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Not Quite Bradbury's Fahrenheit 451: The Uncertain Future of Sense-Enhancing Technology in the Aftermath of United States v. Kyllo

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Outside the front door, in the rain, a faint scratching. Montag froze. He saw Mildred thrust herself back to the wall and gasp. “Someone – the door – why doesn’t the door-voice tell us –” “I shut it off.” Under the doorsill, a slow, probing sniff, an exhalation of electric steam. Mildred laughed. “It’s only a dog, that’s what! You want me to shoo him away?” “Stay where you are!” Silence. The cold rain falling. And the smell of blue electricity blowing under the locked door.

— Ray Bradbury

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1 RAY BRADBURY, FAHRENHEIT 451, at 72 (1953).
I. INTRODUCTION

In the early morning hours of January 16, 1992, an agent of the United States Department of the Interior and a Staff Sergeant of the Oregon National Guard parked their car across the street from Danny Kyllo’s home on a residential street in Florence, Oregon. From the passenger seat of the car, the Staff Sergeant aimed an Agema Thermovision 210 thermal imager at Danny Kyllo’s home, the middle home of a triplex. Thermal imagers detect infrared radiation, not visible to the naked eye but emitted by most objects. The imager converts radiation into images, based on relative warmth. Operating much like a video

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3 Kyllo, 533 U.S. at 29-30; Kyllo, 190 F.3d at 1044; Kyllo, 1996 WL 125594, at *2.
4 Kyllo, 533 U.S. at 29-30.
5 Id.
camera, it can show heat images in different colors, denoting relative differences in temperature.\textsuperscript{6}

The Agema Thermovision detected high heat coming from the roof above the garage and one wall of Danny Kyllo’s home.\textsuperscript{7} The officers, believing that Danny Kyllo was using high-wattage heat lamps to grow marijuana in his home, used the results of the thermal scan (along with informants’ tips and utility bill records) to obtain a search warrant.\textsuperscript{8} A search of the home revealed a complete marijuana grow operation.\textsuperscript{9}

Addressing Danny Kyllo’s motion to suppress, both the Oregon District Court and the United States Court of Appeals for the Ninth Circuit held that the thermal scan of the house did not constitute a search under the Fourth Amendment.\textsuperscript{10} A majority of the Supreme Court justices disagreed. Opting not to follow over thirty years of established precedent, the majority in Kyllo reversed and held that “[w]here . . . the Government uses a device that is not in general public use, to explore details of the home that would previously have been unknowable without physical intrusion, the surveillance is a ‘search’ and is presumptively unreasonable without a warrant.”\textsuperscript{11}

This article explores the Supreme Court’s holding in Kyllo, and concludes that the majority reached the wrong result. Part II summarizes past Supreme Court precedent on Fourth Amendment searches, highlighting those cases that involved the use of technology and sensory-augmenting devices.\textsuperscript{12} Part III discusses the Kyllo case, the biggest change in Fourth Amendment law in decades.\textsuperscript{13} It concludes that the majority not only reached the wrong conclusion, but that it should have decided Kyllo on already established Fourth Amendment precedent. The new rule promulgated by the majority in Kyllo, along with being unnecessary, will plague courts for years to come as they struggle with the resulting confusions and unanswered questions created by the rule. Part IV applies Kyllo to a new piece of technology used by the government and law enforcement, the ion scan. This article predicts that courts will be forced to deem

\textsuperscript{6} Id. ("[B]lack is cool, white is hot, shades of gray connote relative differences.").
\textsuperscript{7} Id. at 30; Kyllo, 190 F.3d at 1044 (9th Cir. 1999); Kyllo, 1996 WL 125594, at *2. The Staff Sergeant who administered the thermal imager stated in his report that “[t]he center bldg. showed much warmer than the blds [sic] on either side.” Kyllo, 1996 WL 125594, at *2. At the evidentiary hearing before the District Court, the Sergeant testified that “[t]he main conclusion that I reached was that there was definitely something unusual within the structure that was generating that excess heat.” Id.
\textsuperscript{8} Kyllo, 533 U.S. at 30.
\textsuperscript{9} Id.
\textsuperscript{10} Kyllo, 190 F.3d at 1047; Kyllo, 1996 WL 125594 at *2.
\textsuperscript{11} Kyllo, 533 U.S. at 40.
\textsuperscript{12} See discussion infra Part II.
\textsuperscript{13} See discussion infra Part III.
the warrantless use of an ion scan an unconstitutional search as a result of the Supreme Court's erroneous holding in Kyllo.\textsuperscript{14} This is an unsettling result, given the many decades of Fourth Amendment search and seizure law that has evolved around the core concept of what constitutes a reasonable expectation of privacy, and whether it is one that society is willing to recognize. Because of Kyllo, the Supreme Court has eliminated this entire history, in exchange for a blanket rule that will likely bar the warrantless use of all sensory-enhancing technology, at least when the application of the technology involves a home.

II. THE EVOLUTION OF FOURTH AMENDMENT SEARCH AND SEIZURE LAW – KATZ AND ITS PROGENY

The Fourth Amendment of the United States Constitution provides:

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 person or things to be seized.\textsuperscript{15}

In 1967 the Supreme Court decided Katz v. United States,\textsuperscript{16} which first articulated (by way of Justice Harlan's concurrence) the test which determines whether a search has occurred: "there is a twofold requirement, first, that a person have exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as 'reasonable.'"\textsuperscript{17} In the decades that preceded Katz, the Supreme Court had used a much different standard.\textsuperscript{18} But the years that followed Katz have produced a whole body of case law devoted to interpreting, deciphering, and applying this analysis and upholding the principles advanced by the Court in Katz.

Such a discussion warrants a place in this article to not only emphasize the favorable treatment by the Supreme Court of technology and devices that augment the senses, but to also highlight the consistently held principle that

\textsuperscript{14} See discussion infra Part IV.

\textsuperscript{15} U.S. CONST. amend. IV.


\textsuperscript{17} Id. at 361 (Harlan, J., concurring).

information voluntarily revealed to or placed into the public domain is undeserving of Fourth Amendment protection. The majority in *Kyllo* failed to appreciate the already established Fourth Amendment precedent at its disposal and opted to develop a new rule for cases involving sensory-enhancing technology and the home.

A. **Before Katz Came Along – Olmstead and Goldman**

In 1928, the Supreme Court established in *Olmstead v. United States* that the absence of physical penetration foreclosed further Fourth Amendment analysis. In *Olmstead*, the issue was whether wire taps installed in conspirators’ homes, who were alleged to have violated the Prohibition Act, amounted to a search. The officers were able to install the wiretaps from the basement of the conspirators’ office building, and from the streets outside their homes. No physical trespass into a home or an office was required. The Supreme Court held that “[t]here was no searching. There was no seizure. The evidence was secured by the sense of hearing and that only. There was no entry of the houses or offices of the defendants.” Thus, the Court at the time thought the Fourth Amendment limited only searches and seizures of tangible property.

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19 277 U.S. 438 (1928).
20 *Id.* at 466; see also *Goldman v. United States*, 316 U.S. 129, 134-36 (1942).
21 *Olmstead*, 277 U.S. at 455 (The Act, 27 U.S.C. § 1 et seq. (repealed 1935), prohibited the importation, possession or transportation of intoxicating liquors).
22 *Id.* at 455.
23 *Id.* at 457.
24 *Id.*
25 *Id.* at 465.

Congress may of course protect the secrecy of telephone messages by making them, when intercepted, inadmissible in evidence in federal criminal trials, by direct legislation, and thus depart from the common law of evidence. But the courts may not adopt such a policy by attributing an enlarged and unusual meaning of the Fourth Amendment. The reasonable view is that one who installs in his house a telephone instrument connecting wires intends to project his voice to those quite outside, and that the wires beyond his house and messages while passing over them are not within the protection of the Fourth Amendment. Here those who intercepted the projected voices were not in the house of either party to the conversation.

*Id.* at 465-66.

26 See *id.* at 466.

Neither the cases we have cited nor any of the many federal decisions brought to our attention hold the Fourth Amendment to have been violated as against a defendant unless there has been an official search and seizure of his person, or such a seizure of his papers or his tangible material effects, or an actual physi-
Over a decade later, this trend continued with *Goldman v. United States*.\(^{27}\) The Supreme Court held that federal agents' use of a "detectaphone" from an adjoining office to listen to a conference in Mr. Goldman's office did not violate the Fourth Amendment because there was no illegal trespass or unlawful entry into Mr. Goldman's actual office.\(^ {28}\) A detectaphone is a device that picks up sound waves in an adjoining room when the receiver is placed against the common wall.\(^ {29}\) The Supreme Court, in holding that the use of the device did not offend Fourth Amendment protections, explained:

> It is urged that where, as in the present case, one talks in his own office, and intends his conversation to be confined within the four walls of the room, he does not intend his voice shall go beyond those walls and it is not to be assumed he takes the risk of someone's use of a delicate detector in the next room. We think, however, the distinction is too nice for practical application of the Constitutional guarantee, and no reasonable or logical distinction can be drawn between what federal agents did in the present case and state officers did in the *Olmstead* case.\(^ {30}\)

The Supreme Court would continue with this standard for another thirty-five years.

**B. A New Era Begins with *Katz v. United States***

In 1967, the Supreme Court turned previous search and seizure jurisprudence on its head when it held that a listening device attached to the outside of a public telephone booth constituted a search in violation of the Fourth Amendment.\(^ {31}\)

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\(^{27}\) *Olmstead*, 277 U.S. at 466.

\(^{28}\) 316 U.S. 129 (1942).

\(^{29}\) *Id.* at 131-32, 135; *see also* *Silverman v. United States*, 365 U.S. 505, 509-10 (1961) (affirming *Goldman* and holding that officers' placement of microphone inside a home's heating duct constituted a search for Fourth Amendment purposes due to the officers' "unauthorized physical penetration into the premises").

\(^{29}\) *Goldman*, 316 U.S. at 131:

> [A] detectaphone, having a receiver so delicate as, when placed against the partition wall, to pick up sound waves originating in [the adjoining] office, and means for amplifying and hearing them. With this the agents overheard, and the stenographer transcribed, portions of conversations between [the petitioners] on several occasions, and also heard what [one petitioner] said when talking over the telephone from his office.

\(^{30}\) *Id.* at 135.
Amendment. Police surveillance of Mr. Katz had revealed a strong likelihood that he was communicating gambling information by telephone. FBI agents attached an electronic listening device to the top of a glass-enclosed, public telephone booth frequented by Mr. Katz. The District Court for the Southern District of California admitted the recorded conversations at trial, and Mr. Katz was found guilty. The Ninth Circuit affirmed his conviction.

Mr. Katz identified two issues before the Supreme Court: first, whether a public telephone “is a constitutionally protected area,” and second, whether “physical penetration of a constitutionally protected area is necessary before a search and seizure can be said to” violate the Fourth Amendment. The Supreme Court disagreed with Mr. Katz’s characterization of the issues: “In the first place the correct solution of Fourth Amendment problems is not necessarily promoted by incantation of the phrase ‘constitutionally protected area.’ Secondly, the Fourth Amendment cannot be translated into a general constitutional ‘right to privacy.’” Rather, the Fourth Amendment “protects people, not places” and “[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.”

In contrast with cases like Goldman and Olmstead, the lack of actual physical penetration into the phone booth itself was constitutionally inconsequential to the Supreme Court’s analysis. It was clear that Mr. Katz sought not to exclude visual observation of himself, as he made his phone calls from the glass-enclosed public phone booth, but that he did seek to exclude an “uninvited ear” when he closed the door to the phone booth and proceeded to make his calls. Holding that the “trespass doctrine” enunciated in Olmstead and Goldman was no longer controlling, the Supreme Court held that the FBI’s use of the listening device did indeed constitute a search in violation of the Fourth Amendment — the government had “violated the privacy upon which he justifiably relied while using the telephone booth.”

32 Id. at 348 (violating 18 U.S.C. § 1084 (1967)).
33 Id. at 348-49.
34 Id. at 348.
35 Id.; see also Katz v. United States, 369 F.2d 130 (9th Cir. 1966).
37 Id.
38 Id. at 351 (citations omitted) (emphasis added).
39 Id. at 352-53.
40 Id. at 352.
41 Id. at 353.
C. "Katz Evolves"

What has resulted from the Katz decision is the two-part test originating from Justice Harlan's often cited concurrence. Later deemed by the Supreme Court as the lower courts' "lodestar," the test has evolved through a long line of cases: "first that a person have exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as 'reasonable.'"

With respect to the first, subjective prong of the Katz test, the question is "whether the individual, by his conduct, . . . has shown that 'he seeks to preserve [something] as private.'" As to the second, objective prong of the Katz inquiry, the question is whether the individual's subjective expectation of privacy "is one that society is prepared to recognize as 'reasonable' -- i.e., 'whether, in the words of the Katz majority, the individual's expectation, viewed objectively, is 'justifiable' under the circumstances.'" But this inquiry is not one that measures "whether the individual chooses to conceal assertedly 'private' activity," but instead asks "whether the government's intrusion infringes upon the personal and societal values protected by the Fourth Amendment."

Since first articulating the test in Katz, the Supreme Court has gone on to apply the test in many contexts. What follows is a discussion of noteworthy (and particularly relevant to the article's later discussion of Kyllo) cases that preceded the Supreme Court's decision in Kyllo.

1. Oliver v. United States -- Open Fields

In Oliver v. United States, the Supreme Court found that no reasonable expectation of privacy existed in an open field despite the fact that the field was a part of the defendant's property and that the defendant chose to grow his patches of marijuana in a secluded portion of the field surrounded by woods.

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44 Katz, 389 U.S. at 361 (Harlan, J., concurring); see also Smith, 442 U.S. at 740 (citing Justice Harlan's concurrence as the source of the appropriate two-part test: "This [Fourth Amendment] inquiry, as Mr. Justice Harlan aptly noted in his Katz concurrence, normally embraces two discrete questions.").
45 Smith, 442 U.S. at 740 (quoting Katz, 389 U.S. at 361, 351) (alteration in original); see also Bond v. United States, 529 U.S. 334, 338 (2000).
46 Smith, 442 U.S. at 740 (citations omitted).
48 Id. at 182-83.
chicken wire, and "No Trespassing" signs. The Court rejected the notion that "steps taken to protect privacy establish that expectations of privacy in an open field are legitimate," and held that no search occurred because society did not recognize a reasonable expectation that open fields would be free from warrantless intrusion by government officials.

2. California v. Greenwood – Curbside Garbage

In California v. Greenwood, the Court held that the warrantless search and seizure of garbage bags that were placed on the defendants' curb outside their home did not violate the Fourth Amendment. Despite the fact that the defendants may have had an expectation that their trash would not be inspected by the police or other members of the general public, the Court held that society did not recognize the expectation as legitimate because the defendants had exposed their garbage bags "in an area particularly suited for public inspection" and readily observed by any member of the public. The Court emphasized that "a person has no legitimate expectation of privacy in information he voluntarily turns over to third parties."

3. Smith v. Maryland – Telephone Pen Registries

In Smith v. Maryland, the Supreme Court held that a pen register installed at the phone company which recorded the numbers dialed by Mr. Smith from his home did not constitute a search under Fourth Amendment analysis. Suspecting that Mr. Smith had perpetrated a robbery and was now making threatening phone calls to the victim of that robbery, the police asked the phone company to install a pen register at its central offices to record the phone numbers dialed from Mr. Smith's home. The pen register recorded a call made from Mr. Smith's home to the victim's home, information which the police then used (along with other evidence) to obtain a search warrant for Mr. Smith's

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50 Id. at 173-74.
51 Id. at 182.
52 Id. at 181.
54 Id. at 39-43.
55 Id. at 40-41 (quoting United States v. Reichert, 647 F.2d 397, 399 (3d Cir. 1981)).
56 Id. at 41 (quoting Smith v. Maryland, 442 U.S. 735, 743-44 (1979)).
57 442 U.S. 735 (1979).
58 Id. at 739-46.
59 Id. at 737.
home. Under a *Katz* analysis, the Supreme Court held that Mr. Smith "in all probability entertained no actual expectation of privacy in the phone numbers he dialed [from his home phone], and that, even if he did," such an expectation could not be "legitimate."  

The Supreme Court distinguished a pen register from the listening device used in *Katz*. Similar to *Katz*, installation of the pen register did not require a trespass onto Mr. Smith's property. In contrast, however, the pen register did not record the "contents of communications" nor whether any "communication [even] existed." Due to these limited capabilities, Mr. Smith's only remaining argument could be that he had an expectation of privacy in the phone numbers themselves that society deemed legitimate.

As an initial matter, the Supreme Court doubted that society was willing to recognize a legitimate expectation of privacy in the phone numbers dialed from one's home. Even if a person did not know this device by name or how it was employed, people were generally aware that the phone companies kept records for billing and maintenance purposes that contained the numbers dialed from their homes, and that the phone companies were equipped to trace the source of obscene or annoying phone calls. Mr. Smith argued that despite society's characterization, he himself had a subjective expectation of privacy in the numbers he dialed given that such dialing occurred in his home. The Supreme Court did not agree:

> Regardless of his location, [Mr. Smith] had to convey that number to the telephone company in precisely the same way if he wished to complete his call. The fact that he dialed the number on his home phone rather than on some other phone could make

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60 *Smith*, 442 U.S. at 737.

61 *Id.* at 745.

62 *Id.* at 741.

Indeed, a law enforcement official could not even determine from the use of a pen register whether a communication existed. These devices do not hear sound. They disclose only the telephone numbers that have been dialed – a means of establishing communication. Neither the purport of any communication between the caller and the recipient of the call, their identities, nor whether the call was even completed is disclosed by pen registers.

*Id.* (citation omitted).

63 *Id.* at 741-42.

64 *Id.* at 742.

65 *Id.* at 742-43.

66 *Id.* at 743.
no conceivable difference, nor could any subscriber rationally think that it would.\footnote{Smith, 442 U.S. at 743.}

"When he used his phone, [Mr. Smith] voluntarily conveyed numerical information to the telephone company and 'exposed' that information to its equipment in the ordinary course of business. In so doing, [he] assumed the risk that the company would reveal to police the numbers he dialed."\footnote{Id. at 744.}

The fact that the telephone company had advanced technologically over the years proved to be equally unpersuasive to the Court: “[Mr. Smith] concedes that if he had placed his calls through an operator, he could claim no legitimate expectation of privacy. We are not inclined to hold that a different constitutional result is required because the telephone company has decided to automate."\footnote{Id. at 744-45.}


In \textit{United States v. Knotts},\footnote{460 U.S. 276 (1983).} the Court held that an electronic tracking device placed in a container purchased by the defendant and used by police to track the movement of the defendant’s car (combined with visual surveillance as well) en route to delivering the container did not constitute a search or a seizure.\footnote{Id. at 280-85.} Police officers, believing that the respondent and two co-defendants were buying chemicals in bulk to manufacture methamphetamine, had the Hawkins Chemical Company place the electronic beeper inside a five-gallon drum of chloroform in Minneapolis, Minnesota.\footnote{Id. at 278.} The police conducted visual surveillance and used the beeper to trace the container.\footnote{Id. at 278.} Police at one point lost sight of the vehicle carrying the drum and lost the beeper’s signal.\footnote{Id.} With the help of a monitoring device located in a helicopter, the signal of the beeper was eventually picked-up, emanating from inside of a house in a rural area of Wisconsin.\footnote{Id. at 278.} Using the information obtained through three days of surveillance of the home and the beeper’s signal, the officers obtained a search warrant for the house and
discovered a lab capable of producing both methamphetamine and amphetamine.\textsuperscript{76}

The Court held that the use of the beeper did not constitute a search under the Fourth Amendment.\textsuperscript{77} The Supreme Court reasoned that no legitimate expectation of privacy existed in one's movements from place to place.\textsuperscript{78} The "fact that the officers in [the] case relied not only on visual surveillance, but also on the use of the beeper to signal the presence of [the defendant's] automobile to the police receiver" did not affect the analysis under \textit{Katz} because "[n]othing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them."\textsuperscript{79} As the Court further explained, "[i]nsofar as respondent's complaint appears to be simply that scientific devices such as the beeper enabled the police to be more effective in detecting crime, it simply has no constitutional foundation. We have never equated police efficiency with unconstitutionality, and we decline to do so now."\textsuperscript{80}

5. \textit{United States v. Place} – Drug Detecting Dogs

In \textit{United States v. Place},\textsuperscript{81} the Court determined that the use of a well-trained narcotics detection dog to sniff luggage located in a public place did not constitute a search under the Fourth Amendment given the limited nature of

\begin{footnotesize}
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\item[76] \textit{Knotts}, 460 U.S. at 279.
\item[77] \textit{Id.} at 285.
\item[78] \textit{Id.} at 281.
\item[79] \textit{Id.} at 282. The Court did note that there was "no indication that the beeper was used in any way to reveal information as to the movement of the [container] within the [home], or in any way that would not have been visible . . . from outside the [home]." \textit{Id.} at 285. In that same discussion, however, the Court emphasized the limited nature of the police's use of the beeper despite the fact that the beeper was used to reveal the location of the drum in the defendant's home:

We think that [defendant]'s contentions, [and the language used by the Court of Appeals regarding the sanctity of the respondent's residence], to some extent lose sight of the limited use which the government made of the signals from this particular beeper. As we have noted, nothing in this record indicates that the beeper signal was received or relied upon after it had indicated that the drum containing the chloroform had ended its automotive journey at rest on [defendant]'s premises in rural Wisconsin. Admittedly, because of the failure of the visual surveillance, the beeper enabled the law enforcement officials in this case to ascertain the ultimate resting place of the chloroform when they would not have been able to do so had they relied solely on their naked eyes. But scientific enhancement of this sort raises no constitutional issues which visual surveillance would not also raise.

\textit{Id.} at 284-85.
\item[80] \textit{Id.} at 284.
\item[81] 462 U.S. 696 (1983).
\end{itemize}
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both the sniff and the information obtained. In *Place*, the defendant’s suspicious activities attracted the attention of officers at Miami Airport, who alerted Drug Enforcement Administration ("DEA") agents in New York, the defendant’s destination. Two DEA agents observed Mr. Place as he arrived at LaGuardia Airport and identified themselves. The agents informed Mr. Place that based upon information obtained from the Miami officers, as well as their own observations, they believed that he was transporting narcotics. When the agents asked for permission to search his luggage, Mr. Place refused. The agents then told him that they were taking his luggage to a federal judge in order to obtain a search warrant and that Mr. Place was free to go with them and stay with his luggage. Mr. Place declined their offer, and the agents gave him a phone number at which they could be reached.

The agents took the bags to Kennedy Airport, and had a trained narcotics detection dog perform a "sniff test" on the luggage. The dog alerted to the smaller of the two bags. Approximately ninety minutes had elapsed between the initial seizure of the luggage and the sniff test. It was late in the day on a Friday, so agents did not secure a search warrant for the smaller bag until Monday morning. Agents found 1,125 grams of cocaine upon opening the bag.

The Supreme Court first concluded that, under *Terry v. Ohio* and its progeny, officers may briefly detain luggage to investigate when observations lead them to reasonably believe that the bags contain narcotics, provided that the detection is limited in scope. But this left the Court with a second issue: what if the canine sniff employed by the officer during the investigatory detention of the luggage constituted a "search," thus requiring a warrant?

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82 *Id.* at 706-07.
83 *Id.* at 698.
84 *Id.*
85 *Id.* at 699.
86 *Id.*
87 *Id.*
88 *Id.*
89 *Id.*
90 *Id.*
91 *Id.*
92 *Id.*
93 *Id.*
94 *See* *Terry v. Ohio*, 392 U.S. 1 (1968) (requiring law enforcement to have reasonable suspicion before making a brief stop).
95 *Place*, 462 U.S. at 706 (citing *Terry*, 392 U.S. at 20).
The Supreme Court concluded that it did not. The Court did not question that Mr. Place possessed a privacy interest in the contents of his personal luggage that was protected by the Fourth Amendment.

A "canine sniff" by a well-trained narcotics detection dog, however, does not require opening the luggage. It does not expose noncontraband items that otherwise would remain hidden from public view, as does, for example, an officer's rummaging through the contents of the luggage. Thus, the manner in which information is obtained through this investigative technique is much less intrusive than a typical search. Moreover, the sniff discloses only the presence or absence of narcotics, a contraband item. Thus, despite the fact that the sniff tells the authorities something about the contents of the luggage, the information obtained is limited. This limited disclosure also ensures that the owner of the property is not subjected to the embarrassment and inconvenience entailed in less discriminate and more intrusive investigative methods.

Because it was "aware of no other investigative procedure that is so limited both in the manner in which the information is obtained and in the content of the information revealed by the procedure," the Supreme Court held that the investigation at issue - "exposure of ... luggage, which was located in a public place, to a trained canine - did not constitute a 'search.'"

6. Dow Chemical Company v. United States - Aerial Viewing of Corporate Complexes

In Dow Chemical Company v. United States, the Supreme Court held that the use of a commercial aerial photographer by the Environmental Protection Agency ("EPA") to take pictures of a commercial complex from lawfully navigable airspace with the use of a precision mapping camera did not constitute a search. Dow Chemical's 2,000-acre manufacturing facility consisted of

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96 Id. at 707.
97 Id. (citing United States v. Chadwick, 433 U.S. 1, 13 (1977)).
98 Place, 462 U.S. at 707.
99 Id. The Court also went on to hold that the ninety-minute detention of the luggage was unreasonable given the time between seizure and the canine sniff, and the agents' failure to inform Mr. Place of the place to which they were taking his luggage, the length of time he would be disposed had he accompanied his bags, and what arrangements could be made to return his bags if their investigation turned up nothing. Id. at 710.
100 476 U.S. 227 (1986).
101 Id. at 229, 239.
covered buildings and uncovered equipment and piping conduits between the buildings. Dow took extreme security measures around the perimeter of the complex, preventing public observations at the ground level. Dow also investigated all low-level flights by aircraft over the complex.

Prior to the flight over the complex, enforcement officials of the EPA made an on-site inspection of two of Dow’s power plants; Dow then denied the EPA’s subsequent request for a second inspection. The EPA did not seek an administrative search warrant, but instead hired a commercial aerial photographer to take pictures of the facility from lawfully navigable airspace. When Dow was informed that the photographs had been taken, it brought suit against the EPA alleging Fourth Amendment violations.

The Court determined that the aerial surveillance and photography of the uncovered portions of Dow’s complex were more akin to the search of an open field:

It may well be . . . 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. Although they undoubtedly give EPA more detailed information than naked-eye views, they remain limited to an outline of the facility’s buildings and equipment. The mere fact that human vision is enhanced somewhat, at least to the degree here, does not give rise to constitutional problems. An

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102 Id. at 229. Dow explained that “the cost of covering its exposed equipment would be prohibitive.” Id.

103 Id.

104 Id.

105 Id.

106 Id. The photographs taken were “essentially like those used in mapmaking.” Id. at 231.

107 Id. at 230.

108 Id. at 239. Dow conceded that simple fly-over observation or photographs taken from a nearby hilltop would not implicate the Fourth Amendment. Id. at 234. Dow did question whether its manufacturing facility was constitutionally protected by a concept of “industrial curtilage,” a hybrid of the common-law curtilage doctrine, and whether photography employing an aerial mapping camera was permissible in this context. Id. at 235.

The Court placed Dow’s complex as falling somewhere between two extreme doctrines – the curtilage doctrine and the “open fields” doctrine – and lacking “critical characteristics” of each. Id. at 236-37. In dismissing Dow’s argument that its complex fell within the “industrial curtilage,” the Court emphasized that the search at issue did not involve any physical entry and that Dow, unlike the precautions it had taken against ground surveillance, had done nothing to protect against aerial surveillance despite its close proximity to an airport. Id. at 237 n.4, 237-38.
electronic device to penetrate walls or windows so as to hear and record confidential discussions of chemical formulae or other trade secrets would raise very different and far more serious questions; other protections such as trade secret laws are available to protect commercial activities from private surveillance by competitors.\footnote{Dow Chemical, 476 U.S. at 238-39.}

The Court took no issue with the fact that planes and precision mapping cameras had not always been available for law enforcement use:

The photographs at issue in this case are essentially like those commonly used in mapmaking. Any person with an airplane and an aerial camera could readily duplicate them. In common with much else, the technology of photography [and flight have] changed in this century. These developments have enhanced industrial processes, and indeed all areas of life; they have also enhanced law enforcement techniques.\footnote{Id. at 231.}

7. \textit{California v. Ciraolo} – Aerial Viewing of a Home’s Yard

The Supreme Court held in \textit{California v. Ciraolo}\footnote{476 U.S. 207 (1986).} that a search did not occur when police secured a private plane to fly over defendant’s house to observe marijuana plants growing in his backyard.\footnote{Id. at 215.} An anonymous informant tipped the Santa Clara police to the backyard grow operation.\footnote{Id. at 209.} The police were unable to see into his backyard because Mr. Ciraolo had completely surrounded his entire yard with a six-foot outer fence and a ten-foot inner fence.\footnote{Id.} The police hired a private plane to fly over Mr. Ciraolo’s house at an altitude of 1,000 feet, which was within navigable airspace.\footnote{Id.} From the vantage point in the plane, the officers observed growing marijuana in Mr. Ciraolo’s yard and used a standard 35mm camera to take pictures of the plants from the air.\footnote{Id.} A search warrant was obtained using an affidavit from one of the officers on the plane, which included descriptions of the anonymous tip and the officers’ observations, along with pictures of Mr. Ciraolo’s home, his backyard, and neighbor-
ing houses. Upon execution of the warrant, officers seized 73 marijuana plants.

Under the *Katz* rubric, the United States Supreme Court acknowledged that the defendant clearly had a subjective intent to maintain the privacy of his "unlawful agricultural pursuits," at least from ground observation, given that he had completely enclosed his backyard with two fences, one of which reached ten feet high. But given that officers could have observed his yard from, for example, the "top of a truck or a two-level bus," Mr. Ciraolo "appear[ed] to [be] challeng[ing] the authority of government to observe his activity from any vantage point or place if the viewing is motivated by a law enforcement purpose, and not the result of a casual, accidental observation." The Court therefore turned to the second prong of *Katz*, inquiring whether "Mr. Ciraolo's expectation was reasonable."

The Court determined that:

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117 Ciraolo, 476 U.S. at 209. "It was the officer's observation, not the photograph, that supported the warrant. [The officer affiant] testified that the photograph did not identify the marijuana as such because it failed to reveal a 'true representation' of the color of the plants: 'you have to see it with the naked eye.'" *Id.* at 212 n.1 (citation omitted).

118 *Id.* at 209-10. The trial court denied the defendant's motion to suppress, and he pled guilty to cultivation of marijuana. *Id.* at 210. The California Court of Appeals reversed, holding that the aerial observations violated the Fourth Amendment because the backyard fell within the curtilage of the home and the heights and existence of the two fences surrounding the yard constituted "objective criteria from which [the court concluded that the defendant had] manifested a reasonable expectation of privacy by any standard." *Id.* (citing California v. Ciraolo, 161 Cal. App. 3d 1081, 1089 (1984); Oliver v. United States, 466 U.S. 170 (1984)). The appellate court found significant that the flyover "was not the result of a routine patrol conduct for any other legitimate law enforcement or public safety objective, but was undertaken for the specific purpose of observing this particular enclosure within [the defendant's] curtilage." *Id.* (citing Ciraolo, 161 Cal. App. 3d at 1089). The California Supreme Court denied the State's petition for review. *Id.*

119 *Id.* at 211 ("Clearly - and understandably - [Mr. Ciraolo] has met the test of manifesting his own subjective intent and desire to maintain privacy as to his unlawful agricultural pursuits.").

120 *Id.* at 211-12. The Court pointed out that the two fences could not shield the yard from all observation:

Yet a 10-foot fence might not shield these plants from the eyes of a citizen or a policeman perched on the top of a truck or a two-level bus. Whether [Mr. Ciraolo] therefore manifested a subjective expectation of privacy from *all* observations of his backyard, or whether instead he manifested merely a hope that no one would observe his unlawful gardening pursuits, is not entirely clear in these circumstances.

*Id.*

121 *Id.* at 212 ("[T]he test of legitimacy is not whether the individual chooses to conceal assertedly 'private' activity, but instead 'whether the government's intrusion infringes upon the personal and societal values protected by the Fourth Amendment.'" (citing Oliver, 466 U.S. at 181-83)).
The Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares. Nor does the mere fact that an individual has taken measures to restrict some views of his activities preclude an officer's observations from a public vantage point where he has a right to be and which renders the activities visibly clear. "What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection."1

Because the observations by the two officers occurred in publicly navigable airspace and were physically nonintrusive, the Court held that Mr. Ciraolo's expectation "that his garden was protected from such observation is unreasonable and is not an expectation that society is prepared to honor."1

That the observation from aircraft was directed at identifying the plants and the officers were trained to recognize marijuana is irrelevant. Such observation is precisely what a judicial officer needs to provide a basis for a warrant. Any member of the public flying in this airspace who glanced down could have seen everything that these officers observed.1

The Supreme Court so concluded despite the fact that in 1967 Justice Harlan (in Katz) likely did not consider "an aircraft [to be] within the category of future 'electronic' developments that could stealthily intrude upon an individual's privacy."1

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1 Id. at 213-14.

1 Id. The Court refused to draw a distinction between police aircraft focusing on a particular home and police aircraft engaged in a "routine patrol." . . . Whether this is a rational distinction is hardly relevant, although we find difficulty understanding exactly how [Mr. Ciraolo's] expectations of privacy from aerial observation might differ when two airplanes pass overhead at identical altitudes, simply for different purposes. . . . The fact that a ground-level observation by police "focused" on a particular place is not different from a "focused" aerial observation under the Fourth Amendment.

1 Id. at 214 n.2.

1 Id. at 214-15.

Justice Harlan made it crystal clear that he was resting on the reality that one who enters a telephone booth is entitled to assume that his conversation is not being intercepted. This does not translate readily into a rule of constitutional dimensions that one who grows illicit drugs in his backyard is "entitled to assume" his unlawful conduct will not be observed by a passing aircraft — or by
D. Two Recent Cases Predict Trouble Ahead – Riley and Bond

In Florida v. Riley, police observed the interior of a greenhouse (of which portions of the roof and sides were left open) in the defendant’s backyard from a helicopter at 400 feet. A plurality of the Court – Chief Justice Rehnquist, and Justices White, Scalia, and Kennedy – argued that the defendant had no reasonable expectation of privacy in the greenhouse when observed by police from lawfully navigable airspace, equating the case to Ciraolo. Despite the defendant’s subjective expectation of privacy in his greenhouse (given that the greenhouse could not be seen from ground level), the four Justices reasoned that the defendant could not have reasonably anticipated that his greenhouse would not be observed from above: “Any member of the public could legally have been flying over Riley’s property in a helicopter at the altitude of 400 feet and could have observed Riley’s greenhouse. The police officer did no more.” The four Justices also noted that the helicopter did not interfere with the defendant’s “normal use of the greenhouse.”

The five other Justices disagreed (O’Connor filed a concurrence, and the other four dissented), phrasing the issue as whether the public used this airspace (as opposed to 1,000 feet above the greenhouse in a commercial plane) with such regularity that a defendant could not have reasonably expected privacy with respect to observations made from that vantage point, namely 400 feet above the greenhouse in a helicopter. Riley did not resolve the question of a power company repair mechanic on a pole overlooking the yard. As Justice Harlan emphasized, “a man’s home is, for most purposes, a place where he expects privacy, but objects, activities, or statements that he exposes to the ‘plain view’ of outsiders are not ‘protected’ because no intention to keep them to himself has been exhibited. On the other hand, conversation in the open would not be protected against being overheard, for the expectation of privacy under the circumstances would be unreasonable.”

Id. (citing Katz, 389 U.S. at 361).

127 Id. at 447-48.
128 Id. at 449.
129 Id. at 451. Such a statement obviously disregards the impracticalities of the average person going to the trouble of actually renting a helicopter and either having the skills to fly it himself or hiring a pilot.
130 Id. at 452.
131 Justice O’Connor argued that the defendant had not met his burden on the issue, but she did not agree with the plurality’s reasoning and therefore only concurred in the judgment. Id. at 454.

Because there is reason to believe that there is considerable public use of airspace at altitudes of 400 feet and above, and because Riley introduced no evidence to the contrary before the Florida courts, I conclude that Riley’s expectation that his curtilage was protected from naked-eye aerial observation from that altitude was not a reasonable one. However, public use of altitudes lower
vantage point, nor the effect the five justices' inquiries will have on future cases involving observations such as those made in *Ciraolo*. Supra text and accompanying notes 111-125.

In *Bond v. United States*, the Court held that a Border Patrol Agent's "squeezing" of a passenger's piece of carry-on luggage did constitute a search for purposes of the Fourth Amendment. The Border Patrol Agent boarded the bus to check the passengers' immigration status, and while moving his way along the aisle squeezed the soft luggage in the overhead storage. The agent felt a "brick-like" object in the defendant's bag, which turned out to be a brick of methamphetamine. The Court disagreed with the government's reliance on the plurality opinion in *Riley*, and held that while a passenger may expect her bag to be touched and moved by other passengers and bus employees, she does not expect her luggage to be felt in "an exploratory manner." Supra text and accompanying notes 111-125.

In his dissent, Justice Breyer, joined by Justice Scalia, asserted that this type of "manipulation" was "entirely foreseeable" and "substantially similar" to the same type of manipulation to which the luggage would have been otherwise exposed by any random passenger on the bus. Relying on the traditional *Katz* analysis, Justices Breyer and Scalia argued that the defendant simply had no reasonable expectation of privacy with respect to objects he "knowingly exposes to the public." Supra text and accompanying notes 111-125.

*Bond* and *Riley* are instructive on two important points to the upcoming *Kyllo* discussion. First, the five justices' inquiry in *Riley* into the frequency of flights in the airspace above the defendant's home indicates a move away from both past precedent—namely, *Ciraolo* and *Dow Chemical*—and a strict *Katz* analysis. (This step away from *Katz* will be evident in the discussion infra of the *Kyllo* opinion.) Second, the voting by Justice Scalia (who authored the majority opinion in *Kyllo*) raises many questions, especially considering his decision not to apply *Katz* to the *Kyllo* case but instead develop a new rule for Fourth Amendment cases involving the use of sensory-enhancing technology on than that - particularly public observations from helicopters circling the curtilage of a home - may be sufficiently rare that police surveillance from such altitudes would violate reasonable expectations of privacy, despite compliance with FAA air safety regulations.

*Id.* at 455 (O'Connor, J., concurring).

See supra text and accompanying notes 111-125.


*Id.* at 338-39.

*Id.* at 335.

*Id.* at 336.

*Id.* at 338-39.

*Id.* at 340 (Breyer, J., dissenting).

*Id.* at 341 (quoting *Katz v. United States*, 389 U.S. 347, 351 (Harlan, J., concurring)).
the home. Justice Scalia and the majority opted not to cite either of these cases in the majority’s opinion in *Kyllo*.40 These points (and more) will be elaborated upon in the upcoming discussion of *Kyllo*.

III. *KYLLO v. UNITED STATES – THE MAJORITY GOT IT WRONG*

Despite the Supreme Court’s rulings in earlier cases involving sensory-enhancing devices, the Court “[had] previously reserved judgment as to how much technological enhancement of ordinary perception . . . is too much” until *Kyllo v. United States*.41 What follows is a discussion of the lower courts’ rulings in the *Kyllo* case, and the Supreme Court’s reversal.

A. *The Correct Outcome – The Lower Courts’ Holdings in Kyllo*

In *Kyllo*, government agents parked across the street from the defendant’s house around three o’clock in the morning, and used an Agema Thermovision 210 thermal imager to scan the defendant’s home.42 “Thermal imagers detect infrared radiation, which virtually all objects emit but which is not visible to the naked eye. The imager converts radiation into images based on relative warmth — black is cool, white is hot, shades of gray connote relative differences; in that respect, it operates somewhat like a video camera showing heat images.”43 The scan revealed that a portion of the defendant’s home was relatively hotter than the rest, which led the agents to believe that the defendant was using halide lamps to grow marijuana plants.44 A magistrate issued a search warrant based upon the scan results, informants’ tips45 and unusually

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40 See Laurence A. Benner, et al., *Criminal Justice in the Supreme Court: An Analysis of United States Supreme Court Criminal and Habeas Corpus Decisions (October 2, 2000 - September 30, 2001)*, 38 Cal. W. L. Rev. 87, 106-08 (2001) (discussing the change in Justice Scalia’s voting in *Kyllo* from the *Bond* and *Riley* cases).
42 *Id.* at 29-30. “The scan of Kyllo’s home took only a few minutes and was performed from the passenger seat of [the Agent’s] vehicle across the street from the front of the house and also from the street in back of the house.” *Id.* at 30.
43 *Id.* at 29-30.
44 *Id.* at 30. “The scan showed that the roof over the garage and a side wall of [Kyllo’s] home were relatively hot compared to the rest of the home and substantially warmer than the neighboring homes in the triplex.” *Id.*
45 See United States v. Kyllo, 190 F.3d 1041, 1043 (9th Cir. 1999). As detailed in the Ninth Circuit’s opinion:
While investigating the activities of Tova Shook, the daughter of the task force’s original target, William Elliott (“Elliott”), an agent of the United States Bureau of Land Management, an agent participating in the task force, began to suspect Kyllo.
high utility bills. Execution of the warrant revealed a complete marijuana grow operation and more than 100 plants. Kyllo entered a conditional plea to one count of unlawfully manufacturing marijuana after he unsuccessfully moved to suppress the evidence seized.

The United States Court of Appeals for the Ninth Circuit remanded the case for an evidentiary hearing to determine the intrusiveness of the thermal imager. On remand, the District Court made the following findings:

The AGEMA Thermovision 210 imaging device used by [the agents] in the investigation of this case is a non-intrusive device which emits no rays or beams and shows a crude visual image of the heat being radiated from the outside of the house. The

Oregon state law enforcement officers provided information to Elliott that strengthened his suspicions. He was told that Kyllo and Luanne (Kyllo’s ex-wife) resided in one unit of a triplex, another unit of which was occupied by Tova Shook and that a car registered jointly to Luanne and Kyllo parked at the triplex. Elliott was also informed that Luanne had been arrested a month before for delivery and possession of a controlled substance and that Kyllo had once told a police informant that he and Luanne could supply marijuana.

Kyllo, 533 U.S. at 30. As explained by the Ninth Circuit, after Elliott’s suspicions began to increase regarding Kyllo based upon his investigation, he “then subpoenaed Kyllo’s utility records. Elliott compared the records to a spreadsheet for estimating average electrical use and concluded that Kyllo’s electrical usage was abnormally high, indicating a possible indoor marijuana grow operation.” Kyllo, 190 F.3d at 1043.

Kyllo, 533 U.S. at 30.

United States v. Kyllo, 37 F.3d 526 (9th Cir. 1994). As the Ninth Circuit explained:

[t]his [Fourth Amendment] inquiry cannot be conducted in the abstract. We must have some factual basis for gauging the intrusiveness of the thermal imaging device, which depends on the quality and the degree of detail of information that it can glean. For example, our analysis will be affected by whether, on the one extreme, this device can detect sexual activity in the bedroom, as Kyllo’s expert suggests, or, at the other extreme, whether it can only detect hot spots where heat is escaping from a structure.

The district court, however, held no evidentiary hearing and made no findings regarding the technological capabilities of the thermal imagine device used in this particular case. In particular, the court made no findings on the device’s ability to detect the shapes of heat-emitting objects inside a home. Without explicit findings, we are ill-equipped to determine whether the use of the thermal imaging device constituted a search within the meaning of the Fourth Amendment. Accordingly, we remand to the district court for findings on the technological capacities of the thermal imaging device used in this case.

Id. at 530-31.
device was operated from the passenger seat of a vehicle parked on the street. The device cannot and did not show any people or activity within the walls of the structure.

The court finds that the use of the thermal imaging device here was not an intrusion into Kyllo's home. No intimate details of the home were observed, and there was no intrusion upon the privacy of the individuals within the home. The device used cannot penetrate walls or windows to reveal conversations or human activities. The device recorded only the heat being emitted from the home.

The Ninth Circuit affirmed, holding that the thermal scan did not constitute a Fourth Amendment search. The Ninth Circuit described the function of a thermal imager as "detect[ing] energy radiated from the outside surface of objects, and internal heat that has been transmitted to the outside surface of an object, which may create a differential heat pattern." The court detailed the specific function of the AGEMA 210 as a device that "passively records thermal emissions rather than sending out intrusive beams or rays - acting much like a camera. A viewfinder then translates and displays the results to the human eye, with the area around an object being shaded darker or lighter, depending on the level of heat being emitted." The Ninth Circuit noted that "[w]hile at first used primarily by the military, thermal scanners have entered into law enforcement and civilian commercial use," which included applications such as "checks for moisture in roofs, overloading power lines, and faulty building insulation."

Under the two-part Katz test, the Ninth Circuit held that Kyllo had no subjective expectation of privacy because he had "made no attempt to conceal these emissions, [which] demonstrat[ed] a lack of concern with the heat emitted and a lack of a subjective privacy expectation in the heat." "[T]he Agema

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In his report, [the agent] state[d], in part: "On the 16th of Jan. the thermal scan showed high heat loss from the roof of 878 Rhododendron above the garage and from the wall facing 890 Rhododendron [sic] as shown in the two (2) diagrams below. .... The center bldg. showed much warmer than the bids [sic] on either side." [The agent] testified at the hearing that "[t]he main conclusion that I reached was that there was definitely something unusual within the structure that was generating that excess heat."

Id.

151 Kyllo, 190 F.3d at 1044.

152 Id.

153 Id. at 1044 n.4.

154 Id. at 1046.
210's scan measured waste heat emissions that Kyllo had made no attempt to conceal . . . and that Kyllo had demonstrated no subjective expectation of privacy in these emissions from the home.\footnote{Id.}{155}

The Ninth Circuit also held that even if Kyllo established a subjective expectation of privacy, it was not one that society was prepared to recognize as objectively reasonable.\footnote{Id. at 1046-47.}{156} The court acknowledged the heightened level of Fourth Amendment protection afforded to the home,\footnote{See Jonathan L. Hafetz, A Man's Home is His Castle?: Reflections on the Home, The Family, and Privacy During the Late Nineteenth And Early Twentieth Centuries, 8 WM. & MARY J. WOMEN & L. 175 (2002) (discussing the evolution of the heightened Fourth Amendment protection afforded to the home).}{157} but noted that "activities within a residence are not protected from outside, non-intrusive, governmental observation, simply because they are within the home or its curtilage."\footnote{Id. (citing Florida v. Riley, 488 U.S. 445, 449 (1989) (plurality opinion); California v. Ciraolo, 476 U.S. 207, 213 (1986)).}{158} The court further explained that the use of technology to "enhance government surveillance [did] not necessarily turn permissible non-intrusive observation into impermissible search."\footnote{Kyllo, 190 F.3d at 1047 (citing Ciraolo, 476 U.S. at 213; Dow Chemical v. United States, 476 U.S. 227, 238-39 (1986)).}{159} However, because technology was used to enhance the government's observations, "the crucial inquiry, as in any search and seizure analysis, is whether the technology reveals 'intimate details.'"\footnote{Id. (citing United States v. Ishmael, 48 F.3d 850, 855 (5th Cir. 1995) (quoting Dow Chemical, 476 U.S. at 238)).}{160} The Ninth Circuit concluded that the imager did not reveal intimate details of Kyllo's life:

The scan merely indicated amorphous "hot spots" on the roof and exterior wall and not the detailed images of private activity that Kyllo suggests the technology could expose. "Such information is neither sensitive nor personal, nor does it reveal the specific activities within the . . . home." Like the Court in Dow Chemical, we reject Kyllo's attempt to rely on "extravagant generalizations" about the potential invasions of privacy that this sort of advanced technology may someday present.\footnote{Kyllo, 190 F.3d at 1047 (citations omitted). The Ninth Circuit did add that "[w]hile this technology [i.e., the thermal emission scan] may, in other circumstances, be or become advanced to the point that its use will step over the edge from permissible non-intrusive observation into impermissible warrantless search, we find no violation of the Fourth Amendment on these facts." Id.}{161}
B. The Majority’s Decision in Kyllo

A majority of the Supreme Court (in a 5-4 decision) reversed the Ninth Circuit and held that the information obtained by the thermal imager constituted a search: “We think that obtaining by sense-enhancing technology any information regarding the interior of the home that could not otherwise have been obtained without physical ‘intrusion into a constitutionally protected area,’ constitutes a search— at least where (as here) the technology in question is not in general public use.”

The Court disagreed with the Ninth Circuit’s characterization of the issue, identifying the question as “whether the use of a thermal-imaging device aimed at a private home from a public street to detect relative amounts of heat within the home constitutes a ‘search’ within the meaning of the Fourth Amendment.”

Justice Scalia, writing for the Court, first launched

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162 Kyllo, 533 U.S. at 34 (citing Silverman v. United States, 365 U.S. 505, 512 (1961)). In reversing the Ninth Circuit, the Court likewise reversed five other Courts of Appeals that agreed with the Ninth Circuit. See United States v. Robinson, 62 F.3d 1325 (11th Cir. 1995); United States v. Myers, 46 F.3d 668 (7th Cir. 1995); United States v. Ishmael, 48 F.3d 850 (5th Cir. 1995); United States v. Pinson, 24 F.3d 1056 (8th Cir. 1994). But see United States v. Cusumano, 67 F.3d 1497 (10th Cir. 1995) (holding that warrantless use of a thermal imager violated the Fourth Amendment), vacated and decided on other grounds, 83 F.3d 1247 (10th Cir. 1996) (en banc). See generally Thueson, supra note 18, at 183-88 (discussing thermal imaging cases prior to Kyllo).

163 Kyllo, 533 U.S. at 29 (emphasis added). Like so many cases, it boils down to how one characterizes the issue. As will be argued infra, the issue should have been characterized as whether the use of a thermal-imaging device aimed at a private home from a public street to detect relative amounts of heat radiating from the home constitutes a “search” within the meaning of the Fourth Amendment. And even more specifically, under Katz, the issue should have been framed as whether Kyllo had an expectation of privacy in the temperature of the air immediately surrounding his home, and whether society was prepared to recognize that expectation as reasonable. See, e.g., People v. Edwards, No. 4884/00, 2001 N.Y. Misc. LEXIS 962, at *26 (N.Y. Sup. Ct. Dec. 21, 2001) (answering the question in the negative with regard to a canine sniff for drugs because “a person does not have an expectation of privacy to the air outside one’s automobile”).

164 Justice Stevens, joined by Rehnquist, O’Connor, and Kennedy, dissented. See Kyllo, 533 U.S. at 41-52 (Stevens, J., dissenting). It goes without saying, Kyllo resulted in an odd configuration of justices. See, e.g., Webster v. Ryan, 729 N.Y.S.2d 315, 319 n.8 (N.Y. Fam. Ct. 2001) (noting in Kyllo “the unusual ideological crossover of judges in the recent Supreme Court case holding that a search warrant must be obtained before police may use thermal detectors. Justices Scalia, Souter, Thomas, Ginsburg, and Breyer were in the majority. Chief Justice Rehnquist and Justices Stevens, O’Connor and Kennedy were in the minority.”); see also, e.g., Michael E. Raabe, After September 11, Where Will The U.S. Supreme Court Go?, 44 ORANGE Co. LAW. 22 March 2002 (“For the law public, the voting of the U.S. Supreme Court members on [Kyllo] was implausible.”); Paul H. Edelman & Jim Chen, The Most Dangerous Justice Rides Again: Revisiting The Power Pagent Of The Justices, 86 MINN. L. REV. 131, 150 (2001); Richard Seamon, New Technology Brings Up Old Question: The Fourth Amendment and the Issue of Search, 13 S.C. LAW. 23, 24 Nov./Dec. 2001 [hereinafter Seamon, New Technology] (“Although five-to-four decisions are common, the voting alignment in Kyllo was uncommon.”); All-Seeing Eye, THE COLUMBUS DISPATCH, June 19, 2001, at 8A, available at 2001 WL 23568557 (“The Kyllo decision seems odd at first: The conservative Scalia wrote an opinion that would gladden the heart of a modern civil libertarian, while the court’s most liberal justice, John Paul Stevens, wrote a dissent
into a lengthy discussion of *Katz* and the special privacy protections afforded to a house and its curtilage. The majority disagreed with the Government’s (and the dissent’s) argument that the imager detected “only heat radiating from the external surface of the house,” or that information could be characterized as “non-intimate” or merely “off-the-wall surveillance.” The majority explained that “[t]he Fourth Amendment’s protection of the home has never been tied to measurement of the quality or quantity of information obtained.” Rather, “all details [of the home] are intimate details. . . . Details of how warm – or even how relatively warm – [the defendant] was heating his residence” were intimate details just by way of being details of the home. Under *Katz* analysis, society has and continues to recognize a legitimate and reasonable expectation of privacy in the home.

C. A Confusing New Rule and the Abandonment of *Katz* – The *Kyllo* Majority Got It Wrong

*Kyllo* could have been such a simple case. It *should* have been a simple case. The majority should have decided *Kyllo* on already established Fourth Amendment precedent. Instead, the majority in *Kyllo* departed from the established *Katz* analysis, or at best took a huge step away from it, by adducing a new rule for cases involving sensory-enhancing technology and its use on a home. What resulted from the majority’s opinion was a confusing and overly broad

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165 *Kyllo*, 533 U.S. at 31-33.
166 *Id.* at 35 (citing Government’s Brief).
167 *Id.* at 35-39, 41 (Stevens, J., dissenting). Justice Scalia’s “off the wall” characterization was in contrast to the dissent’s distinction between “off the wall” and “through-the-wall” surveillance that actually penetrates the walls of the home.
168 *Id.* at 37.
169 *Id.* (emphasis in original).
170 *Id.* at 40.
171 See Seamon, *New Technology*, supra note 164, at 25 (“[B]eneath the surface of *Kyllo* lies evidence of a big change in Fourth Amendment law.”); see also Richard H. Seamon, *Kyllo* v. United States and the Partial Ascendance of Justice Scalia’s Fourth Amendment, 79 WASH. U. L.Q. 1013, 1029 (2001) [hereinafter Seamon, *Partial Ascendance*] (“In short, when *Kyllo* is examined closely and in the context of the Court’s jurisprudence, it is an important case not only because it departs from the . . . *Katz* test, but also because it reinforces the narrowing of the once broad warrant presumption . . . ”).
rule that will plague the courts for years to come, along with delaying the local, state, and federal government’s use of important tools in the wars against both drugs and terrorism.

1. An Erroneous Analysis – The Majority Was “Ice Cold,” Relatively Speaking

The majority did not apply the Katz rubric in its analysis of the thermal imager, labeling the Katz test as “circular, . . . subjective and unpredictable.” Justice Scalia cites himself for this proposition, and failed to cite Riley or Bond, two cases in which Justice Scalia supported the application of established Fourth Amendment precedent. The perfect contradiction to the faults identified by the majority of the two-pronged Katz inquiry is that under Katz it is inconceivable that the government’s use of the thermal imager in Kyllo could

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174 See Raabe, supra note 164, at 22-23 (wondering what shape Fourth Amendment law will take following the tragic events of September 11, 2001); Mark G. Young, Note, What Big Eyes and Ears You Have: A New Regime For Covert Government Surveillance, 70 FORDHAM L. REV. 1017, 1018-19 (2001) (predicting the changing attitude in America for increased technological surveillance given the events of September 11); Christopher Woo & Miranda So, The Case for Magic Lantern: September 11 Highlights the Need for Increased Surveillance, 15 HARV. J.L. & TECH. 521, 524, 538 (2002) (“In light of September 11, the balance may shift once again toward favoring the use of new technologies without Fourth Amendment protections.”). But see Edward J. Cleary, Guardians of Liberty, 58 BENCH & B. MINN. 17 (2001) (citing Kyllo and warning that despite the events of September 11th, the country must not give up essential liberties).

175 Kyllo, 533 U.S. at 34.

176 Id. (citing Minnesota v. Carter, 525 U.S. 83, 91, 97 (1998) (Scalia, J., concurring) (calling the Katz test “notoriously unhelpful,” “fuzzy,” and “self-indulgent”)); see also Seamon, New Technology, supra note 164, at 25 (“In light of [Scalia’s remarks regarding his dislike for the Katz test], the Kyllo majority did not actually apply the Katz test to determine whether the thermal imaging of Kyllo’s home constituted a search. Instead, the majority found that the Katz test needs to be ‘refined’ to determine whether the interior of a home has been searched.”) (citing Kyllo, 533 U.S. at 34).

177 Florida v. Riley, 488 U.S. 445, 445 (1989) (joining the plurality in finding no reasonable expectation of privacy in a greenhouse situated in defendant backyard observed by police in a helicopter 400 feet above ground); see supra text and accompanying notes 119-23; Benner, supra note 140, at 106-08.

178 Bond, 529 U.S. at 340 (joining dissent in arguing that the squeezing of a passenger’s baggage in an exploratory manner did not constitute a search because it was “entirely foreseeable” and “substantially similar” to the manipulation engaged in by the general public); see also supra text and accompanying notes 125-31; Benner, supra note 140, at 106-08.
have ever fallen victim to the objective prong of the test. The test’s apparent malleability could not stretch far enough to suit the majority, which may best explain why the majority opted not to follow \textit{Katz} and instead justify the formation of and need for a new firm and bright rule regarding sensory-enhancing technology.\footnote{See discussion infra Part III.C.2.}

Just how “bright” the rule is remains to be seen.\footnote{\textit{Kyllo}, 533 U.S. at 40; see also Seamon, \textit{New Technology}, supra note 164, at 25:}

The majority in \textit{Kyllo} resorted to the common law in an attempt to establish a floor of privacy protection. It remains to be seen how solid this floor will be. Common law is a naturally moving target and even if the common law were fixed and its content determinate, questions would remain about how to apply it to surveillance techniques that could not have been imagined by common law courts.\footnote{See discussion infra Part III.C.2.}

\textit{Kyllo}, 533 U.S. at 39 n.6:

The dissent argues that we have injected potential uncertainty into the constitutional analysis by noting that whether or not the technology is in general public use may be a factor. The quarrel, however, is not with us but with this Court’s precedent. \textit{See Ciraolo}, supra at 215 (“In an age where private and commercial flight in the 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”). Given that we can quite confidently say that thermal imaging is not ‘routine,’ we decline in this case to reexamine that factor.\footnote{See \textit{California v. Ciraolo}, 476 U.S. 207, 212 n.1 (1986) (“It was the officer’s observation, not the photograph, that supported the warrant. [The officer affiant] testified that the photograph did not identify the marijuana as such because it failed to reveal a ‘true representation’ of the color of the plants: ‘you have to see it with the naked eye.’”) (citation omitted).}

\textit{Benner}, supra note 140, at 105-06. The four dissenting Justices and one concurring Justice in \textit{Riley} phrased the issue as whether the defendant could have reasonably expected privacy with regard to observations made from 400 feet above the ground, when commercial airplanes fly at an altitude of 1000 feet – leaving open the question of vantage point despite earlier cases like \textit{Ciraolo} and \textit{Dow Chemical}. \textit{See supra} notes 111-125 and accompanying text.
The *Kyllo* majority also mischaracterized what the thermal imager actually revealed. The majority’s emphasis on “intimate details” and “heat within the home” obviously (and rightly so) raised red flags — the constitutional sanctity of the home under the Fourth Amendment is neither a new concept nor something to be taken lightly. But instead of tackling only those facts presented by *Kyllo* which were immediately before it, the majority constructed a smoke screen with its dramatic talk of the thermal imager revealing such “intimate” details as the “hour each night the lady of the house takes her daily sauna and bath.” In truth, the thermal imager used in *Kyllo* was widely used. Moreover, the imager was a crude piece of equipment that measured

185 Even the way the majority phrased the issue reveals this characterization of “inside” the home: “This case presents the question whether the use of a thermal-imaging device aimed at a private home from a public street to detect relative amounts of heat within the home constitutes a ‘search’ within the meaning of the Fourth Amendment.” *Kyllo*, 533 U.S. at 29 (emphasis added); see also id. at 35 n.2.

186 See *Silverman v. United States*, 365 U.S. 505, 512 (1961) (holding that any physical penetration into the home “by even a fraction of an inch” constituted a violation). See generally *Hafetz, supra* note 157 (discussing the evolution of the heightened Fourth Amendment protection afforded to the home).

187 The dissent highlighted that it would not have chosen to “erect a constitutional impediment to the use of sense-enhancing technology unless it provide[d] its user with the functional equivalent of actual presence in the area being searched.” *Kyllo*, 533 U.S. at 47 (Stevens, J., dissenting). The Ninth Circuit agreed. See *Kyllo*, 190 F.3d at 1046 (“Whatever the ‘Star Wars’ capabilities this technology may possess in the abstract, the thermal imaging device employed here intruded into nothing.”). In *United States v. Karo*, 468 U.S. 705, 712 (1984), the Supreme Court highlighted the need for judicial restraint when it admonished that “[i]t had never held that potential, as opposed to actual, invasions of privacy constitute searches for purposes of the Fourth Amendment.” (emphasis added). See also *Dow Chemical Co. v. United States*, 476 U.S. 227, 238 n.5 (1986) (“Fourth Amendment cases must be decided on the facts of each case, not by extravagant generalizations.”) (emphasis added); *People v. Haley*, 41 P.3d 666, 678 (Colo. 2001) (en banc) (Kourlis J., dissenting) (“[T]he Court [in *Kyllo*] was primarily concerned about the revelation of myriad intimate and private details that a thermal imager, and the prospective use of continually advancing technology, could reveal.”) (emphasis added); *Thueson, supra* note 18, at 201 (emphasizing that the majority should have exercised judicial restraint and not focused on yet-to-be developed technology).

The Ninth Circuit understood this, as well. See *Kyllo*, 190 F.3d at 1047 (“While this technology [i.e., the thermal emission scan] may, in other circumstances, be or become advanced to the point that its use will step over the edge from permissible non-intrusive observation into impermissible warrantless search, we find no violation of the Fourth Amendment on these facts.”) (emphasis added); *Gregory S. Fisher, Cracking Down on Soccer Moms and Other Urban Legends on the Frontier of the Fourth Amendment: Is It Finally Time to Re-Define Searches and Seizures?,* 38 WILLAMETTE L. REV. 137, 170-71 (2002) (“*Kyllo* leaves unanswered whether there should be any distinction between the manner by which technology could be used and the manner by which it is actually used in a given case.”) (emphasis added).

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

189 It is unclear why the majority believed the thermal imager to be such an uncommon piece of technology. See *Kyllo*, 533 U.S. at 47 n.5 (Stevens, J., dissenting):

The record describes a device that numbers close to a thousand manufactured
only the relative amounts of heat that had emanated outside the home into the public domain. The "inferences" made from the results of the scan—

units; that has a predecessor numbering in the neighborhood of 4,000 to 5,000 units; that competes with a similar product numbering from 5,000 to 6,000 units; and that is "readily available to the public" for commercial, personal, or law enforcement purposes, and is just an 800-number away from being rented from "half a dozen national companies" by anyone who wants one. Since, by virtue of the Court's new rule, the issue is one of first impression, perhaps it should order an evidentiary hearing to determine whether these facts suffice to establish "general public use."

(citation omitted).

The Ninth Circuit noted that "[w]hile at first used primarily by the military, thermal scanners have entered into law enforcement and civilian commercial use," which included applications such as "checks for moisture in roofs, overloading power lines, and faulty building insulation." *Kyllo*, 190 F.3d at 1044, 1044 n.4; see also *Raabe*, supra note 164, at 23 ("It should be noted that these [thermal] imaging devices were widely available . . . .").

Scientists and engineers widely use thermal imagers to monitor thermal anomalies. See, e.g., *NDT Update, Software: Thermovision Labview Toolkit*, Sept. 1, 2001, available at 2001 WL 12312475. The device is also widely used by fire departments all across the country. See, e.g., Paul Garber, *Prosecutor Says Prints Match; Arson Trial Opens*, GREENSBORO NEWS & RECORD, Apr. 10, 2002 ("The [thermal] imager helps rescuers see through thick smoke and find victims by using their body temperatures."); Lisa Coffey Majoney, *Device is Lighter, Smaller and Cheaper—It's Hot—Latest Imager Should Help Firefighters Save More Lives*, CONTRA COSTA TIMES, Mar. 1, 2002, available at 2002 WL 4540659 ("Now with the help of new, cutting edge technology—namely the Bullard T3 thermal imager—firefighters can see through smoke, cutting search time by more than 75 percent and increasing their changes of saving lives."); Karl Kell, *Association Plants to Enhance Community*, TIMES-PICAYUNE, Feb. 24, 2002, available at 2002 WL 3085144 ("Almost every other department on the north shore utilizes the thermal imagers, a device that has been credited with helping to locate smoke inhalation victims and saving countless lives nationwide.").


190 *Kyllo*, 533 U.S. at 50-51 (Stevens, J., dissenting)

In fact, the device could not, and did not, enable its user to identify either the
conjunction with the informants’ tips and the utility bills were completely unfounded. “[T]he only conclusions that the officers reached concerning the interior of the home were at least as indirect as those that might have been inferred from the contents of the discarded garbage, or pen register data, or, as in this case, subpoenaed utility records.” It was quite an illogical and unprecedented

lady of the house, the rug on the vestibule floor, or anything else inside the house, whether smaller or larger than 36 by 36 inches. Indeed, the vague thermal images of [Kyllo's] home that are reproduced in the Appendix were submitted by him to the District Court as part of an expert report raising the question whether the device could even take “accurate, consistence infrared images” of the outside of his house.

Id. (citations omitted) (emphasis in the original).

Also instructive on this point is the plurality’s point in Riley, whereby the Justices supported their holding (that the defendant had no reasonable expectation that his greenhouse would be observed by police in a helicopter at 400 feet above) by noting that “[a]ny member of the public could legally have been flying over Riley’s property in a helicopter at the altitude of 400 feet and could have observed Riley’s greenhouse.” Florida v. Riley, 488 U.S. 445, 451 (1989); see supra Part II.D. It seems conceivable that it would be easier for a member of the general public to purchase a thermal imager on-line than it would be to purchase or rent a helicopter and then learn how to fly it or hire a pilot. See supra Part II.D.

191

As one commentator so simply, and correctly, stated, “Any activity targeted toward a specific location necessarily yields information about that location.” Fisher, supra note 187, at 169. “[I]nformation ‘regarding’ the interior of a home apparently is not just information obtained through its walls, but also information concerning the outside of the building that could lead to (however many) inferences ‘regarding’ what might be inside.” Kyllo, 533 U.S. at 48 (Stevens, J., dissenting). As Justice Stevens explained, the thermal imager did not survey anything inside the house, “[b]ut even if [it] could reliably show extraordinary differences in the amounts of heat leaving his home, drawing the inference that there was something suspicious occurring inside the residence – a conclusion that offices far less gifted than Sherlock Holmes would readily draw – does not qualify as ‘through-the-wall surveillance,’ much less a Fourth Amendment violation.” Id. (“As noted, the Court effectively treats the mental process of analyzing data obtained from external sources as the equivalent of a physical intrusion into the home. As I have explained, however, the process of drawing inferences from data in the public domain should not be characterized as a search.”).

192

Kyllo, 533 U.S. at 44 (Stevens, J., dissenting) (citing California v. Greenwood, 486 U.S. 35 (1988) and Smith v. Maryland, 442 U.S. 735 (1979)). Directly addressing the Court, Justice Stevens explained, “[a]lthough the Court credits us with the ‘novel proposition that inference insulates a search,’ our point simply is that an inference cannot be a search, contrary to the Court’s reasoning.” Id. at 44 n.3 (Stevens, J., dissenting). The Court cited Karo for its proposition that an inference can amount to an unconstitutional search. Id. at 36-37. However, as Justice Stevens aptly pointed out:

Of course, Karo itself does not provide any support for the Court’s view that inferences can amount to unconstitutional searches. The illegality in that case was “the monitoring of a beeper in a private residence” to obtain information that “could not have [been] obtained by observation from outside,” rather than any thought processes that flowed from such monitoring.

Id. at 45 n.3 (Stevens, J., dissenting). As the dissent then aptly (and albeit sarcastically) analogized:
leap to equate the inferences made in *Kyllo* (and so similar to those made in countless other cases) to the search of the interior of a home – the majority confused the effect with the purpose of the search.\(^\text{193}\)

The majority's goal to protect precious privacy rights associated with the home was indeed laudable. No one could or would want to dispute this. However, it was "pure hyperbole for the Court to suggest that refusing to extend the holding of *Katz* to this case would leave the homeowner at the mercy of 'technology that could discern all human activity in the home.'"\(^\text{194}\) Unfortunately, the majority may have chipped away at the foundation of Fourth Amendment protections by so limiting its new rule to the interior of the home,\(^\text{195}\) and at the same time creating a blanket prohibition against the warrantless use of

Under [the Court's] expansive view, I suppose, an officer using an infrared camera to observe a man silently entering the side door of a house at night carrying a pizza might conclude that its interior is now occupied by someone who likes pizza, and by doing so the officer would be guilty of conducting an unconstitutional "search" of the home.

*Id.* at 48 (Stevens, J., dissenting); see also Thueson, *supra* note 18, at 198-201 (summarizing majority's flawed analysis regarding inferences resulting from the use of the thermal imager in *Kyllo*); Fisher, *supra* note 187, at 169:

*Kyllo* compounds this error by attaching undue significance to whether the use of a technological device provides police with "any information" about activities occurring inside a home, thereby resurrecting a physical access or trespass approach previously thought to be dead-letter. Any activity targeted toward a specific location necessarily yields information about that location. *Kyllo* does not explain why its holding should not apply with equal force to examining garbage left at the curbside or analyzing utility records, conduct that also reveals information about activities that occurred inside a home.

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\(^{193}\) Justices Breyer's and Scalia's dissent in *Bond* is instructive on this point. The Justices noted that "in determining whether an expectation of privacy is reasonable, it is the effect, and not the purpose, that matter." *Bond* v. United States, 529 U.S. 334, 341 (2000) (Breyer, J., dissenting). Breyer and Scalia went on to explain that, "[a] Fourth Amendment rule that turns on purpose could prevent police alone from intruding where other strangers freely tread. And the added privacy protection achieved by such an approach would not justify the harm worked to law enforcement – at least that is what this Court's previous cases suggest." *Id.* (citing California v. Greenwood, 486 U.S. 35 (1988) and Smith v. Maryland, 442 U.S. 735 (1979)).

\(^{194}\) *Kyllo*, 533 U.S. at 50 (Stevens, J., dissenting).

\(^{195}\) See, e.g., Benner, *supra* note 140, at 104 (remarking upon the "gateway left open for the very erosion of rights Justice Scalia so ardently claims to protect."); Adelman, *supra* note 173, at 384 ("One still wonders, however, whether the expectation of privacy the Court so vigorously protects here tends to vanish when one leaves home and hearth and ventures out into the world outside."); Benner, *supra* note 140, at 107 ("A further question remains as to what impact *Kyllo* will have on the use of technology outside the home."); Fisher, *supra* note 187, at 169-170 ("*Kyllo*'s emphasis on privacy values associated with private homes is sound, indeed reassuring; but by anchoring its analysis to a physical location – the home – the Court seemingly created a rule at odds with the long-recognized principle that 'the Fourth Amendment protects people, not places.") Would the result have been different if the structure was an office building, leased storage, or other facility?
(likely) all sensory-enhancing technology that may lead to inferences such as those made in *Kyllo*. Unbridled police discretion is fundamentally wrong, but

[s]omething seems equally wrong when police are forbidden from monitoring a location, even one imbued with constitutional significance, to detect activities or characteristics associated with that location just because they happen to use a technological device, and when their monitoring does not otherwise reveal any specific, discrete information about activities occurring inside the location.\footnote{Fisher, \textit{supra} note 187, at 166. The *Kyllo* dissent would have obviously agreed:}

\begin{quote}
Notwithstanding the implications of today's decision, there is a strong public interest in avoiding constitutional litigation over monitoring of emissions from homes, and over the inferences drawn from such monitoring. Just as "the police cannot reasonably be expected to avert their eyes from evidence of criminal activity that could have been observed by any member of the public," so too public officials should not have to avert their senses or their equipment from detecting emissions in the public domain such as excessive heat, traces of smoke, suspicious odors, odorless gases, airborne particulates, or radioactive emissions, any of which could identify hazards to the community. In my judgment, monitoring such emissions with "sense-enhancing technology" and drawing useful conclusions from such monitoring, is an entirely reasonable public service.
\end{quote}

*Kyllo*, 533 U.S. at 45 (Stevens, J., dissenting) (citations omitted).

*Kyllo* produced many immediate results, as well. Several district courts granted motions to suppress once the thermal imaging results were expunged from the affidavits used to obtain search warrants. \textit{See} United States v. Holmes, 175 F. Supp. 2d 62, 71 (D. Maine 2001) ("[A]fter expunging the information obtained from the thermal imaging device, the Court concludes that there is insufficient evidence to support probable cause of the issuance of a warrant."). \textit{motion for reconsideration granted,} 2002 U.S. Dist. LEXIS 2207 (D. Maine February 11, 2002) (affirming previous order granting defendant's motion to dismiss); Connecticut v. Mordowanec, 788 A.2d 42, 53-54 (Conn. 2002) (deciding that there was probable cause without the results of the thermal scan of the defendant's commercial property and therefore did not need to reach the issue of whether *Kyllo* applied to commercial property); People v. Schumacher, 37 P.3d 6, 11 (Idaho Ct. App. 2001). Other courts remanded the cases to the district courts for probable cause determinations. \textit{See} United States v. Depew, 17 Fed. Appx. 563, 563-64, (9th Cir. Aug. 22, 2001); United States v. Real Property Located at 15324 County Highway, 2001 U.S. App. LEXIS 19837 (7th Cir. Aug. 9, 2001); \textit{see also} Johnson v. State, 2002 WL 563609, at *4 (Alaska Ct. App. April 17, 2002) (remanding the case to the trial court to determine whether the police illegally focused or intensified their investigation with the illegal use of thermal imaging despite the fact that the Magistrate who issued the search warrant was unaware of the officers' thermal imaging of the defendant's warehouse).

Some courts, however, denied motions to suppress, finding that even after the results of the thermal imagers were expunged, enough evidence remained to establish probable cause to search the residences at issue. \textit{See} United States v. Woodward, 173 F. Supp. 2d 64, 65, 70-71 (D. Maine 2001) (concluding that the affidavit established probable cause despite the expunged results of the thermal scan given the confidential informant's information, corroboration of the confidential informant's information). And a few courts allowed the thermal imaging scan results to remain
2. *Kyllo* Should Have Been a Simple Case Under "Red Hot" *Katz*

The majority in *Kyllo* should have decided the case based on the facts of *Kyllo* alone using established Fourth Amendment principles, and held that the warrantless use of the thermal imager did not constitute an illegal search under *Katz* and its progeny. The issue should have been characterized as whether the use of a thermal-imaging device aimed at a private home from a public street to detect relative amounts of heat *radiating from* the home constituted a search within the meaning of the Fourth Amendment. And even more specifically, under *Katz*, the ultimate issues are whether *Kyllo* had an expectation of privacy in the contemporaneous temperature of the air immediately surrounding his home, and whether society was prepared to recognize that expectation as reasonable.

The Supreme Court in *Katz* deemed the warrantless use of a listening device attached to the outside of the phone booth to intercept the content of communications made within the phone booth – hence, through the wall conversation – an unconstitutional search under the Fourth Amendment. In *Kyllo*, the thermal imager did not reveal images of or communications from inside the home.

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197 *See* sources cited *supra* note 176. In agreement with the thesis of this article, the dissent argued that the facts and circumstances of the *Kyllo* case could have been solved within already established Fourth Amendment precedent, and did not need the Court to fashion a new rule. *Kyllo*, 533 U.S. at 41-42 (Stevens, J., dissenting); see also Troy J. LeFevre, Comment, *Constitutional Law – Search and Seizure: Supreme Court Addresses Advances in Technology and Rules that Thermal Imaging Devices May Not Be Used Without a Search Warrant*, 78 N.D. L. Rev. 99, 119 (2002) ("The broad holding of *Kyllo* makes it one of the most important Fourth Amendment cases in years because it may include some equipment unlikely to offend even the most privacy-minded persons.").

198 The Ninth Circuit correctly identified the issue. *See* United States v. *Kyllo*, 190 F.3d 1041, 1044 (9th Cir. 1999).

199 *See*, e.g., People v. Edwards, No. 4881/00, 2001 N.Y. Misc. LEXIS 962, at *26 (N.Y. Sup. Ct. Dec. 21, 2001) (answering the question in the negative with regard to a canine sniff for drugs because "a person does not have an expectation of privacy to the air outside one's automobile.").


201 *See*, e.g., Smith v. Maryland, 442 U.S. 735, 741 (1979):

Indeed, a law enforcement official could not even determine from the use of a pen register whether a communication existed. These devices do not hear sound. They disclose only the telephone numbers that have been dialed – a means of establishing communication. Neither the purport of any communication between the caller and the recipient of the call, their identities, nor whether the call was even completed is disclosed by pen registers.

(citation omitted); United States v. Knotts, 460 U.S. 276, 285 (1983) (emphasizing that "the
Surely, there is a significant difference between the general and well-settled expectation that strangers will not have direct access to the contents of private communications, on the one hand, and the rather theoretical expectation that an occasional homeowner would even care if anybody noticed the relative amounts of heat emanating from the walls of his house, on the other.\textsuperscript{202}

Under \textit{Katz} and its progeny of cases, it is clear from the record that Mr. Kyllo did not have a subjective expectation of privacy in the heat emanating from his home – he took no precautions, such as adding extra insulation, and it surely could not have come as a surprise that his residence was emitting heat.\textsuperscript{203} And even if one were to believe that Mr. Kyllo did have a subjective expectation of privacy in the heat emission, it is unthinkable to believe that it was an interest that society was willing to accept as reasonable.\textsuperscript{204}

The majority made its greatest error when it chose not to recognize the distinction of "constitutional magnitude"\textsuperscript{205} between "through-the-wall surveil-

\textsuperscript{202} \textit{Kyllo}, 533 U.S. at 50 (Stevens, J., dissenting).


\textsuperscript{204} With regard to whether society would ever find a reasonable expectation of privacy in a residence's heat emissions, Justice Stevens characterized the countervailing privacy interest (to the strong public interest in constitutional monitoring by police) as "trivial" at best. \textit{Kyllo}, 533 U.S. at 45 (Stevens, J., dissenting). "[I]t does not seem to me that society will suffer from a rule requiring the rare homeowner who both intends to engage in uncommon activities that produce extraordinary amounts of heat, and wishes to conceal that production from outsiders, to make sure that the surrounding area is well insulated." \textit{Id.} (Stevens, J., dissenting) (citing \textit{United States v. Jacobsen}, 466 U.S. 109, 122 (1984) ("The concept of an interest in privacy that society is prepared to recognize as reasonable is, by its very nature, critically different from the mere expectation, however well justified, that certain facts will not come to the attention of the authorities.")).

\textsuperscript{205} \textit{Kyllo}, 533 U.S. at 41 (Stevens, J., dissenting).
and inferences made from information that was in the public domain. The Supreme Court has never stretched the Fourth Amendment to protect information voluntarily exposed to the public. The imager at issue in Kyllo revealed nothing more than the relative amounts of heat already released into the public domain which had emanated out of the three residences in the triplex, presenting a factual distinction from Katz and making it more akin to the

All that the infrared camera did in this case was passively measure heat emitted from the exterior surfaces of [Kyllo]'s home; all that those measurements showed were relative differences in emission levels, vaguely indicating that some areas of the roof and outside walls were warmer than others. As still images from the infrared scans show, no details regarding the interior of [Kyllo]'s home were revealed.

One of those core principles, of course, is that searches and seizures inside a home without a warrant are presumptively unreasonable. But it is equally well settled that searches and seizures of property in plain view are presumptively reasonable. Whether that property is residential or commercial, the basic principle is the same: "What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection." That is the principle implicated here.

Indeed, the ordinary use of the senses might enable a neighbor or passerby to notice the heat emanating from a building, particularly if it is vented, as was the case here. Additionally, any member of the public might notice that one part of a house is warmer than another part or a nearby building if, for example, rainwater evaporates or snow melts at different rates across its surfaces. Such use of the senses would not convert into an unreasonable search if, instead, an adjoining neighbor allowed an officer onto her property to verify her perceptions with a sensitive thermometer. Nor, in my view, does such observation become an unreasonable search if made from a distance with the aid of a device that merely discloses that the exterior of one house, or one area of the house, is much warmer than another. Nothing more occurred in this case.

See Katz v. United States, 389 U.S. 347, 351 (1967) ("What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection."); see also California v. Greenwood, 486 U.S. 35, 39-42 (1988) (in holding that inspection of garbage bags placed on curb of defendant's home did not constitute a search under the Fourth Amendment, the Supreme Court emphasized that "a person has no legitimate expectation of privacy in information he voluntarily turns over to third parties"); Smith v. Maryland, 442 U.S. 735, 744 (1979) ("When he used his phone, [Mr. Smith] voluntarily conveyed numerical information to the telephone company and 'exposed' that information to its equipment in the ordinary course of business. In so doing, [he] assumed the risk that the company would reveal to police the numbers he dialed."); Bond v. United States, 529 U.S. 344, 340-41 (2000) (Breyer, J., dissenting) (joined by Justice Scalia); supra Part II. (discussing Katz and its progeny).
open fields,\textsuperscript{209} plain view,\textsuperscript{210} and plain smell\textsuperscript{211} doctrines.\textsuperscript{212} Given the limited nature of the thermal scanner at issue in \textit{Kyllo},\textsuperscript{213} and the fact that this truly was

\textsuperscript{209} See Oliver v. United States, 466 U.S. 170, 182-84 (1984) (holding no reasonable expectation of privacy existed in an open field despite the fact that the said field was a part of the defendant's property and that the defendant had opted to grow his patches of marijuana in a secluded portion of the field surrounded by woods, chicken wire, and "No Trespassing" signs); Dow Chemical Co. v. United States, 476 U.S. 227, 238 (1986) (placing Dow's complex somewhere between two extreme doctrines - the curtilage doctrine and the "open fields" doctrine - but determining that it lacked "critical characteristics" of each; in dismissing Dow's argument that its complex fell within the "industrial curtilage," the Court emphasized that the search at issue did not involve any physical entry and that Dow, unlike the precautions it had taken against ground surveillance, had done nothing to protect against aerial surveillance despite its close proximity to an airport); \textit{see also supra} Part II. (discussing \textit{Katz} and its progeny).

\textsuperscript{210} See United States v. Knotts, 460 U.S. 276, 282 (1983) (holding that beeper placed in drum to trace the movement of the defendant did not constitute a search, the Court found that "[t]he fact that the officers in [the] case relied not only on visual surveillance, but on the use of the beeper to signal the presence of [the defendant's] automobile to the police receiver" did not affect the analysis under \textit{Katz}); Dow Chemical Co., 476 U.S. at 238 ("The photographs here are not so revealing of intimate details as to raise constitutional concerns. Although they undoubtedly give EPA more detailed information than naked-eye views, they remain limited to an outline of the facility's buildings and equipment.")

The Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares. Nor does the mere fact that an individual has taken measures to restrict some views of his activities preclude an officer's observations from a public vantage point where he has a right to be and which renders the activities clearly visible. "What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection."


\textsuperscript{211} See United States v. Showalter, 858 F.2d 149, 152 (3d Cir. 1988) (officers' "olfactory observations" would not be suppressed unless a showing was made that they were not legally on the premises); \textit{see also} Johnson v. United States, 333 U.S. 10, 13 (1948) ("If the presence of odors is testified to before a magistrate and he finds the affiant qualified to know the odor, and it is one sufficiently distinctive to identify a forbidden substance, this Court has never held such a basis insufficient to justify issuance of a search warrant. Indeed it might very well be found to be evidence of most persuasive character."); \textit{United States v. Roby}, 122 F.3d 1120, 1125 (8th Cir. 1997) ("Just as evidence in the plain view of officers may be searched without a warrant, evidence in the plan smell may be detected without a warrant.") (citations omitted).

As the dissent in \textit{Kyllo} explained,

\textit{[T]he notion that heat emissions from the outside of a dwelling is a private matter implicating the protections of the Fourth Amendment (the test of which guarantees the right of the people "to be secure in their... houses" against unreasonable searches and seizures (emphasis added)) is not only unprecedented but also quite difficult to take seriously. Heat waves, like aromas that are generated in a kitchen, or in a laboratory or opium den, enter the public domain if and when they leave a building. A subjective expectation that they would remain in private is not only implausible but also surely not "one that society is prepared to recognize as 'reasonable.'"}
a case of "off-the-wall surveillance," the majority should have affirmed the Ninth Circuit and deemed the government's warrantless use of the thermal imager constitutional under *Katz* and its lineage of resulting cases.

The fact that this investigation involved a piece of sense-enhancing equipment would not undermine this conclusion, given the fact that the Court had on many previous occasions approved the use of such technology. The Court said in *Knotts* in 1983, "[n]othing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them." The majority in *Kyllo* failed to explain why such a statement should no longer ring true.

_Kyllo*, 533 U.S. at 43-44 (Stevens, J., dissenting).

212 Had *Kyllo* been correctly decided, the "plain heat" doctrine may have been quick to follow.

213 Adelman, *supra* note 173, at 353 ("In view of the incremental constrictions on the exclusionary rule that have occurred over the years . . . , the *Kyllo* decision qualifies as a bit of a surprise, especially given the fairly minimal degree of actual intrusion that occurred in that case, and as a reassurance to at least some skeptics that the Fourth Amendment and the exclusionary rule, if not totally alive and well, are still breathing inside the walls of our nation's houses.") (emphasis added); see also *Florida v. Riley*, 488 U.S. 445, 452 (1989) ("Neither is there any intimation here that the helicopter interfered with respondent's normal use of the greenhouse or of other parts of the curtilage.").

214 See *Kyllo*, 533 U.S. at 42 (Stevens, J., dissenting).

215 See, e.g., *Smith v. Maryland*, 442 U.S. 735, 744-45 (1979) (finding that the fact that the telephone company had advanced technologically over the years to be unpersuasive: "[Mr. Smith] concedes that if he had placed his calls through an operator, he could claim no legitimate expectation of privacy. We are not inclined to hold that a different constitutional result is required because the telephone company had decided to automate."); *Knotts*, 460 U.S. at 282, 284 ("Nothing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them." As the Court further explained, "[i]nsofar as respondent's complaint appears to be simply that scientific devices such as the beeper enabled the police to be more effective in detecting crime, it simply has no constitutional foundation. We have never equated police efficiency with unconstitutionality, and we decline to do so now."); *Dow Chemical Co. v. United States*, 476 U.S. 227, 231 (1986) ("The photographs at issue in this case are essentially like those commonly used in mapmaking. Any person with an airplane and an aerial camera could readily duplicate them. In common with much else, the technology of photography [and flight have] changed in this century. These developments have enhanced industrial processes, and indeed all areas of life; they have also enhanced law enforcement techniques."); *California v. Ciraolo*, 476 U.S. 207, 213-14 (1986); see also *Fisher, supra* note 177, at 166:

Something seems equally wrong when police are forbidden from monitoring a location, even one imbued with constitutional significance, to detect activities or characteristics associated with that location just because they happen to use a technological device, and when their monitoring does not otherwise reveal any specific, discrete information about activities occurring inside the location.

216 *Knotts*, 460 U.S. at 282. The Court did note that there was "no indication that the beeper was used in any way to reveal information as to the movement of the [container] within the
3. The Confusion and Unanswered Questions Left Behind by the Majority’s “Firm” and “Bright” Rule

The rule promulgated by the majority (along with being unnecessary), has generated many questions and much confusion that will proceed to plague the courts for years to come. What did the majority mean by “general public use?” Will the Fourth Amendment protection disappear as soon as the tech-

[home], or in any way that would not have been visible . . . from outside the [home].” Id. at 285. But in that same discussion, the Court emphasized the limited nature of the police’s use of the beeper despite the fact that the beeper was used to reveal the location of the drum in the defendant’s home:

We think that [defendant]’s contentions, [and the language used by the Court of Appeals regarding the sanctity of the respondent’s residence], to some extent lose sight of the limited use which the government made of the signals from this particular beeper. As we have noted, nothing in this record indicates that the beeper signal was received or relied upon after it had indicated that the drum containing the chloroform had ended its automotive journey at rest on [defendant]’s premises in rural Wisconsin. Admittedly, because of the failure of the visual surveillance, the beeper enabled the law enforcement officials in this case to ascertain the ultimate resting place of the chloroform when they would not have been able to do so had they relied solely on their naked eyes. But scientific enhancement of this sort raises no constitutional issues which visual surveillance would not also raise.

Id. at 284-85.

217 See Seamon, New Technology, supra note 164, at 24:

The majority wanted to adopt a rule that would “take account of more sophisticated systems that are already in use or in development.” In addition, the majority wanted a rule that “assures preservation of that degree of privacy against government that existed when the Fourth Amendment was adopted.” Those forward-looking and backward-looking impulses accord with Justice Scalia’s often-expressed desire that the Court announce “bright line” rules that both guide law enforcement and reflect the original understanding of the Fourth Amendment.

see also Fisher, supra note 177 (discussing Kyllo in the context of proposing a four-part test based on existing concepts of the Fourth Amendment in order to restore the credibility of the Fourth Amendment).

218 See Seamon, Partial Ascendance, supra note 171, at 1020 ("Future litigation in lower courts will probably focus on the meaning, rather than the derivation, of the majority's rule."); see also Sarilyn E. Hardee, Note, Why the United States Supreme Court's Ruling in Kyllo v. United States is Not the Final Word on the Constitutionality of Thermal Imaging, 24 CAMPBELL L. REV. 53, 68-70 (2001) (identifying a list of many of these same, unanswered questions resulting from the majority's rule in Kyllo).

219 See, e.g., Thueson, supra note 18, at 192-96 (discussing the vagueness of the "general public use" language); Fisher, supra note 187, at 166, 169 ("The assumption that police use of technological devices should be limited only to the extent that private homes are involved and the device is not in 'general public use' seems problematic.... The Court's reliance on whether a sense-enhancing device was 'in general public use' is regrettable because the Court made no effort to explain or define this concept or to relate it to technology use."); Wayne R. LaFave, The Fourth
Technology is in "general public use?" Should courts consider only how the device was used in a particular case, or determine the constitutionality of the device's use based upon the ways and manner it could potentially be used or come

Amendment as a "Big Time" TV Fad, 53 HASTINGS L.J. 265, 277-78 (2001) ("The dissenters' most telling blow concerns the majority's 'not in general public use' qualification, rightly condemned [by the dissent]"); see supra note 189 (discussing the prevalence of the thermal imager both currently and at the time of the Kyllo); Benner, supra note 140, at 95 ("The [Kyllo] opinion's cryptic attempt to limit its rationale to technology that is 'not in general public use' is also a troubling indication of the narrowness of this decision."); see also Joie M.B.C. Yuen, Casenotes, Kyllo v. United States: The Warrantless Use of Thermal Imagery Devices, And Why the Public Use Standard Proves Unworkable, 24 U. HAW. L. REV. 383, 404 (2001).

A Virginia Court of Appeals looked at this language when it applied Kyllo to an officer's use of his cell phone. Commonwealth v. Terry, 2002 WL 1163449 (Va. Ct. App. June 4, 2002). Investigating the robbery of a cell phone, the officer was granted entry into a suspect's home. Id. at *1. The officer then used his cell phone to dial the number of the stolen cell phone. Id. The officer heard the distinctive ring of the stolen cell phone (as had been earlier described to him by the victim of the robbery) and obtained a search warrant using this information. Id. The lower court had ruled that the officer's use of his cell phone to locate the contraband constituted an illegal search. Id. The Virginia Court of Appeals reversed and held that, under Kyllo, the officer's use of his cell phone did not constitute a search: "The act of dialing a cell phone did not constitute the type of conduct proscribed in Kyllo v. United States. When dialing his cell phone, the officer did not use sense enhancing technology not in 'general public use' to obtain information from within a home." Id. at *2.

See Douglas Adkins, Note, The Supreme Court Announces a Fourth Amendment "General Public Use" Standard for Emerging Technologies But Fails to Define It: Kyllo v. United States, 27 U. DAYTON L. REV. 245, 255-56 (2002) (explaining the potential meanings of "general public use."). As Justice Stevens aptly pointed out, "the contours of [the Court's] new rule are uncertain because its protection apparently dissipates as soon as the relevant technology is in 'general use' -- how does a court faced with advanced technology on the horizon even know when a sensory-enhancing device has reached 'general public use?'" Kyllo, 533 U.S. at 47 (Stevens, J., dissenting); see also Fisher, supra note 187, at 169 ("Technology continues to evolve at a rapid rate. Today's novelty is tomorrow's sales special at a local hardware store or department store. Weekend fishers angling for their favorite sports fish may now employ hand-held sonar devices; cars are equipped with global positioning systems; night vision goggles, once found only in the military, are now inexpensive and widely used. Devices or instruments that may be obscure today may be widespread and commonly available in a few years. Thus, relying on concept of 'general public use' offers individuals' privacy rights no assured protection against government use of invasive technology."); LaFave, supra note 219, at 278 ("The dissenter's most telling blow concerns the majority's 'not in general public use' qualification, rightly condemned as 'somewhat perverse because it seems likely that the threat to privacy will grow, rather than recede, as the use of intrusive equipment becomes more readily available.' Scalia's attempts to deflect the criticism by correctly noting that the limitation comes from 'this Court's precedent,' but having said that appears to concede a need on some future occasion 'to reexamine that factor.' I'd say that is definitely the case . . . ."); Benner, supra note 140, at 107 ("If a citizen's privacy in her conversations or other activities conducted entirely indoors is lost whenever it is reasonably foreseeable that members of the public could use a new form of technology to invade that privacy, then it will simply be a matter of time before what is available at your local Radio Shack will determine the scope of protection afforded by the Fourth Amendment against government snooping.").
to be used? Does *Kyllo* protection apply when a sensory-enhancing device is used to investigate a place or object other than a home?

Lower courts have already expressed their confusion over the *Kyllo* holding. In *Michigan v. Katz*, two legitimate interpretations of the *Kyllo* rule were identified, in the context of night-vision goggles — one in which observing light emanations outside a house with the use of the goggles would not constitute a search because it did not intrude inside the home; and the other whereby *any* observation of a light emanation with a sensory-enhancing piece of technology would *always* constitute a search. In addition, courts have ques-

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223 Two recent state courts have misstated the *Kyllo* holding, applying it in a *Katz*-like manner. See State v. Miller, 647 N.W.2d 348, 355 (Wis. Ct. App. 2002) (Dykman, J., concurring) (addressing a canine sniff conducted on the outside of a car, the concurrence argued that under *Kyllo*, individuals have no legitimate expectation of privacy in the air space around their cars); Porter v. State, Nos. 807627, 805407, 854498, 2002 WL 1041005, at *2, *3 n.4 (Tex. Ct. App. May 23, 2002) (“For Fourth Amendment purposes, a ‘search’ does not occur . . . unless a reasonable expectation of privacy exists in the object of the challenged search. . . . [T]he use of a thermal imaging device to record the heat being emitted from within a home is a ‘search’ because it can reveal information about legal activity inside the home as to which individuals have a legitimate expectation of privacy.”) (citing *Kyllo*, 121 S.Ct. at 2046).


225 *Id.* at *2-*6. As Judge Whitbeck, in discussing the constitutionality of the government’s use of night vision binoculars, explained:

At issue, then, is whether *Kyllo*, which the United States Supreme Court decided after the trial court made its decision in this matter, now requires the night vision binoculars evidence to be disregarded. I submit that *Kyllo*, as applied to the facts of this case, does not require such a result. Under the first possible reading of Justice Scalia’s majority opinion, using the night vision binoculars involved no intrusion into the Vines Road property. While the intense light may have “emanated” from the house, at the time that Officer Woods observed it, the light was outside the house. The fact that the night vision binoculars enhanced Officer Woods’ ability to perceive this light would, it seems to me, make no difference in the analysis.
tioned the application of *Kyllo* to cases not involving technology, but other sense-augmenting devices – specifically the use of dogs to “sniff” for drugs.226

Under the second possible reading of Justice Scalia’s majority opinion, “emanations” from the house would be covered. However, it is clear that Officer Woods did not, in any fashion, use the night vision binoculars to “measure” the light emanating from the house. Rather, he simply used the night vision binoculars to perceive, or to enhance his perception of, that light. Unlike the agents’ use of the Thermovision device in *Kyllo*, Officer Woods did not use the night vision binoculars to compare various areas of the house with other houses. Nor did the binoculars give him any information about the relative intensity of the light emanating from different areas in the house. While the night vision binoculars may have enhanced Officer Woods’ visual surveillance, it was still simply visual surveillance. Therefore, I conclude that the technological aspects of the governmental activity in this case are sufficiently distinct from the facts of *Kyllo* to conclude that *Kyllo* does not bind this Court’s decision. Irrespective of which interpretation of Justice Scalia’s *Kyllo* opinion is more accurate in this instance, the magistrate did not err when he considered the evidence gathered with the night vision binoculars when determining whether to issue the search warrant for the Vines Road property.

*Id.* The Connecticut Supreme Court has also taken a crack at summarizing the rule in *Kyllo*. Connecticut v. Mordowanec, 788 A.2d 48, 54 (Conn. 2002) (“In *Kyllo* . . . the [C]ourt held that where a thermal imaging device reveals details of a ‘private home’ that would have been unknowable without a physical intrusion, the surveillance is a [F]ourth [A]mendment search and is presumptively unreasonable without a search warrant.”).

226 The Western District of Louisiana identified this risk:

The recent decision of *Kyllo* appears to run counter to the analytical basis of the “dog sniff” rule. In *Kyllo*, the Supreme Court held that the use of sense-enhancing technology which measures the heat emanating from the exterior of a home constitutes a search under the Fourth Amendment. The Court reasoned that the use of this technology is a search because the device allows the Government to explore details of the home that would previously have been unknowable without physical intrusion. Like the heat-detecting device in *Kyllo*, a dog’s nose is able to detect the presence of drugs and explosives which would be unknowable without physical intrusion. Neither the device in *Kyllo* nor a dog’s nose injects anything into the area of privacy; both are dependent upon invisible elements – molecules or heat – *emanating from the place* being investigated. The analytical contradiction was alluded to in Justice Steven’s dissent in *Kyllo*, where he argued that the majority’s ruling was too broad. Because the instant case can be disposed on other grounds – the unreasonable length of the Terry stop, and this issue need not be further explored.


The Colorado Supreme Court in *People v. Haley*, 41 P.3d 666, 671 n.2 (Colo. 2001) likewise identified the same problem. Although it over-stated the already broad holding of *Kyllo*, the court in *Haley* used *Kyllo* as support for its holding that a canine sniff conducted on an automobile constituted a search despite the United States Supreme Court’s holding in *Place*: “We observe that the United States Supreme Court has held that exploration of the details of a private home from
This is just the tip of the iceberg. *Kyllo* is a very young case. As will be seen in the ensuing years, the majority not only came to the wrong conclusion in *Kyllo*, but it also created a lot of additional work for itself and the lower courts.227

IV. *KYLLO*'S AFTERMATH – THE TENUOUS FUTURE OF ION SCAN TECHNOLOGY

In *United States v. Charles*,228 the United States Court of Appeals for the Third Circuit was faced with new sensory-enhancing technology used by the

outside of it, utilizing a sensing device, is presumptively unreasonable without a warrant. In our view, the logic of this holding undercuts the prosecution’s argument that dog sniffs of the outside of an automobile to detect the contents thereof do not fall within a reasonable expectation of privacy.” *Id.* (citing *Kyllo*). The Colorado Supreme Court held that “[b]ased on [its] precedent under the Colorado Constitution, [it] conclude[d] that a dog sniff search of a person’s automobile in connection with a traffic stop that is prolonged beyond its purpose to conduct a drug investigation intrudes upon a reasonable expectation of privacy and constitutes a search and seizure requiring reasonable suspicion of criminal activity.” *Id.* at 672; see also *State v. Miller*, 647 N.W.2d 348, 355 (Wis. Ct. App. 2002) (Dykman, J., concurring) (addressing a canine sniff conducted on the outside of a car, the concurrence argued that *Kyllo* overruled prior state precedent that individuals have no legitimate expectation of privacy in the air space around their cars).

A New York trial court also compared a canine sniff to the facts of the *Kyllo* case, but held that due to the lowered expectation of privacy associated with a car (as opposed to one’s home) and the fact that “a person does not have an expectation of privacy to the air outside one’s automobile,” the court upheld the canine sniff. *People v. Edwards*, No. 4881/00, 2001 N.Y. Misc. LEXIS 962, at *26 (N.Y. Sup. Ct. Dec. 21, 2001); see also *State v. Bergmann*, 633 N.W.2d 328, 334-35 (Iowa 2001) (“We find that this holding [in *Kyllo*] does not disturb the nearly twenty years of precedent regarding dog sniffs and vehicles.”); *Haley*, 41 P.3d at 677-81 (Kourlis, J., dissenting) (noting that *Kyllo* expressed concerns not at issue in *Haley*).

The *Kyllo* dissent identified this potential risk, as well. *Kyllo*, 533 U.S. at 47 (Stevens, J., dissenting). The dissent feared that the Court’s new rule might include “mechanical substitutes” for drug-sniffing dogs. *Id.* at 47. Despite the Court’s holding in *Place* making canine sniffs constitutional because a dog sniff “disclosed only the presence or absence of narcotics,” the Court’s new rule would make a mechanical equivalent unconstitutional: “Nevertheless, the use of such a device would be unconstitutional under the Court’s rule, as would the use of other new devices that might detect the odor of deadly bacteria or chemicals for making a new type of high explosive, even if the devices (like the dog sniffs) are ‘so limited in both the manner in which they’ obtain information and ‘in the content of the information’ they reveal. If nothing more than that sort of information could be obtained by using the devices in a public place to monitor emissions from a house, then their use would be no more objectionable than the use of the thermal imager in this case.” *Id.* at 48 (Stevens, J., dissenting) (citing *United States v. Place*, 462 U.S. 696, 707 (1983)).

227 See Seamon, *New Technology*, supra note 164, at 25 (“The majority in *Kyllo* resorted to the common law in an attempt to establish a floor of privacy protection. It remains to be seen how solid this floor will be. Common law is a naturally moving target and even if the common law were fixed and its content determinate, questions would remain about how to apply it to surveillance techniques that could not have been imagined by common law courts.”).

228 29 Fed. Appx. 892 (3d Cir. 2002).
government, the "ion scan."\textsuperscript{229} The ion scan is a device which tests for traces of drugs, chemical toxins, and explosives in a matter of seconds with minimal intrusion.\textsuperscript{230} The court, in its "not for publication"\textsuperscript{231} opinion, found other grounds on which to affirm the lower court and opted not to reach the issue of the constitutionality of the government's use of the ion scan on a private residence without a search warrant.\textsuperscript{232} But the question of the ion scan’s fate, in the aftermath of \textit{Kyllo}, will soon reach courtrooms,\textsuperscript{233} leaving one to ponder whether the ion

\begin{itemize}
\item An ion scan "tests only for particles, not vapor, but uses ion-mobility spectrometry (measuring different speeds of charged particles) to identify any nine drugs in four seconds." Peter J. Bober, \textit{8 SETON HALL CONST. L.J.} 75, 114 n. 276 (1997) (citing Anne Underwood, \textit{Smart Weapons for the War on Drugs}, NEWSWEEK, Aug. 17, 1992, at 7); see also Melanie Cooper, \textit{Desperately Seeking Charlie}, NEW SCIENTIST, Sept. 8, 2001, \textit{available at} 2001 WL 23234788, ("Ion scanners are the size of a small fridge . . . . Drug samples are put in a cell in the ion scanner and vaporized. The time it takes for the particles to drift from one end of the cell to the other identifies the drug . . . . It’s like being able to taste a crushed Tic Tac in an Olympic-sized swimming pool."); Michael P. Regan, \textit{Spectrometers Are Fine, Dogs’ Noses Divine}, DESERET NEWS, Nov. 28, 2001, \textit{available at} 2001 WL 30047558 ("Devices like Barringer’s Ionscan can identify particles as small as one-billionth or one-trillionth of a gram, putting them in the same league as a good bomb-sniffing dog.").

\item Barringer Technologies, Inc., \textit{available at} http://www.barringer.com (last visited May 1, 2002). Barringer Technologies produces the "ion scan" and advertises it as useful in detecting explosives and drugs. \textit{Id.} The "ion scan" comes in a handheld wand version, other versions which appear to be the size of a breadbox, and the largest version being the walk-through portals used in airports. \textit{Id.} Barringer also produces infrared technology, as well. Barringer was acquired by Smiths Group in 2001. See Instruments Business Outlook, \textit{Airport Security Systems: Tragedy Spurs Demand} (Sept. 30, 2001), \textit{available at} 2001 WL 17197297.

\item See 3d CIR. R. 28.0 (regarding the publication and citation of unpublished opinions); see also Thomas R. Lee & Lance S. Lehnhof, \textit{The Anastasoff Case and the Judicial Power to 'Unpublish' Opinions}, 77 NOTRE DAME L. REV. 135 (2001).

\item \textit{Charles}, 29 Fed. Appx. at 896-98.

\item A handful of courts have addressed the use of the ion scan in the context of prisons. All of the cases arose before the Supreme Court’s decision in \textit{Kyllo}, and none addressed the device’s legality under the Fourth Amendment outside of the prison setting. A New Jersey Court of Appeals upheld the constitutionality of the ion scan used to search visitors to New Jersey prisons for drugs. See \textit{Jackson v. Dep’t of Corrections}, 762 A.2d 255, 258-59 (N.J. Super. Ct. App. Div. 2000). A prison inmate (as opposed to a prison visitor subjected to an ion scan) brought the case in \textit{Jackson}. \textit{Id.} at 256-57. Under a “special needs” analysis, the New Jersey Superior Court held that the special security needs of a prison outweighed a citizen’s right to unfettered visitation of a prisoner and to a prisoner’s right to visitors. \textit{Id.} at 259.

Similarly, a Florida Court of Appeals held that an ion scan did not constitute a “drug test” under a Florida statute – which required that employees be tested for drug use only upon reasonable suspicion – because of the limited nature of the ion scan and the statute’s purpose in using the device, which was to prevent employees from being subjected to unwarranted and intrusive drug testing requiring samples of body fluids and tissues. See \textit{Mitchell v. Dep’t of Corrections}, 675 So. 2d 162, 164 (Fla. Dist. Ct. App. 1996).

The ion scan has appeared in other contexts, as well. The Eleventh Circuit addressed the admissibility of ion scan results in a criminal trial, remanding the case to the District Court with the instruction that Federal Rule of Evidence 702 applied to the results of technical devices under
scan (as well as other technology)\textsuperscript{234} will suffer the same (unfair and unnecessary) fate as the thermal imager.

A. The Facts of United States v. Charles

Upon receiving an anonymous tip that the occupant of a residence in St. Croix was growing marijuana in her home, members of the Virgin Islands High Intensity Drug Trafficking Area Task Force surveilled the property over a two-

the Daubert analysis. See United States v. Lee, 25 F.3d 997, 999 (11th Cir. 1994). On remand, the District Court admitted the results of the ion scan. See Ezenwa v. Gallen, 906 F. Supp. 978, 988 (M.D. Pa. 1995) (parties assert that Southern District of Florida, upon remand, did admit results of ion scan). The Middle District of Pennsylvania held in a civil rights case that the defendants, for purposes of qualified immunity analysis, could not argue that it was reasonable to rely on the uncorroborated results of an ion scan analysis in executing a search warrant. Id. at 987-88. The Western District of New York held that enough facts existed to meet the pleading requirements of Rule E(2) of the Supplemental Rules for Certain Admiralty and Maritime Claims in a forfeiture action where a customs agent corroborated a drug dog’s positive alert with ion scan analysis which revealed cocaine residue. See United States v. $94,010.00 U.S. Currency, 1998 WL 567837, at *3 (W.D. N.Y. Aug. 21, 1998).

While the use of the ion scan was not at issue, other cases reference the use of the ion scan to test for the presence of drugs on currency, boats, and cars. See, e.g., United States v. $10,700.00 U.S. Currency, 258 F.3d 215, 220 (3d Cir. 2001) ("[Delaware River and Bay Authority] Sergeant Gaworski vacuumed the automobile and the currency, and subjected both to an ION [sic] Scan Analysis."); see also United States v. Ramirez, 145 F.3d 345, 353 (5th Cir. 1998) ("The government then conducted an ion scan of the vehicle – nearly two weeks after the vehicle was first abandoned – which yielded evidence that was introduced at trial."); United States v. Romero, 32 F.3d 641, 646 (1st Cir. 1994) (determining that the court need not addresses the reliability of the ion scan conducted on the defendants and their boat given the sufficiency of the other evidence in the record); United States v. Diaz, 55 F. Supp. 2d 1362, 1364-65 (S.D. Fla. 1999) ("An ion scan was conducted on various part of the vessel [by the United States Coast Guard] for the purpose of detecting the presence of cocaine."); Brown v. Ellendale Police Dep’t, 1999 WL 223502, at *2 (D. Del. Mar. 31, 1999) ("The Delaware State Police later conducted an ‘ion scan’ of the seized money that revealed the presence of cocaine on the currency."); State of Florida Dept. of Highway Safety and Motor Vehicles v. Jones, 780 So. 2d 949, 950 (Fla. Dist. Ct. App. 2001) ("Two days after the currency and the vehicle were seized, a United States Coast Guard ion scan test was conducted and high levels of cocaine were found on the seized currency.").

\textsuperscript{234} Katz, 2001 Mich. App. LEXIS 2592, at *8-*22 (Sept. 4, 2001) (Whitbeck, J., concurring) (involving night-vision goggles); see Benner, supra note 140, at 107 (discussing "[n]ew passive imaging technology that can see through clothing to reveal weapons or other hidden items has already been developed for law enforcement use."); Kanya A. Bennett, Comment, Can Facial Recognition Technology Be Used to Fight the New War Against Terrorism?: Examining the Constitutionality of Facial Recognition Surveillance Systems, 3 N.C. J. L. & TECH. 151 (2001); John Lewis, Carnivore – The FBI's Internet Surveillance System: Is It A Rampaging E-Mailasaurus Rex Devouring Your Constitutional Rights?, 23 WHITTIER L. REV. 317 (2001); Young, supra note 174, at 1023-38 (summarizing newest advances in technological surveillance, including biometrics, beepers, computer systems, and databases); Woo, supra note 174, at 522, 525 (discussing the "Magic Lantern," new technology developed by the FBI "that is capable of installing a keystroke logging program on a computer without requiring physical access to the computer" that can track e-mail messages and internet logs).
week period. They observed on each occasion that the windows were closed, the air conditioning was running, and lights were on in the home, but no one appeared to be in the residence. When the anonymous informant contacted the agents again, they went to the house at 4:45 a.m. on May 19, 1999, and one of the officers ran a cotton swab across the outside door latch attached to the front screen door, which attached to a screened-in front porch. The swab was placed in a plastic bag and taken back to the station. An ion scan performed at the station revealed a high presence of marijuana.

A magistrate granted a search warrant based upon the results of the ion scan, the agents' observations of the residence, and the plain smell of growing marijuana which they observed (on the day after the ion scan was performed) during a knock and talk with Ms. Charles at the residence. In executing the warrant, forty-six live marijuana plants were seized, along with information that led to a second search warrant for a different residence which uncovered drying marijuana.

Charles was indicted, and a motion to suppress followed. The District Court ruled that the government's warrantless use of the ion scan constituted an illegal search under the Fourth Amendment, but denied the motion insofar as the anonymous tips, the knock and talk, and the plain smell of growing marijuana established probable cause sufficient to uphold the issuance of the

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235 Charles, 29 Fed. Appx. at 894-95. The residence was described as, "No. 8 Catherine's Rest Estates, St. Croix, United States Virgin Islands ('No. 8')...which was located on a piece of land known as Martin Farm, a fenced-in property containing No. 8 and several other rental houses. The fence surrounding Martin Farm had an opening which allowed car access to a dirt road known as Martin Farmer's Road. No. 8 was located approximately one quarter of a mile from the entrance of Martin Farm on Martin Farmer's Road." Id. On May 18, 1999, the same concerned citizen contacted Officer Diaz and stated that the renter at No. 8 came to the residence for only a few hours each day, but that the air conditioning remained on at all times and that the windows were always shut. Id.

236 Id.

237 Id.

238 Id.

239 Id.

240 The Third Circuit affirmed the District Court's holding that the officers needed neither reasonable suspicion nor probable cause to conduct the "knock and talk" because the encounter did not become "coercive." Id. at 897 (citing Florida v. Bostick, 501 U.S. 429, 434-38 (1991)); see also United States v. Jones, 239 F.3d 716, 720 (5th Cir. 2001); United States v. Kim, 27 F.3d 947, 951 (3d Cir. 1994); Davis v. United States, 327 F.2d 301, 303 (9th Cir. 1964); United States v. Hardman, 36 F. Supp. 2d 770, 777 (E.D. Mich. 1999).


242 Id.

243 Id.

244 Interestingly, following the hearing on Charles' Motion to Suppress, the District Court held an experiment whereby 47 live marijuana plants were placed in a holding room in the courtroom
search warrants.\textsuperscript{245} Charles appealed to the United States Court of Appeals for the Third Circuit. The Third Circuit affirmed the lower court, determining that probable cause existed for the search warrants outside of the ion scan, saving the issue of the ion scan "for another day."\textsuperscript{246}

B. Left for Another Day – Is the Warrantless Use of the Ion Scan on a Home Constitutional?

On the facts of Charles, the issue is whether the swipe of residue from the outer latch on the outside screen door leading to a porch and analyzed by an ion scan constituted a search and seizure under the Fourth Amendment. Since the Court’s decision in Kyllo, the first step of the analysis becomes whether to apply Kyllo or Katz. Because the ion scan is a piece of sensory-enhancing technology that could be classified as “not in general public use,”\textsuperscript{247} it is more likely that courts would subject it to Kyllo, rather than to the Katz rubric. The unsettling effect of Kyllo is that different results are reached depending upon whether the ion scan is analyzed under Katz or Kyllo.

1. The Wrong Result – Under Kyllo the Ion Scan Constitutes a Search

Under Kyllo, it is almost certain that the ion scan will be deemed unconstitutional. First of all, the ion scan is a piece of sensory-enhancing technology that will likely be characterized as “not in general public use.”\textsuperscript{248} The ion scan overnight for the District Court to observe the following day. Charles, 29 Fed. Appx. at 895. The District Court found that “within a second or two of opening the door the room containing the plants, the fragrance was noticeable. Within another two or three seconds, the strong and distinctive odor permeated the hallway outside the room. The viewing thus confirmed that government’s evidence that green, growing marijuana plants have a very strong and distinctive odor.” Id. The Third Circuit found no reason to disturb the District Court’s factual finding. Id. at 898.

\textsuperscript{245} Charles, 29 Fed. Appx. at 895.

\textsuperscript{246} Id. at 896.

\textsuperscript{247} See, e.g., People v. Edwards, No. 4881/00, 2001 N.Y. Misc. LEXIS 962, at *26 (N.Y. Sup. Ct. Dec. 21, 2001) (answering the question in the negative with regard to a canine sniff for drugs because “a person does not have an expectation of privacy to the air outside one’s automobile.”).

\textsuperscript{248} Id.; Kyllo, 533 U.S. at 38-39. It is unclear why the majority in Kyllo labeled the thermal imager at issue “not in general public use.” See sources supra note 189. The ion scan is widely in use by the military and federal, state, and local police. See Airport Security Systems: Tragedy Spurs Demand, supra note 230 (“The Ionscan is installed in over 40 countries. In 2000, Barringer, Thermedics and Ion Track were part of a $50 million contract from the FAA in 2000 for trace detection.”); see also Jeanne Bonner, Made Stronger by Tragedy, ACCESS CONTROL & SECURITY SYSTEMS INTEGRATION, Sept. 1, 2001, available at 2001 WL 11858948 (documenting a private Chicago-based company’s use of ion scan technology to test its employees and facilities for the presence of drugs and noting that “the ion scan . . . is also used by the U.S. Coast Guard and has been in use at [this particular company] for over two years”); Tyra Braden, Couple Says Money Was From Lottery, But Investigator Testifying in Easton Says the Level of Cocaine on It
in *Charles* was performed on a home. These three facts alone – sensory-enhancing technology, not in general public use (whatever that standard means), and used on a home – would be enough to deem its warrantless use unconstitutional. Moreover, the court could delve into the potential uses and advances of the ion scan in rationalizing its decision, as opposed to limiting itself to just the device’s use in *Charles*. No inquiry would be necessary into the level of intrusion, the area on which the ion scan was performed, or Charles’ expectation of privacy in the contents of her doorknob.

Even if the court did proceed to another layer of analysis under *Kyllo*, it is clear that a court would still find the warrantless use of the ion scan unconstitutional. The agents in *Charles* used the results of the ion scan, along with the informants’ tips and their own visual observations of Charles’ residence, in their application for a search warrant. As in *Kyllo*, the agents inferred from the ion scan results that Charles was growing marijuana. This type of inference about the presence of marijuana (in some form) in the home is an inference about the interior of the home – an “intimate detail” of the home that would not have previously been knowable without a physical intrusion into the home. Use of the ion scan reveals details concerning the home – that someone who came in contact with the doorknob had also come in contact with marijuana. The rule promulgated by *Kyllo* will force courts to deem the warrantless use of an ion scan on a home an unconstitutional search for purposes of the Fourth Amendment. Courts could deem the warrantless use of any ion scan unconstitutional, as opposed to basing its constitutionality only on the facts of each case.

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See sources *supra* note 195 (discussing that the rule in *Kyllo* may not cover scenarios not involving the home).

See Fisher, *supra* note 187, at 170-71 (discussing the potential under *Kyllo* for courts to have the discretion to consider all uses, and potential uses, of the device at issue, as opposed to addressing only those facts and details in the record).

See Adelman, *supra* note 173, at 353 (discussing the minimal intrusion involved with the thermal imager, which is even less than the use of an ion scan which requires physical contact with the area to be tested).

See *Kyllo* v. United States, 533 U.S. 27, 38-39 (2001); see also sources *supra* note 190.

See Fisher, *supra* note 187, at 170-71 (discussing majority’s decision in *Kyllo* to develop this blanket rule as opposed to address only the facts of the thermal imager used in *Kyllo*).
2. Under Katz – The Right Result

Under Katz, the ion scan, as used in Charles, would likely not constitute a search. The government’s use of the ion scan is analogous to those cases in which the Supreme Court did not find that a legitimate expectation of privacy existed despite the use of a sensory-enhancing device. The ion scan in Charles involved only a swab swipe on the front-door handle to the front-screen door of Charles’ house,\(^{254}\) involving minimal intrusion.\(^{255}\) Unlike so many of the cases

\(^{254}\) The facts of Charles also raises the issue of curtilage, not seen in Kyllo. Unlike the use of the thermal imager, an ion scan requires the officers to actually walk-up to a residence and touch an outer doorknob in order to collect a sample of residue. See United States v. Charles, 29 Fed. Appx. 892, 894 (3d Cir. 2002). The District Court in Charles had held that the ion scan was an illegal search because the door latch fell within the curtilage of No. 8. Id. at 896. However, this was incorrect.

The curtilage doctrine developed to extend Fourth Amendment protection to the “intimate activity associated with the ‘sanctity of a man’s home and the privacies of life,’” Oliver v. United States, 466 U.S. 170, 180 (1984) (quoting Boyd v. United States, 116 U.S. 616, 630 (1885)), the proper inquiry being “whether the area in question is so intimately tied to the home itself that it should be placed under the home’s ‘umbrella’ of Fourth Amendment protection.” United States v. Dunn, 480 U.S. 294, 301 (1987). The Supreme Court in Dunn explained that the “curtilage is determined by factors that bear upon whether an individual reasonably may expect that the area in question should be treated as the home itself.” Id. at 300. The Court laid out four factors to reference:

the proximity of the area claimed to be curtilage to the home, whether the area is included within an enclosure surrounding the home, the nature of the uses to which the area is put, and the steps taken by the resident to protect the area from observation by people passing by.

Id. at 301. In Dunn, the Court concluded that a barn located sixty yards from the defendant’s home (outside of the fence surrounding the yard) did not fall within the home’s curtilage because (among other reasons) the officers had information (stemming from their own observations and informants’ tips) indicating that the barn was not being used for intimate activities (but rather for drug production) and the defendant had not erected a fence to surround the barn or taken other steps to protect the barn from observation by people walking by. Id. at 302-03.

As seen in Dunn (and as discussed supra), the Fourth Amendment does not protect those things which an individual exposes to the public. Katz v. United States, 389 U.S. 347, 351 (1967); Lewis v. United States, 385 U.S. 206, 210 (1966); United States v. Lee, 274 U.S. 559, 563 (1927). “[A] man’s home is, for most purposes, a place where he expects privacy, but objects, activities, or statements that he exposes to the ‘plain view’ of outsiders are not ‘protected’ because no intention to keep them to himself has been exhibited.” Katz, 398 U.S. at 361. In other words, “a Fourth Amendment search does not occur – even when the explicitly protected location of a house is concerned – 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.’” Kyllo, 533 U.S. at 29-31 (citing California v. Ciraolo, 476 U.S. 207, 211 (1986)).

“That the area is within the curtilage does not itself bar all police observation.” Ciraolo, 476 U.S. at 213. Despite the fact that the latch at issue arguably falls within the curtilage of No. 8, there was no legitimate expectation of privacy in that latch given its exposure to the public and the limited nature of the swabbing that took place. See Ciraolo, 476 U.S. at 213 (aerial surveillance not a search despite fact that marijuana patch was located within curtilage of the home). Therefore, under the curtilage doctrine, on the facts in Charles, simply because the doorknob was on the
in which the Supreme Court found that the defendants had exhibited a subjective expectation of privacy because of the steps they had taken to protect their privacy, there is nothing to indicate that Charles had such an expectation with regard to the door latch at issue. Even if Charles could argue that she had a subjective expectation of privacy in her outer door latch, such an expectation would arguably not be legitimate because she "assumed the risk" when she openly exposed her doorknob and constructed no barrier to prevent any neighbor, solicitor, mailman, or officer from walking up the path to her door and observing the latch. Further, it is hard to imagine that society would find an objectively reasonable interest in one's privacy regarding the contents of the grime on a home's outer doorknobs. Therefore, under Katz, the government's warrantless use of the ion scan likely did not constitute a search.

Given the recent voting of the Supreme Court in Riley, Bond, and Kyllo, should the use of an ion scan reach the Supreme Court, it is hard to predict which way the Court will go. Nonetheless, under the Kyllo analysis, the ion scan would constitute a search. According to Kyllo, it is unnecessary to inquire into the defendant's or society's expectations of privacy or the details concerning the actual use of the device and the level of intrusion involved. This is difficult to accept, given the many decades of Fourth Amendment search and seizure law that has resulted from Katz (i.e., what is a reasonable expectation of privacy, and whether it is one that society is willing to recognize). With one case, the Supreme Court has weakened this history (and possibly eliminated it), in exchange for a blanket rule that will likely bar the warrantless use of all sensory-enhancing technology, at least when the use involves a home.

front door of the residence would not make this ion scan illegal.

255 See Adelman, supra note 173, at 353 (discussing the level of intrusion involved with the thermal imager, which was less than with the ion scan because the ion scan requires actual, physical contact with the area to be searched); see also supra note 98 and accompanying text (discussing minimal level of intrusion involved with canine sniff of luggage).

256 See, e.g., Ciraolo, 476 U.S. at 211 (defendant completely surrounded marijuana patch with two fences, one of which was ten feet high); Dow Chemical Co. v. United States, 476 U.S. 227, 230 (1986) (fences and covers made facility at issue virtually impossible to observe from ground level); Oliver v. United States, 466 U.S. 170, 182-83 (1984) (defendant placed growing marijuana in area surrounded by woods, chicken wire fence, and "No Trespassing" signs).

257 See, e.g., Smith v. Maryland, 442 U.S. 735, 744-46 (1979) (defendant "assumed the risk" when he voluntarily exposed the dialed numbers to the phone company); see also United States v. Knotts, 460 U.S. 276, 282 (1983) (no legitimate expectation of privacy exists in one's physical movements from place to place because they were easily observable by any member of the public); California v. Greenwood, 486 U.S. 35, 40-41 (1988) (no legitimate expectation of privacy where defendant exposed garbage bags in an area particularly suited for public inspection and observation).

258 Florida v. Riley, 488 U.S. 445 (1989); see also discussion supra Part II.D.

259 Bond v. United States, 529 U.S. 334 (2000); see also discussion supra Part II.D.

260 Kyllo v. United States, 533 U.S. 27 (2001); see also discussion supra note 164.
V. Conclusion

The majority in *Kyllo* eliminated the *Katz* analysis in this new area of rapidly advancing sensory-enhancing technology, at least when a home is involved. This is an unsettling result, given that for over thirty years, *Katz* and its progeny have been so deeply imbedded in this country’s Fourth Amendment search and seizure law. With *Kyllo*, the Supreme Court has in effect obliterated this entire tradition. *Kyllo* should have been decided only on the facts before the Court. The majority was wrong to promulgate this overly broad and unnecessary rule that will likely bar the warrantless use of all sensory-enhancing technology, at least when the use involves a home.

Society loses very little by way of its freedoms by giving police the authority to conduct off-the-wall thermal scans from across the street of its homes or ion scans on its doorknobs. This is not to say that potential technology that can peer through walls and actually see into homes should be upheld in the future. It is to say that it was unnecessary for the Court in *Kyllo* to go beyond the facts of the thermal imager before it and to introduce this blanket rule that will make it virtually impossible for the warrantless use of any type of sensory-enhancing technology on a home to ever survive constitutional analysis.

In *Fahrenheit 451*, Ray Bradbury wrote of book-sniffing mechanical hounds, controlled by the fire departments and programmed to detect books in homes. Bradbury portrayed a society with no free thought or ideas, wholly controlled by the government, one in which every person was being watched and monitored every second of the day. The Supreme Court in *Kyllo* painted a picture of sensory-enhancing technology on the horizon that would position American society almost on the verge of, if not inside, Bradbury’s novel, a portrait of our government using devices that pierce through walls and monitor every move we make inside our own homes. But the measuring of the relative heat emanating off the outer walls of a house is a far cry from Bradbury’s extreme.

The majority in *Kyllo* went too far. What the Supreme Court sought to protect and preserve in *Kyllo* should be applauded. That said, the majority overreacted in its decision to put forth this rule that in effect will bar the government’s and law enforcement’s warrantless use of sensory-enhancing devices on the home for all time. As a result, the majority unnecessarily restricted local, state, and federal authorities in their efforts to slow the drug trade and monitor terrorism. *Kyllo* could have and should have been a simple case under *Katz*. While it is still too early to predict just how far the lower courts will push *Kyllo* into non-technology and non-residence cases, it is safe to say that the result of the majority’s opinion in *Kyllo* is nothing more than a confusing and overly broad rule that will plague the courts for years to come, while restricting local, state, and federal government’s use of important tools in the wars against drugs and terrorism.