U.S. at 361 (Harlan, J., concurring). In *Katz*, Federal Bureau of Investigation (FBI) agents attached an electronic listening device to a public telephone booth in order to listen to the plaintiff's phone calls. *Id.* at 348.

32. *Id.* at 361 (Harlan, J., concurring). Although Justice Harlan's opinion was only a concurrence, the standard he developed in his opinion is now law. *See* Smith v. Maryland, 442 U.S. 735, 739-40 (1979) (finding the proper test from *Katz* was found in Justice Harlan's concurrence); *see also* California v. Ciraolo, 476 U.S. 207, 211 (1986) (indicating that Harlan's analysis is the "touchstone of Fourth Amendment analysis").

33. *Katz*, 389 U.S. at 351-52.

34. Hester v. United States, 265 U.S. 57, 59 (1924); *see also* Oliver v. United States, 466 U.S. 170, 173 (1984) (stating that the *Hester* open fields doctrine allows police to enter and search a field without a warrant).

35. *Oliver*, 466 U.S. at 180.

36. *Id.*

37. *Id.*

38. Care v. United States, 231 F.2d 22, 25 (10th Cir. 1956). A cave located across a road and more than 125 yards from a home was found to be outside the curtilage, so no search warrant was necessary for police officers to search for and seize illegal whiskey. *Id.* at 24-25.

its inclusion in the general enclosure surrounding the dwelling, and its use and enjoyment by the family.[39]

In summary, early Fourth Amendment cases focused on the physical act of trespass, not on a person's subjective or objective expectation of privacy.[40] The protection of the Fourth Amendment currently extends beyond the home to the surrounding curtilage.[41] Advances in technology and the protection of curtilage required the United States Supreme Court to reconsider its position.

B. TECHNOLOGICAL ADVANCES IN SURVEILLANCE EQUIPMENT

Some of the early cases in which the courts had to decide how technology would impact the Fourth Amendment involved aerial observation and high-powered cameras.[42] In *California v. Ciraolo*,[43] the Court addressed whether aerial observation, by flying over the curtilage of a home at 1000 feet, violated the Fourth Amendment.[44] The Court determined that the defendant passed the first part of the *Katz* test because he had demonstrated a subjective intent to maintain his privacy by building a ten-foot fence to conceal his marijuana crop from the street.[45] The Court next concluded that the defendant failed the second part of the *Katz* test because the Court held that his expectation of privacy was unreasonable.[46] The Court reached this conclusion because the plane was flying within legal airspace.[47] Anyone flying in such airspace would have been able to observe defendant's activities, and police officers are not required to shield their eyes when passing by a home.[48]

Dow Chemical Co. v. United States[49] also involved an airplane, but in addition to observing, law enforcement officials also used a highly

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39. *Id.* at 25. The type of buildings within the curtilage may include a garage, a barn, or similar property. *Id.*

40. Goldman v. United States, 316 U.S. 129, 134-36 (1942).

41. Oliver v. United States, 466 U.S. 170, 180 (1984).

42. *See* California v. Ciraolo, 476 U.S. 207 (1986); Florida v. Riley, 488 U.S. 445 (1989); Dow Chemical Co. v. United States, 476 U.S. 227 (1986).

43. 476 U.S. 207 (1986).

44. *Ciraolo*, 476 U.S. at 209.

45. *Id.* at 211.

46. *Id.* at 213-14; *see also Riley*, 488 U.S. at 451 (holding a police officer's observations from a helicopter flying 400 feet above defendant's home did not violate defendant's reasonable expectation of privacy because the helicopter was flying at a legal altitude). However, a plane flying at 400 feet above defendant's home would not pass the *Katz* reasonable expectation of privacy test because it would have violated aerial regulations. *Id.*

47. *Ciraolo*, 476 U.S. at 213-14.

48. *Id.*

49. 476 U.S. 227 (1986).

sophisticated camera to photograph the suspect's facility.[50] The Court again held the first part of *Katz* was satisfied because the defendant had a subjective expectation of privacy.[51] The Court found that a subjective expectation of privacy existed because the defendant corporation should not have been expected to cover its entire 2000 acre enclosed tract of land.[52] The government also conceded the high-tech equipment used was not generally available to the public.[53] However, the Court ruled that there was no Fourth Amendment violation because it found that the photos did not reveal enough intimate details to require constitutional protection.[54] In an effort to look ahead, the Court, in dicta, indicated that a device with the ability to actually penetrate walls "would raise very different and far more serious questions" than the case at hand.[55] After dealing with the technological advances in aerial surveillance and high-powered cameras, one of the Court's next struggles with advancing technology came with the invention of thermal imagers.[56]

C. LOWER COURTS DISAGREE ABOUT WHETHER THERMAL IMAGING IS A SEARCH

One of the earliest cases involving thermal imaging arose in the State of Washington.[57] In *Washington v. Young*,[58] the court first determined that the Washington State Constitution placed a greater emphasis on privacy than the U.S. Constitution's Fourth Amendment.[59] The previous limits provided by the Washington Supreme Court, in terms of what law enforcement officers could do without a warrant, were confined to the following: "[a]s a general proposition, it is fair to say that when a law enforcement officer is able to detect something by utilization of one or more

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50. *Dow Chemical Co.*, 476 U.S. at 229.

51. *Id.*

52. *Id.*

53. *Id.* at 238.

54. *Id.*

55. *Id.* at 239.

56. *See e.g.*, United States v. Ford, 34 F.3d 992 (11th Cir. 1994).

57. Washington v. Young, 867 P.2d 593 (Wash. 1994). In *Young*, a police detective and Drug Enforcement Agency (DEA) agent conducted a thermal surveillance of a defendant's home, observed abnormal amounts of heat, obtained a warrant, searched the home, and uncovered marijuana. *Id.* at 595.

58. 867 P.2d 593 (Wash. 1994).

59. *Young*, 867 P.2d at 596 (finding that the Washington Constitution rejected some of the language of the Fourth Amendment and instead provided more vigorous protection). The particular constitutional provision the court referred to was WASH. CONST. art. I, § 7, which states: "No person shall be disturbed in his private affairs, or his home invaded, without authority of law." WASH. CONST. art. I, § 7.

of his senses while lawfully present at the vantage point where those senses are used, that detection does not constitute a 'search.'"[60] The question the court then had to resolve was whether using thermal imaging exceeded these boundaries.[61]

The court determined that thermal imaging allowed officers to "see through the walls" and draw specific inferences about the inside of the defendant's home.[62] Looking to the established state law, the court held that the thermal imager "goes well beyond an enhancement of natural senses."[63] Therefore, the court held that the use of thermal imaging without a warrant was a violation of Washington's constitutional protection of private affairs.[64]

In *People v. Deutsch,*[65] the California Court of Appeals used the *Katz* test to determine whether thermal imaging was a Fourth Amendment search.[66] The part of the test requiring a subjective expectation of privacy was easily met.[67] To analyze whether the defendant's expectation of privacy was objectively reasonable, the court analyzed two Supreme Court "beeper" cases.[68]

In *United States v. Karo,*[69] the Court held that when a beeper reveals details about the inside of a private residence it is an unreasonable search because it reveals information that would not have otherwise been available without a warrant.[70] By contrast, in *United States v. Knotts,*[71] there was no violation because a beeper was only used to monitor suspects while they traveled over public roadways.[72] This was deemed to be reasonable

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60. *Young*, 867 P.2d at 597 (quoting 1 W. LAFAVE, SEARCH AND SEIZURE § 2.2, at 240 (1978)).

61. *Id.*

62. *Id.* at 598.

63. *Id.* (finding that a thermal imager allows a police officer to "see through the walls" of a home).

64. *Id.* at 599.

65. 52 Cal. Rptr. 2d 366 (Cal. Ct. App. 1996).

66. *Deutsch*, 52 Cal. Rptr. 2d at 368-70.

67. *Id.* at 369-70 (finding there was a subjective expectation of privacy because the defendant's marijuana "grow rooms" in her garage were walled off and bedsheets hung over the doorways, preventing visitors from seeing beyond the living room).

68. *Id.* at 368-69. A beeper is a radio transmitter which emits signals that can be picked up by a radio receiver. United States v. Karo, 468 U.S. 705, 707 n.1 (1984).

69. 468 U.S. 705 (1984).

70. *Karo*, 468 U.S. at 715. In *Karo*, DEA agents placed a beeper inside a can of ether by which they were able to follow the defendant's movements within his residence. *Id.* at 708.

71. 460 U.S. 276 (1983).

72. *Knotts*, 460 U.S. at 281. In this case, a police officer installed a beeper inside a five-gallon container of chloroform, an ingredient often used in the manufacturing of illegal drugs, in order to determine the site of a drug laboratory. *Id.* at 278.

because a person has no reasonable expectation of privacy when moving from one place to another.[73]

Based on the analysis of beeper cases, the California court concluded that the thermal imaging device used was more like the beeper in *Karo* because it revealed something about the inside of the defendant's residence that the police would have needed a warrant to determine.[74] Hence, the court ruled that society had a general expectation of privacy, and thermal imaging will not be allowed without a search warrant.[75]

Montana v. Siegal[76] is perhaps the most comprehensive case that addressed the reasons against the warrantless use of a thermal imager.[77] In this case, the Montana Supreme Court analyzed and rejected the following theories that courts have used to uphold the warrantless use of thermal imagers: waste-heat approach, canine-sniff approach, and the technological approach.[78]

The waste-heat theory involves an analogy comparing the heat leaving a home to garbage being left outside a home.[79] In each instance, a homeowner is disposing of waste matter in areas exposed to the public.[80] The Supreme Court has held that garbage left outside one's home is not protected by the Fourth Amendment.[81] Similarly, courts have held defendants do not have a legitimate expectation of privacy in the heat

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73. *Id.* at 281.

74. *See* People v. Deutsch, 52 Cal. Rptr. 2d 366, 369 (Cal. Ct. App. 1996) (finding that a search warrant was required because the thermal imager, like the beeper in *Karo*, revealed intimate details about what occurred inside the home).

75. *Id.* at 369-70.

76. 934 P.2d 176 (Mont. 1997).

77. *Siegal*, 934 P.2d at 178. In this case, law enforcement officers in Montana used a thermal imager to detect high amounts of heat coming from a building on the defendant's property. *Id.* The Montana Constitution provides its citizens with broader protection from search and seizure than does the United States Constitution. *Id.* at 178-79. While Article II, Section 11 of the Montana Constitution has the same provisions as the Fourth Amendment of the U.S. Constitution, the Montana Constitution goes further, stating: "Right of privacy. The right of individual privacy is essential to the well-being of a free society and shall not be infringed without showing a compelling state interest." *Id.* at 183 (citing U.S. CONST. amend. IV and MONT. CONST. art. II, §§ 10 & 11).

78. *Id.* at 185-91. The canine-sniff approach compares thermal imaging to the use of drug-detecting dogs. *Id.* at 186. The technological approach examines the underlying technological and scientific principles involved in thermal imaging. *Id.* at 187-88.

79. *Id.* at 185.

80. *Id.*

81. California v. Greenwood, 486 U.S. 35, 40-41 (1988) (holding Greenwood lost all Fourth Amendment protection by leaving his garbage on a public street, "readily accessible to animals, children, scavengers, snoops, and other members of the public").

emissions from their homes when they voluntarily vent and expose them to the public.[82]

The Montana court's problem with this theory was that the high-tech devices needed to detect heat emissions are not required to search through garbage.[83] Heat emissions were not something that people could easily access.[84] The court also recognized that it was much easier to conceal garbage than heat emissions because, "no matter how much one insulates, heat will still escape."[85] Also, the fact that someone took the time to thoroughly insulate his or her home to conceal heat emissions indicated a strong expectation of privacy.[86]

A second method of analyzing thermal imaging cases is to make a comparison to dog-sniff cases.[87] Some courts have upheld the use of thermal imaging by comparing it to the use of dogs to sniff for contraband.[88] In *United States v. Place*,[89] the Court concluded that it was acceptable to allow dogs to use their olfactory senses to sniff for drugs because a physical opening of the luggage was not required.[90] In *United States v. Penny-Feeney*,[91] the court held that use of the thermal imager, "like use of the dog sniff, entailed no embarrassment to or search of the person. Heat emanations, the target here, are comparable to the odor emanations in *Solis* since they constitute a physical fact indicative of possible crime, *not* protected communications."[92]

The Montana court disagreed with the comparison of thermal imaging to dog sniffing because a dog will only alert law enforcement officials of illegal substances, while thermal imagers provide both illegal and legal

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82. *See* United States v. Penny-Feeney, 773 F. Supp. 220, 228 (D. Haw. 1991) (finding the defendant had no legitimate expectation of privacy in the heat waste because he voluntarily vented it outside the garage where it could be exposed to the public); *see also* United States v. Myers, 46 F.3d 668, 669-70 (7th Cir. 1995) (holding the defendant did not have a subjective expectation of privacy because he took no steps to conceal the heat emissions from his home; in fact, he discharged the heat through vents in his roof).

83. State v. Siegal, 934 P.2d 176, 186 (Mont. 1997).

84. *Id.*

85. *Id.*

86. *Id.*

87. United States v. Pinson, 24 F.3d 1056, 1058 (8th Cir. 1994); *Myers*, 46 F.3d at 670.

88. *Id.*

89. 462 U.S. 696 (1983).

90. *Place*, 462 U.S. at 707. Place was stopped by two DEA agents while in an airport. *Id.* at 698. A dog indicated that there were drugs in one of Place's suitcases; a search warrant was obtained, and cocaine was discovered in his suitcase. *Id.* at 699.

91. 773 F. Supp. 220 (D. Haw. 1991).

92. *Penny-Feeney*, 773 F.Supp. at 227. *Solis* is a case in which a magistrate issued a warrant to search a trailer after dogs reacted toward the trailer. United States v. Solis, 536 F.2d 880, 881 (9th Cir. 1976). The court ruled there was no Fourth Amendment violation because the dogs were sniffing public air space, an act that is reasonably tolerable in our society. *Id.* at 882.

information.[93] Unlike dogs, it was not possible to restrict the use of thermal imagers to detect only illegal activities.[94] Further, when high amounts of heat are indicated by a thermal imager, the likelihood of illegal activity taking place was lower than when a dog indicated the presence of illicit drugs.[95]

The third approach dismissed by the Montana court was the technological approach.[96] This approach purports that thermal imaging is not a search because the technology does not provide "intimate details" about the inside of the home.[97] The lack of an ability to observe "intimate details" means that no constitutional concern is raised.[98]

The Montana court examined the case of *United States v. Cusumano*[99] to provide its reasoning for disagreeing with this approach.[101] In *Cusumano I*, the court decided that the proper question was not "whether the Defendants retain an expectation of privacy in the 'waste heat' radiated from their home," but rather "whether they possess an expectation of privacy in the heat signatures of the activities, intimate or otherwise, that they pursue within their home."[102] The court later explained that the intrusion of privacy is not based upon the thermal imager's crude gathering of information, but rather on the interpretation of this data that allows law enforcement officers to monitor domestic activity.[103] The Montana court agreed that the proper question was whether a defendant has an expectation of privacy in the heat signatures of both intimate and non-intimate activities performed within the home and not exposed to the public.[104]

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93. State v. Siegal, 934 P.2d 176, 187 (Mont. 1997).

94. *Id.*

95. *Id.*

96. *Id.* at 187-88 (citing Dow Chemical Co. v. United States, 476 U.S. 227, 238 (1986)). The technological approach claims that no search takes place because the instruments used are crude and do not reveal intimate details about the inside of the home. *Id.* at 188.

97. *Id.* A search warrant is required when intimate details about the inside of a home are revealed because this information would not be available to law enforcement officers without a warrant. *Id.*

98. *Dow Chemical Co.*, 476 U.S. at 238 (finding that taking aerial photographs of an industrial complex was not a Fourth Amendment search because no intimate details about the inside of the complex were revealed).

99. 67 F.3d 1497 (10th Cir. 1995) (*Cusumano I*).

101. State v. Siegal, 934 P.2d 176, 189 (Mont. 1997); *Cusumano I*, 67 F.3d at 1502.

102. *Cusumano I*, 67 F.3d at 1502. This decision was later reversed when the court reheard the case *en banc*, deciding not to rule on whether using a thermal imager is a search under the Fourth Amendment. United States v. Cusumano, 83 F.3d 1247, 1251 (10th Cir. 1996) (*Cusumano II*).

103. *Cusumano I*, 67 F.3d at 1504.

104. *Siegal*, 934 P.2d at 190.

In summary, the first courts that addressed the issue of thermal imagers as a search came to different conclusions for various reasons.[105] However, appeals to the federal circuit courts brought about a consistent finding: the use of thermal imagers is not a search.[106]

D. CIRCUIT COURTS AGREE: THERMAL IMAGERS ARE NOT A FOURTH AMENDMENT SEARCH

The issue of the constitutionality of thermal imaging has reached the United States Courts of Appeals in only four circuits, and all four circuits held that no warrant was required.[107] In each of the four cases, the courts applied the *Katz* test to determine whether a Fourth Amendment search had taken place when law enforcement officers used thermal imagers to scan the defendants' homes.[108]

In *United States v. Myers*,[109] the Seventh Circuit found the first part of *Katz* was not satisfied because the defendant made no attempt to conceal the heat emissions from his home.[110] The court also found the second part of the *Katz* test was not satisfied, finding no expectation of privacy which society would recognize as reasonable because the scan did not intrude into the privacy or sanctity of a home.[111] With very little analysis, the court declared a thermal imager scan revealed only "wasted heat."[112] The court analogized the garbage left at the curbside in *Greenwood v. United States*[113] and the scent of drugs emanating from a suitcase in *Place*[114] to the "wasted heat" at issue in *Myers*.[115]

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105. *See, e.g.*, Washington v. Young, 867 P.2d 593, 596-99 (Wash. 1994) (finding the use of thermal imagers unconstitutional because of the heightened protection against searches and seizures provided by the state constitution); United States v. Penny-Feeney, 773 F. Supp. 220, 227 (D. Haw. 1991) (holding that thermal imaging is not a search because it is similar to a dog sniff).

106. *See, e.g.*, United States v. Myers, 46 F.3d 668 (7th Cir. 1995); United States v. Ford, 34 F.3d 992 (11th Cir. 1994); United States v. Pinson, 24 F.3d 1056 (8th Cir. 1994); United States v. Ishmael, 48 F.3d 850 (5th Cir. 1995).

107. *Myers*, 46 F.3d at 670; *Ford*, 34 F.3d at 995; *Pinson*, 24 F.3d at 1059; *Ishmael*, 48 F.3d at 854.

108. *Myers*, 46 F.3d at 669-70; *Ford*, 34 F.3d at 995-97; *Pinson*, 24 F.3d at 1058-59; *Ishmael*, 48 F.3d at 853-56.

109. 46 F.3d 668 (7th Cir. 1994).

110. *Myers*, 46 F.3d at 669. On the contrary, the defendant let the heat get out through the vents in his roof. *Id.* The defendant's failure to conceal the heat emissions from his home proved that he did not exhibit a subjective expectation of privacy. *Id.*

111. *Id.* at 670.

112. *Id.*

113. 486 U.S. 35 (1988).

114. *See* Place v. United States, 462 U.S. 696, 707 (1983) (finding that a canine sniff was not a search because the luggage was located in a public place and did not have to be opened).

115. *Myers*, 46 F.3d at 670; *see also* Greenwood v. United States, 486 U.S. 35, 39-40 (1988) (holding that it was not objectively reasonable to have an expectation of privacy in garbage that is

In *United States v. Ford*,[116] the Eleventh Circuit had little trouble finding the first part of the *Katz* test was not satisfied because the defendant used an electronic blower to remove excess heat through holes punched in the bottom of his mobile home.[117] The court then looked at cases like *Dow Chemical Co.* and *Florida v. Riley*,[118] which suggested that the intimacy of the details revealed by the aerial pictures of the defendant's greenhouse was relevant.[119] Similar to the photos taken in the above cases, the court found thermal imagery to lack the required intimacy because its low resolution was unable to detect intimate details.[120] The court closed by comparing heat coming from a residence with the act of setting garbage outside the curtilage of a home, holding that there is no societal expectation of privacy in either instance.[121]

In *United States v. Pinson*,[122] the Eighth Circuit followed the reasoning of the Seventh and Eleventh Circuits, holding no Fourth Amendment violation for a warrantless thermal image scan of a defendant's residence.[123] The court also considered thermal imaging to be analogous to police dogs, stating "[j]ust as odor escapes a compartment or building and is detected by the sense-enhancing instrument of a canine sniff, so also does heat escape a home and is detected by the sense-enhancing infrared camera."[124]

The most recent discussion was in *United States v. Ishmael*,[125] a Fifth Circuit decision.[126] This circuit, unlike the other circuits, concluded that the first part of *Katz* was satisfied.[127] It found that the other circuits interpreted

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left for trash collection outside the curtilage of a home because it is accessible to members of the general public).

116. 34 F.3d 992 (11th Cir. 1994).

117. *See Ford*, 34 F.3d at 995 (stating the defendant had no subjective expectation of privacy because he did not conceal the heat coming from his residence).

118. 488 U.S. 445 (1989).

119. *See Ford*, 34 F.3d at 996 (citing Dow Chemical Co. v. United States, 476 U.S. 227, 238 (1986) and finding there was no Fourth Amendment violation when law enforcement officers used an airplane to fly over the defendant's chemical plant and take pictures because no intimate details of the plant were revealed).

120. *Id.*

121. *See id.* at 997 (holding that heat vented from a residence is analogous to trash set outside a home and there is no objective expectation of privacy in either).

122. 24 F.3d 1056 (8th Cir. 1994).

123. *Pinson*, 24 F.3d at 1059. In this case, law enforcement officers detected an unusual amount of heat coming from Pinson's home when they conducted aerial surveillance of his residence with a thermal imager. *Id.*

124. *Id.* at 1058. Since it is reasonable to allow dogs to sniff luggage, there is also no societal expectation of privacy in heat waste. *Id.*

125. 48 F.3d 850 (5th Cir. 1995).

126. *Ishmael*, 48 F.3d at 851. DEA officers conducted a warrantless thermal image scan of a steel building located 200 to 300 yards from the defendant's mobile home. *Id.*

127. *Id.* at 854.

the first part of the *Katz* test more restrictively than necessary.[129] In holding so, the court determined that it was not necessary for the defendants to exercise every possible precaution in order to retain a subjective expectation of privacy.[130]

Addressing the second part of *Katz*, the court first determined that the search took place in an "open field" because the officers never invaded the Ishmael residence or curtilage.[131] The Supreme Court has ruled that law enforcement officers are entitled to observe buildings in open fields.[132] The Fifth Circuit Court of Appeals then held that the use of thermal imagers did not violate the Fourth Amendment when used in an open field because the device acts in a "passive and non-instrusive" manner.[133]

In summary, all four circuits ruling on the constitutionality of thermal imaging found it to be appropriate without a warrant because it is not a Fourth Amendment search.[134] In *Kyllo v. United States*,[135] the United States Supreme Court ruled definitively as to whether thermal imaging requires a warrant.[136]

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129. *Id.* The court contended that the other circuits have strayed from *Katz* by accepting the waste heat analogy, which contended that a failure to conceal heat emissions meant that there is no subjective expectation of privacy. *Id.* The court pointed out that in *Katz*, the Court found a subjective expectation of privacy even though the defendant did not take every precaution against electronic eavesdropping. *Id.* (citing United States v. Katz, 389 U.S. 347, 353 (1967)).

130. *Id.* (comparing the facts of this case to *Katz*, in which the defendant did not take every precaution against preventing law enforcement officers from eavesdropping on him, but the Court still found he had a subjective expectation of privacy). In *Ishmael*, the defendant had such an expectation because he constructed the laboratory in great secrecy, and it was located in a basement not visible from a public road. *Id.* at 855.

131. *See id.* at 856-57 (finding the area around the steel building was like a barn, so it is not included in the curtilage of the residence (citing United States v. Pace, 955 F.2d 270, 276 (5th Cir. 1992))). The *Pace* court held that an area surrounding a barn which is in an open field is not part of the curtilage. 955 F.2d at 276.

132. United States v. Ishmael, 48 F.3d 850, 857 (5th Cir. 1995); Oliver v. United States, 466 U.S. 170, 180 (1984) (stating that there is no expectation of privacy in open fields).

133. *Ishmael*, 48 F.3d at 857. Notably, this opinion was limited to the use of thermal imagers in the context of open fields. *Id.* The court ruled thermal imaging was passive and non-instrusive because it does not require a physical invasion of the home. *Id.* This is important to the court because it means the sanctity of the home will not be disturbed. *Id.*

134. United States v. Myers, 46 F.3d 668, 670 (7th Cir. 1994); United States v. Ford, 34 F.3d 992, 997 (11th Cir. 1994); United States v. Pinson, 24 F.3d 1056, 1059 (8th Cir. 1994); *Ishmael*, 48 F.3d at 854.

135. 533 U.S. 27 (2001).

136. *Kyllo*, 533 U.S. 27, 40 (2001).

III. ANALYSIS

Kyllo was decided by a five-to-four majority, which held that the government's use of a thermal imaging device was unconstitutional because it was not in general public use and the device was used to reveal details that would not have otherwise been accessible without a physical intrusion of the residence.[137] Justice Scalia delivered the Court's opinion, which Justices Souter, Thomas, Ginsburg, and Breyer joined.[138] Justice Stevens wrote the dissenting opinion in which he argued the rule was at once too narrow and too broad, and reasoned it would be wiser to give legislators an opportunity to deal with these issues.[139] Chief Justice Rehnquist and Justices O'Connor and Kennedy joined the dissenting opinion.[140]

A. THE MAJORITY OPINION

1. Fourth Amendment Search and Seizure

The Court began by giving a brief history of Fourth Amendment search and seizure law.[141] It had previously declined to determine the limits it would place on technology that adds to a person's normal ability to perceive.[142] The Court noted its previous statement in *Dow Chemical Co.* that "it is important that this is *not* an area immediately adjacent to a private home, where privacy expectations are most heightened."[143] In doing so, the Court distinguished the location of the search in this case, Kyllo's residence, from a commercial building in *Dow Chemical Co.*[144]

2. Thermal Imaging Is Not a Fourth Amendment Search

The Court next addressed the government's assertion that thermal imagers do not violate the Fourth Amendment because the imagers only detect heat waste.[145] The Court stated this was the same argument the dissent made when it differentiated between "off-the-wall" observations and

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137. *Id.*

138. *Id.* at 29.

139. *Id.* at 51 (Stevens J., dissenting).

140. *Id.* at 41.

141. *Id.* at 31-32; *see also* discussion *supra* Part II.A.

142. Kyllo v. United States, 533 U.S. 27, 33 (2001) (citing Dow Chemical Co. v. United States, 476 U.S. 227, 237 (1986)).

143. *Id.* (quoting *Dow Chemical Co.*, 476 U.S. at 237).

144. *Id.* The expectation of privacy is lower in commercial property than in the sanctity of a person's home. *Dow Chemical Co.*, 476 U.S. at 237-38 (citing Donovan v. Dewey, 452 U.S. 594, 598-99 (1981)).

145. *Kyllo*, 533 U.S. at 35.

"through-the-wall surveillance."[146] The Court declared in *Katz* that it had rejected this type of mechanical interpretation of the Fourth Amendment.[147] The Court then compared heat waves captured by a thermal imager to sound waves picked up by the eavesdropping device used in *Katz*.[148] The Court reasoned that if this philosophy were abandoned now, it would place homeowners at the mercy of advancing technology.[149] An example given by the Court was future technology that would be able to observe all human activity within a house.[150]

The Court concluded that it must not confine itself to the rather crude device used in the present case, but it must also consider the more sophisticated equipment already in existence or currently being developed.[151] One of the most common technologies that is already in existence is "off-the-wall" observation.[152] Off-the-wall observation involves the collection of data emanating from the outside of buildings.[153] It requires law enforcement officials to make inferences about the data they receive.[154] The Court rejected the dissent's assertion that something learned through an inference cannot be classified as a search.[155] The Court cited *Karo* as authority holding that it is possible for inferences drawn from information gathered from electrical devices to be a search.[156]

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146. *Id.* "Off-the-wall" refers to devices that are entirely passive, such as more advanced thermal imaging devices. *Id.* at 35-36 & n.3. These types of machines merely gather heat waves that are found outside of the walls. *Id.* "Through-the-wall" refers to machines emitting radiation that actually penetrates walls and enables the machine to gather information from the inside. *Id.*

147. *Id.* at 35-36. Thus, a search took place in *Katz*, even though all that was detected were sound waves on the outside of the phone booth. *Id.* (discussing Katz v. United States, 389 U.S. 347, 352-53 (1967)).

148. *Id.* (discussing *Katz*, 389 U.S. at 352-53).

149. *Id.*

150. *Id.*

151. *Id.* The ability to actually see through walls is a clear goal of law enforcement research and development. *Id.* at 35-36 & n.3. Current projects that are underway include "Radar-Based Through-the-Wall Surveillance System," a "Handheld Ultrasound Through the Wall Surveillance System," and a "Radar Flashlight," which would allow police officers to detect persons inside of a building. *Id.*

152. *Id.*

153. *Id.*

154. *Id.* at 36. Once a thermal scan is completed, technicians study the data to determine whether any unusual heat patterns exist. *Id.* Their conclusions are termed "inferences." *Id.*

155. *Id.* at 37.

156. *Id.* (citing United States v. Karo, 468 U.S. 705, 719-20). In *Karo*, the Court found that a search occurred when police made inferences from the activation of a beeper placed inside a can of ether. *Karo*, 468 U.S. at 719.

3. *Intimate Details: Private Activities Occurring in Private Areas*

Next, the Court addressed the government's claim that no search occurred because the thermal image scan did not reveal "intimate details."[157] Intimate details are private activities that occur in private areas.[158] The Court had previously found that no intimate details of a chemical factory were revealed by photographs taken from an airplane.[159] The Court found this analogy to be improper since this case involved a home, not an industrial complex.[160] The Court stated that any intrusion into the home, even by a fraction of an inch, was too much.[161] The Court went on to state that "[i]n the home, our cases show, *all* details are intimate details" because people do not expect the government to be privy to that area.[162] The Court also compared the present facts to the can of ether in *Karo* and, in *Arizona v. Hicks*,[163] to a registration number of a phonograph turntable.[164] The Court determined that both the can of ether and the registration number were intimate details because they were details of the home.[165] The Court decided that the heat detected by the thermal imager was just as intimate of a detail because it revealed how warm Kyllo was heating his home.[166]

4. *The Impracticalities of the Dissent's Standard*

The Court then stated that trying to limit the use of thermal imaging to only "intimate details" would be as impractical as it would be wrong in principle.[167] The Court reasoned that it would be wrong in principle

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157. Kyllo v. United States, 533 U.S. 27, 37 (citing Dow Chemical Co. v. United States, 476 U.S. 227, 238 (1986)).

158. *Id.*

159. *Id.* (citing *Dow Chemical Co.*, 476 U.S. at 238).

160. *Id.* A home enjoys more privacy than an industrial complex because of the sanctity accorded to a person's home. *Id.* (citing *Dow Chemical Co.*, 476 U.S. at 237-38).

161. *Id.* (citing Silverman v. United States, 365 U.S. 505, 512 (1961)).

162. *Id.*

163. 480 U.S. 321 (1987).

164. Kyllo v. United States, 533 U.S. 27, 37-38 (2001) (citing *Karo*, 468 U.S. at 720-21 and *Hicks*, 480 U.S. at 323-24). In *Karo*, all that was detected during the search was a can of ether moving throughout the house, but even that was considered too much. *Karo*, 468 U.S. at 720-21. In *Hicks*, the registration number of a phonograph that was in plain view was considered an intimate detail. *Hicks*, 480 U.S. at 323-24.

165. *Kyllo*, 533 U.S. at 37-38.

166. *Id.* at 38.

167. *Id.* (citing Oliver v. United States, 466 U.S. 170, 181 (1984)). In *Oliver*, the Court stated that there must be "a workable accommodation between the needs of law enforcement and the interests protected by the Fourth Amendment." *Oliver*, 466 U.S. at 181.

because of the intimacy of details that the thermal imager might detect.[168] The Court also decided that it would be impractical because there would be no way for law enforcement officers to know that they are observing intimate details until they actually do so, and therefore, there would be no way to prevent the intimate details from being revealed.[169] The Court also disagreed with the dissent's proposed standard, which was whether or not the person in the home would care if anyone saw inside the house.[170] The Court did not agree with this standard because it offered no practical guidance and lacked the precision deserved by both people and police.[171]

The Court next recognized that in the past it had held that the Fourth Amendment drew "a firm line at the entrance to the house."[172] The Court decided that there must be a clear line as to what type of surveillance techniques will be allowed without a warrant.[173] The Court then stated that even though the homeowner's privacy was not significantly compromised, it must look to the original meaning of the Fourth Amendment.[174] The Court had previously found that "[t]he Fourth Amendment is to be construed in the light of what was deemed an unreasonable search and seizure when it was adopted, and in a manner which will conserve public interests as well as the interests and rights of individual citizens."[175] Accordingly, the Court held that when the government uses a device that is not yet frequently used by the general public, to discover details about the interior of a home that would not otherwise be available without entering the home, the surveillance will be considered a search and thus will not be allowed without a search warrant.[176]

B. JUSTICE STEVENS' DISSENT

Justice Stevens disagreed with the Court's opinion on four major points, beginning with the argument that no new rule was necessary.[177]

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168. *Kyllo*, 533 U.S. at 38.

169. *Id.* at 39. The Court was aware of the fact that a thermal imager may be able to detect what time of day the lady of the house takes her daily sauna and bath. *Id.* at 38.

170. *Id.* at 39.

171. *Id.*

172. *Id.* at 40 (quoting Payton v. New York, 445 U.S. 573, 590 (1980)). A firm line is drawn at the entrance of the home because of a person's right to retreat into his or her own home and be free from unreasonable government searches and seizures. *Payton*, 445 U.S. at 590.

173. *Kyllo*, 533 U.S. at 40.

174. *Id.*

175. *Id.* (quoting Carroll v. United States, 267 U.S. 132, 149 (1925)).

176. *Id.*

177. *Id.* at 41-42 (Stevens, J. dissenting). Chief Justice Rehnquist and Justices O'Connor and Kennedy joined Justice Stevens in his dissent. *Id.* at 41.

Next, Justice Stevens argued that inferences drawn from the thermal imager's data alone do not amount to a Fourth Amendment Search.[178] Justice Stevens also asserted that the use of thermal imagers is in the public's interest.[179] Justice Stevens' final disagreement concerned the scope of the Court's new rule.[180]

1. No New Rule Needed

Justice Stevens began by claiming that no new rule was necessary because the Court's precedents control.[181] Justice Stevens recognized Court precedent, which states "searches and seizures inside a home without a warrant are presumptively unreasonable."[182] Justice Stevens also noted, that, if property is in plain view, a search is presumptively reasonable because it involves no invasion of privacy.[183] He then recognized that no Fourth Amendment protection exists when someone knowingly exposes something from his or her home or office to the public.[184]

Justice Stevens first discussed the difference between "through-the-wall" and "off-the-wall" surveillance.[185] He claimed that the thermal imager only passively measured the heat coming from petitioner's home and no details of his home were revealed.[186] Unlike through-the-wall surveillance devices, it did not penetrate the home or allow officers to get information they would not have been able to access from outside the curtilage of the home.[187]

Justice Stevens asserted that the heat emanating from petitioner's home could have been seen by neighbors or passerbys.[188] For instance, they may notice snow melting at a faster rate on specific parts of the home.[189] He then concluded that such observations did not become unreasonable simply because a device was used.[190] Justice Stevens came to this conclusion by reasoning that the thermal imager only enhanced the senses, enabling the

178. *Id.* at 42-43.
179. *Id.* at 45.
180. *Id.* at 46-47.
181. *Id.* at 41-42.
182. *Id.* at 42 (quoting Payton v. New York, 445 U.S. 573, 586 (1980)).
183. *Id.* (citing *Payton*, 445 U.S. at 586-87).
184. *Id.* (citing Katz v. United States, 389 U.S. 347, 351 (1967)).
185. *Id.* at 42-43.
186. *Id.* at 43.
187. *Id.* (citing Silverman v. United States, 365 U.S. 505, 509 (1961) and United States v. Karo, 468 U.S. 705, 715 (1984)).
188. *Id.*
189. *Id.*
190. *Id.*

DEA agent to better observe something that was already apparent to passer-bys.[191] Justice Stevens next noted that a heat wave was comparable to an aroma leaving a kitchen because both enter the public domain when they leave the building.[192] From this, he concluded that it was not plausible to have a subjective expectation that the heat waves would stay private, nor was there a privacy expectation that society would recognize as reasonable.[193] Justice Stevens reached this conclusion because a person's expectation of privacy diminishes when it enters the public domain.[194]

2. *Inferences Alone Do Not Amount to a Fourth Amendment Search*

Justice Stevens next stated that while the thermal imager did gather some information about details of the home which were exposed to the public, it did not reveal anything about the interior of the home.[195] He claimed that the only conclusions to be drawn were from inferences based on the thermal imager scan.[196] Justice Stevens then explained that this was just as indirect as inferences based on discarded garbage or pen registers, cases in which the Court concluded that no search had taken place.[197] Justice Stevens subsequently stated that he disagreed with the Court's decision to hold, for the first time, that an inference was a search in violation of the Fourth Amendment.[198]

3. *Public Interest Favors Thermal Imaging*

Justice Stevens then argued that there was a strong public interest in allowing law enforcement officers to use thermal imagers.[199] He stated that it is an official's duty not to ignore observations of criminal conduct in public.[200] Likewise, Justice Stevens reasoned that these officials also

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191. *Id.* at 43-44.

192. *Id.*

193. *Id.* at 44. Justice Stevens was referring to the factors in *Katz*. *See* Katz v. United States, 389 U.S. 347, 361 (1967).

194. Kyllo v. United States, 533 U.S. 27, 44 (2001).

195. *Id.*

196. *Id.*

197. *Id.* (citing California v. Greenwood, 486 U.S. 35, 41-42 (1988) for the garbage comparison, and Smith v. Maryland, 442 U.S. 735, 737 (1979) for the analogy to pen register data). A pen register records all of the numbers dialed from a particular telephone. *Id.* at 50 n.6.

198. *Id.* at 44. The majority held that inferences drawn from thermal imager data can be considered a search when the inferences provide details about the inside of a home. *Id.* at 37.

199. *Id.* at 45.

200. *Id.* (citing *Greenwood*, 486 U.S. at 41). Officials should not ignore such criminal conduct because it is a hazard to the community. *Id.*

cannot ignore things in the public domain like excessive heat, smoke, and odors.[201] Thus, Justice Stevens concluded that the acts of thermal imaging and drawing reasonable inferences from the data constituted a reasonable public service.[202] He also discounted the Court's concern regarding privacy interests, concluding that the interests were at best trivial because the primary focus of the Fourth Amendment is to prevent physical intrusion of the home.[203]

4. *Problems with the Scope of the Court's New Rule*

Justice Stevens next argued that the scope of the Court's new rule was too uncertain.[204] He recognized that the protection provided by the ruling will recede when thermal imagers become "in the general use" of the public, a phrase the Court failed to define.[205] Thus, Justice Stevens argued that the Court gave no clear time as to when the prohibition of using thermal imagers without a warrant would end.[206]

Subsequently, Justice Stevens argued that the category of "sense enhancing technology" was too broad because it may prevent the use of mechanical substitutes for sniffing dogs.[207] He stated that police needed to use sense-enhancing equipment to identify odors that indicate criminal conduct.[208] Justice Stevens also claimed that the Court's application of its rule was too broad because it applied to "any information regarding the interior of the home."[209] At the same time, Justice Stevens also suggested that the new rule was too narrow, because it only applied to information obtained from the inside of a home.[210] He argued that it should also apply to other private areas, such as a telephone booth.[211]

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201. *Id.*

202. *Id.*

203. *Id.* at 46 (citing United States v. U.S. Dist. Court for E. Dist. of Mich., 407 U.S. 297, 313 (1972)). Justice Stevens also stated that society will not suffer if someone wished to conceal heat from outsiders because the homeowner has the ability to keep heat from escaping by surrounding the area with insulation. *Id.*

204. *Id.* at 47.

205. *Id.*

206. *Id.*

207. *Id.*

208. *Id.* at 48.

209. *Id.* If equipment is able to identify only criminal conduct, it should not matter that the data came from the inside of the home. *Id.*

210. *Id.*

211. *Id.* at 48-49 (citing Katz v. United States, 389 U.S. 347, 351 (1967)). The Fourth Amendment protects people, not places, so what a person seeks to keep private, even if in a public area, may be constitutionally protected. *Katz*, 389 U.S. at 351.

In his conclusion, Justice Stevens addressed and dismissed the Court's reasons for justifying its rule.[212] He first disagreed with the Court's finding that a person's expectation of privacy regarding the heat escaping from the home was comparable to the monitoring of sound waves.[213] The Court's argument was that since the sound waves in *Katz* were found to be protected, the same protection should be provided to heat waves.[214] Justice Stevens concluded that there was a significant difference in the well-settled expectation of privacy people have in their communications, and the expectation they have in heat escaping from their homes.[215] He concluded that the Court had greatly exaggerated the holding of *Katz* when extending it to this case.[216]

Lastly, Justice Stevens emphasized that no "through-the-wall-surveillance" took place.[217] He argued that all that had taken place was the drawing of inferences, which did not violate the Fourth Amendment.[218] Justice Stevens concluded that it would be better to leave this matter to the legislatures.[219]

IV. IMPACT

A. *KYLLO'S* IMPACT ON THE FOURTH AMENDMENT

The broad holding of *Kyllo* makes it one of the most important Fourth Amendment cases in years because it may include some equipment unlikely to offend even the most privacy-minded persons.[220] For example, would the use of Geiger counters on public streets to detect plutonium hidden in houses really offend an individual?[221] Also, what happens when thermal imagers are available for $50 at the local Wal-Mart?[222] Will this constitute the "general public use" referred to by the Court and allow law enforcement

212. Kyllo v. United States, 533 U.S. 27, 49-51 (2001).

213. *Id.* at 49.

214. *Id.* at 35-36 (discussing *Katz*, 389 U.S. at 352-53).

215. *Id.* at 50.

216. *Id.* The exaggeration is that it would leave homeowners to the mercy of advancing technology. *Id.*

217. *Id.* He also emphasized the crudeness of the machine, noting it could not even take accurate images of the outside of the home. *Id.* at 50-51.

218. *Id.* at 51.

219. *Id.*

220. John P. Elweed, *What Were They Thinking: The Supreme Court in Revue, October Term 2000*, 4 GREEN BAG 2d. 365, 371 (2001). This was the first time since 1986's *Dow Chemical v. United States*, 476 U.S. 227 (1986) that the Court addressed the impact of technology on the Fourth Amendment. *Id.* at 370.

221. *Id.* at 371.

222. *Id.*

officials to once again use these devices on homes without first obtaining a warrant?[223] It probably would not, because the Court has a long history of distinguishing the exterior of homes from the interior.[224] It would not be reasonable for police to assume that government intrusion into a person's private life was allowed simply because everyone has the ability to do so.[225] In addition, the private use of thermal imagers would not raise constitutional issues because the Constitution's purpose is to limit the authority of government, not private citizens.[226]

Others are more concerned with the Court's emphasis that the search was of a home because of the possible limitations it places on the decision.[227] *Kyllo* leaves open the question of whether the holding applies to other areas that the Court has granted some Fourth Amendment protection, such as the trunk of a car.[228] It is possible that vehicle trunks may become fair game to scans by thermal imagers because of the Court's emphasis on the traditional sanctity of the home.[229]

A final concern relating from the *Kyllo* decision is that it may force the Court to re-examine some of its prior decisions.[230] For example, dog sniffing in public places has been allowed by the Court, but what will happen if a mechanical device is designed to duplicate a dog's ability to smell?[231] This device would then appear to be an "enhanced sensory skill" prohibited by the Court's reasoning.[232] The *Kyllo* decision may also obligate law enforcement officers to assess all other technological devices they currently use.[233]

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223. *Id.*; *see also* Daniel Dodson, Kyllo *Thermal-Imaging Case Reflects National Association of Criminal Defense/American Civil Liberties Union Arguments*, 25 CHAMPION 8, 8 (July 2001). The public use issue will likely be the subject of future litigation. *See* Elweed, *supra* note 220, at 371.

224. Thomas D. Colbridge, Kyllo v. United States: *Technology Versus Individual Privacy* FBI LAW ENFORCEMENT BULL., Oct. 1, 2001, at 28.

225. *Id.*

226. *Id.*

227. Dodson, *supra* note 223, at 8.

228. New York v. Belton, 453 U.S. 454, 460-61 & n.4 (1981). Police may search the interior of a vehicle while they are making an arrest to make sure the suspect has no dangerous weapons within his reach. *Id.* However, police may not search the trunk without a warrant because it is not within the suspect's reach. *Id.*

229. David Ruppe, *Technology and the Fourth Amendment* (June 11, 2001), *available at* http://abcnews.go.com/sections/us/DailyNews/scotusthermal010611.html.

230. G. Paul McCormick, *United States Supreme Court Update*, 25 CHAMPION 12, 14 (Dec. 2001).

231. *Id.*

232. *Id.*

233. Colbridge, *supra* note 224, at 29-30.

B. THE USE OF THERMAL IMAGERS MAY NOT DECLINE

The Court's decision in *Kyllo* will prevent law enforcement officers from using a thermal imaging device to search a person's home without a search warrant.[234] The question then turns to whether this decision will reduce the use of such devices in drug enforcement cases.[235] Larry Wilson, a detective with the Plano, Texas, police force does not believe that the *Kyllo* decision will reduce the use of the device because those in his department, and others he has trained around the country, have been instructed not to use thermal imagers without first obtaining probable cause through other means.[236] Wilson does not believe that the *Kyllo* decision will affect police use of thermal imagers on homes because the only additional steps will be to get an affidavit and have a judge sign a search warrant.[237]

However, even if there is a reduced need for the device in the area of drug enforcement, there are other areas of use, such as apprehension of suspects, search and rescue missions, and accident investigations.[238] Some police departments have thermal imagers mounted in their patrol cars.[239] These devices are used to search in the dark for someone who has committed a crime and then fled[240] and also to search dark streets for those that may be waiting to commit a crime.[241] Other police departments use thermal imagers for night-time vehicle pursuits and to protect officers from ambush if a suspect is hiding.[242] Thermal imagers are also widely used by firefighters to locate people trapped in buildings full of smoke.[243]

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234. Kyllo v. United States, 533 U.S. 27, 40 (2001).

235. Ruppe, *supra* note 229.

236. *Id.* Probable cause requires a magistrate to determine, based upon the totality of the circumstances, whether "there is a fair probability that contraband or evidence of a crime will be found in a particular place." Illinois v. Gates, 462 U.S. 213, 238 (1983).

237. Ruppe, *supra* note 229.

238. E-mail from Mike Erbes, Narcotics Investigator, Fargo, North Dakota, Police Department, to Troy J. LeFevre, Law Student, UND School of Law, (September 11, 2001, 11:49 CST) (on file with author) (stating although the police department's thermal imager will no longer be used as it had in the past, there are other law enforcement activities in which it will provide assistance); Letter from Lowell T. Brickson, Acting Resident Agent in Charge (RAC), Bureau of Alcohol, Tobacco, and Firearms (ATF), Fargo Field Office, to Troy J. LeFevre, Law Student, UND School of Law, (Sept. 18, 2001) (on file with author) (stating that although his office does not use thermal imagers, it appears it would be a helpful investigative tool and would also be of assistance even after a search warrant is obtained).

239. Station WTVT-TV, *Tampa Police Use Infrared Cameras to Keep Residents Safe During Superbowl XXXV Celebrations* (Jan. 26, 2001) *available at* http://www.raytheoninfrared.com/newsroom/20010126Superbowl.htm. The terms thermal imaging device, infrared camera, and infrared thermal imaging are used interchangeably. *Id.*

240. *Id.*

241. *Id.*

242. Associated Press, *Police Limiting Use of Thermal Cameras* (Sept. 27, 2001), *available*

Thermal imaging devices are also used by the United States military to identify opposition forces.[244] The devices can be attached to spy planes trying to determine the location of such forces and even to find individual leaders of the opposition.[245]

In summary, there may be a decline in the use of thermal imagers for drug enforcement purposes. However, the several alternative uses make it unlikely that the overall use of thermal imagers will dramatically decline as a result of the *Kyllo* decision.

C. *KYLLO'S* IMPACT ON NORTH DAKOTA LAW

State v. Lewis[246] is the only case the North Dakota Supreme Court has decided in which a thermal imager was used by law enforcement officers to detect an unusual amount of heat in a home.[247] The officers used the thermal image scan, along with other information, to obtain a search warrant for the home.[248] The case was appealed after the trial court ruled that the use of a thermal imager was not itself an unconstitutional search.[249] The North Dakota Supreme Court declined to decide the issue because it held that even with the information from the thermal imager there was not enough evidence for the magistrate to determine probable cause to issue the search warrant.[250] Even if the *Lewis* decision had dealt with the merits of the case, the impact would have been minimal because many of the police departments in North Dakota have never used thermal imagers.[251]

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at http://www.mapinc.org/drugnews/v01/n1711/a07.html?1384.

243. *Id.*

244. Niles Lathen & Chris Tomlinson, *White Flag, Al Qaeda Fighters Cave in Under Heavy Blitz*, N.Y. POST, Dec. 12, 2001, at A1.

245. John Donnelly & Michael Kranish, *Hunt for Bin Laden Narrows Afghan Commander, Says Al Qaeda Cut Off*, BOSTON GLOBE, Dec. 11, 2001, at A1. The thermal imagers on spy planes may be able to locate the terrorist, Osama bin Laden, if he is close to heat generating equipment. *Id.* The thermal image sensors are also able to detect heat coming from cave entrances and ventilation shafts. Carla Anne Robbins, *Technology, Intelligence, Time Needed to Uproot al Qaeda*, WALL ST. J., Dec. 10, 2001, at A20.

246. 527 N.W.2d 658 (N.D. 1995).

247. *Lewis*, 527 N.W.2d at 660.

248. *Id.* The other information included records from Montana-Dakota Utilities showing an extremely high electricity use and a tip from an informant that there was an indoor growing operation in the area. *Id.*

249. *Id.* at 661.

250. *Id.*

251. Letter from Dan Draovitch, Police Chief, Minot, North Dakota, Police Department, to Troy LeFevre (Sept. 20, 2001) (on file with author) (stating the department has never used a thermal imager, thermal imagers are not used very much throughout North Dakota, and the Minot Police Department usually obtains its intelligence from other sources); Letter from Arland H. Rasmussen, Police Chief, West Fargo, North Dakota, Police Department, to Troy LeFevre (Sept. 21, 2001) (on file with author) (stating the department has never used the device); Letter from

V. CONCLUSION

In *Kyllo*, the Supreme Court held that the use of thermal imagers on a person's home was a Fourth Amendment search and should not be allowed without a search warrant.[252] While this decision may reduce the thermal imager's role in drug enforcement, the overall use of this versatile device will most likely not decline.[253]

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Deborah K. Ness, Police Chief, Bismarck, North Dakota, Police Department, to Troy LeFevre (Sept. 22, 2001) (on file with author) (stating the department has never used the device).

252. Kyllo v. United States, 533 U.S. 27, 39 (2001).

253. Ruppe, *supra* note 229.

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