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WHY THE UNITED STATES SUPREME COURT’S RULING IN KYLLO v. UNITED STATES1 IS NOT THE FINAL WORD ON THE CONSTITUTIONALITY OF THERMAL IMAGING

In 1991 Agent William Elliott of the United States Department of Interior began to suspect that Danny Kyllo was using his home for the indoor cultivation of marijuana.2 This suspicion arose out of findings gleaned by a joint task force organized to investigate a possible marijuana production and distribution ring.3 The initial investigation centered on Sam Shook, the father of Kyllo’s neighbor.4 After discovering information that suggested Kyllo’s involvement in the growing and distribution of marijuana, Agent Elliott contacted Oregon state law enforcement officers who provided him with additional information that strengthened the suspicions against Kyllo.5 Agent Elliott subpoeen

2. Id. at 2041.
4. See id. The investigation of Sam Shook eventually began to focus on Tova Shook who resided at 890 Rhododendron Drive, Florence Oregon. Kyllo resided at 878 Rhododendron Drive.
5. United States v. Kyllo, 140 F.3d 1249, 1250-51 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, Kyllo v. United States, 530 U.S. 1305 (2000), rev’d, Kyllo v. United States, 121 S. Ct. 2038 (2001). The information included that: Kyllo lived with his wife, Luanne, in one unit of a triplex in Florence Oregon, the triplex was also occupied by others who were suspects in the drug investigation, Kyllo allegedly told a police informant that he and Luanne could supply the informant with marijuana, and the previous month, Luanne had been arrested for delivery and possession of a controlled substance.
naed Kyllo’s utility records and compared the use of electricity in Kyllo’s triplex with a chart developed by the Portland General Electric Company. That chart serves as a guide for estimating average power usage relative to square footage, type of heating and accessories, and the number of people living in the residence. Based upon the comparisons between average electrical usage and Kyllo’s utility records, Elliot concluded that Kyllo’s use was abnormally high, a common indicator of indoor marijuana cultivation. In order to determine if heat was emanating from Kyllo’s home in levels consistent with the use of high intensity bulbs required for indoor growth, Elliott requested Staff Sergeant Daniel Haas of the Oregon National Guard to examine the triplex with an Agema Thermovision 210 thermal imaging device. The scan was conducted from the passenger seat of Elliott’s vehicle from across the street in front of Kyllo’s house as well as from the street behind the house. The scan showed that the roof over the garage and a side wall of petitioner’s home radiated more heat than the rest of the home and were substantially warmer than the neighboring homes of the triplex. Elliott and Haas concluded that the emanating heat indicated Kyllo was using halide lights to grow marijuana in his house. Based upon the thermal imaging, utility bills, and tips from informants, Elliot was able to obtain a warrant authorizing the search of petitioner’s home. The search led to the discovery of an indoor growing operation involving more than 100 marijuana plants. Kyllo’s motion to


7. Id. at 790.

8. See United States v. Pinson, 24 F.3d 1056, 1057 (8th Cir. 1994). Indoor marijuana growth is dependent upon high intensity light bulbs that use between four hundred and one thousand-watt bulbs. Use of high intensity bulbs will result in greater electricity use.


11. Id.

12. Id.

13. Id.

14. Id.
suppress the seized evidence was denied, and thereafter he entered a conditional guilty plea.\footnote{15}{Id.}

After a tangled procedural history, bouncing back and forth between the Federal District Court in Oregon and the Ninth Circuit Court of Appeals,\footnote{16}{United States v. Kyllo, 809 F. Supp. 787, 790 (D. Or. 1992), aff'd in part, United States v. Kyllo, 26 F.3d 134 (9th Cir. 1994), opinion superseded, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted, United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994), rev'd, United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), opinion withdrawn, United States v. Kyllo, 184 F.3d 1059 (9th Cir. 1999), opinion superseded, United States v. Kyllo, 190 F.3d 1041 (9th Cir. 1999), cert. granted.}

more than eight years after the thermal image scan had been conducted on Kyllo's triplex.\footnote{17}{See Kyllo v. United States, 530 U.S. 1305 (2000).}

**What is a Thermal Imager?**

Before examining thermal imaging and its impact upon the Fourth Amendment, a brief synopsis of the technology is needed to better understand the constitutional implications. Objects with a temperature above absolute zero emit infrared radiation; the hotter an object becomes, the more infrared radiation is emitted.\footnote{19}{Thomas D. Colbridge, *Thermal Imaging: Much Heat but Little Light*, FBI Law Enforcement Bull., Dec. 1997, at 18.}
The emitted radiation is not visible to the human eye because infrared energy occurs at a rate one thousand times slower than visible light.\footnote{20}{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, 892 (1995).}

A thermal imager detects infrared emissions, and then converts the heat readings into a two-dimensional picture, typically black and white.\footnote{21}{See Colbridge, supra note 19, at 18.} The picture depicts various shades of gray according to how much radiation the object releases.\footnote{22}{Id.} Hotter objects are lighter in color due to the fact they radiate more infrared energy, while the cooler objects...
appear darker.\textsuperscript{23} A thermal imager is not capable of measuring the actual temperature of the environment, but detects temperature differentials between the objects and the air temperature.\textsuperscript{24} A thermal imaging device does not transmit rays or beams that can penetrate the home; instead it passively scans thermal energy that is radiated from the home.\textsuperscript{25}

The United States Army first developed the thermal imager to assist soldiers in locating enemies during combat.\textsuperscript{26} Today, thermal imagers serve numerous functions that include finding missing persons, detecting "hot spots" in forest fires hidden by smoke, identifying inefficient insulation, detecting overloaded powerlines,\textsuperscript{27} assisting in fugitive apprehensions and detecting illegal border crossings.\textsuperscript{28}

As law enforcement officials throughout the United States have cracked down on the drug problem which plagues the nation, those who previously had grown marijuana outdoors turned to indoor cultivation where the risk of detection was significantly lower. Thermal imagers have therefore recently been employed by law enforcement agencies in the war on drugs to detect excess heat emanating from private residences - a common indicator of an indoor marijuana farm.\textsuperscript{29} The high intensity bulbs used for indoor cultivation produce heat of 150 degrees or more Fahrenheit.\textsuperscript{30} However, the optimal growing temperature for marijuana plants is between 68 and 72 degrees Fahrenheit.\textsuperscript{31} Therefore this excess heat must be vented from indoors in order to maintain ideal growing conditions; the necessity of venting excess heat works to the advantage of law enforcement officials who could scan the suspect's home to determine if emissions were indicative of indoor marijuana operations.\textsuperscript{32} The two interests at battle in

\textsuperscript{23} Id.
\textsuperscript{24} Id.
\textsuperscript{25} Wilson, \textit{supra} note 20, at 897.
\textsuperscript{26} Matt Greenberg, Casenote, \textit{Warrantless Thermal Imaging May Impermissibly Invade Home Privacy: United States v. Kyllo, 140 F.3d 1249 (9th Cir. 1998), Withdrawn, 1999 WL 548267 (9th Cir. 1999), Superseded on Rehearing by 1999 WL 694733 (9th Cir. 1999), 68 U. Cin. L. Rev. 151, 155 (1999).}
\textsuperscript{28} Colbridge, \textit{supra} note 19, at 19.
\textsuperscript{29} Id.
\textsuperscript{30} United States v. Pinson, 24 F.3d 1056, 1057 (8th Cir. 1994).
\textsuperscript{31} \textit{Id.} at 1057.
\textsuperscript{32} See \textit{id.}
the thermal imaging cases are the government's war on drugs and concerns for American civil liberties. 33

FOURTH AMENDMENT GUARANTEES

The Fourth Amendment of the United States Constitution guarantees citizens their privacy will not be unreasonably invaded by providing:

(t)he right of 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. 34

The basic purpose of the Fourth Amendment is to safeguard the privacy and security of individuals against arbitrary invasion by the government. 35

The Constitution does not prohibit all searches or seizures, but only those that are unreasonable. 36 A search is reasonable when conducted according to the warrant requirement of the Fourth Amendment. 37 "The warrant procedure is designed to guarantee that a decision to search private property is justified by a reasonable government interest." 38 The determination of reasonableness is based upon a balancing test, weighing the need for government search or seizure against the individual right to privacy as guaranteed by the Fourth Amendment. 39 The balancing test to determine when the right of privacy must yield to the right of search is to be determined by a judicial officer, not a police officer or government agent. 40 The need for the judgment by a judicial officer to be interposed between the citizen and the police is to ensure a neutral drawing of inferences from the evidence, as opposed to a drawing of inferences by a law enforcement officer who is "engaged in the often competitive enterprise of ferreting out crime." 41 If upon weighing the evidence the neutral judicial officer decides there is a valid public interest that justifies the intrusion, then there exists probable cause to issue a search warrant limited to the

33. Joan Biskupic, Justices Rule for Privacy, USA Today, June 12, 2001, at 10A.
34. U.S. CONST. amend. IV.
37. See Camara, 387 U.S. 523.
38. Id. at 539.
41. Id.
necessary scope of investigation. Searches conducted outside the prescribed judicial process, without prior approval, are per se unreasonable and therefore unconstitutional, unless within one of the limited exceptions.

All evidence obtained by searches and seizures in violation of the Fourth Amendment is inadmissible against the defendant based upon the exclusionary principle. The Fourth Amendment protections against arbitrary government intrusion do not extend to conduct that is not considered a search or seizure. Therefore, whether government conduct is classified as a search or seizure is the pivotal question in Fourth Amendment analysis; if there is no search or seizure, there is not a constitutional question.

KATZ AND THE “REASONABLE EXPECTATION OF PRIVACY” TEST

Technological advances since the enactment of the Fourth Amendment have forced courts to expand the concept of what constitutes government invasion beyond purely physical intrusions. In Katz v. United States, the Supreme Court stated that “the Fourth Amendment protects people, not places,” emphasizing that the scope of the “Amendment cannot turn upon the presence or absence of physical intrusion.” This holding was contrary to the Court’s earlier jurisprudence that required a physical trespass in order to constitute an unreasonable search, and demonstrates a broadening of the Fourth Amendment.

In Katz, Federal Bureau of Investigation agents had attached an electronic listening and recording device to the outside of a public telephone booth where the defendant was suspected of transmitting wagers across state lines. The Supreme Court reversed the defendant’s conviction because the wiretap created an unconstitutional search. Justice Stewart, writing for the majority, stated that “[w]hat a person knowingly exposes to the public, even in his own home or

42. Camara, 387 U.S. at 539.
46. See Katz, 389 U.S. at 353.
47. Id. at 351.
48. Id.
49. Id. at 348.
50. Id. at 359.
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." 51 Justice Harlan's concurrence in Katz established a two-part inquiry for determining whether there has been a search within the meaning of the Fourth Amendment despite the absence of physical intrusion. 52 The first step of the analysis is to determine whether a person "exhibited an actual (subjective) expectation of privacy." 53 If this is answered in the affirmative the second step is to decide whether that expectation is one that "society is prepared to recognize as 'reasonable.'" 54 The expectation of privacy test established in the Katz concurrence has become the lodestar of Fourth Amendment analysis.

**DEcisions PRIOR TO THE UNITED STATES SUPREME COURT HEARING OF KYLLO**

Prior to the Supreme Court's granting of certiorari in Kyllo, 55 courts that had considered the issue of whether a thermal imaging device aimed at a private home from public property to detect amounts of heat emanating into the environment constitutes a search under the Fourth Amendment had reached divergent conclusions for differing reasons. 56 The majority of courts considering the question had determined that a thermal image scan was not a search. 57

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51. *Id.* at 351.
52. *Id.* at 361.
53. *Id.*
54. *Id.*
57. Jeffrey P. Campisi, Comment, The Fourth Amendment and New Technologies: The Constitutionality of Thermal Imaging, 46 Vill. L. Rev. 241, 249 (2001). Majority courts finding that thermal imaging is not a search include the Fifth Circuit, see United States v. Ishmael, 48 F.3d 850 (5th Cir. 1995); Seventh Circuit, see United States v. Myers, 46 F.3d 668 (7th Cir. 1995); Eighth Circuit, see United States v. Pinson, 24 F.3d 1056 (8th Cir. 1994); Eleventh Circuit, see United States v. Ford, 34 F.3d 992 (11th Cir. 1994); Arizona Court of Appeals, see State v. Cramer, 851 P.2d 147 (Ariz. Ct. App. 1992); Kentucky Supreme Court, see LaFollette v. Commonwealth, 915 S.W.2d 747 (Ky. 1996); Wisconsin Supreme Court, see State v. McKee, 510 N.W.2d 807 (Wis. Ct. App. 1993); and the Louisiana Court of Appeals, see State v. Niel, 671 So. 2d 1111 (La. Ct. App. 1996). Minority courts concluding that the use of a thermal imager constituted an unreasonable search included the Tenth Circuit, see United States v. Cusumano, 67 F.3d 1497 (10th Cir. 1995), vacated on other grounds, 83 F.3d 1247 (10th Cir. 1996); California Court of Appeals, see People v. Deutsch, 44 Cal. App. 4th 1224 (1996); Montana Supreme Court, see State v. Siegel, 934 P.2d 176 (Mont. 1997), rev'd on other grounds, State v. Kuneff, 970 P.2d 556 (Mont. 1998); Pennsylvania
One rationale used by courts when determining whether there had been a search was based on the fact that a scan can be analogized to a canine sniff for illegal drugs. In United States v. Place, the United States Supreme Court held that a canine sniff by a well-trained narcotics detection dog is not a search within the meaning of the Fourth Amendment. The rationale for this decision was based upon the limited and non-intrusive nature of obtaining information. The defendant has no reasonable expectation of privacy that society is willing to accept when the information is escaping into the environment and being detected by the senses. Therefore, any such search is not unconstitutional.

Courts which have used the rationale allowing canine sniffs to decide the thermal imaging question are persuaded by the fact that a scan simply uses sense-enhancing technology to search for abnormal heat, just as a trained dog uses his own sense-enhancement to search for illegal drugs. The court in United States v. Pinson stated that "[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 [thermal imager]." The Ninth Circuit Court of Appeals in United States v. Kyllo stated the "scan simply indicated that seemingly anomalous waste heat was radiating from the outside surface of the home, much like a trained police dog would be used to indicate that an object was emitting the odor of illicit drugs." The courts that use this analogy see the thermal imager as no different than a trained police dog, and rationalize that if a canine sniff is allowed within the Fourth Amend-

58. See United States v. Kyllo, 190 F.3d at 1046; Pinson v. United States, 24 F.3d at 1058.
59. United States v. Place, 462 U.S. 696, 707 (1983). In Place, however, the court found that the defendant had been subject to unreasonable search and seizure, not because of the canine sniff, but because the officers had detained defendant's luggage for an unreasonable time period. The officers had also failed to tell the defendant where they were taking the luggage, how long they would keep it, and how they would return it to him.
60. Id.
61. See id.
62. Id.
63. See United States v. Pinson, 24 F.3d 1056, 1058 (8th Cir. 1994).
64. Id.

http://scholarship.law.campbell.edu/clr/vol24/iss1/3
ment, the premise follows that a thermal image scan is also constitutional.66

Courts have also approved the use of thermal imaging because a scan detects only waste heat.67 Based upon the classification of escaping heat as abandoned, courts then compare the heat released from the home to discarded garbage.68 In California v. Greenwood, the Court held that a reasonable expectation of privacy did not exist in garbage when placed outside the defendant's home for collection; therefore, a warrantless examination by law enforcement officials did not violate the Fourth Amendment.69 The rationale in Greenwood was based upon the fact that the trash was readily accessible to other members of the public who were interested in the habits of the defendant,70 and that the defendant voluntarily placed his trash on the curb for the express purpose of conveying it to a third party, the trash collector.71 The combination of these facts evidenced that no reasonable expectation of privacy existed in the garbage placed outside the home.72 In United States v. Myers, the court reasoned that just as society is unwilling to recognize a reasonable expectation of privacy in garbage left by the curb, society is also unwilling to recognize an expectation of privacy in the waste heat released from the home.73 The rationale behind this argument rests on the fact that the excessive heat given from the high-intensity bulbs is often intentionally vented from the home in order to keep growing temperatures ideal.74 Because it is unreasonable to have an expectation of privacy in garbage voluntarily placed on the curb within the grasps of countless individuals, it follows that it is unreasonable to have an expectation of privacy in waste heat that is voluntarily released into the environment awaiting detection by a thermal image scan.75

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66. See id.
68. See id.
69. See California v. Greenwood, 486 U.S. 35 (1988). In Greenwood, police used evidence discovered in defendant's garbage, which was indicative of drug use, to obtain a search warrant for his home where narcotics were discovered. Defendant argued probable cause to obtain the search warrant would not have existed but for the evidence discovered in his garbage.
70. Id. at 40. "It is common knowledge that plastic garbage bags left on or at the side of a public street are readily accessible to animals, children, scavengers, snoopers, and other members of the public."
71. Id. at 40.
72. Id. at 40.
73. United States v. Myers, 46 F.3d 668 (7th Cir. 1995).
74. United States v. Pinson, 24 F.3d 1056, 1058 (8th Cir. 1994).
75. See id.
Another analogy used by the courts finding that there has been no Fourth Amendment violation is by comparing the thermal scan to the plain-view doctrine, reasoning that a thermal scanner is merely detecting that which is in plain view.\(^{76}\) The courts using this rationale rely upon the *California v. Ciraolo*\(^ {77}\) and *Dow Chemical Co. v. United States*\(^ {78}\) decisions handed down by the United States Supreme Court on the same day. In *Ciraolo*, police had received a tip that marijuana was being grown in the defendant's backyard that was enclosed by two fences and shielded from view at ground level.\(^ {79}\) Officers secured a private plane and flew over the defendant's home at an altitude of 1,000 feet, whereby they were able to identify marijuana plants growing in the backyard.\(^ {80}\) The Supreme Court employed the reasonable expectation of privacy analysis to determine whether there had been a search, and determined that "[i]n an age where private and commercial flight in public airways is routine, it is unreasonable for respondent to expect that his marijuana plants were constitutionally protected from being observed with the naked eye from an altitude of 1,000 feet."\(^ {81}\) Therefore, the officers' conduct was not a search within the meaning of the Fourth Amendment.\(^ {82}\)

In *Dow Chemical Company*,\(^ {83}\) the United States Supreme Court held that aerial photography of a chemical company's industrial complex was not a search for purpose of the Fourth Amendment.\(^ {84}\) The Environmental Protection Agency (EPA) had been denied on-site inspection of Dow's industrial complex and therefore employed a commercial aerial photographer who used a standard precision aerial mapping camera to take pictures of the facility to ensure the company was operating within the EPA's guidelines.\(^ {85}\) The Court attached significance to the fact that the EPA was not using a unique sensory device but rather used a "conventional, albeit precise, commercial camera commonly used in mapmaking."\(^ {86}\) The Court continued by stating,

\(^{76}\) United States v. Ishmael, 48 F.3d 850, 856 (5th Cir. 1995). This analogy greatly enlarges the plain-view doctrine, which previously had been limited to discovery through natural senses.

\(^{77}\) California v. Ciraolo, 476 U.S. 207 (1986).

\(^{78}\) Dow Chemical Co. v. United States, 476 U.S. 227 (1986).

\(^{79}\) *Ciraolo*, 476 U.S. at 209.

\(^{80}\) *Id.*

\(^{81}\) *Id.* at 215.

\(^{82}\) *Id.*

\(^{83}\) Dow Chemical Co. v. United States, 476 U.S. 227 (1986).

\(^{84}\) See *id.*

\(^{85}\) *Id.* at 229.

\(^{86}\) *Id.* at 238.
[i]t may well be, as the Government concedes, that surveillance of private property by using highly sophisticated surveillance equipment not generally available to the public, such as satellite technology, might be constitutionally proscribed absent a warrant. But the photographs here are not so revealing of intimate details as to raise constitutional concerns.\footnote{87}

The dictum of the Court in both of these cases which emphasizes the "routine" use of the airplane\footnote{88} and use of equipment "generally available to the public" has a huge implication in the Court's holding in \textit{Kyllo}.

Using these cases as reference for the plain view doctrine, lower courts have decided that a thermal imager is not a search within the Fourth Amendment. In \textit{United States v. Ishmael}, the Fifth Circuit Court of Appeals held that use of a thermal imager was not a search within the Fourth Amendment because the device was not illegally used while on the defendant's property, and thus the law enforcement officials were able to use the available technology to observe the defendant's building and the heat being emitted.\footnote{89} The officers were entitled to observe the building because it stood in an open field, and the fact that the officers enhanced their observations with a thermal imager did not require a different conclusion.\footnote{90}

The minority view, prior to the United States Supreme Court granting of certiorari in \textit{Kyllo},\footnote{91} placed emphasis not on the expectation of privacy in the heat emitted from the home, the approach taken by the majority view courts, but rather emphasized the expectation of privacy in the activities conducted within the home.\footnote{92} In \textit{Commonwealth v. Gindelsperger}, the Pennsylvania Supreme Court stated that that, "these devices 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."\footnote{93} The California Court of Appeals in \textit{People v. Deutsch}, stated that "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."\footnote{94} This illustrates that the minority-view courts were concerned with protecting the activ-

\footnotesize{\begin{itemize}
\item \footnote{87. Id.}
\item \footnote{88. \textit{Ciraolo}, 476 U.S. at 215.}
\item \footnote{89. \textit{See United States v. Ishmael}, 48 F.3d 850 (5th Cir. 1995).}
\item \footnote{90. Id.}
\item \footnote{91. \textit{See Kyllo v. United States}, 530 U.S. 1305 (2000).}
\item \footnote{92. \textit{United States v. Cusumano}, 67 F.3d 1497, 1501 (10th Cir. 1995).}
\item \footnote{93. \textit{Commonwealth v. Gindelsperger}, 743 A.2d 898, 902 (Pa. 1999).}
\item \footnote{94. \textit{People v. Deutsch}, 44 Cal. App. 4th 1224, 1231 (1996).}
\end{itemize}}
ities within the curtilage of the home, and did not attach significance to the expectation in privacy of excess heat being detected by unknown technology.

Minority view courts also looked to the United States Supreme Court's rulings in *United States v. Knotts* 95 and *United States v. Karo*. 96 In *Knotts*, the Supreme Court held that monitoring the beeper signals on a chloroform container did not invade any legitimate expectation of privacy by the government, and therefore was not a Fourth Amendment violation. 97 The fact that the officers used the beeper to track the container, which could have been done solely by police surveillance, did not alter the analysis, for nothing in the Fourth Amendment prohibited the police from augmenting their sensory faculties with science and technology enhancements. 98 However, the Court placed much emphasis in its ruling on the fact that there was no indication that the beeper revealed information as to the movement of the chloroform container in the cabin owned by the defendant, nor revealed other facts that would not have been visible to the naked eye from outside the cabin. 99

In *United States v. Karo*, the Court again considered the Fourth Amendment implications of using a monitoring beeper. 100 However, the Court stated this case was different from *Knotts* 101 where the beeper did not tell authorities anything about the interior of Knotts' cabin, but rather revealed only information that could have been obtained by anyone who wanted to look. 102 In *Karo* the government used the beeper in a private residence, where individual expectations of privacy are at their highest, and not open to visual surveillance. 103 The Court notes the use of an electronic device is less intrusive than a full-scale search, but here it did reveal critical facts about the interior of the premises electronically, which could not have been obtained by observation from outside the curtilage of the home, and therefore undiscoverable without a warrant. 104 The Court found that the use of the monitoring beeper within the private residence was a violation of the Fourth Amendment noting that, "[i]ndiscriminate monitoring of

97. *See* *Knotts*, 460 U.S. 276.
98. *Id.*
99. *Id.*
100. *See* *Karo*, 468 U.S. 705.
101. *See* *Knotts*, 460 U.S. 276.
103. *Id.*
104. *Id.*
property that has been withdrawn from public view would present far too serious a threat to privacy interests in the home to escape entirely some sort of Fourth Amendment oversight." The minority courts have drawn a comparison between *Karo* and the use of a thermal imager, finding that officials could not have discovered the presence of marijuana growing operations without a search warrant unless they used the thermal imager.106

**The Supreme Court's Ruling on Thermal Imaging**

In what has been characterized as an unusual alignment of justices, in a 5-4 ruling the United States Supreme Court, majority opinion written by Justice Anton Scalia,107 held "where . . . the Government uses a device that is not in general public use, to explore details of a private home that would previously have been unknowable without physical intrusion, the surveillance is a Fourth Amendment 'search', and is presumptively unreasonable without a warrant."108

The Court began its analysis by focusing on the guarantees of privacy and the emphasis placed by the Fourth Amendment on the home, stating that "[a]t 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."109 With few exceptions, the warrantless search of a home is unreasonable.110 The Court goes on to note that this case is not a simple one under the existing precedent, due to the fact that well into the twentieth century, Fourth Amendment analysis was tied to common law trespass.111 The majority explains that the question the Court must confront is "what limits there are upon this power of technology to shrink the realm of guaranteed privacy."112

The majority rejected the distinction between "off-the-wall" observations and "through-the-wall" surveillance.113 The dissent argues that there should be a differentiation between scans that simply detect emitted heat, referred to as "off-the wall," and scans that can detect

105. Id. at 716.
106. Gindlesperger, 743 A.2d at 906.
109. Id. at 2041 (quoting *Silverman v. United States*, 365 U.S. 505, 511 (1961)).
110. Id. at 2042.
111. Id.
112. Id. at 2043.
113. Id. at 2044.
activity within the house, "through-the-wall." The dissent states that a scan determined to be "through-the-wall" should be found to constitute an unreasonable search in violation of the Fourth Amendment; while a finding of "off-the-wall" imaging should be considered reasonable without the issuing of a warrant. The majority compares the argument that the thermal imager detected only radiated heat from external surfaces with the fact that a microphone placed outside the house would pick up only sound emanating from within. The Court found that such a mechanical interpretation had been rejected in Katz. The Court stated:

reversing that approach would leave the homeowner at the mercy of advancing technology—including imaging technology that could discern all human activity in the home. While the technology used in the present case was relatively crude, the rule we adopt must take account of more sophisticated systems that are already in use or in development.

The majority of the Court also rejects the Government's argument that the imaging was constitutional because it did not "detect private activities occurring within private areas," because in the home "all details are intimate details, [and] the entire area is held safe from prying government eyes." The Fourth Amendment's guarantee of sanctity to the home has never been tied to the quality of the information obtained during the investigation. The majority felt holding the use of thermal imagers as unconstitutional was necessary in order to maintain a "firm line at the entrance to the house." Also the limitation of use of the thermal imager to scan for only those details which are not "intimate" would be impossible for law enforcement officials to apply because an officer would not be able to know in advance whether his scan would pick up intimate details, and would be unable to determine upfront whether his scan was constitutional. Such an unpredictable definition would be counterprodu-

114. Id. at 2047.
115. See id.
116. Id. See also Katz, 389 U.S. 347.
117. Id.
118. Kyllo, 121 S. Ct. at 2044.
119. Id. at 2045 (emphasis in original).
120. Id. at 2045. There is no connection between the sophistication of the surveillance equipment and the "intimacy" of the details, noting for example that the Agema Thermovision 210 used to scan Kyllo's home could disclose at what hour each night the lady of the house takes her daily bath, which most would consider intimate.
121. Id. at 2046 (quoting Payton v. New York, 445 U.S. 573, 590 (1980)).
122. Id.
An "intimate" details standard would be absolutely unworkable, requiring constant litigation to determine what society considers intimate. The majority also found the government's argument that the thermal image scan did not reveal details about the home unpersuasive, because the exact purpose of using the thermal imager is to determine whether marijuana is being grown inside the home.

The majority of the Court agrees with the government that the Fourth Amendment never required "law enforcement officers to shield their eyes when passing by a home on public thoroughfares." This statement preserves the lawfulness of warrantless visual surveillance and upholds the plain view doctrine. However, the majority feels the use of a thermal imager involves more than naked-eye surveillance. In previous cases, the Court reserved judgment on how much technological enhancement of ordinary perception would still be considered visual observation. In *Dow Chemical Company*, the Court upheld enhanced aerial photography of an industrial plant, but was careful to note that the area viewed was not an area "immediately adjacent to a private home, where privacy expectations are most heightened." It also found that the camera used was not a unique sensory device, which is a crucial question in the *Kyllo* analysis. The Court therefore rejects the notion that a thermal image scan can be analogized to the plain view doctrine, at least as long as the scanner is not in general public use.

The pivotal factor in the Court's bright-line test is that the device used by the government must not be in general public use in order to constitute an unreasonable search without a warrant. The dissent takes issue with this element and posits that the majority is introducing uncertainty into the Fourth Amendment analysis, rather than drawing a bright-line. The dissent states, "[h]ow much use is gen-

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123. See id.
124. See id.
125. Id. at 2043 n.2.
126. Id. at 2042 (quoting California v. Ciraolo, 476 U.S. 207, 213 (1986)).
127. Id.
128. Id. at 2043.
130. *Kyllo*, 121 S. Ct. at 2043.
131. Id.
132. Id.
133. Id. at 2046.
134. Id. at 2050.
eral public use is not even hinted at by the Court's opinion, which makes the somewhat doubtful assumption that the thermal imager used in this case does not satisfy that criterion.’\textsuperscript{135} The dissent is not only concerned about the vagueness of the rule, but is also fearful that the “threat to privacy will grow, rather than recede, as the use of intrusive equipment becomes more readily available.”\textsuperscript{136} The majority’s response to this criticism is answered in footnote six of the majority opinion, which states that the dissenters’ disagreement is not with the majority, but rather with the Supreme Court’s precedent.\textsuperscript{137} The majority referred to the holding in Ciraolo,\textsuperscript{138} which denominated the flights in public airways as routine, therefore preventing the defendant from having a reasonable expectation that his plants could not be observed from 1,000 feet above.\textsuperscript{139} The Supreme Court concludes that the use of a thermal imager is not routine, and therefore declines to reexamine the factor already established by precedent.\textsuperscript{140}

The dissent also challenges the majority’s lack of judicial restraint.\textsuperscript{141} The dissent contends that the issue should have properly been resolved with reference solely to the capabilities of the Agema Thermovision 210.\textsuperscript{142} However, the majority opinion states that although “the technology used in the present case was relatively crude, the rule we adopt must take account of more sophisticated systems that are already in use or in development.”\textsuperscript{143} The dissent believes such questions about future advances and capabilities would be best decided at a later date, thus giving legislators an opportunity to grapple with the emerging technology, rather than shackling them with premature constitutional guidelines.\textsuperscript{144}

Is \textit{Kyllo}'s Holding Sound?

The bright-line rule announced in \textit{Kyllo} appears to be more fuzzy than bright. The dissent’s attacks show the gaping holes in the majority’s holding. What exactly is the definition of “general public use”? How does one go about identifying whether a device meets this defini-

\textsuperscript{135} Id.
\textsuperscript{136} Id.
\textsuperscript{137} Id. at 2046 n.6.
\textsuperscript{138} California v. Ciraolo, 476 U.S. 207 (1986).
\textsuperscript{139} Id.
\textsuperscript{140} Kyllo, 121 S. Ct. at 2046 n.6.
\textsuperscript{141} Id. at 2052.
\textsuperscript{142} Id.
\textsuperscript{143} Id. at 2044.
\textsuperscript{144} Id. at 2052.
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Does general public use imply that commercial availability is enough? Does it mean that one in ten people must own a thermal imager, or does it mean one out of ten thousand must own? Does general public use imply that one must be able to go to the local discount store to pick up a thermal imager? Does general public use mean one is able to obtain access to a thermal imager over the Internet? Considering that thermal imaging is not limited to law enforcement, at what point does it become so prevalent enough to be considered in general public use? These are a small sampling of possible questions behind the Court's bright-line established in Kyllo requiring the device to be in "general public use" in order to be classified as a reasonable search without a warrant. However, the Court gives no guidance as to how the element of "general public use" should be applied. A bright-line rule is typically intended to establish clear-cut procedure for analyzing an issue. However, this holding makes it impossible to clearly assess when the use of technology will be considered a search within the Fourth Amendment.

The application of this bright-line is not only ambiguous, but even suggests by its very language it is merely temporary. Bill Stuntz, a Harvard Law School Professor, stated, "[t]wenty years from now you may be able to buy thermal imaging technology at a Wal-Mart. . . . [t]hen either we get less privacy or the court has to draw another line."145 The approach taken by the Court seems to open more questions than resolve answers. One of the overriding questions is, how long will the holding of Kyllo survive?

Lack of judicial restraint is another reason the Court's decision presents such problems. Judicial restraint is the philosophy of limiting decisions to the facts of each case, deciding only those issues that must be decided to resolve the case, and avoiding unnecessarily decisions on constitutional issues. The Court violated all the aspects of this philosophy. Instead of simply addressing the limited factual situation presented and the limited technology that is currently available, the Court decided to make a ruling with possible future advances in mind and unnecessarily decided constitutional issues that were not before the Court. The Court's ruling is based on the belief that one day thermal images will be capable of seeing through the walls of a home, and detecting all activities going on inside. The Court's approach in Kyllo is opposite of that taken by the Supreme Court in Silverman v. United States,146 where the Court stated:

145. See Walsh, supra note 107, at 11.
The facts of the present case, however, do not require us to consider the large questions which have been argued. We need not here contemplate the Fourth Amendment implications of these and other frightening paraphernalia which the vaunted marvels of an electronic age may visit upon human society.147

The Court's abandonment of the deeply instilled philosophy of judicial restraint reeks havoc on its ruling by unnecessarily looking to possible future advances and conflicts. As a result, the holding of Kyllo will be short-lived before revamping or completely abandoning the decision becomes a necessity.

CONCLUSION

Perhaps American homes are more private today than they were before June 11, 2001. But the question remains: how long will this privacy last? Will the ruling established by the Supreme Court in Kyllo with the stated objective of protecting privacy, actually result in a reduction of American civil liberties? Only time will answer this question; yet it is unlikely that Kyllo will be the United States Supreme Court's last word on the issue of thermal imaging and its Fourth Amendment implications.

Sarilyn E. Hardee

147. Id.