SUPREME COURT OF THE UNITED STATES

No. 99–8508

DANNY LEE KYLLO, PETITIONER *v.* UNITED STATES

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

[June 11, 2001]

JUSTICE STEVENS, with whom THE CHIEF JUSTICE, JUSTICE O'CONNOR, and JUSTICE KENNEDY join, dissenting.

There is, in my judgment, a distinction of constitutional magnitude between "through-the-wall surveillance" that gives the observer or listener direct access to information in a private area, on the one hand, and the thought processes used to draw inferences from information in the public domain, on the other hand. The Court has crafted a rule that purports to deal with direct observations of the inside of the home, but the case before us merely involves indirect deductions from "off-the-wall" surveillance, that is, observations of the exterior of the home. Those observations were made with a fairly primitive thermal imager that gathered data exposed on the outside of petitioner's home but did not invade any constitutionally protected interest in privacy.[1] Moreover, I believe that the supposedly "bright-line" rule the Court has created in response to

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[1] After an evidentiary hearing, the District Court found:
"[T]he 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." Supp. App. to Pet. for Cert. 40.

its concerns about future technological developments is unnecessary, unwise, and inconsistent with the Fourth Amendment.

I

There is no need for the Court to craft a new rule to decide this case, as it is controlled by established principles from our Fourth Amendment jurisprudence. One of those core principles, of course, is that "searches and seizures *inside a home* without a warrant are presumptively unreasonable." *Payton* v. *New York,* 445 U. S. 573, 586 (1980) (emphasis added). But it is equally well settled that searches and seizures of property in plain view are presumptively reasonable. See *id.*, at 586–587.[2] 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.'" *California* v. *Ciraolo,* 476 U. S. 207, 213 (1986) (quoting *Katz* v. *United States,* 389 U. S. 347, 351 (1967)); see *Florida* v. *Riley,* 488 U. S. 445, 449–450 (1989); *California* v. *Greenwood,* 486 U. S. 35, 40–41 (1988); *Dow Chemical Co.* v. *United States,* 476 U. S. 227, 235–236 (1986); *Air Pollution Variance Bd. of Colo.* v. *Western Alfalfa Corp.,* 416 U. S. 861, 865 (1974). That is the principle implicated here.

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[2] Thus, for example, we have found consistent with the Fourth Amendment, even absent a warrant, the search and seizure of garbage left for collection outside the curtilage of a home, *California* v. *Greenwood,* 486 U. S. 35 (1988); the aerial surveillance of a fenced-in backyard from an altitude of 1,000 feet, *California* v. *Ciraolo,* 476 U. S. 207 (1986); the aerial observation of a partially exposed interior of a residential greenhouse from 400 feet above, *Florida* v. *Riley,* 488 U. S. 445 (1989); the aerial photography of an industrial complex from several thousand feet above, *Dow Chemical Co.* v. *United States,* 476 U. S. 227 (1986); and the observation of smoke emanating from chimney stacks, *Air Pollution Variance Bd. of Colo.* v. *Western Alfalfa Corp.,* 416 U. S. 861 (1974).

While the Court "take[s] the long view" and decides this case based largely on the potential of yet-to-be-developed technology that might allow "through-the-wall surveillance," *ante*, at 11–12; see *ante*, at 8, n. 3, this case involves nothing more than off-the-wall surveillance by law enforcement officers to gather information exposed to the general public from the outside of petitioner's home. All that the infrared camera did in this case was passively measure heat emitted from the exterior surfaces of petitioner'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, see Appendix, *infra*, no details regarding the interior of petitioner's home were revealed. Unlike an x-ray scan, or other possible "through-the-wall" techniques, the detection of infrared radiation emanating from the home did not accomplish "an unauthorized physical penetration into the premises," *Silverman* v. *United States,* 365 U. S. 505, 509 (1961), nor did it "obtain information that it could not have obtained by observation from outside the curtilage of the house," *United States* v. *Karo,* 468 U. S. 705, 715 (1984).

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.

Thus, the notion that heat emissions from the outside of a dwelling is a private matter implicating the protections of the Fourth Amendment (the text of which guarantees the right of 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 private is not only implausible but also surely not "one that society is prepared to recognize as 'reasonable.'" *Katz*, 389 U. S., at 361 (Harlan, J., concurring).

To be sure, the homeowner has a reasonable expectation of privacy concerning what takes place within the home, and the Fourth Amendment's protection against physical invasions of the home should apply to their functional equivalent. But the equipment in this case did not penetrate the walls of petitioner's home, and while it did pick up "details of the home" that were exposed to the public, *ante*, at 10, it did not obtain "any information regarding the *interior* of the home," *ante*, at 6 (emphasis added). In the Court's own words, based on what the thermal imager "showed" regarding the outside of petitioner's home, the officers "concluded" that petitioner was engaging in illegal activity inside the home. *Ante*, at 2. It would be quite absurd to characterize their thought processes as "searches," regardless of whether they inferred (rightly) that petitioner was growing marijuana in his house, or (wrongly) that "the lady of the house [was taking] her daily sauna and bath." *Ante*, at 10–11. In either case, the only conclusions 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 discarded

garbage, see *California* v. *Greenwood,* 486 U. S. 35 (1988), or pen register data, see *Smith* v. *Maryland,* 442 U. S. 735 (1979), or, as in this case, subpoenaed utility records, see 190 F. 3d 1041, 1043 (CA9 1999). For the first time in its history, the Court assumes that an inference can amount to a Fourth Amendment violation. See *ante*, at 8.[3]

Notwithstanding the implications of today's decision, there is a strong public interest in avoiding constitutional litigation over the 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," *Greenwood*, 486 U. S., at 41, 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," *ante*, at 6, and drawing useful conclusions from such monitoring, is an entirely reasonable public service.

On the other hand, the countervailing privacy interest is at best trivial. After all, homes generally are insulated to

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[3] Although the Court credits us with the "novel proposition that inference insulates a search," *ante*, at 9, our point simply is that an inference cannot *be* a search, contrary to the Court's reasoning. See *supra*, at 4–5. Thus, the Court's use of *United States* v. *Karo*, 468 U. S. 705 (1984), to refute a point we do not make underscores the fact that the Court has no real answer (either in logic or in law) to the point we do make. 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," *id.*, at 714–715, rather than any thought processes that flowed from such monitoring.

keep heat in, rather than to prevent the detection of heat going out, and it 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. Cf. *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"). The interest in concealing the heat escaping from one's house pales in significance to the "the chief evil against which the wording of the Fourth Amendment is directed," the "physical entry of the home," *United States* v. *United States Dist. Court for Eastern Dist. of Mich.,* 407 U. S. 297, 313 (1972), and it is hard to believe that it is an interest the Framers sought to protect in our Constitution.

Since what was involved in this case was nothing more than drawing inferences from off-the-wall surveillance, rather than any "through-the-wall" surveillance, the officers' conduct did not amount to a search and was perfectly reasonable.[4]

II

Instead of trying to answer the question whether the

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[4] This view comports with that of all the Courts of Appeals that have resolved the issue. See 190 F. 3d 1041 (CA9 1999); *United States* v. *Robinson,* 62 F. 3d 1325 (CA11 1995) (upholding warrantless use of thermal imager); *United States* v. *Myers,* 46 F. 3d 668 (CA7 1995) (same); *United States* v. *Ishmael,* 48 F. 3d 850 (CA5 1995) (same); *United States* v. *Pinson,* 24 F. 3d 1056 (CA8 1994) (same). But see *United States* v. *Cusumano,* 67 F. 3d 1497 (CA10 1995) (warrantless use of thermal imager violated Fourth Amendment), vacated and decided on other grounds, 83 F. 3d 1247 (CA10 1996) (en banc).

use of the thermal imager in this case was even arguably unreasonable, the Court has fashioned a rule that is intended to provide essential guidance for the day when "more sophisticated systems" gain the "ability to 'see' through walls and other opaque barriers." *Ante*, at 8, and n. 3. The newly minted rule encompasses "obtaining [1] by sense-enhancing technology [2] any information regarding the interior of the home [3] that could not otherwise have been obtained without physical intrusion into a constitutionally protected area . . . [4] at least where (as here) the technology in question is not in general public use." *Ante*, at 6–7 (internal quotation marks omitted). In my judgment, the Court's new rule is at once too broad and too narrow, and is not justified by the Court's explanation for its adoption. As I have suggested, I would not erect a constitutional impediment to the use of sense-enhancing technology unless it provides its user with the functional equivalent of actual presence in the area being searched.

Despite the Court's attempt to draw a line that is "not only firm but also bright," *ante*, at 12, the contours of its new rule are uncertain because its protection apparently dissipates as soon as the relevant technology is "in general public use," *ante*, at 6–7. Yet how much use is general public use is not even hinted at by the Court's opinion, which makes the somewhat doubtful assumption that the thermal imager used in this case does not satisfy that criterion.[5] In any event, putting aside its lack of clarity,

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[5] The record describes a device that numbers close to a thousand manufactured 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. App. 18. 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

this criterion is 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.

It is clear, however, that the category of "sense-enhancing technology" covered by the new rule, *ante*, at 6, is far too broad. It would, for example, embrace potential mechanical substitutes for dogs trained to react when they sniff narcotics. But in *United States* v. *Place,* 462 U. S. 696, 707 (1983), we held that a dog sniff that "discloses only the presence or absence of narcotics" does "not constitute a 'search' within the meaning of the Fourth Amendment," and it must follow that sense-enhancing equipment that identifies nothing but illegal activity is not a search either. 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. *Ibid.* 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.

The application of the Court's new rule to "any information regarding the interior of the home," *ante*, at 6, is also unnecessarily broad. If it takes sensitive equipment to detect an odor that identifies criminal conduct and nothing else, the fact that the odor emanates from the interior of a home should not provide it with constitutional protection. See *supra*, at 7–8. The criterion, moreover, is too sweeping in that information "regarding" the interior of a

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these facts suffice to establish "general public use."

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. Under that 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.

Because the new rule applies to information regarding the "interior" of the home, it is too narrow as well as too broad. Clearly, a rule that is designed to protect individuals from the overly intrusive use of sense-enhancing equipment should not be limited to a home. If such equipment did provide its user with the functional equivalent of access to a private place— such as, for example, the telephone booth involved in *Katz*, or an office building— then the rule should apply to such an area as well as to a home. See *Katz*, 389 U. S., at 351 ("[T]he Fourth Amendment protects people, not places").

The final requirement of the Court's new rule, that the information "could not otherwise have been obtained without physical intrusion into a constitutionally protected area," *ante*, at 6 (internal quotation marks omitted), also extends too far as the Court applies it. 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. See *supra*, at 4–5. As I have explained, however, the process of drawing inferences from data in the public domain should not be characterized as a search.

The two reasons advanced by the Court as justifications for the adoption of its new rule are both unpersuasive. First, the Court suggests that its rule is compelled by our holding in *Katz*, because in that case, as in this, the sur-

veillance consisted of nothing more than the monitoring of waves emanating from a private area into the public domain. See *ante*, at 7–8. Yet there are critical differences between the cases. In *Katz*, the electronic listening device attached to the outside of the phone booth allowed the officers to pick up the content of the conversation inside the booth, making them the functional equivalent of intruders because they gathered information that was otherwise available only to someone inside the private area; it would be as if, in this case, the thermal imager presented a view of the heat-generating activity inside petitioner's home. By contrast, the thermal imager here disclosed only the relative amounts of heat radiating from the house; it would be as if, in *Katz*, the listening device disclosed only the relative volume of sound leaving the booth, which presumably was discernible in the public domain.[6] 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. It is 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." *Ante*, at 8.

Second, the Court argues that the permissibility of "through-the-wall surveillance" cannot depend on a distinction between observing "intimate details" such as "the

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[6] The use of the latter device would be constitutional given *Smith* v. *Maryland,* 442 U. S. 735, 741 (1979), which upheld the use of pen registers to record numbers dialed on a phone because, unlike "the listening device employed in *Katz* . . . pen registers do not acquire the *contents* of communications."

lady of the house [taking] her daily sauna and bath," and noticing only "the nonintimate rug on the vestibule floor" or "objects no smaller than 36 by 36 inches." *Ante*, at 10–11. This entire argument assumes, of course, that the thermal imager in this case could or did perform "through-the-wall surveillance" that could identify any detail "that would previously have been unknowable without physical intrusion." *Ante*, at 11–12. In fact, the device could not, see n. 1, *supra*, and did not, see Appendix, *infra*, enable its user to identify either the 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 petitioner'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, consistent infrared images" of the *outside* of his house. Defendant's Exhibit 107, p. 4. But even if the device 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 officers far less gifted than Sherlock Holmes would readily draw— does not qualify as "through-the-wall surveillance," much less a Fourth Amendment violation.

III

Although the Court is properly and commendably concerned about the threats to privacy that may flow from advances in the technology available to the law enforcement profession, it has unfortunately failed to heed the tried and true counsel of judicial restraint. Instead of concentrating on the rather mundane issue that is actually presented by the case before it, the Court has endeavored to craft an all-encompassing rule for the future. It would be far wiser to give legislators an unimpeded oppor-

tunity to grapple with these emerging issues rather than to shackle them with prematurely devised constitutional constraints.

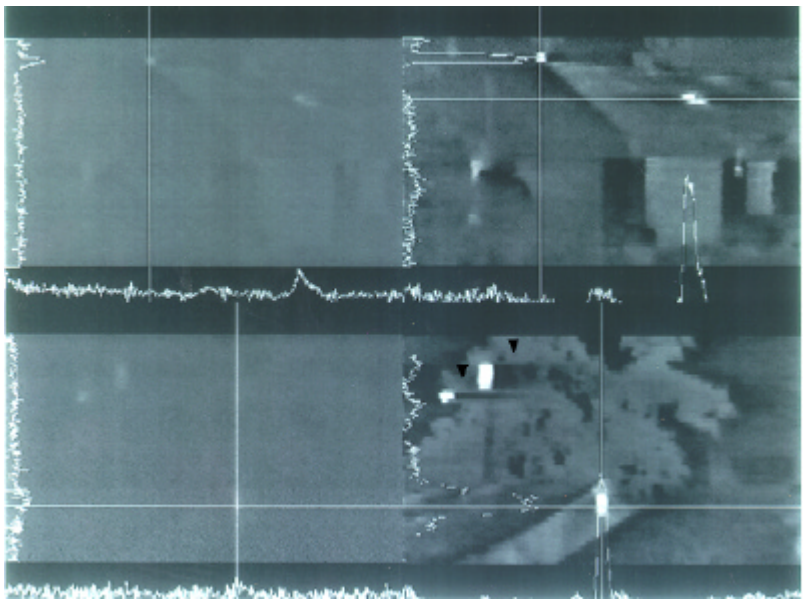
I respectfully dissent.

APPENDIX

(Images and text reproduced from defendant's exhibit 107)

Top left: Infrared image of a video frame from the videotape submitted as evidence in this case. The thermogram indicates the suspect house as it appeared with the Gain and contrast in its default setting. Only the outline of the house is visible. The camera used was the Thermovision 210.

Top Right: Infrared image of a subsequent videoframe taken from the videotape. The gain and contrast settings have been increased in order to make the walls and roof of the structure appear hotter than what it actually is.



Bottom Left: Infrared image of the opposite side of the suspects house. The thermogram is also taken from the same videotape. The camera settings are in the default mode and the outline of the house is barely visible. Only the hot electrical transformer and the street light are identifiable.

Bottom Right: The same image, but with the gain and contrast increased. This change in camera settings cause any object to appear hotter than what it actually is. The arrow indicates the overloading of a area immediately around a hot object in this case the electrical transformer and the streetlight. This overloading of the image is a inherent design flaw in the camera itself.