

**THE FOURTH AMENDMENT HEATS UP: THE
CONSTITUTIONALITY OF THERMAL IMAGING AND
SENSE-ENHANCING TECHNOLOGY—
*KYLLO V. UNITED STATES***

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I. INTRODUCTION

Imagine drawing a hot bath in the privacy of your home after a long, hard day at work. Now imagine that even with the shades drawn and the doors shut, a government agent across the street knew the exact moment that you were taking a bath.

Is your home truly private? Most people in the United States believe that their homes are places of privacy. The Fourth Amendment of the United States Constitution guarantees individuals the right to be secure from unreasonable government

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searches within the sanctity of their homes.¹

The Supreme Court's decision in *Kyllo v. United States*² addressed the question of privacy within a person's home.³ With the advancing technology of government surveillance, law enforcement now has the capability to locate and measure the use of heat within a home using thermal imagers.⁴ Thermal imagers are devices frequently used by law enforcement to locate high intensity lights primarily used for the indoor cultivation of marijuana.⁵ Unfortunately, however, these thermal imagers do not distinguish between heat from lights used for illegal activities, such as marijuana growing, and the heat released from legal activities, such as taking a hot bath in one's home.⁶ In *Kyllo*, the Supreme Court decided that the warrantless use of thermal imagers was a search and thus violated the Fourth Amendment.⁷

This note examines the constitutionality of using a thermal imager without a search warrant. Part II presents the history of thermal imagers and the Fourth Amendment, how the Fourth Amendment applies to the use of thermal imagers on private houses, and how courts have ruled on the constitutionality of thermal imagers in the past.⁸ Part III details the facts and decision of the *Kyllo* case.⁹ Part IV analyzes the decision, along with the ramifications of the decision within the wake of September 11, 2001, and changing public quest for more security, perhaps at the possible cost of personal freedoms.¹⁰ Part V concludes that the Supreme Court correctly ruled that use of thermal imagers should constitute a search; however, the Court incorrectly ruled that their decision should encompass all sense-enhancing technology.¹¹

1. U.S. CONST. amend. IV.

2. 533 U.S. 27 (2001).

3. *Id.*

4. *Id.* at 28-30.

5. *See id.*

6. *People v. Deutsch*, 44 Cal. App. 4th 1224, 1231 (1996) (stating that a thermal imager is indiscriminate in registering sources of heat).

7. *Kyllo*, 533 U.S. at 34.

8. *See infra* Part II.A-C.

9. *See infra* Part III.A-B.

10. *See infra* Part IV.A-C.

11. *See infra* Part V.

II. HISTORY

A. *Fourth Amendment Protection*

“At the very core [of the Fourth Amendment] stands the right of a man to retreat into his own home and there be free from unreasonable governmental intrusion.”¹² The people of the United States expect a certain degree of privacy from government intrusion within their homes.¹³ This expectation of privacy is primarily protected under the Fourth Amendment of the United States Constitution:¹⁴

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.¹⁵

The Fourth Amendment protects an individual’s privacy by restricting the government’s power of investigation and by prohibiting unreasonable searches and seizures.¹⁶ The Fourth Amendment applies to states through the Due Process Clause set forth in the Fourteenth Amendment.¹⁷

To comply with the Fourth Amendment when planning to search an individual’s property, law enforcement must first obtain a search warrant.¹⁸ To obtain a search warrant, law enforcement must contact a magistrate judge and demonstrate probable cause

12. *Silverman v. United States*, 365 U.S. 505, 511 (1961) (*citing Boyd v. United States*, 116 U.S. 616 (1886)) (describing how the Court has never allowed federal law enforcement to enter an individual’s home without consent or a warrant).

13. U.S. CONST. amend. IV; *Katz v. United States*, 389 U.S. 347, 359 (1967) (“Wherever a man may be, he is entitled to know that he will remain free from unreasonable searches and seizures.”).

14. U.S. CONST. amend. IV; *see also Katz*, 389 U.S. at 350 (discussing how the Fourth Amendment protects against certain kinds of governmental intrusions (such as searches and seizures), while other Constitutional provisions and state laws protect against other aspects of an individual’s privacy).

15. U.S. CONST. amend. IV.

16. *See, e.g., Katz*, 389 U.S. at 350.

17. U.S. CONST. amend. XIV, §1 (declaring that no state shall institute a law that violates a person’s rights set forth in the United States Constitution); *see also Mapp v. Ohio*, 367 U.S. 643, 655 (1961) (applying the federal exclusionary rule to states regarding evidence obtained in violation of the Fourth Amendment).

18. FED. R. CRIM. P. 41(c)(1).

that evidence of a crime will be located at a specific place.¹⁹ The magistrate then may or may not authorize law enforcement to conduct a search based on the degree of probable cause that law enforcement can demonstrate.²⁰ Evidence obtained without a search warrant violates the Fourth Amendment's exclusionary rule and is barred from use at trial.²¹

Courts originally limited the Fourth Amendment strictly to matters of property.²² The government had to physically trespass onto a claimant's property in order to make a successful claim under the Fourth Amendment.²³ Limiting the Fourth Amendment to mere searches and seizures of tangible property has now been rejected, partly due to the ever-increasing technological advances in law enforcement's investigation and surveillance techniques.²⁴

19. *Id.* See also HARRY I. SUBIN ET AL., THE CRIMINAL PROCESS: PROSECUTION AND DEFENSE FUNCTIONS §6.4(b) (1993) ("Since the purpose of the search warrant is to search for and seize evidence instrumentalities, fruits of a crime, or contraband, the warrant must specifically designate the items to be seized, and the whereabouts of this material.").

20. FED. R. CRIM. P. 41(c)(1); see also SUBIN ET AL., *supra* note 19, at §6.4(b) (relating how search warrants are most often judged on practical accuracy and not technical sufficiency); see, e.g., *Maryland v. Garrison*, 480 U.S. 79, 86-87 (1987) (holding that a search warrant was not in violation of the Fourth Amendment when law officers searched two apartments for evidence, one of which was erroneously included in the warrant, and their conduct and the limits of the search were based on the information available as the search proceeded).

21. 3 WAYNE R. LAFAVE & DAVID C. BAUM, SEARCH AND SEIZURE: A TREATISE ON THE FOURTH AMENDMENT 474 (1978). There are a number of exceptions to the exclusionary rule. See *United States v. Leon*, 468 U.S. 897, 907-08 (1984) (explaining that under the "good faith exception" evidence will still be in situations where officers reasonably rely on a search warrant that later is held to be unsupported by probable cause); *Nix v. Williams*, 467 U.S. 431, 432 (1984) (holding that the exclusionary rule does not apply when the illegally obtained evidence would have been inevitably or ultimately discovered through lawful activity); *Alderman v. United States*, 394 U.S. 165, 171 (1969) (holding an exception when the illegally obtained evidence is applied to a suspect whose Fourth Amendment rights had not been violated); *Walder v. United States*, 347 U.S. 62, 62 (1954) (holding an exception when the evidence is admitted to impeach the credibility of the suspect).

22. See e.g., *Olmstead v. United States*, 277 U.S. 438 (1928); *Goldman v. United States*, 316 U.S. 129 (1942). Previously, these cases were not held to violate the Fourth Amendment because property was not trespassed upon. The holding that the Fourth Amendment cannot be violated unless property is trespassed upon has been subsequently overturned. See *Silverman v. United States*, 365 U.S. 505, 510-12 (1961) (holding that a trespass upon property is not necessary for a Fourth Amendment violation, rather it is sufficient that there has been an "actual intrusion into a constitutionally protected area").

23. *Olmstead*, 277 U.S. at 466; *Goldman*, 316 U.S. at 134-35.

24. See *Katz v. United States*, 389 U.S. 347, 353 (1967) (holding that the

With the government's use of increasingly sensitive and sophisticated technology, law enforcement can now investigate and discover personal details about individuals without physically trespassing upon their property.²⁵ This new type of investigative technology, sometimes referred to as "sense-enhancing technology,"²⁶ threatens individuals' rights to privacy under the Fourth Amendment.²⁷ Using sense-enhancing technology, law enforcement can fly hundreds of feet above suspected offenders' property and see it clearly with high-powered camera equipment.²⁸ Using electronic listening devices, law enforcement can listen to a suspect's conversation without being in the same building.²⁹ Law enforcement can even stand outside a suspect's property and, using a thermal imager, take thermal images of any heat emitted from objects within that home, including heat images accurate enough to detect a human heartbeat.³⁰ As this type of sense-enhancing investigative technology continues to advance, an individual's privacy continues to dissipate.³¹

Out of all sense-enhancing technology, the use of thermal

"trespass doctrine" has thoroughly eroded and that the government's electronic listening, which did not involve a trespass, was a violation of an individual's Fourth Amendment privacy rights).

25. See Jennifer Murphy, Comment, *Trash, Thermal Imagers, and the Fourth Amendment: the New Search and Seizure*, 53 SMU L. REV. 1645, 1645-51 (2000) (discussing types of surveillance technology that are legally permissible).

26. *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (discussing technology that improves human senses and has potential to gather information which could not otherwise be obtained without physical trespass).

27. A. Michael Froomkin, Symposium, *The Death of Privacy?*, 52 STAN. L. REV. 1461 (2000).

28. See, e.g., *Dow Chemical Co. v. United States*, 476 U.S. 227, 229 (1986) (involving law enforcement's use of a precision aerial mapping camera placed in an airplane to take pictures of an area hundreds of feet away); *Cal. v. Ciraolo*, 476 U.S. 207, 215 (1986) (holding that a picture taken from 1000 feet above respondent's yard in an airplane was sufficient evidence to secure a search warrant).

29. *Katz*, 389 U.S. at 354-55.

30. Jeffrey P. Campisi, Comment, *The Fourth Amendment and New Technologies: The Constitutionality of Thermal Imaging*, 46 VILL. L. REV. 241, 245 (2001); Jonathon Todd Laba, Comment, *If You Can't Stand the Heat, Get Out of the Drug Business: Thermal Imagers, Emerging Technologies, and the Fourth Amendment*, 84 CAL. L. REV. 1437, 1466 (1996). See also *United States v. Cusumano*, 67 F.3d 1497, 1509 (10th Cir. 1995), *vacated on other grounds by* 83 F.3d 1247, 1251-66 (10th Cir. 1996) (McKay, J., dissenting) (noting that thermal imagers have the ability to recognize distinct images and that this technology is becoming available to law enforcement).

31. *Cusumano*, 67 F.3d at 1509.

imagers may pose the greatest risk to the Fourth Amendment. Instead of people being secure in their homes, the “[u]se of a thermal imager enables the government to discover that which is shielded from the public by the walls of the home.”³²

B. What Are Thermal Imagers?

Thermal imagers have been used by the military for quite some time, but are relatively new to law enforcement agencies.³³ Over the past decade thermal imagers have been increasingly employed by law enforcement.³⁴ Closely resembling a video camera, the thermal imager measures the amount of heat emitted from an object or structure.³⁵ The imager detects heat emitted from objects and radiated from enclosed structures.³⁶ The imager converts the detected heat into a color image. The hotter an object, the brighter the object will appear in the imager; conversely, the cooler the object, the darker it appears.³⁷

32. Murphy, *supra* note 25, at 1649 (stating that the new surveillance technology allows the observer to search an individual’s most private belongings without the need of a search warrant).

33. Thomas D. Colbridge, *Thermal Imaging: Much Heat but Little Light*, F.B.I. L. ENFORCEMENT BULL., 18 Dec. 1997, at 19 (stating that the use of thermal imaging is not new, but only recently employed by law enforcement); Janice Fioravante, *Night Sight*, INVESTOR’S BUS. DAILY, Feb. 26, 1995, at A6 (stating that the military has used thermal imagers for surveillance, reconnaissance, and navigational assistance since the 1970’s, and recently this technology is being used by law enforcement); Kathleen A. Lomas, Note, *Bad Physics And Bad Law: A Review of the Constitutionality Of Thermal Imagery Surveillance After United States v. Elkins*, 34 U.S.F. L. REV. 799, 800 (2000) (stating that thermal imaging technology has long been available to the United States military).

34. Campisi, *supra* note 30, at 241; Scott J. Smith, Note, *Thermal Surveillance and the Extraordinary Device Exception: Re-Defining the Scope of the Katz Analysis*, 30 VAL. U. L. REV. 1071, 1117 (1996) (stating that “[t]hermal imagery has emerged across the country as the government’s most recent weapon in its war on drugs”).

35. Joy Archer Yeager, Annotation, *Permissibility and Sufficiency of Warrantless Use of Thermal Imager or Forward Looking Infra-Red Radar (F.L.I.R.)*, 78 A.L.R. 5th 309, §2(a) (2000) (explaining that all objects with a temperature above absolute zero emit some radiation; the hotter the object, the more infrared radiation the object will emit).

36. *Id.* (stating that most thermal imagers do not actually penetrate the wall of a structure to measure an object’s radiation level, but instead the imager measures an object’s radiation level as the heat escapes through that structure to the outside).

37. Colbridge, *supra* note 33, at 19 (relating that thermal imagers do not measure temperature of the object being targeted, but only the relative temperature of different areas of the object; these differences are then displayed in various shades of gray, the hotter areas are lighter gray and cooler areas appear darker).

When officers suspect that marijuana is being cultivated in a house, law enforcement may use a thermal imager to search for high-intensity heat lamps that are often utilized for marijuana growth.³⁸ High-intensity lights emit infrared radiation that can be readily detected by imagers when heat is radiating from a house.³⁹ After taking heat readings of a structure through a thermal imager, law enforcement compares how hot that structure is to surrounding structures.⁴⁰ In the past, if an extraordinary amount of heat was radiating from an area of the structure in a pattern indicating the presence of heat lamps, law enforcement could use that information to assist in obtaining a search warrant from a magistrate judge.⁴¹

C. *Constitutionality of Thermal Imagers Prior to the Supreme Court's Decision in *Kyllo v. United States**

In the early 1990s, as the use of thermal imagers in police investigation grew,⁴² court dockets were being filled with cases questioning whether using thermal imagers without a search warrant constituted a search in violation of an individual's Fourth Amendment rights.⁴³ The majority of courts ruled that the warrantless use of thermal imagers was not a search, but rather an

38. Yeager, *supra* note 35, at 309.

39. *Id.*

40. *Id.*

41. Mindy G. Wilson, Note, *The Prewarrant Use of Thermal Imagery: Has This Technological Advance in the War Against Drugs Come at the Expense of Fourth Amendment Protections Against Unreasonable Searches?*, 83 Ky. L.J. 891, 893 (1994-1995) (stating that law enforcement uses thermal imaging technology to "supplement the probable cause necessary to obtain a search warrant and contribute to the discovery and eradication of indoor [marijuana] operations"); Yeager, *supra* note 35, at §2(a) (stating that other evidence is often used in combination with the thermal images to establish probable cause for search warrants). Evidence used in combination with thermal images has included the odor of marijuana, information from informants, and reports of gunfire from the suspected premises. *United States v. Kerr*, 876 F.2d 1440, 1445 (9th Cir. 1989). In addition, the defendant's purchase of garden supply equipment, observations of marijuana stems in the garbage, and boarded up windows have also served as supplemental evidence in such cases. *United States v. Deaner*, 1 F.3d 192, 196-197 (3rd Cir. 1993); *Kyllo v. United States*, 190 F.3d 1041, 1044 (9th Cir. 1999)

42. *United States v. Robinson*, 62 F.3d 1325, 1327 (11th Cir. 1995) ("Increasingly, law enforcement personnel are using . . . thermal imaging to detect indoor marijuana growing operations.")

43. *See United States v. Ishmael*, 48 F.3d 850, 853 (5th Cir. 1995) (stating that the warrantless use of thermal imagery has spawned a fair deal of debate).

acceptable police investigative practice.⁴⁴ Several other courts, however, held that the use of thermal imaging was a search that required a search warrant.⁴⁵ Regrettably, these courts failed to come to a consensus and squarely address the constitutionality of thermal imagery.⁴⁶

The test set forth in *Katz v. United States*⁴⁷ has been the standard for determining the constitutionality of the use of new police surveillance technology, including thermal imagers.⁴⁸ Justice Harlan's concurrence in *Katz* set forth a conjunctive two-prong test to determine whether certain police activities violate the Fourth Amendment.⁴⁹ To succeed on an argument that a search was in violation of the Fourth Amendment, an individual must prove: (1) a subjective expectation of privacy regarding the challenged search; and (2) that society recognizes that expectation as reasonable.⁵⁰ The *Katz* test is conjunctive; if either prong is not satisfied, the police activity in question will not be deemed to be in violation of the Fourth Amendment.⁵¹ In spite of the framework provided by the *Katz* test for gauging the constitutionality of thermal imagers, courts have applied a variety of rationales in ruling that the use of a thermal imager is or is not a "search" under the Fourth Amendment.⁵²

44. *Kyllo*, 190 F.3d at 1041; *Robinson*, 62 F.3d at 1325; *United States v. Myers*, 46 F.3d 668 (7th Cir. 1995); *United States v. Pinson*, 24 F.3d 1056 (8th Cir. 1994); *United States v. Ford*, 34 F.3d 992 (11th Cir. 1994); *Ishmael*, 48 F.3d at 850; *United States v. Domitrovich*, 852 F. Supp. 1460 (1994); *United States v. Porco*, 842 F. Supp. 1393 (D.Wyo. 1994); *United States v. Deaner*, 1992 WL 209966 (M.D.Pa. July 27, 1992); *United States v. Penny-Feeney*, 773 F. Supp. 220 (D.Haw. 1991), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

45. *Commonwealth v. Gindlesperger*, 743 A.2d 898 (Pa. 1999); *State v. Siedgel*, 934 P.2d 176 (Mont. 1997), *reversed on other grounds*; *People v. Deutsch*, 44 Cal. App. 4th 1224 (1996); *United States v. Cusumano*, 67 F.3d 1497 (10th Cir. 1995); *State v. Young*, 867 P.2d 593 (Wash. 1994).

46. *See Lomas*, *supra* note 33, at 800 (stating that the debate over the constitutionality of the warrantless use of thermal imagery "is a continuing source of contention within and among the circuits").

47. 389 U.S. 347 (1967).

48. *Id.* *See Campisi*, *supra* note 30, at 247; Thomas B. Kearns, Note, *Technology and the Right to Privacy: The Convergence of Surveillance and Information Privacy Concern*, 7 WM. & MARY BILL RTS. J. 975, 985 (1999) (explaining the application of the reasonable expectation of privacy test to recent surveillance technology); *Smith*, *supra* note 34, at 1071.

49. *Katz*, 389 U.S. at 360 (Harlan, J., concurring).

50. *Id.* at 360-62.

51. *See id.*

52. *Campisi*, *supra* note 30, at 247.

1. *Ruling That Thermal Imagers Are Not A Search Under the Fourth Amendment*

The majority of courts have ruled that the utilization of warrantless thermal imaging is not a search under the Fourth Amendment.⁵³ These courts often employ one, two or all of the following three arguments in rationalizing why the *Katz* test is not passed.⁵⁴ One argument claims that thermal imaging is a non-intrusive device, and therefore not a search.⁵⁵ Another argument analogizes the heat waste measured by thermal imagers with the legal status of cases involving the apprehension of discarded garbage.⁵⁶ The third argument analogizes thermal imaging to the warrantless use of canines trained to sniff-search for drug contraband.⁵⁷

a. *Non-Intrusiveness of Thermal Imagery*

When law enforcement uses thermal imagers on private homes, the imagers measure only the heat escaping to the outside of those homes.⁵⁸ The Fourth Amendment provides security to individuals from unreasonable searches within their homes.⁵⁹ Therefore, many courts have concluded that thermal imaging scans are non-intrusive and thus are not searches because the imagers measure heat escaping *outside* of the home and the Fourth Amendment only protects an individual from searches *within* his or

53. *Kyllo v. United States*, 190 F.3d 1041, 1041 (9th Cir. 1999); *United States v. Robinson*, 62 F.3d 1325, 1329 (11th Cir. 1995); *United States v. Ishmael*, 48 F.3d 850, 857 (5th Cir. 1995); *United States v. Myers*, 46 F.3d 668, 668 (7th Cir. 1995); *United States v. Ford*, 34 F.3d 992, 997 (11th Cir. 1994); *United States v. Pinson*, 24 F.3d 1056, 1056 (8th Cir. 1994); *States v. Domitrovich*, 852 F. Supp. 1460, 1472-75 (1994); *United States v. Porco*, 842 F. Supp. 1393, 1396-98 (D.Wyo. 1994). *See Lomas, supra* note 33, at 809 (noting that the Fifth, Seventh, Eighth, and Eleventh Circuits, and the Ninth Circuit upon rehearing, have concluded that the warrantless use of thermal imagery was constitutional); *Campisi, supra* note 30, at 297 (noting that a majority of courts considering the issue have held warrantless searches of thermal imagers to be constitutional).

54. *Campisi, supra* note 30, at 249.

55. *See Robinson*, 62 F.3d at 1330 (“[T]here was no intrusion whatsoever . . . because [the heat] rose from [the] house and then was measured by the [thermal imager].”).

56. *Campisi, supra* note 30, at 249; *see, e.g. California v. Greenwood*, 486 U.S. 35 (1988). *See also Ford*, 34 F.3d at 997.

57. *Campisi, supra* note 30, at 249; *see, e.g. United States v. Place*, 462 U.S. 696 (1983).

58. *Yeager, supra* note 35, at 309.

59. U.S. CONST. amend. IV.

her home.⁶⁰ In *United States v. Penny-Feeny*,⁶¹ the Ninth Circuit held that because the thermal imager “did no more than gauge and reflect that amount of heat that emanated from the residence,” there was no intrusion into the house and therefore the thermal scan did not constitute a search under the Fourth Amendment.⁶² The Seventh Circuit similarly held that a thermal scan was not a search under the Fourth Amendment because the thermal scan “does not intrude in any way into the privacy and sanctity of a home.”⁶³ Therefore, under the second prong of the Katz test, society will not recognize this expectation of privacy as reasonable.⁶⁴

Courts have also noted the lack of intimate detail that thermal imagers actually display in ruling these thermal scans to be non-intrusive and not searches.⁶⁵ In *United States v. Robinson*,⁶⁶ the

60. See *Robinson*, 62 F.3d at 1329 (holding that there was no intrusion because the heat rose from the house and then was measured by the thermal imager).

61. *United States v. Penny-Feeny*, 773 F. Supp. 220, 227-28 (D.Haw. 1991), *aff'd*, 984 F.2d 1053 (9th Cir. 1993).

62. *Id.* at 227-28. See also *United States v. Pinson*, 24 F.3d 1056 (8th Cir. 1994). Joseph Pinson’s home was the subject of aerial surveillance by means of a thermal imager mounted on the undercarriage of a helicopter. *Id.* This surveillance was undertaken after he received three packages from companies known to be suppliers of indoor marijuana-growing equipment and was found to have been using an inordinate amount of electricity. *Id.* at 1057. The thermal scan displayed an excessive amount of heat on the third floor, and a search warrant was issued. *Id.* The search revealed marijuana plants, marijuana equipment, and various books on marijuana cultivation. *Id.* Pinson argued the use of the thermal imager without a search warrant violated his Fourth Amendment rights. *Id.*

The Eighth Circuit held that Pinson did not demonstrate a subjective expectation of privacy because the thermal imager did nothing more than gauge the heat emanating from the house. *Id.* at 1058. Furthermore, even if Pinson was capable of demonstrating a subjective expectation of privacy, society was not willing to recognize such abandoned heat as meeting the definition of a reasonable expectation of privacy. *Id.*

63. *United States v. Myers*, 46 F.3d 668, 670 (7th Cir. 1995).

64. *Id.* (holding that thermal imaging is not a violation of the Fourth Amendment because it does not pass the second prong of the Katz test).

65. *Kyllo v. United States*, 190 F.3d 1041, 1045 (9th Cir. 1999) (stating that the district court was not in error when it described the capabilities of the device as merely displaying a crude image of heat, not depicting any people or activities); *Robinson*, 62 F.3d at 1330; *United States v. Ford*, 34 F.3d 992, 996 (11th Cir. 1994) (noting that the thermal imaging scan was “of such low resolution as to render it incapable of revealing the intimacy of detail and activity protected by the Fourth Amendment”). See also *United States v. Depew*, 992 F. Supp. 1209, 1209 (D. Mont. 1998) (holding that a thermal imager did not invade the defendant’s expectation of privacy because the imager did not emit beams or rays into the defendant’s house, could not detect movement, and did not reveal interior walls).

66. 62 F.3d 1325 (11th Cir. 1995).

Eleventh Circuit held that society would not deem the use of a thermal imager as violating an objectively reasonable expectation of privacy because “[n]o revelation of intimate, even definitive, detail within the house was detectable; there was merely a gross, nondiscrete bright image indicating the heat emitted from the residence.”⁶⁷ Most thermal imagers used by law enforcement can only display hotter and cooler areas of a house.⁶⁸ The thermal scans are usually not accurate enough to display the identity of the object giving off the heat.⁶⁹

b. Analogy to Discarded Garbage

In ruling that an individual lacks a subjective expectation of privacy in the case of thermal scans,⁷⁰ several courts have likened heat escaping from a home to discarded garbage.⁷¹ These courts rationalize that the question of constitutionality regarding warrantless thermal imager scans should be decided by examining the past precedence of police rummaging warrantlessly through garbage discarded on the curb.⁷²

67. *Id.* at 1330. The DEA was informed that thirty sodium lights, most commonly used for marijuana cultivation, were being shipped to the defendant, Theodore Robinson. *Id.* at 1327. In addition, utility statements showed that the defendant was using an inordinate amount of electricity. *Id.* The DEA conducted an aerial search with a thermal imager and discovered defendant’s house was considerably warmer than the surrounding houses. *Id.* A search warrant was issued and a marijuana operation was discovered within the house along with a number of guns. *Id.* at 1327-28. The defendant moved to suppress the evidence obtained from his home arguing the warrantless thermal imagery scan was a violation of his Fourth Amendment rights. *Id.* at 1328.

The court found that the defendant did nothing to conceal the heat from the marijuana lights from escaping from his home. *Id.* at 1329. Therefore, the defendant’s inaction did not demonstrate a subjective expectation of privacy. *See id.* Furthermore, the court held that the thermal imager only displayed crude images of heat that did not reveal intimate details, and society was not willing to recognize privacy as objectively reasonable. *Id.* at 1329-31.

68. Yeager, *supra* note 35, at § 1.

69. *Id.*

70. *Katz v. United States*, 389 U.S. 347, 361 (1967).

71. *See California v. Greenwood*, 486 U.S. 35, 35 (1988) (holding that the warrantless search of discarded garbage is not a violation of the Fourth Amendment).

72. *Pinson*, 24 F.3d. at 1058 (likening heat emissions to garbage left on the curb); *Myers*, 46 F.3d at 668; *Ford*, 34 F.3d at 997; *LaFollette v. Com.* 915 S.W.2d 747 (Ky. 1996) (ruling defendants do not have a reasonable expectation of privacy regarding discarded inculpatory items); *State v. McKee*, 510 N.W.2d 807, 809 (Wis. Ct. App. 1993) (relying on the analogy of heat emissions to leaving garbage on the curb, court found privacy was not one society was willing to accept as reasonable).

In *California v. Greenwood*,⁷³ the United States Supreme Court considered whether the Fourth Amendment prohibited the warrantless search and seizure of discarded garbage left on the curbside of a private home.⁷⁴ The Supreme Court observed that the defendant could not have a reasonable expectation of privacy in such discarded items that are so open for public inspection.⁷⁵ “[P]olice cannot reasonably be expected to avert their eyes from evidence of criminal activity that could have been observed by any member of the public.”⁷⁶ The Court held that the warrantless search and seizure of discarded garbage was not a violation of the Fourth Amendment.⁷⁷

Courts addressing the constitutionality of thermal imaging point out that thermal imaging scans typically only measure the amount of heat allowed to radiate from a house or structure.⁷⁸ Since individuals do not prevent heat from escaping from their houses and, in most cases, are trying to vent heat from their houses, escaping heat is essentially no more than “abandoned heat” or “heat waste.”⁷⁹ In *Ford v. United States*,⁸⁰ the Eleventh Circuit Court of Appeals held “[t]he heat that Ford [defendant] intentionally vented from his mobile home was a waste byproduct of his marijuana cultivation and is analogous to the inculpatory items that

73. 486 U.S. 35 (1988).

74. *Id.* at 37. A California police officer, suspecting respondent Greenwood was involved in drug trafficking, had a trash collector pick up Greenwood’s garbage bags left on the curb in front of his house and give them to the police. *Id.* at 36. The officer searched the trash bags and found evidence of drug trafficking. *Id.* at 37-38. Using prior information along with the information gained from the trash search, the police officer was able to obtain a search warrant. *Id.* at 38. While searching, police found quantities of cocaine and hashish within the house. *Id.* Greenwood was arrested on felony narcotic charges. *Id.*

75. *Id.* at 41.

76. *Id.*

77. *Id.*

78. Yeager, *supra* note 35, at §2(a).

79. *United States v. Myers*, 46 F.3d 668, 669-70 (7th Cir. 1995) (ruling in a case where defendant purposefully released heat through vents in the roof, that defendant had no subjective expectation of privacy because he took no steps in containing his heat emissions); *United States v. Domitrovich*, 852 F. Supp. 1460, 1475 (1994) (ruling that use of exhaust fans to vent air from marijuana operation did not exhibit a subjective expectation of privacy because heat vapors were exposed to public observation); *United States v. Penny-Feeney*, 773 F. Supp. 220, 226 (D.Haw. 1991), *aff’d*, 984 F.2d 1053 (9th Cir. 1993) (defining the by-product of heat from indoor marijuana cultivation as “abandoned heat” or “heat waste,” and exposing that heat waste failed to show an expectation of privacy).

80. 34 F.3d 992 (11th Cir. 1994).

the respondents in *Greenwood* discarded in their trash.”⁸¹ Therefore, many courts have ruled that the use of thermal imagers without a warrant is not a violation of the Fourth Amendment by rationalizing, based on *Greenwood*, that discarding heat is the same as discarding garbage.⁸²

c. Analogy to Narcotic Scents Detected by Trained Canines

Several courts have compared heat waste detected by thermal imagers to scents detected by trained police dogs in holding that the warrantless use of thermal imagers is not a search.⁸³ Taking advantage of a canine’s ability to smell, police have trained dogs to sniff out and locate narcotic contraband.⁸⁴ In *United States v. Place*,⁸⁵ the United States Supreme Court held that a trained dog’s ability to smell and locate narcotics was not a search under the Fourth Amendment because it was non-intrusive.⁸⁶ The Supreme Court commented on how unobtrusive the investigative technique of a “canine sniff” by well-trained narcotics detection dogs is compared to a regular search.⁸⁷ Whereas an ordinary search requires an

81. *Id.* at 997. In 1991, agents of the Florida Police Department, acting upon suspicion of indoor marijuana cultivation, used a thermal imager on Jerry Ford’s mobile home. *Id.* at 992. The scan revealed an inordinate amount of heat escaping from the home similar to other indoor marijuana operations. *Id.* A search warrant was issued based on the thermal imagery scan and other information and upon searching the mobile home, a sophisticated hydroponic laboratory and over 400 marijuana plants were found. *Id.* Ford was arrested for conspiracy and possession of marijuana with intent to distribute. *Id.* Ford moved to suppress the evidence seized from his mobile home, arguing that the thermal imagery scan was a violation of his Fourth Amendment rights. *Id.*

The Eleventh Circuit Court of Appeals, upholding the district court decision, found that the thermal imagery scan did not violate Ford’s Fourth Amendment rights. *Id.* at 997. Ford did not have a reasonable expectation of privacy regarding the heat waste because he did little to prevent the heat from escaping from his home. *See id.*

82. *United States v. Pinson*, 24 F.3d 1056, 1058 (8th Cir. 1994); *United States v. Myers*, 46 F.3d 668, 670 (7th Cir. 1995); *Ford*, 34 F.3d at 997; *LaFollette v. Com.* 915 S.W.2d at 749 (Ky. 1996); *State v. McKee*, 510 N.W.2d 807, 809 (Wis. Ct. App. 1993).

83. *Pinson*, 24 F.3d at 1058 (comparing thermal imaging to canine sniffs); *see also LaFollette*, 915 S.W.2d at 750; *State v. Niel*, 671 So. 2d 1111, 1111-12 (La. Ct. App. 1996); *McKee*, 510 N.W.2d at 809; *United States v. Deaner*, 1992 WL 209966, at *4 (M.D. Pa. July 27, 1992).

84. *See United States v. Place*, 462 U.S. 696, 696 (1983).

85. 462 U.S. 696 (1983).

86. *Id.* at 707.

87. *Id.* The non-intrusive search ensures that the suspect is not subject to embarrassment and inconvenience associated with ordinary searches. *Id.*

officer to open a suspect's luggage and rummage within, the canine sniff requires the dog only to sniff the unopened luggage to determine whether there is drug contraband inside.⁸⁸

In thermal imaging cases, courts using the canine sniff analogy treat a thermal imager's ability to measure heat as the functional equivalent of a dog's ability to smell narcotics.⁸⁹ In *United States v. Pinson*,⁹⁰ the Eighth Circuit Court of Appeals held that "[j]ust as an 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 . . . [thermal imager]."⁹¹ Courts have held that thermal scans are non-intrusive like canine sniffs.⁹² Therefore, an individual does not have a subjective expectation of privacy regarding thermal scans and, correspondingly, a thermal scan is not a search under the Fourth Amendment.⁹³

2. *Rulings that Thermal Imagers Are a Search under the Fourth Amendment*

A number of courts have ruled that the warrantless use of thermal imagers is a search and, therefore, a violation of the Fourth Amendment.⁹⁴ These courts also applied the *Katz* test, but acknowledged an individual's subjective expectation of privacy and society's willingness to recognize that expectation as reasonable.⁹⁵

88. *Id.* The Court concluded that because the respondent exposed his luggage in a public place to a trained dog, the "canine sniff" did not constitute a search under the Fourth Amendment. *Id.*

89. Campisi, *supra* note 30, at 252-54.

90. 24 F.3d 1056 (8th Cir. 1994).

91. *Id.* at 1058.

92. See cases cited *supra* note 83.

93. *Pinson*, 24 F.3d. at 1059. See also *LaFollette v. Com.* 915 S.W.2d 747, 750 (Ky. 1996); *State v. Niel*, 671 So.2d 1111, 1112 (La. Ct. App. 1996); *State v. McKee*, 510 N.W.2d 807, 810 (Wis. Ct. App. 1993); *United States v. Deaner*, 1992 WL 209966, at *4 (M.D. Pa. July 17, 1992).

94. *United States v. Cusumano*, 67 F.3d 1497, 1510 (10th Cir. 1995) (holding thermal imaging was a search); *People v. Deutsch*, 44 Cal. App. 4th 1224, 1231 (1996); *State v. Siegel*, 934 P.2d 176, 180 (Mont. 1997), *reversed on other grounds by* 970 P.2d. 556 (Mont. 1998) (noting that thermal imaging is a search under Montana's constitution); *Commonwealth v. Gindlesperger*, 743 A.2d 898, 898 (Pa. 1999) (holding thermal imaging is a search); *State v. Young*, 867 P.2d 593, 604 (Wash. 1994).

95. *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (stating the two prongs of the test required to pass in order to hold the police activity in violation of the Fourth Amendment).

Oftentimes, courts that find thermal imaging constitutes a search, posit their rulings on how the rationales in conflicting rulings were inferior and wrong.⁹⁶

Many courts have ruled that thermal imagers are not passive non-intrusive devices, but rather are devices actively used to intrude upon the personal security and sanctity of a home. The Pennsylvania Supreme Court in *Commonwealth v. Gindlesperger*⁹⁷ held thermal imagers to be devices that are “constitutionally repugnant” because they “do, in fact, reveal intimate details regarding activities occurring within the sanctity of the home, the place deserving the utmost protection pursuant to the Fourth Amendment.”⁹⁸ It follows, then, that law enforcement’s ability to distinguish personal details within the home with the use of thermal imagers violates the personal security and sanctity afforded to individuals under the Fourth Amendment.⁹⁹

In *State v. Young*,¹⁰⁰ the Washington Supreme Court rejected the garbage analogy and held that a thermal image scan is a

96. Lomas, *supra* note 33 at 821 (calling faulty those courts that found no intrusion); see *Deutsch*, 44 Cal. App. 4th at 1232 (stating that although most courts sanction the use of thermal imagers “[a] much smaller body of case law has rejected that view, and represents the better reasoned authority as applied to thermal imaging scans of private residences.”).

97. 743 A.2d 898 (Pa. 1999).

98. *Id.* at 901-02. The Pennsylvania Supreme Court held that a thermal image scan constituted a search under the Fourth Amendment. *Id.* at 906. In 1994, police entered the suspect’s house under a search warrant and discovered twenty-one marijuana plants. *Id.* at 898. Probable cause for the search warrant was based on information from an informant and information that was collected by a thermal imager scan, which detected an inordinate amount of heat in the suspect’s basement. *Id.* at 898-99. Defendant was arrested and charged with various violations of Pennsylvania drug laws. *Id.* at 899. Defendant’s motion to suppress the evidence seized during the search was denied and, in a bench trial, he was found guilty of all charges. *Id.*

The Superior Court reversed the suppression motion, holding that the warrantless use of the thermal imager was a search and violated the Fourth Amendment. *Id.* The results of the scanning device to obtain a search warrant “were invalid and not a proper basis for issuance of the warrant.” *Id.*

99. *Gindlesperger*, 743 A.2d 898, 900 (Pa. 1999); *State v. Young*, 867 P.2d 593, 603 (Wash. 1994) (finding that infrared surveillance [thermal imager] intruded upon a person’s private affairs). See *Payton v. New York*, 445 U.S. 573, 600 (1980) (holding the searches and seizures in public places are treated differently than searches and seizures occurring in the home); *Silverman v. United States*, 365 U.S. 505, 511 (1961) (stating 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).

100. 867 P.2d 593 (Wash. 1994).

violation of the Fourth Amendment.¹⁰¹ The *Young* court noted that thermal image scans are different from discarded garbage in two important ways.¹⁰² First, an individual deliberately chooses items they want discarded and sets those items out on the curb.¹⁰³ An individual does not deliberately participate in the venting of heat measured by thermal imagers.¹⁰⁴ Second, while people can reasonably foresee an animal or a person rummaging through their garbage cans, people do not expect the use of sophisticated thermal imagers on their homes.¹⁰⁵ Therefore, an individual has an expectation of privacy that society will recognize regarding heat waste because heat loss is inevitable and an individual would not reasonably expect it to be measured.¹⁰⁶

In *United States v. Cusumano*,¹⁰⁷ the Tenth Circuit found that the constitutionality of a canine sniff should not be compared to the use of a thermal imager.¹⁰⁸ The court agreed that a thermal imager, like a canine sniff, does extract internal information in a relatively non-intrusive manner.¹⁰⁹ However, the intrusiveness of information obtained in both methods is not the same.¹¹⁰ A canine

101. *Id.* at 601. In 1990, Detective Miller received numerous tips that Robert Young was running a "big marijuana grow" inside his house. *Id.* at 595. Detective Miller conducted a thermal search of Young's house which indicated there was an inordinate amount of heat coming from the basement. *Id.* Based on the previous information and the thermal scan, Detective Miller obtained a search warrant, and the search produced a large quantity of marijuana. *Id.* Young was charged with intent to manufacture and deliver. *Id.* Young moved to suppress the evidence, but the trial court denied the motion and found Young guilty on the stipulated facts. *Id.*

The Washington Supreme Court heard the motion on petition and reversed the trial court. *Id.* The court found that thermal searches violate an individual's Fourth Amendment rights because the Fourth Amendment affords increased protection within a person's home. *Id.* at 601.

102. *Id.* at 601-03.

103. *Id.* at 603.

104. *Id.*

105. *State v. Young*, 867 P.2d 593, 603 (Wash. 1994).

106. *See id.*

107. 83 F.3d 1247 (10th Cir. 1996).

108. *Id.* The Tenth Circuit Panel found that the use of the thermal imager violated the Fourth Amendment. However, the court, sitting en banc, vacated the decision and decided the case without reaching the issue of the constitutionality of thermal imagery. WAYNE LAFAVE, *SEARCH & SEIZURE* § 2.2 (3d ed. 1999) (stating that the Tenth Circuit's ruling that thermal imaging was unconstitutional was "[t]he most exhaustive and compelling analysis of the issue"); *United States v. Place*, 462 U.S. 696, 696 (1983) (holding warrantless canine sniffs as constitutional).

109. *Cusumano*, 67 F.3d at 1508.

110. *See id.*

sniff only reveals the presence of narcotics that an individual is illegally possessing.¹¹¹ A thermal imager, however, is less discriminate and much more intrusive, revealing all activity that emanates heat.¹¹² The court held that “because the imager lacks the precision of the dog sniff, we should not extend *Place* to allow the warrantless use of thermal imagers upon a home.”¹¹³ The court further reasoned that an individual has an expectation of privacy that society will recognize because society will not allow government to intrude into a person’s home without a warrant.¹¹⁴

III. THE *KYLLO* DECISION

A. *The Facts*

In 1991, Agent William Elliot (Agent Elliot) of the United States Department of the Interior suspected the claimant, Danny Kyllo (Kyllo), was growing marijuana within his residence.¹¹⁵ Without a warrant, Agent Elliot parked across the street from Kyllo’s home and scanned the home with a thermal imager.¹¹⁶ Agent Elliot was searching for the inordinate amounts of heat created from the high-intensity lights used for growing marijuana.¹¹⁷ The thermal scan showed that the roof and walls of the garage were emitting a relatively large amount of heat compared to the rest of the house and other surrounding houses in the neighborhood.¹¹⁸ Three circles, which closely resembled heating lamps used in indoor marijuana cultivation, could be

111. *Id.* (stating that a dog sniff *cannot* reveal information about conduct or activity that an individual has a right to pursue). See *Place*, 462 U.S. at 707.

112. *Cusumano*, 67 F.3d at 1508; *People v. Deutsch*, 44 Cal. App. 4th 1224, 1231 (1996) (“Precisely because the thermal imager is indiscriminate in registering sources of heat it is an intrusive tool, which tells much about the activities inside the home which may be quite unrelated to any illicit activity.”).

113. *Cusumano*, 67 F.3d at 1508 (10th Cir. 1995). See *Deutsch*, 44 Cal. App. 4th at 1231 (arguing that thermal imagers are “the very antithesis of a dog sniff because the trained narcotics dog alerts only in the presence of contraband”).

114. *Cusumano*, 67 F.3d. at 1508.

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

116. *Id.* Agent Elliot used an Agema Thermovision 210 thermal imager, which showed a relatively crude image of the heat radiating out of the Kyllo’s house. *Id.* Agent Elliot used the thermal imaging device from a public street scanning both the front and back of Kyllo’s house. *Id.*

117. *Id.*

118. *Id.* at 30.

spotted on the roof of the garage through the imager.¹¹⁹ Based on these thermal-imaging projections, tips from informants and the suspect's utility bills, a Federal Magistrate Judge issued a warrant authorizing a search of Kylo's home.¹²⁰ Upon searching Kylo's house, police found over 100 illegal marijuana plants growing inside the garage.¹²¹

Kylo was indicted on federal drug charges.¹²² Kylo unsuccessfully moved to suppress evidence seized from his home detected by the thermal imager and then entered a conditional guilty plea.¹²³ The Ninth Circuit originally held that the thermal imagery of Kylo's home was a violation of his constitutional rights.¹²⁴ However, the government was granted a Petition for a Panel Rehearing, and a full Ninth Circuit Panel heard the case.¹²⁵ The Ninth Circuit, affirming the lower court decision, found Kylo's Fourth Amendment rights were not violated.¹²⁶ The use of the thermal imager was not considered a search because Kylo did not attempt to conceal the heat escaping and "[n]o intimate details of the home were observed."¹²⁷ Therefore, the evidence was allowed.¹²⁸

B. Supreme Court's Analysis

In a five to four decision, with Justice Scalia delivering the opinion, the Supreme Court reversed the Ninth Circuit's decision and found that the use of a thermal imaging device on a private home constitutes a search within the meaning of the Fourth Amendment.¹²⁹

119. *Id.* Agent Elliott concluded from his scan that Kylo was using halide lights to grow marijuana, which was later found to be correct. *Id.*

120. *Id.*

121. *Kylo v. United States*, 522 U.S. 27, 30 (2001).

122. *Id.* Kylo was in violation of 21 U.S.C. § 841(a)(1) and indicted for manufacturing marijuana. *Id.*

123. *Id.*

124. *Id.* This opinion was withdrawn and a change of composition took place within the panel. *Id.*

125. *Id.*

126. *Kylo v. United States*, 533 U.S. 27, 31.

127. *Id.* The Ninth Circuit held that Kylo had no subjective expectation of privacy because he did not conceal the heat lost and, even if he had, the thermal imager did not expose intimate details of Kylo's life, only the "hot spots" made from the marijuana lamps. *Id.*

128. *Id.*

129. *Id.*

In defining what constitutes a search, the Court used the principle established in *Katz v. United States*,¹³⁰ which held that “[a] search does not occur . . . unless the individual manifested a subjective expectation of privacy in the object of the challenged search, and society is willing to recognize that expectation as reasonable.”¹³¹ According to the *Katz* test, the Supreme Court held that society has recognized an expectation of personal privacy regarding the interior of a private home as reasonable.¹³² Therefore, a search includes the use of any type of sense-enhancing technology, such as the thermal imager, to investigate information that could not be otherwise accessible without “physical intrusion into a constitutionally protected area.”¹³³ The thermal imager used on Kyllo’s home collected information about the interior of his home that, prior to sense-enhancing devices, could not be obtained without entering the house.¹³⁴ Therefore, the use of the thermal imager constituted a search and a violation of Kyllo’s Fourth Amendment rights.¹³⁵

The government argued that a thermal imager is not a “search” because a thermal imager does not penetrate the house, but merely detects “heat radiating from the external surface of the house.”¹³⁶ The dissenting Justices agreed with the government’s argument, believing that there should be a distinction between “off-the-wall-surveillance,” which should not constitute a Fourth Amendment search, versus “through-the-wall-surveillance,” which should be considered a search.¹³⁷ The dissent argued that with “through-the-wall-surveillance” an observer has direct access to the information being sought. However, “off-the-wall-surveillance” is a technique where the observer does not have direct access, but must make inferences and deductions about what might be happening

130. *Katz v. United States*, 389 U.S. 347, 359 (1967).

131. *California v. Ciraolo*, 476 U.S. 207, 211 (1986); *accord Katz*, 389 U.S. at 361 (Harlan, J., concurring).

132. *Kyllo v. United States*, 533 U.S. 27, 34 (2001).

133. *Id.* at 33 (quoting *Silverman v. United States*, 365 U.S. 505, 505 (1961)). However, this definition of “search” is conditioned on whether or not the technology is readily available for general public use, which this Court determines thermal imagers are not. *Id.*

134. *Kyllo*, 533 U.S. at 39.

135. *Id.*

136. *Id.* at 35 (quoting Brief for the United States Government at 26, *Kyllo v. United States*, 533 U.S. 27 (2001)).

137. *Id.* at 35.

within the home.¹³⁸ Since this type of thermal imager does not directly invade an individual's home and does not reveal intimate details of that home, the dissent believed that this was not a search and *Kyllo's* Fourth Amendment rights were not violated.¹³⁹

The majority opinion rejected the distinction between "off-the-wall" and "through-the-wall" surveillances, noting that the most sophisticated thermal imaging devices used "off-the-wall" technology.¹⁴⁰ The majority further rejected the dissent's "extraordinary assertion that anything learned through 'an inference' cannot be searched."¹⁴¹ With the government's increasingly sophisticated use of thermal imagery, few inferences will have to be made by law enforcement.¹⁴² Furthermore, previous case law has shown that an investigation based on an inference can be an unlawful search.¹⁴³

The government also argued that thermal imaging was constitutional because it did not detect intimate details taking place within private areas.¹⁴⁴ They based part of their argument on *Dow Chemical Co. v. United States*,¹⁴⁵ in which enhanced aerial photographs¹⁴⁶ of the private property of an industrial complex did not constitute a search under the Fourth Amendment.¹⁴⁷ The Court explained that *Dow Chemical* dealt with the investigation of an industrial complex, which does not share the same protection

138. *Id.* at 41.

139. *Id.*

140. *Id.* at 35.

141. *Id.* (emphasis added).

142. See <http://www.nlectc.org/techproj/> (last visited Aug. 30, 2001) (stating the goal of the National Law Enforcement and Corrections Technology Center is to possess the ability to see individuals through interior building walls with thermal imaging technology).

143. *Kyllo v. United States*, 533 U.S. 27, 37 (2001). The Court acknowledges that the dissent believes the Court has "misunderstood its point, which is not that inference *insulates* a search, but that inference alone is *not* a search." *Id.* at 36. The Court notes that such a misunderstanding was made to show how this point is germane to the issue at hand; if an inference is not a search, that has nothing to do with addressing the question of whether the measurement of heat by the thermal imager is a search. See *United States v. Karo*, 468 U.S. 705, 705 (1984) (holding that where a police officer "inferred" that a beeper on a can of ether was in a home, the police search was still considered to be an unlawful search).

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

145. *Dow Chemical v. United States*, 476 U.S. 227 (1986).

146. *Kyllo*, 533 U.S. at 32-38 (concluding that enhanced aerial photography is a sense-enhancing technology, however, it is constitutional in this instance because the information sought after was not the interior of a private home, but the private property of an industrial site).

147. *Dow Chemical Co.*, 476 U.S. at 238.

under the Fourth Amendment as, in this case, the interior of a house.¹⁴⁸ “[P]hysical invasion of the structure of the home, ‘by even a fraction of an inch,’ [is] too much.”¹⁴⁹ Individuals should be protected within the sanctity of their homes.¹⁵⁰ In the home “*all* details, are intimate details, because the entire area is safe from prying government eyes.”¹⁵¹ The government also contended that the Agema Thermovision 210 is a crude thermal imaging device.¹⁵² The imager did not reveal intimate details of the suspect within the house; the imager only showed three spots of heat that resembled heat lamps on the roof of the suspect’s house.¹⁵³ The Court disagreed with the government’s argument, concluding that the Agema Thermovision 210 could reveal very intimate details of an individual’s life.¹⁵⁴ For example, the thermal imager can detect the exact time and location where a person is taking a bath because the heat radiating from the water can be detected by the imager.¹⁵⁵ Regardless of the intimacy of information obtained, “[t]he Fourth Amendment’s protection of the home has never been tied to measurement of the quality or quantity of information obtained.”¹⁵⁶ Therefore, whether a thermal imager detects a suspect taking a hot bath or turning on closet lights, that information is intimate and should be protected under the Fourth Amendment.¹⁵⁷

The majority in *Kyllo* wanted to draw a firm, bright line regarding what constitutes a violation of the Fourth Amendment.¹⁵⁸ The Court wanted to establish what methods of surveillance require

148. *Kyllo v. United States*, 533 U.S. 27, 37 (2001).

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

150. U.S. CONST. amend. IV. (affording the right of an individual to be secure in their home).

151. *Kyllo*, 533 U.S. at 37. Other cases show all information within the home is intimate. *See* *United States v. Karo*, 468 U.S. 705, 705 (1984) (holding that the privacy regarding the presence of a can of ether in a home was an intimate detail); *Arizona v. Hicks*, 480 U.S. 321, 321 (1987) (ruling that the registration number of a phonograph turntable was an intimate detail because it was within the interior of the home and not in plain sight).

152. *Kyllo*, 533 U.S. at 38. The Agema Thermovision 210 is crude in the sense that other, more sophisticated, thermal imagers on the market have the capability to detect a human’s location and movements within a structure. *Id.*

153. *Id.*

154. *Id.*

155. *Id.* The Court related how the Agema Thermovision 210 could reveal what hour of each night a lady takes her daily sauna, which would be considered a very intimate detail of this lady’s life. *Id.*

156. *Id.*

157. *Id.*

158. *Id.* at 39.

a warrant and also address future concerns regarding the ever-increasing advancements of law enforcement's investigative technology.¹⁵⁹ "The 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."¹⁶⁰

IV. ANALYSIS OF THE *KYLLO* DECISION

The Supreme Court correctly ruled, in a surprisingly diverse five to four decision,¹⁶¹ that the use of a thermal imager is a search that requires a search warrant under the Fourth Amendment of the United States Constitution.¹⁶² However, the Supreme Court overstepped its bounds when it provided an all-encompassing rule for all sense-enhancing surveillance technology.

A. *Violation of the Katz Test and the Fourth Amendment*

As the main interpreter of the Constitution,¹⁶³ the Supreme Court flexed its interpretive muscles by holding that the warrantless use of thermal imagers is a violation of the Fourth Amendment.¹⁶⁴ In examining the *Katz* test,¹⁶⁵ the Supreme Court took a different approach than the steadfast rationales used by previous courts that analogized discarded garbage or dog sniffs to prove the constitutionality of thermal imagers.¹⁶⁶ The Supreme Court recognized the increased protection afforded to individuals' homes and held that in searches of homes' interiors "there is a ready criterion . . . of the minimal expectation of privacy that *exists*, and

159. *Id.*

160. *Carroll v. United States*, 267 U.S. 132, 149 (1925).

161. *Kyllo*, 533 U.S. at 28. There was an unusual ideological division among the Justices regarding who joined the opinion and who dissented. Justice Scalia delivered the opinion of the Court, which Souter, Thomas, Ginsburg, and Breyer, joined. Justice Stevens filed the dissenting opinion, which Rehnquist, O'Connor, and Kennedy, joined. See David G. Savage, *Taking a Page From History: Old English, Colonial Law Revisited in Pot Scanning*, 87 A.B.A. J. 32, 34 (2001) ("If ever there was an oddcouple lineup among the justices, this was it. Scalia's opinion was joined by his fellow history buffs, Justices Souter and Clarence Thomas, as well as by the more liberal Justices Ruth Bader Ginsburg and Stephen Breyer.").

162. *Kyllo*, 533 U.S. at 39.

163. *Marbury v. Madison*, 5 U.S. 137 (1803) (holding the basic principle that the federal judiciary is supreme in the exposition of the law of the Constitution).

164. See *Kyllo v. United States*, 533 U.S. at 32-34.

165. See *Katz v. United States*, 389 U.S. 347, 361 (1967).

166. *Kyllo*, 533 U.S. at 33.

that is acknowledged to be *reasonable*.”¹⁶⁷ This minimal expectation is premised on common law and the intent behind the Fourth Amendment.¹⁶⁸ The Court correctly ruled that the warrantless use of thermal imagery by police intruded on an individual’s expectation of privacy, and to allow this minimum expectation to be violated would in effect “erode the privacy guaranteed by the Fourth Amendment.”¹⁶⁹

To arrive at their opinion, the Supreme Court relied primarily on interpretation of the Fourth Amendment.¹⁷⁰ The Court could have strengthened its opinion by addressing the analogies made in previous lower court decisions. As previously discussed, lower courts had repeatedly compared the device to the legal status of discarded garbage and/or of dog sniffs.¹⁷¹ The Supreme Court could have decided on the validity of these comparisons, ruling presumably that thermal imagery is different from discarded garbage and dog sniffs.

Before the Supreme Court’s decision, the majority of courts upheld the argument that lost heat measured by thermal imagers is analogous to discarded garbage and/or dog sniffs, while the minority of courts dismissed those very same analogies.¹⁷² The courts in the minority had a stronger argument and the Supreme Court could have strengthened its decision by agreeing with them.

The analogy between lost heat and discarded garbage is a weak comparison.¹⁷³ In cases of discarded garbage, items are intentionally placed in garbage receptacles and left on the curb.¹⁷⁴ One can reasonably expect the garbage to be rummaged through by an animal or person.¹⁷⁵ Heat, on the other hand, is not always intentionally lost.¹⁷⁶ People do not reasonably expect that their

167. *Id.*

168. U.S. CONST. amend. IV; *see* *Silverman v. United States*, 365 U.S. 505, 511 (1961) (holding that a man has the right “to retreat into his own home and there be free from unreasonable government searches”).

169. *Kyllo v. United States*, 533 U.S. 27, 34.

170. *Id.* at 32-41.

171. For a discussion of the analogies by the majority of courts who found thermal imagery not a search, *see supra* notes 53-92 and corresponding text. For a discussion of the analogies by the minority courts who found thermal imagery was a search, *see supra* notes 93-116 and corresponding text.

172. *Campisi*, *supra* note 30, at 247.

173. *See State v. Young*, 867 P.2d 593, 601 (Wash. 1994) (criticizing the analogy between lost heat and discarded garbage).

174. *See id.* at 603.

175. *Id.* at 603.

176. *See State v. Siedgel*, 934 P.2d 176, 186 (Mont. 1997), *reversed on other*

heat is being measured by a sophisticated thermal imager across the street.¹⁷⁷

Moreover, the analogy of a dog sniff to a thermal imager is also a weak analogy.¹⁷⁸ A dog sniff only detects illegal contraband.¹⁷⁹ A thermal imager scan does not discern between legal and illegal activity.¹⁸⁰ The imager is as likely to display legal activities as it is to display illegal activities within the home.¹⁸¹

By addressing the ineptitude of these analogies, the Supreme Court could have further supported its claim that thermal imaging was a search.¹⁸² By addressing these analogies, the Court could have also parried Justice Stevens' dissent by noting the ineffectiveness of a rationale comparing lost heat to discarded garbage.¹⁸³ Instead, the Court relied on categorizing certain sense-enhancing technology as searches if the technology is not available for the "general public use."¹⁸⁴ This standard could foreseeably create a troubling dilemma in the future considering "that the amount of privacy that is available from the public . . . wanes every day as we become more technologically advanced and technology becomes more available."¹⁸⁵

Therefore, though the Supreme Court correctly ruled that thermal imaging is a search and in violation of the Fourth Amendment, the Court should have strengthened its opinion by dismissing the analogies used by lower courts and the dissent.

B. An Effective Rule for Thermal Imagers, but Not Other Surveillance Technology

The military is currently using highly sophisticated surveillance, and it is only a matter of time before this technology is

grounds (stating that, based on the laws of thermodynamics, heat escapes no matter how much people insulate their houses).

177. See *Young*, 867 P.2d at 603.

178. See *United States v. Cusumano*, 67 F.3d 1497, 1508 (10th Cir. 1995).

179. See *id.*

180. See *id.*

181. See *id.*

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

183. *Kyllo*, 53 U.S. at 47-50. See Johnathan Ringle, *Court Restricts Use of Heat Sensors*, AM. LAW. MEDIA, June 12, 2001, at SF1 (stating that within Justice Stevens' dissent the Justice made comparisons with cases regarding seized garbage left for collection with lost heat measured by thermal imagers).

184. *Kyllo*, 533 U.S. at 47.

185. Symposium, *Modern Studies of Privacy Law Introduction: Keeping Secrets*, 86 MINN. L. REV. 1097, 1109 (2002).

also available to law enforcement.¹⁸⁶ In *Kyllo*, the Supreme Court constructs a broad rule that attempts to provide guidance for not only the use of thermal imagers, but for all future sophisticated sense-enhancing surveillance systems.¹⁸⁷ The *Kyllo* rule states that “obtaining [1] by sense-enhancing technology [2] any information regarding the interior of the home [3] that could not otherwise have been obtained without physical intrusion into a constitutionally protected area . . . [4] at least where (as here) the technology in question is not in general public use” is considered a search.¹⁸⁸ While the *Kyllo* rule provides an effective means for dealing with the continued sophistication of thermal imagers,¹⁸⁹ it fails to provide an effective means to generally account for the advancement of sense-enhancing technology.¹⁹⁰

The *Kyllo* rule is effective for thermal imagers because it clearly addresses the numerous concerns regarding the continuing degree of intrusiveness of thermal imagers within private homes.¹⁹¹ With the possible future ability of measuring human heartbeats behind a wall, the *Kyllo* rule could prevent the warrantless use of thermal images as their capabilities continue to advance and threaten privacy.¹⁹² However, as Justice Stevens states within the dissent, “the category of ‘sense-enhancing technology’ covered by the new rule is far too broad.”¹⁹³

While the Supreme Court correctly ruled that the use of thermal imagers is a search and violates the Fourth Amendment, the Court should not have applied this rule to all sense-enhancing technology. The *Kyllo* rule could be interpreted broadly enough to prevent the use of dog sniffs to detect illegal contraband such as narcotics from a home.¹⁹⁴ Applying the elements of the *Kyllo* rule,

186. Campisi, *supra* note 30, at 271.

187. *Kyllo v. United States*, 533 U.S. at 47 (2001).

188. *Id.* Justice Stevens’ dissent is used to cite the *Kyllo* rule because it clearly sets forth the four factors that the rule requires in finding the sense-enhancing technology is a search under the Fourth Amendment.

189. *See id.* at 39; *see* Gibeault, *supra* note 162, at 34 (suggesting a new Fourth Amendment jurisprudence which keeps pace with thermal imagery advancement).

190. *Kyllo*, 533 U.S. at 47 (Stevens, J., dissenting).

191. *See id.*

192. *See* *United States v. Cusumano*, 67 F.3d 1497, 1510 (10th Cir. 1995) (McKay, J., dissenting) (noting that thermal imagers have the ability to recognize distinct images, and that this technology is becoming available to law enforcement).

193. *Kyllo*, 533 U.S. at 47.

194. *See id.*

arguably, dog sniffs could be defined as sense-enhancing technology that collects information about the inside of the house (odors).¹⁹⁵ This information could not be attained otherwise without physical intrusion,¹⁹⁶ since trained dogs are not available to the general public.¹⁹⁷ Therefore, the use of trained dogs by police to sniff out narcotics could be held unconstitutional under the *Kyllo* test.¹⁹⁸ This rule would overrule *United States v. Place* and thus prohibit a very successful and virtually non-intrusive police activity that identifies nothing but illegal activity.¹⁹⁹ Justice Steven's dissent even suggests the *Kyllo* rule could be carried as far as forbidding a law officer from using an infrared camera to detect a person entering a house with a pizza at night.²⁰⁰ The use of the infrared camera would constitute a search because the sense-enhancing technology could spot a person at night with a pizza that could not be seen during the day.²⁰¹ The officer would know about the interior of the house by making the inference that someone likes pizza within that house.²⁰² Infrared cameras are not readily available to the public; therefore, this could be considered a search under the *Kyllo* rule.²⁰³ Even though this hypothetical may have over-exaggerated the application of the *Kyllo* rule, it does raise important questions about how far *Kyllo* will be applied in the future.²⁰⁴ Therefore, the Supreme Court in *Kyllo* correctly ruled that the use of thermal imagers constituted a search, however, the Court applied this rule too broadly when trying to restrict all sense-enhancing technology.

C. *The Kyllo Rule Relative to the September 11, 2001 Terrorist Attacks*

While the decision in *Kyllo v. United States* was based on illegal drug production, the rule developed in *Kyllo* restricting the use of sense-enhancing technology could be especially poignant in the

195. *See id.*

196. *Kyllo v. United States*, 533 U.S. 27, 32.

197. *See id.*

198. *See id.*

199. *United States v. Place*, 462 U.S. 696, 696 (1983).

200. *Kyllo*, 533 U.S. at 47.

201. *Id.*

202. *See id.*

203. *See id.*

204. *See id.*

wake of recent terrorist attacks.²⁰⁵ After the World Trade Center and Pentagon attacks on September 11, 2001, American public sentiment showed that many were willing to sacrifice their personal freedoms to prevent future terrorist attacks.²⁰⁶ However, if the all-encompassing rule in *Kyllo* is enforced and thereby restricts law enforcement agencies' use of not only thermal imagers but all sense-enhancing technology, the search for terrorists and the prevention of future terrorist attacks could be hampered.²⁰⁷

Details of the infamous September 11, 2001, are well known to all. In a terrorist plot, attributed to the group al-Qaeda,²⁰⁸ four American passenger planes were hijacked and crashed into predetermined U.S. targets. Three of the four planes reached their planned destinations. American Airlines Flight 11 and United Airlines Flight 175 crashed into the North and South Towers of the World Trade Center in New York City, while a third plane, American Airlines Flight 77, slammed into the Pentagon in Washington D.C.²⁰⁹ A fourth plane, United Airlines Flight 93, was diverted from the hijackers' planned target by the passengers'

205. Peter H. King & Shawn Hubler, *America Attacked: After the Violence, a Nation on Edge, Society: Effects of Last Week's Terror Will Reach Beyond Heightened Airport Security to Entertainment, Politics and Much More*, L.A. TIMES, Sept. 16, 2001, at A3 (quoting Jeffrey S. Weiner, former president of the National Assn. of Criminal Defense Lawyers, "[l]ittle is left of the 4th Amendment . . . [the 4th Amendment] will certainly be in jeopardy in the light of these horrific events").

206. See Michael Elliot, *America On Guard: A Clear and Present Danger*, TIME, Oct. 8, 2001, at 28-29. In a Time/CNN poll, sixty-eight percent of those interviewed would favor allowing law enforcement to wiretap phones of suspected terrorists without permission from the courts. *Id.* Fifty-five percent would favor law enforcement intercepting e-mail messages without court permission, searching for suspicious words and phrases. *Id.* See King & Hubler, *supra* note 205 (stating that a Los Angeles Times poll found overwhelming support for random police stops); Brigid McMenamin, *Land Of The Free; We Already Have A Lot of Legal Tools To Fight Terrorism*, FORBES MAGAZINE, Oct. 15, 2001, at 56 (quoting an ABC poll taken after September 11, 2001 that found "two out of three Americans are willing to surrender civil liberties to stop terrorism").

207. Symposium, *supra* note 185, at 1107 (discussing police power of surveillance after events like September 11, and how that power may be affected by *Kyllo v. United States*).

208. David Firestone & Christopher Drew, *A Nation Challenged: The Cases; Al Qaeda Link Seen in Only a Handful of 1,200 Detainees*, N.Y. TIMES, Nov. 29, 2001, at A1. See Liam Braber, Comment, *Korematsu's Ghost: A Post-September 11th Analysis of Race and National Security*, 47 VILL. L. REV. 451, 451 (2002) (describing how the "[e]vidence soon suggested that Arab Islamic militants [al-Qaeda] backed by Osama bin Laden, a known anti-American terrorist, had committed the massacre").

209. Charles M. Madigan, 'Our Nation Saw Evil'; *Hijacked Jets Destroy World Trade Center, Hit Pentagon*, CHI. TRIB., Sept. 12, 2001, § 1, at 1.

heroic efforts overpowering the terrorists and forcing the plane to crash in an open field in Somerset County, Pennsylvania.²¹⁰ Thousands were killed from these horrific attacks²¹¹ and now Americans harbor a widespread fear that terrorists are apt to attack again.

The government promptly responded to these concerns in part by enacting the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 ("USA PATRIOT Act") on October 26, 2001, just six weeks after the attacks of September 11, 2001.²¹² Without delving into the dense and somewhat complex legislation involved in the USA PATRIOT Act, its purpose was to proactively protect against possible future terrorist threats within the United States by expanding the government's use of wiretapping and electronic surveillance power,²¹³ clamping down on illegal immigration and money laundering,²¹⁴ providing swift relief to victims of terrorism,²¹⁵

210. *Id.*

211. See Margaret Talbot, *The Lives They Lived, 3,225 (At Last Count) Died September 11, 2001*, N.Y. TIMES, Dec. 30, 2001, §6, at 16; see also Michael C. Bonafede, Note, *Here, There, And Everywhere: Assessing the Proportionality Doctrine and U.S. Uses of Force In Response To Terrorism After the September 11 Attacks*, 88 CORNELL L. REV. 155, 215 n.13 (2002) (citing Eric Lipton, *Death Toll Is Near 3,000, but Some Uncertainty Over the Count Remains*, N.Y. TIMES, Sept. 11, 2002, at G47 in tallying a list of those killed, which "excluding the 19 hijackers, consists of 2,801 killed or still missing from the World Trade Center, 184 killed at the Pentagon and 40 killed on Flight 93, which crashed near Shanksville, Pa.").

212. USA PATRIOT Act, Pub. L. No. 107-56, 115 Stat. 272 (2001). The Act consists of ten provisions:

Title I—Enhancing Domestic Security Against Terrorism;

Title II—Enhanced Surveillance Procedures;

Title III—International Money Laundering Abatement and Anti-Terrorist Financing Act of 2001;

Title IV—Protecting the Border;

Title V—Removing Obstacles to Investigating Terrorism;

Title VI—Providing for Victims of Terrorism, Public Safety Officers, and their Families;

Title VII—Increased Information Sharing for Critical Infrastructure Protection;

Title VIII—Strengthening the Criminal Laws Against Terrorism;

Title IX—Improved Intelligence; and

Title X—Miscellaneous.

Id.

213. *Id.* at §§ 201-225. See 18 U.S.C. § 2511(2)(e) (2000) (allowing an officer, in the normal course of his duty, to conduct electronic surveillance); 18 U.S.C. § 2511(2)(i) (2000), amended by USA PATRIOT Act § 217(2) (making it lawful for an officer to intercept a computer trespasser's wire or electronic communication involving a protected computer).

214. USA PATRIOT Act, §§ 301-428 Pub. L. No. 107-56, 115 Stat. 272, 301-377

and increasing information-sharing power between investigative agencies.²¹⁶ Congress justified the USA PATRIOT Act as necessary in order to “deter and punish terrorist acts in the United States and around the world, [and] to enhance law enforcement investigatory tools.”²¹⁷ The Act has provided the government with increased surveillance and enforcement power to prevent against further terrorist acts.²¹⁸ Many argue, however, that the government’s increased power to fight terrorism is at the cost of individuals’ personal privacy rights.²¹⁹

With the demand for increased surveillance and enforcement power under the USA PATRIOT Act, sense-enhancing technology could be a valuable tool in helping to thwart terrorist plots.²²⁰ Through enhanced technology such as electronic wiretaps and bugs, law enforcement agencies can listen to those with suspected terrorist ties.²²¹ Rather than narcotics, dogs can be trained to locate

(2001). See Lisa Nelson, *Protecting the Common Good: Technology, Objectivity, and Privacy*, PUB. ADMIN. REV., Sept. 1, 2002 (stating that “[u]nder the [USA PATRIOT Act], financial institutions are required to monitor daily financial transactions even more closely and to share information with other federal agencies. The [Act] provides for no judicial review and does not mandate that law enforcement give the person whose records are being reviewed any notice”).

215. USA PATRIOT Act, Pub. L. No. 107-56, 115 Stat. 272, 611-624 (2001).

216. *Id.* at § 701. See *Ending Terrorism, Investigation, Prosecution Before the House Comm. on the Judiciary*, 107th Cong. (2001) [hereinafter Ashcroft, *Ending Terrorism*] (statement of John Ashcroft, United States Attorney General), available at http://www.usdoj.gov/ag/agcrisisremarks9_24.htm (last visited Jan. 26, 2003) (setting forth objectives of the USA PATRIOT Act).

217. USA PATRIOT Act, Pub. L. No. 107-56, 115 Stat. 272 (2001).

218. Shaun B. Spencer, *Reasonable Expectations and The Erosion of Privacy*, 39 SAN DIEGO L. REV. 843, 913 (2002) (stating that the USA PATRIOT Act “has already expanded substantially the government’s ability to conduct surveillance on its citizens”). See Ashcroft, *Ending Terrorism*, *supra* note 216 (quoting Attorney General John Ashcroft that the purpose of the Act was so “[l]aw enforcement [has] a strengthened and streamlined ability for our intelligence-gathering abilities to gather the information necessary to disrupt, weaken and eliminate the infrastructure of terrorist organizations”).

219. See Jonathan Krim, *Anti-Terror Push Stirs Fears for Liberties; Rights Groups Unite to Seek Safeguards*, WASH. POST, Sept. 18, 2001, at A17 (reporting that “[a] coalition of public interest groups from across the political spectrum has formed to try to stop Congress and the Bush administration from rushing to enact counterterrorism measures before considering their effect on Americans’ privacy and civil rights”).

220. Ted Bridis & Gary Fields, *Data Overload: Would the FBI Know What to Do With Its New Snooping Power?*, WALL STREET J., Sept. 26, 2001, at A1 (describing how the White House is backing away from previous proposals to phase out enhanced surveillance capabilities in light of the recent bombings).

221. Deborah Barfield, *America’s Ordeal: Critics Wary to Bid to Curtail Rights*, NEWSDAY, Oct. 2, 2001 (describing other incidents where wiretapping was used in

bomb material.²²² Trap and trace devices²²³ and pen registers²²⁴ can be used to capture source and addressee information for computer (e.g., e-mail) and telephone conversations.²²⁵ Other sense-enhancing devices “might detect the odor of deadly bacteria or chemicals for making a[n] . . . explosive.”²²⁶

It remains to be seen how the *Kyllo* decision will affect the continued use of these surveillance and enforcement devices.²²⁷ In an emergency, it is unclear whether law enforcement will be required to go through the lengthy process of obtaining a search warrant, as required under *Kyllo*, to use sense-enhancing technology when there is a risk of losing a suspect who could be responsible for thousands of deaths.²²⁸ Regardless of the degree of

pursuit of terrorists).

222. See, e.g. Global Training Academy, <http://www.globalcorp.com/trainingacademy> (last visited Jan. 23, 2003) (offering training programs for canines to sniff out drugs, land mines, and bombs).

223. The USA PATRIOT Act amends the definition of a “trap or trace device” as “a device or process which captures the incoming electronic or other impulses which identify the originating number or other dialing, routing, addressing, and signaling information reasonably likely to identify the source of a wire or electronic communication, provided, however, that such information shall not include the contents of any communication.” 18 U.S.C. § 3127(4), *amended by* USA PATRIOT Act § 216(c)(3), 115 Stat. 272, 290.

224. The USA PATRIOT Act also amended the definition of a “pen register” as “a device or process which records or decodes dialing, routing, addressing, or signaling information transmitted by an instrument or facility from which a wire or electronic communication is transmitted, provided, however, that such information shall not include the contents of any communication, but such term does not include any device or process used by a provider or customer of a wire or electronic communication service for billing, or recording as an incident to billing, for communications services provided by such provider or any device or process used by a provider or customer or a wire communication service for cost accounting or other like purposes in the ordinary course of its business.” 18 U.S.C. § 3127(3), *amended by* USA PATRIOT Act § 216(c)(2), 115 Stat. 272, 290.

225. See 18 U.S.C. § 3123(a)(1), *amended by* USA PATRIOT Act § 216(b)(1), 115 Stat. 272, 288-89 (expanding the jurisdictional use of trap and trace devices and pen registers).

226. *Kyllo v. United States*, 533 U.S. 27, 47 (2001).

227. McMenemy, *supra* note 206, at 56 (stating that a target for the anti-liberties crowd is the Fourth Amendment which was reaffirmed by the Supreme Court in *Kyllo v. United States*).

228. See Ashcroft, *Ending Terrorism*, *supra* note 216 (quoting Attorney General John Ashcroft that “[l]aw enforcement needs a strengthened and streamlined ability for our intelligence-gathering abilities to gather the information necessary to disrupt, weaken and eliminate the infrastructure of terrorist organizations”); William J. Stuntz, *Local Policing After the Terror*, 111 YALE L.J. 2137, 2141 (2002) (stating that “Fourth and Fifth Amendment law is likely to move toward greater authority for the police The natural conclusion is that we will see a loss of individual liberty and privacy”).

intrusiveness of these terrorism-fighting devices, under the overly broad rule in *Kyllo*, these devices could be restricted because they may be classified as sense-enhancing technology generally unavailable to the public that reveals information within the interior of a house, thereby constituting a search.²²⁹

Since the events of September 11, 2001, however, the United States Supreme Court has failed to address the constitutionality of the USA PATRIOT Act or to apply the *Kyllo* rule to the government's use of sense-enhancing technology for the search of terrorists. This inaction may reflect a shift throughout the country, including the courts, of a willingness to sacrifice certain personal freedoms for public safety in fearful times.²³⁰ "With terrorism, our only defense might be infiltration and surveillance . . . so we're going to have to choose between security and privacy."²³¹ Only the future will determine which alternative America chooses.

V. CONCLUSION

The *Kyllo* case presented the United States Supreme Court with an opportunity to explain why the warrantless use of thermal imagers on private homes is a search and thus a violation of the Fourth Amendment. The Supreme Court set forth a rule that not only regulates the current thermal imaging technology but also provides regulations for thermal imagery as its technology continues to advance.

The Supreme Court was too broad in applying the *Kyllo* rule to not only thermal imagers, but also to other sense-enhancing technology. The *Kyllo* rule not only limits inherently intrusive sense-enhancing technology that should be deemed a search, it also could restrict successful and virtually non-intrusive sense-enhancing technology that should not be deemed to constitute a search. After

229. *Kyllo*, 533 U.S. at 34-5.

230. Carrie L. Groskopf, Notes and Comments, *If It Ain't Broke, Don't Fix It: The Supreme Court's Unnecessary Departure From Precedent in Kyllo v. United States*, 52 DEPAUL L. REV 201, 204 (2002) (stating that regardless of the *Kyllo* decision "the Court will probably bend over backwards to allow U.S. intelligence to take whatever measures are necessary in order to ensure that more American lives are not lost in vain"). See Robin Toner, *After the Attacks: Civil Liberties; Some Foresee a Change in Attitudes on Freedoms*, N.Y. TIMES, Sept. 15, 2001, at A16 (quoting Senator Trent Lott stating that, "[w]hen you are at war, civil liberties are treated differently. We cannot let what happened yesterday happen in the future").

231. Toner, *supra* note 230, at A16 (quoting Walter Dellinger who served as acting solicitor general in the Clinton Administration).

the horrific events of September 11, the *Kyllo* rule could potentially hamper using sense-enhancing technology to successfully search for terrorists. With passage of the USA PATRIOT Act, however, the courts are seemingly lenient and appear to be willing to tolerate the use of sense-enhancing technology to prevent another terrorist attack.

Therefore, the Supreme Court correctly ruled that thermal imagers should constitute a search. The Court, however, incorrectly ruled that their decision should include not only thermal imagers but all sense-enhancing technology.²³² The Court should attempt to refine its ruling in a way that better protects individual privacy in the face of rapidly evolving surveillance technology, and rapidly evolving national security needs.²³³

232. *See infra* Part V.

233. David A. Sullivan, *A Bright Line in the Sky? Toward a New Fourth Amendment Search Standard for Advancing Surveillance Technology*, 44 ARIZ. L. REV. 967, 991 (2002).