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United States Supreme Court Petitioner's Brief.

Danny Lee KYLLO, Petitioner,
v.
UNITED STATES OF AMERICA, Respondent.

No. 99-8508.
November 13, 2000.

On Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit

BRIEF FOR PETITIONER

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***i** QUESTION PRESENTED

WHETHER THE WARRANTLESS USE OF A THERMAL IMAGING DEVICE TO DETECT HEAT SOURCES WITHIN A HOME CONSTITUTES AN UNREASONABLE SEARCH AND SEIZURE UNDER THE FOURTH AMENDMENT TO THE UNITED STATES CONSTITUTION.

***ii** RULE 24.d CITATION

Reported Opinions Below:

United States v. Kyllo (Kyllo III), 190 F.3d 1041 (9th Cir. 1999)	Pet. App. A
United States v. Kyllo (Kyllo II), 140 F.3d 1249 (9th Cir. 1998)	Pet. App. E
United States v. Kyllo (Kyllo I), 37 F.3d 526 (9th Cir. 1994)	Pet. App. F
United States v. Kyllo, 809 F.Supp. 787 (D. Or. 1992) (District Court Opinion denying Motion to Suppress December 4, 1992)	Pet. App. G
United States v. Kyllo, 1996 WL 125594 (D. Or. 1996) (District Court Opinion on Remand denying Motion to Suppress March 15, 1996)	Pet. App. H

West Headnotes (1)

SEARCHES AND SEIZURES🔑What Constitutes Search or Seizure

Does the warrantless use of a thermal imaging device to detect heat sources within a home constitute an unreasonable search and seizure under the Fourth Amendment? U.S.C.A. Const.Amend. 4.

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***1 Basis of Jurisdiction**

On September 9, 1999, a panel of the Ninth Circuit Court of Appeals affirmed the judgment of the United States District Court for the District of Oregon. A Petition for Rehearing with Suggestion for Rehearing En Banc was denied on December 14, 1999. A timely Petition For Writ Of Certiorari was filed on March 3, 2000. This Court has jurisdiction over this case pursuant to 28 U.S.C. § 1254(1).

Constitutional Provisions

The Fourth Amendment to 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 persons or things to be seized.

***2 STATEMENT OF THE CASE**

A. Background

Danny Lee Kyllo was arrested in his home on January 27, 1992 by a team of officers executing a search warrant for evidence of marijuana manufacturing (JA 6). In the affidavit supporting the search warrant, United States Bureau of Land Management (BLM) Agent William Elliott never alleged that Mr. Kyllo had been recently observed either possessing, selling, or growing marijuana. Instead, he sought to establish probable cause based on i) the results from a thermal imaging scan of Mr. Kyllo's residence taken by an Oregon National Guardsman, from which the affiant concluded that high levels of heat emanated from Mr. Kyllo's roof and walls; (ii) the fact that Mr. Kyllo's next door neighbor, Tova Shook, was suspected of criminal conduct; (iii) electric power consumption records; (iv) alleged criminal activities of Kyllo's estranged wife, more than a year in the past, without disclosing their estrangement; and (v) two-year-old triple hearsay from an informant.

The actual target of the investigation was Sam Shook, and information led investigators to believe that his daughter, Tova Shook, was also involved (Lodging, S.W. Affid. JA 87).[1] The investigation focused by happenstance on Mr. Kyllo because he lived next door to Tova Shook, and Tova lived with Lori Kyllo (JA 87).

The thermal image of Mr. Kyllo's home showed white blotchy areas on the roof and a white garage wall (Gvt. Exh. 1). This indicated to the operator, National Guard Sergeant Dan ***3** Haas, that pockets of more intense heat were beneath the roof and perhaps in the garage (JA 66-68; SW Affid. Exh. F). He concluded that this was consistent with marijuana growing, and these results were included in the search warrant application.

Pursuant to the warrant, officers searched Mr. Kyllo's home and found marijuana being grown in Mr. Kyllo's attic, but not in his garage. They seized growing marijuana plants, grow equipment, dried marijuana, and various personal items including two handguns (DCR 9-10). Mr. Kyllo was subsequently indicted for manufacturing marijuana (DCR 13).

B. District Court Proceedings

Mr. Kyllo filed a motion to suppress evidence. He challenged the warrantless use of the thermal imaging device, and requested a *Franks*[2] hearing with regard to alleged false statements and omissions by the search warrant affiant (DCR 30). The district court granted a hearing limited to the allegation that a purported Portland General Electric (PGE) power consumption chart was distorted to draw a false picture of Mr. Kyllo's actual electrical consumption in order to assert that there was "excessive power usage" at his home (DCR 39). The court refused to take evidence on other areas of alleged falsity or on the issue of thermal imaging.

The *Franks* hearing spanned several days (DCR 43-44, 51). On December 4, 1992, the court issued a written order and opinion denying the Motion to Suppress (Pet. App. G). The court concluded that the affiant did not act recklessly in using the PGE chart (Pet. App. G, p. 9). Based only on legal argument, the court also ruled that the warrantless use of thermal imaging to track heat sources at Mr. Kyllo's residence was not an unreasonable search and seizure under the Fourth Amendment; thus, the results could be used to support probable cause.

***4** Mr. Kyllo entered a conditional plea of guilty preserving his right to appeal the denial of his motion to suppress (DCR 69-70). He was sentenced to a term of 63 months imprisonment (DCR 73). The district court granted bail pending the outcome of Mr. Kyllo's appeal of the denial of his motion to suppress (DCR 77).

C. First Opinion by the Ninth Circuit

On appeal, the United States Court of Appeals for the Ninth Circuit vacated the conviction and remanded the case for an evidentiary hearing on the intrusiveness of the thermal imaging device and for a further *Franks* hearing. *United States v. Kyllo (Kyllo I),* 37 F. 3d 526 (9th Cir. 1994) (Pet. App. F). The panel determined that Agent Elliott's power record presentation was false and misleading. *Kyllo I*, 37 F. 3d at 528.[3] However, that court could not conclude that the district court clearly erred when it found that the false and misleading claims were negligent, rather than reckless. The court also held that Kyllo had made a substantial preliminary showing that other deliberately false assertions were made about his marital status to tie him to recent drug sales.

D. Proceedings on Remand

In June 1995, the evidentiary hearing began, focusing on the capabilities of the thermal imaging device used in this case. Thermal imaging permits one to detect information that is ***5** unavailable to the unaided eye (JA 16, 36, 47, 94-6, 115, 157). The Agema 210 used in this case looks and operates much like a conventional video camera. Normal cameras operate on the basis of light, however thermal imagers detect heat in the thermal infrared range of the electromagnetic scale, which is beyond the range of visible light (JA 15-7, 92-4). The information detected can be converted to digital or visual information, enabling one to actually "see" what is invisible to the naked eye (JA 15, 93-4).

All objects radiate or emit invisible thermal infrared energy. Many objects absorb thermal energy from other sources radiating toward them, much as sand on the beach is heated by the sun. These materials then reemit, or transmit, this additional thermal energy beyond the standard emittance characteristics of the material itself (JA 48-50, 95-6, 118). The thermal image operator refers to this phenomenon as a thermal variation or anomaly (JA 28, 48-9).

Because of these properties, thermal imaging allows one to gather information about what might be behind a barrier, by using the imager on the barrier itself to see if additional heat is being transmitted through it (JA 24-5, 49-50, 68, 71, 73-4, 81, 95-6, 115). This is the heat signature, often spoken of in shorthand as the ability to "see through" a wall or barrier when the signature is detected (JA 24-5, 95-6, 109).

Thermal imagers can pinpoint locations of high heat sources within a structure (JA 49-50, 73, 81-2, 86, 95, 109), and can detect heat anomalies through virtually *any* barrier, from roofing material (JA 73), to tin Quonset huts (JA 25), apartment buildings, asphalt and concrete paving material (JA 112, 115), and black or colored plastic sheeting (JA 24). The better the

machine, the more subtle the variations of temperature that can ***6** be detected, and the more well-defined the image that is seen (JA 98; Lodging, Def. Exh. 108).[4]

The heat signature has a particular meaning to a trained operator. In this case, thermal imaging revealed white blotchy areas on the roof of Mr. Kyllo's house and showed that the wall of his garage was white, indicating high heat loss (Lodging, S.W. Affid. Exh. F). Sgt. Haas claimed that this "was unusually high compared to comparable residences in the proximity…and the heat signature was indicative of indoor marijuana grow operations …" (S.W. Affid. P.18).

Thermal imagers reveal more than mere hot spots. Despite promotional literature to the contrary,[5] thermal imagers that use the near-to-visible end of the thermal infrared scale, like the Agema Thermovision 210, can "see through" glass (JA 52, 54, 101-3).[6] The thermal imager can detect and record human activity inside of a darkened room through a closed window. (JA 54, 101-3). Videotapes demonstrated that the Agema, and other imagers, gain images through glass barriers quite well (JA 101-3; Def. Exh. 108), particularly at night when the thermal ***7** imaging device is most likely to be used by police (JA 102)[7]. No one seriously disputed the ability of a thermal imager to detect human activity, even whether people were embracing, inside a dark room at night if a window was open (JA 56, 165-6).

Thermal imaging is becoming ever more technologically advanced at an astounding pace, with virtually limitless application (JA 38-9, 42-3, 133, 160-1). It is now possible to obtain clear images of items no bigger than an inch or two from navigable airspace, and computers can provide for even greater enhancement. (JA 43) The military is the largest market for thermal image technology, and is taking an increasing role in domestic law enforcement (JA 152).

On March 15, 1996 the district court issued an opinion and order (Pet. App. H), once again concluding that the use of the thermal imager was not a search under the Fourth Amendment. The court also concluded that the affiant did not deliberately or recklessly omit facts from the search warrant affidavit about Mr. Kyllo's marital status.

Taking into account Mr. Kyllo's cooperation, his unblemished record, his steps toward rehabilitation, as well as his good conduct and full employment over the four year period that he had been on release, the court imposed a sentence of one month imprisonment, to be followed by a period of supervised release. (Pet. App. I).[8] The court continued Mr. Kyllo's bail pending the outcome on appeal. (DCR 196).

***8 E. Ninth Circuit's *Kyllo II* and *Kyllo III* Opinions**

Mr. Kyllo appealed anew. This time, the Ninth Circuit concluded in a 2-1 decision that Mr. Kyllo had a reasonable expectation of privacy in his home from thermal imaging, and again vacated the conviction and remanded the case. *United States v. Kyllo* (*Kyllo II*), 140 F. 3d 1249 (9th Cir. 1998). (Petition Appendix E). The panel found that he had a subjective expectation that activities conducted within his home would remain private. *Kyllo II*, 140 F. at 1252. The court also examined the facts, noting the lack of dispute that thermal imaging can reveal intimate activities in a bedroom. *Id.*, at 1254. The majority concluded that the purpose of thermal imaging is to reveal heat signatures of activities occurring inside a structure, and held that this intrudes upon activity that is "sufficiently intimate" to constitute a search in violation of the Fourth Amendment. *Kyllo II*, 140 F. 3d at 1254.

While the government's petition for rehearing was pending, the author of the *Kyllo II* opinion resigned from the bench for health reasons, and a replacement was selected, over Mr. Kyllo's objection.[9] This new panel granted the government's petition for rehearing, with the new judge siding with the former dissenter to make a new majority. The remaining member of the former majority dissented (Pet. App. D). This panel later dispensed with oral argument, and withdrew the *Kyllo II* opinion (Pet. App. C). It then issued a new 2-1 opinion holding that Mr. Kyllo had no reasonable expectation of privacy from thermal imaging of his home, and that thermal imaging does not constitute a search under the Fourth ***9** Amendment. *United States v. Kyllo* (*Kyllo III*), 190 F. 3d 1041, 1046 (9th Cir. 1999) (Pet. App. A).[10]

The court employed the test distilled from *Katz v. United States,* 389 U.S. 347 (1967). First, the majority concluded that Mr. Kyllo did not exhibit a subjective expectation of privacy in the heat coming from his home because he took no affirmative action to conceal "waste heat emissions." *Kyllo III*, 190 F. 3d at 1046. The opinion compared the thermal scan of these emissions to a trained police dog used to detect the odor of illicit drugs, and relied on other federal circuit cases that reach the same conclusion. *United States v. Robinson,* 62 F. 3d 1325 (11th Cir. 1995); *United States v. Ford,* 34 F. 3d 992 (11th Cir. 1994); *United States v. Myers,* 46 F. 3d 668 (7th Cir. 1995).

The majority also opined that even if Mr. Kyllo could demonstrate a subjective expectation of privacy, society would not recognize such an expectation as objectively reasonable in any event. *Kyllo III*, 190 F. 3d at 1046. The opinion reasoned that this Court has permitted non-intrusive observation from outside of the home of activities within a residence or its curtilage, and that the use of technology to enhance surveillance does not necessarily convert such non-intrusive observation into an impermissible search. *Kyllo III*, 190 F. 3d at 1047. The majority looked to whether the thermal imager revealed intimate details and concluded that it did not.

***10** The dissenting judge disapproved of unwarranted thermal imaging based on the sanctity of the home. *Kyllo III*, 190 F. 3d at 1048. The dissent relied on this Court's direction that a search can occur without any trespass. The proper focus, according to the dissent, should be on the homeowner's expectation of privacy in activity occurring in the interior of the home, not on a non-existent expectation as to thermal emissions. *Kyllo III*, 190 F. 3d at 1049. Such emissions are not comparable to garbage because there is no conscious, purposeful exposure. To the dissent technological amplification of the human senses was a critical factor because it impermissibly defeats the expectation of privacy.

The dissent criticized the majority for wrenching the "intimate detail" language out of its proper context to fashion a new test. Rather, the dissent noted other cases that have addressed the issue, and agreed that society would regard Mr. Kyllo's expectation of privacy in his home as reasonable. The thermal imager can detect a great deal of innocent private heat-producing activity inside the home, despite the fact that the images themselves are only gross. *Kyllo III*, 190 F. 3d at 1050.

A petition for rehearing with suggestion for rehearing en banc was denied (Pet. App. B). Mr. Kyllo filed a timely petition for a writ of certiorari, which this Court granted on September 26, 2000.

SUMMARY OF ARGUMENT

The text of the Fourth Amendment expressly provides for protection of the home against unreasonable searches and seizures. This Court has repeatedly emphasized that the right to retreat and be free in one's home from unreasonable government intrusion is at the very core of the Fourth Amendment. *Oliver v. United States,* 466 U.S. 170, 178 (1984). Therefore, whether thermal imaging is a search of the home is dispositive because warrantless searches of the home are *per se* unreasonable unless a well-recognized exception to the warrant ***11** requirement exists. *Payton v. New York,* 445 U.S. 573, 587 (1980).

Thermal image monitoring of the home, to detect invisible thermal radiation as it passes through the walls of a house, strips us of our most basic boundary of personal privacy by electronically gathering invisible information coming from the interior of the home. It is an unconstitutional search under the Fourth Amendment. It overcomes normal privacy barriers in the same way as the electronic monitoring disapproved of in *United States v. Karo,* 468 U.S. 705, 715-716 (1984) and in *Katz v. United States,* 389 U.S. 347 (1967). In fact, thermal imaging is *more* intrusive than the beeper in *Karo* because it pinpoints the specific location of heat sources inside the home.

The *Katz* test is inapposite because this case deals with a search of the home. *Katz* is correctly applied in cases dealing with expectations of privacy in places *other* than the home, where individual and societal expectations of privacy are less clear. Where *Katz is* helpful is in its recognition that the Fourth Amendment can be violated without any physical intrusion or trespass.

Even if *Katz* were the proper analytical method, Mr. Kyllo certainly had a subjective and reasonable expectation of privacy in the activities he conducted in his home. He took normal precautions against observation by conducting his activities inside his home. The Fourth Amendment does not require that citizens take extreme measures to protect the privacy of what one cannot see, feel, hear, taste, or smell out of fear that the government might be able to employ new technologies that reveal what may be going on inside their homes.

Mr. Kyllo did not knowing expose his conduct, or his thermal radiation, to the public. Thermal imaging is extrasensory and permits the police to "see" what is invisible to the naked eye, even though thermal radiation is not intentionally exposed to public view. It is qualitatively different from mere sense enhancement that improves upon what any member of the ***12** general public is able to observe. When technology can exceed the natural senses, it subverts the human ability to contain

private matters in a normal way and threatens the core expectation of privacy in the home.

Society regards as reasonable the expectation of privacy from such intrusive scanning of the home. Thermal imagers should be used only when authorized by a warrant.

The *Kyllo III* majority decision, and the cases on which it relies, is flawed in many ways.

First, as discussed above, the *Katz* test should not apply to searches of the home.

Second, even if *Katz* applies, the majority opinion misframed the issue by failing to focus on the government's monitoring activity and the purpose of the Fourth Amendment to prevent arbitrary invasions of personal privacy.

Third, the majority rejects the reality that activities conducted within the confines of the house, out of sight or plain view of the public, demonstrate an actual desire for privacy, and instead requires the occupant to do more to demonstrate a subjective expectation of privacy.

Fourth, it downplays or ignores the extra-sensory nature of thermal imaging, thereby dispensing with any knowing and voluntary act of exposure by the occupant.

Fifth, the majority mischaracterizes the natural migration of thermal radiation as waste heat, wrongly analogizing it to garbage that is intentionally discarded.

Sixth, the majority wrongly analogizes thermal imaging at the home to dog sniffs, which have been permitted by this Court at airports but not at homes.

Seventh, the majority's reliance on the fact that imagers do not physically penetrate the walls of the home is misguided because such penetration has long been rejected as a criterion for evaluating a search.

Eighth, the majority erroneously injects a completely new criterion into Fourth Amendment jurisprudence by seeking to ***13** determine whether intimate details are revealed by thermal imaging.

The majority below ultimately concludes that thermal imaging does not even constitute a search, reasonable or otherwise. This places thermal imaging beyond constitutional restraint, thereby abandoning judicial control over evolving technological surveillance and jeopardizing every person's right to be left alone. The public justifiably expects that the walls of our homes sanctify a zone of privacy against the government, and represent physical barriers that assure our privacy. These walls are not conduits of invisible information that the government may electronically scan without judicial approval.

The analysis below permits a citizen's normal and reasonable expectation of privacy to be easily overcome by some unanticipated technological advance simply by lack of knowledge or inaction. Under this view, the people can never be secure in their houses against unreasonable searches and seizures because they can never know what special precautions must be taken against new technology or surveillance techniques. For this reason, this Court has insisted on using normal expectations of privacy based on "well-recognized Fourth Amendment freedoms," not on the fortuitous announcement of new scientific developments. *Smith v. Maryland,* 422 U.S. 735, 740 n.5 (1979).

ARGUMENT

I. HOMES ARE ENTITLED TO THE GREATEST PROTECTION UNDER THE FOURTH AMENDMENT.

A. This Court Has Long Recognized The Sanctity Of The Home.

The Fourth Amendment expressly provides that "[t]he right of the people to be secure in their … houses … against

unreasonable searches and seizures, shall not be violated." ***14** The core value that the Fourth Amendment protects is personal privacy.
The sanctity of the home is not to be disputed. But the home is sacred in Fourth Amendment terms not primarily because of the occupants' *possessory* interests in the premises, but because of their *privacy* interests in the activities that take place within.

Segura v. United States, 468 U.S. 796, 810 (1984) (emphasis in original); *see also Burdeau v. McDowell,* 256 U.S. 465, 475 (1921)(purpose of the Fourth Amendment is "to secure the citizen in his right of unmolested occupation of his dwelling").

For this reason, this Court has repeatedly held that homes deserve heightened constitutional protection from searches and seizures. "[T]he overriding respect for the sanctity of the home…has been embedded in our traditions since the origins of the Republic." *Payton v. New York,* 445 U.S. 573, 601 (1980). The right of a person to retreat into the home and there be free from unreasonable governmental intrusion is at the very core of the Fourth Amendment, *Silverman v. United States,* 365 U.S. 505, 511 (1961), and has long been subject to constitutional protection. *Boyd v. United States,* 116 U.S. 616, 630 (1886). The Fourth Amendment "reflects the recognition of the Founders that certain enclaves should be free from arbitrary government interference." *Oliver v. United States,* 466 U.S. 170, 178 (1984).

This Court has long adhered to the principle that warrantless searches of the home are *per se* unreasonable.
At the risk of belaboring the obvious, private residences are places in which the individual normally expects privacy free from governmental intrusion not authorized by a warrant, and that expectation is plainly one that society is prepared to recognize as justifiable. Our cases have not deviated from this basic Fourth Amendment principle. Searches and seizures inside a home without a warrant are presumptively unreasonable absent exigent circumstances.

***15** *United States v. Karo,* 468 U.S. 705, 715-716 (1984). "[T]he Fourth Amendment has drawn a firm line at the entrance to the house." *Payton*, 445 U.S. at 590.

The fundamental and dispositive question here is whether thermal imaging actually *is* a search of the home. Simply put, if thermal imaging is search activity, then Mr. Kyllo's conviction must be reversed because the warrantless search of his home was *per se* unreasonable.

B. Electronic Monitoring Of A Home Is A Search And Requires A Warrant.

The government used thermal imaging to determine what Mr. Kyllo was doing in the privacy of his home. By locating abnormal heat in his roof and walls, the government detected that Mr. Kyllo was using high intensity lights which are commonly used in growing marijuana. The government gathered this information about the interior of Mr. Kyllo's home, even though it could not have otherwise been known without physically entering the premises. *Karo*, 468 U.S. at 715.

Under *Karo*, this kind of electronic monitoring of the home violates the Fourth Amendment. Many lower courts have applied this Court's analysis in *Karo* to conclude that thermal imaging constitutes an unreasonable search and seizure within the meaning of the Fourth Amendment. *United States v. Field,* 855 F. Supp. 1518 (W.D. Wis. 1994); *United States v. Elkins,* 95 F. Supp. 2d 796, 812 (W.D. Tenn. 2000); *United States v. Cusumano,* 83 F. 3d 1247, 1251-1265 (10th Cir. 1996) (en banc, *decided on other grounds*)(McKay, Seymour, Henry, JJ. dissenting). *Commonwealth v. Gindlesperger,* 743 A. 2d 898 (Pa. 1999); *State v. Young,* 123 Wash 2d 173, 867 P. 2d 593, 604 (1994); *People v. Deutsch,* 44 Cal. App. 4th 1224, 52 Cal. Rptr. 2d 366 (1996); *State v. Siegel,* 934 P. 2d 176 (Mont. 1997).

16 1.** ***Electronic monitoring of homes is an impermissible intrusion.

In *United States v. Karo,* 468 U.S. 705, 708-10 (1984) the government electronically tracked a drum of chemicals over public roads, into a private residence. This Court held that warrantless electronic surveillance *of the residence* was as unconstitutional as if the agent had personally entered the home in secret. *Karo*, 468 U.S. at 715. The beeper revealed to the agents that the article of interest was located, and remained, inside the residence. The Court held that the Fourth Amendment does not allow the government to use electronic devices to determine "whether a particular article--or a person for that

matter-is in an individual's home at a particular time." *Karo*, 468 U.S. at 716.

This Court rejected the contention that such monitoring "constitutes only a minuscule intrusion on protected privacy interests." *Karo*, 468 U.S. at 717. Even though this was not "a full-scale search," it revealed "a critical fact about the interior of the premises that the Government [was] extremely interested in knowing and that it could not have otherwise obtained without a warrant". *Karo*, 468 U.S. at 715.

Thermal imaging is much like the monitoring this Court condemned in *Karo.*
[T]he imager records the heat escaping from the walls that is emitted by an object on the other side of the wall. To the extent the device can pick up such radiation and record it, it can "see through" walls.

Field, 855 F. Supp. at 1519; *see also Young*, 867 P. 2d at 598 (thermal imager allows government to, in effect, see through walls).

There is a striking approach/avoidance dichotomy over *Karo* in lower court opinions. Virtually every opinion finding warrantless thermal imaging to be unconstitutional views ***17** *Karo* as persuasively on point.[11] Conversely, none of the cases that approve of warrantless thermal imaging even mention or attempt to distinguish *Karo.*

While this Court has never specifically defined what is impermissible search activity,[12] nor announced particular analytical factors for examining the government's conduct, the Court has expressed frequent concerns over monitoring activity, or stealthy electronic intrusions. *California v. Ciraolo,* 467 U.S. 207, 215 (1986). *Katz* condemned the government's "activities in electronically listening to and recording" a conversation. 389 U.S. at 353. *Karo* condemned the electronic monitoring of a beeper in a private residence. 468 U.S. at 714-716. Thermal imaging is *more* intrusive than the beeper in *Karo* because "the beeper was not sensitive enough to reveal the can's precise location within an enclosed structure … In contrast, the infrared device … reveals the specific location of heat within the home." Young, 867 P. 2d at 602; *see also Field*, 855 F. Supp. at 1519; *Cusumano*, 83 F. 3d at 1255.

In *Dow Chemical Co. v. United States,* 476 U.S. 227 (1986), which involved a flyover of an industrial plant, this Court expressed grave concern and cautioned against extending the holding to high-tech sophisticated surveillance of the home, or to an area immediately adjacent to a private residence.
We find it important that this is *not* an area immediately adjacent to a private home, where privacy expectations are most heightened.

Dow Chemical, 476 U.S. at 237 n.4 (emphasis in original).

***18** Aside from stealthy monitoring, this Court has also looked objectively at *physical activity* of the police to determine that a search occurred in *Arizona v. Hicks,* 480 U.S. 323, 324-325 (1987)(holding that "[a] search is a search, even if it happens to disclose nothing but the bottom of a turntable" when an officer moved stereo equipment to expose serial number). In *Bond v. United States,* 528 U.S.___, 120 S.Ct. 1462, 146 L.Ed2d 365 (2000) this Court recently decided that a person has a legitimate expectation that a piece of personal luggage would not be felt in an exploratory manner to reveal what might be inside.

In *Bond* this Court also noted that physical inspection is more intrusive than purely visual inspection. Technological enhancement that makes invisible thermal radiation visible is not "purely visual" inspection. This sort of sophisticated electronic surveillance relies on much more than the human sense of sight. Sensing the invisible heat waves coming from one's house is more akin to physical inspection, or feeling the heat, because the detector senses (or feels) the radiation. That imagers can convert what is sensed into picture form is merely convenient.

Thus, stealthy electronic probing or exploring of the walls of a house by a thermal imager to determine what is going on inside is much like the squeezing condemned in *Bond*, and the feeling condemned in *Minnesota v. Dickerson,* 508 U.S. 366 (1993).

Thermal imagers can detect a human form in the dark through an open window, *Kyllo II*, 140 F. 3d at 1254; *Young*, 867 P. 2d

at 595, and can distinguish if two people are embracing (JA 56, 164-6). It can even detect people through a plywood door. *Young*, 867 P. 2d at 595. Thermal imagers can detect human movement through closed windows, *Kyllo II*, 140 F. 3d at 1249, and perhaps through curtains. (Jt. App. 55-56); *Field*, 855 F. Supp. at 1531. They can reveal the partitioning of rooms in a mobile home, ***19** *United States v. Olson,* 21 F. 3d 847, 848 n.5 (8th Cir. 1994), or whether certain rooms are being occupied or used. *Field*, 855 F. Supp. at 1531 n.7; *Young*, 867 P. 2d at 598. They can also reveal if something is hidden in a wall. (JA 82).

2. Thermal imaging need not physically penetrate to be a search.

The majority below, and the district court, opined that thermal imaging is not a search because it does not physically penetrate the walls. This argument, drawn from a misreading of *Dow Chemical Co. v. United States,* 476 U.S. 227 (1986), is not only debatable, but is irrelevant. "IT]he fact that the electronic device…did not happen to penetrate the wall of the booth can have no constitutional significance." *Katz*, 389 U.S. at 353.

In *Dow Chemical*, this Court cautioned about "some unique sensory device" that would "raise very different and far more serious questions" than camera surveillance. 476 U.S. at 238-39. The Court specifically referred to a device that "could penetrate the walls of buildings and record conversations in Dow's plants." *Dow Chemical*, 476 U.S. at 238.

This Court's concern was not over *literal* physical penetration but the government's ability to *figuratively* penetrate barriers by using technology that renders such barriers meaningless or superfluous.

The reasonable expectation of privacy standard was designed to ensure that the Fourth Amendment continues to protect privacy in an era when official surveillance can be accomplished without any physical penetration of or proximity to the area under inspection.

Dow Chemical, 476 U.S. at 247 (Powell, J. dissenting); *see also Minnesota v. Carter,* 525 U.S. 83, 99 (1998) (Kennedy, J., concurring) ("Security of the home must be guarded by the law in a world where privacy is diminished by enhanced surveillance and sophisticated communications systems."). This Court has long since discarded the need to show a physical ***20** trespass, or any penetration of the walls, in order for surveillance to constitute a search. "It is the exploitation of technological advances that implicates the Fourth Amendment …" *Karo*, 468 U.S. at 712.

Under this Court's decisions, therefore, a surveillance device intrudes into a zone of privacy if it reveals information within a structure that could not otherwise be known without physical entry. *Karo*, 468 U.S. at 715. The thermal imaging device does this by displaying heat sources coming from within the home.

C. The Majority Below Improperly Focused On The Thermal Radiation Rather Than On Privacy Interests In Activity Conducted Inside The Home.

The court of appeals issued two different 2-1 opinions on this question, reaching opposite conclusions. The later opinion ultimately rejected the practical reality that thermal imaging is a search of the house. To reach this conclusion, it misframed the question. It divorced thermal imaging from its surveillance purpose and incorrectly focused on the fact that it senses the thermal radiation escaping the house, rather than focusing on the individual privacy interests in activities restricted to the interior of a home. Other lower courts have properly maintained the focus on privacy interests protected by the Fourth Amendment. Compare *Kyllo III*, 190 F. 3d at 1046 to *Cusumano*, 83 F. 3d at 1258 (McKay, Seymour, Henry, JJ. dissenting) ("*Katz* looked not to the tools employed by the government nor to the phenomena measured by those tools but to the object of the government's efforts"); *see also Elkins*, 95 F. Supp. 2d at 809-10; *Gindlesperger*, 743 A. 2d at 902-03; *Deutsch*, 52 Cal. Rptr. 2d at 368; *Siegel*, 934 P. 2d at 189.

The machine intrudes upon the privacy of the home not because it records white spots on a dark background but rather because the interpretation of the data allows the ***21** government to monitor those domestic activities that generate a significant amount of heat.

Cusumano, 83 F.3d at 1260.

The majority below also erred by concluding that the thermal imaging device intruded into nothing because it only captured information on the outside surface of the home. *Kyllo III*, 190 F. 3d at 1046. Even if one accepts this factual premise, it is a distinction without a difference. Mr. Kyllo's expectation of privacy extends to the curtilage of his home as well, which this Court has always recognized as an extension of the home entitled to privacy protection equal to the home itself. *Oliver*, 466 U.S. at 180. If this were not so, the invasion of the curtilage here would destroy the right to maintain the privacy of activities inside the house.

The *Kyllo III* majority ultimately depended on the rejected physical penetration requirement, and refused to confront the fact that thermal imaging is intended to, and does, discern activity in the home, such as the location of suspected grow lights.
The whole point of the [thermal imaging] exercise is to attempt to learn what is happening inside of the home. Depending on the skill-or perhaps the audacity-of the person interpreting the thermal image, the government can actually discern, or claim to discern some very detailed information about what is happening inside of a home being scanned.

Field, 855 F. Supp. at 1531; *see also Young*, 867 P. 2d at 603. "The device discloses information about activities occurring within the confines of the home, and which a person is entitled to keep from disclosure absent a warrant." *Young*, 867 P. 2d at 598.

The majority view below would turn the walls of private homes into mere conduits of invisible information that can be detected with developing technology. It ignores the core values ***22** underlying the Fourth Amendment and the reason for the specific reference to the house. Moreover, it ignores the decisions of this Court in the area of electronic monitoring.

D. Additional Reasons For Rejecting Opinion Below.

The majority's conclusion below that thermal imaging does not constitute a search removes all limitations "on the government's ability to use the device on *any* private residence, on *any* particular night, even if no criminal activity is suspected. Such police activity is constitutionally offensive." *Young*, 867 P.2d at 600. "Technological advancements cannot be allowed to defeat the protections of the Bill of Rights." *Elkins*, 95 F. Supp. 2d at 813.
The ultimate threat of unregulated modern [electronic surveillance] technology could be a stifling police presence which affects the innocent and guilty alike.

ABA Standards for Criminal Justice, Electronic Surveillance, Third Edition, Section B: Technologically-Assisted Physical Surveillance p. 24 (1999) For these reasons, thermal imaging resembles the pernicious general warrant that the Fourth Amendment was designed to prohibit, unlimited in time or place, and applicable to any member of society without regard to individualized suspicion.
Indiscriminate monitoring of property that has been withdrawn from public view would present far too serious a threat to privacy interests in the home to escape entirely some sort of Fourth Amendment oversight.

Karo, 468 U.S. at 716.

Thermal image monitoring of the home is a search and requires a warrant. A balanced committee of the American Bar Association studied the issue of electronic surveillance and reached this same conclusion, publishing proposed law enforcement standards. *ABA Standards, supra, Standard 29.6(a)(i) Detection Devices.*
***23** Because even relatively primitive thermal imaging devices can detect heat differentials as small as a half-degree…they have the potential for discerning a variety of activities associated with an expectation of privacy.

Id. at 85.

Adopting the reasoning of *Kyllo III* presents a danger that other sophisticated devices, capable of tracking the movements of individuals inside a structure, would likewise be constitutionally permissible. *Gindlesperger*, 743 A. 2d at 903 n.7. It may set

the stage for warrantless use of other existing techniques, such as parabolic microphones that pick up conversations by detecting the sound wave vibrations off of glass. This Court suggested that such electronic devices may pose very serious constitutional questions, *Dow Chemical*, 476 U.S. at 239, but these questions might be foreclosed if thermal imaging is not held to be a search. *Cusumano*, 83 F. 3d at 1258.

Thermal imaging, like the beeper in *Karo* and the bug in *Katz*, disregards barriers that are designed to maintain privacy. They gather information coming from the interior of a structure that is inaccessible to the outsider without technologically replacing the human senses. Each of these electronic devices passively receive invisible waves that emanate from within a private place. This Court has long viewed the home as a place of special constitutional stature and a refuge for every citizen, and should reaffirm that principle here by requiring prior judicial approval for the use of thermal imagers at private residences.

II. UNDER THIS COURT'S *KATZ* TEST, THERMAL IMAGING INFRINGES UPON A REASONABLE EXPECTATION OF PRIVACY.

A. The Ninth Circuit Should Not Have Applied The *Katz* Test To A Search Of The Home.

This Court frequently uses the test of *Katz v. United States,* 389 U.S. 347 (1967), to determine whether an alleged search is unconstitutional, by looking at whether certain police activity ***24** violates a reasonable expectation of privacy. The Court has traditionally used this test to assess the reasonableness of expectations of privacy in places other than the home, where privacy expectations are less clearly defined.[13] The assessment of *those* reasonable expectations looks to "a source *outside* of the Fourth Amendment, either by reference to concepts of real or personal property law or to understandings that are recognized and permitted by society." *Minnesota v. Carter,* 525 U.S. 83, 88 (1998) (emphasis added), quoting *Rakas v. Illinois,* 439 U.S. 128, 143-144 n.12 (1978).

Katz itself involved surveillance in a *public* place, not the home. Even after declaring that "the Fourth Amendment protects people, not places," *Katz*, 389 U.S. at 351, this Court reaffirmed the traditional protection of privacy in the home.

> [B]y holding that the Fourth Amendment protects persons and their private conversations, [*Katz*] was [not] intended to withdraw any of the protection which the Amendment extends to the home.
>
> *Alderman v. United States,* 394 U.S. 165, 180 (1969).

Katz is not particularly helpful here in answering "the threshold question whether a search or seizure covered by the Fourth Amendment *has occurred.* " *Carter*, 525 U.S. at 97 (Scalia J., concurring) (emphasis in original). *See also* Zabel, *A High-Tech Assault on the "Castle": Warrantless Thermal Surveillance of Private Residences and the Fourth Amendment*, 90 Nw. U. L.R. 267, 273, 287 (1995). *Katz* does not directly answer the independent question of whether home privacy was ***25** *invaded* by government action. *Smith v. Maryland,* 442 U.S. 735, 740 (1979).

Accordingly, the court below erred when it used *Katz* instead of *Karo* to conclude that Mr. Kyllo had no actual expectation of privacy in the activities he conducted inside his home. Of course he did. Requiring that he must affirmatively do more in order to show that he expected privacy in his own home, *Kyllo III*, 190 F. 3d at 1046, is anathema to bedrock principles and to the historic underpinnings of the Fourth Amendment. Further, his expectation was reasonable, given the Fourth Amendment right to be secure in one's house and the absence of evidence that he knowingly exposed his activities to view.

B. Properly Applied, *Katz* Confirms Mr. Kyllo's Reasonable Expectations Of Privacy.

Analysis under *Katz* does not yield a different result. Even under *Katz*, Mr. Kyllo did have an actual expectation of privacy which society would regard as reasonable. The court below misapplied both prongs of the *Katz* test, thus concluding that thermal imaging of a residence is not a search.

In *Katz v. United States,* 389 U.S. 347 (1967) this Court broke with a line of cases that had held no Fourth Amendment violation could be found without a physical trespass. *See Olmstead v. United States,* 277 U.S. 438, 466 (1928). Fictional, procedural, or property law concepts thwarted the underlying purpose and function of the Fourth Amendment. *See Warden v. Hayden,* 387 U.S. 394, 304 (1967). *Katz* expressly rejected the physical trespass requirement:

> [O]nce it is recognized that the Fourth Amendment protects people-and not simply "areas"-against unreasonable searches and seizures it becomes clear that the reach of that Amendment cannot turn upon the presence or absence of a physical intrusion

into any given enclosure.

Katz, 389 U.S. at 353.

***26** The Court has adopted Justice Harlan's concurring opinion in *Katz* as the test. To be constitutionally protected from a warrantless search and seizure "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.' " *Katz* at 361 (Harlan, J., concurring). This second element asks whether the government's intrusion infringes upon the personal and societal *values* protected by the Fourth Amendment. *Oliver v. United States,* 466 U.S. 170, 182-83 (1984); *United States v. Chadwick,* 433 U.S. 1, 7 (1977).

The *Kyllo III* majority misinterpreted Justice Harlan's formulation in ways that forsake the constitutional protection of the home.[14] When lower courts focus on the nature of the information captured and a person's failure to block heat emissions rather than the government's actions in relation to the home and the individual's right to be free from arbitrary invasions of privacy, this Court must clarify that *Katz* was meant to promote rather than curtail the vitality of the Fourth Amendment.

C. Under *Katz* Mr. Kyllo Had A Subjective Expectation Of Privacy.

1. *His conduct was inside his home.*

A person may not be required to do more than take normal precautions to maintain privacy. *Rakas*, 439 U.S. at 152 (Powell, J., concurring); *California v. Ciraola,* 476 U.S. 207, 211(1986); *Florida v. Riley,* 488 U.S. 445, 454 (1989)(O'Connor, J., concurring). In our society the home is the quintessential place where one expects privacy. By choosing to ***27** conduct his activities inside his home, Mr. Kyllo took the normal precaution needed to be free from observation by the outside world.

The Ninth Circuit majority grudgingly acknowledged that conducting activity inside the home "may well show he had some subjective expectation of privacy in the operation," *Kyllo III*, 190 F. 3d at 1046, but this was somehow not enough. Mr. Kyllo was faulted for taking "no affirmative action to conceal the waste heat emissions," *Kyllo III*, 190 F. 3d at 1046, something that cannot by the laws of nature be completely contained.

This is far more than this Court has ever demanded. The *Kyllo III* majority ignores the normative privacy value in the home, and that Mr. Kyllo "took normal precautions to maintain his privacy", *Ciraolo*, 476 U.S. at 211, by limiting his activity to the interior of his own house, and by not knowingly exposing it. That heat from his home is now capable of being electronically monitored does not override these fundamental considerations.

More importantly, placing too much reliance on the extent to which the target makes an effort to evade government surveillance would create the risk of encouraging a closed society, in which people routinely restrict their contact with the outside world. With the advent of the technologies at issue here, increasingly greater precautions (thicker walls, heavily curtained windows, avoidance of public exposure) would be necessary to render them ineffective.

ABA Standards, supra at 31.

In *Ciraolo*, the erection of a ten foot fence was sufficient evidence of a subjective expectation of privacy even though this Court ultimately found this expectation unreasonable as to naked eye observation from an airplane. In *California v. Greenwood,* 486 U.S. 35 (1988), placing garbage in opaque plastic bags established the owner's subjective expectation that ***28** the contents would remain concealed, although again this Court found the expectation unreasonable. In *Katz*, closing the phone booth was enough to exhibit a desire for privacy, even on a public street. Requiring that a person do more to exhibit an expectation of privacy, particularly for activity in one's own home, would render the first prong of *Katz* meaningless. *United States v. Ishmael,* 48 F. 3d 850, 854 (5th Cir. 1995).

An individual need not anticipate and guard against every conceivable weapon in the government's arsenal to keep private matters within the confines of his or her home. *Cusumano*, 83 F.3d at 1259 (McKay, Seymour, Henry, JJ. dissenting); *Ishmael*, 48 F.3d at 854-55. The majority's view would leave privacy at the mercy of the government's power to exploit technological advances by mere inaction and without any knowing exposure by the individual.

2. *His conduct was not knowingly exposed.*

The fact that thermal radiation coming from inside the house is invisible to the naked eye, and undetectable by other natural senses, supports the common sense reality that such radiation is not knowingly exposed to the public. *Katz*, 389 U.S. at 352. It is most likely that people give little thought to the thermal radiation, both because it is invisible and because it dissipates rapidly in the air.

Moreover, the concept of knowing exposure incorporates the notion that any member of the general public could have made the same "purely visual", *Bond v. United States,* 528 U.S. ___, 120 S.Ct. at 1464, "naked eye", *Ciraola*, 476 U.S. at 215; *Dow Chemical*, 476 U.S. at 234, observation from a lawful vantage point. *Greenwood*, 486 U.S. at 41. These factors are absent in the context of thermal imaging. It is not naked eye or purely visual. The general public does not routinely use thermal imagers to examine their neighbors' homes.

***29** This Court should consider the important privacy values at stake. Humans need heat to survive. Heaters, air conditioners, and fans are commonly used to regulate the temperatures inside homes and other buildings. People naturally expect heat to simply disperse unnoticed. *Siegal*, 934 P.2d at 186. The Constitution does not require citizens to forego the necessities of modern life in order to expect freedom from governmental surveillance of their heat.

Since heat naturally rises and emanates from a warmer body to a cooler one, neither Mr. Kyllo, nor any other member of the public, can do anything about escaping heat. *Field*, 855 F. Supp. at 1532; *see also Young*, 867 P.2d at 603 (the only way to prevent heat from escaping is to turn off all heat sources in the home, even in sub-zero temperatures). That does not mean people relinquish their right to privacy in heat-producing activity in their homes. This Court must, therefore, determine whether the Fourth Amendment's guarantee of personal security in one's home requires citizens to yield to scientific advances that render our traditional barriers to exposure obsolete, or whether a line at the threshold still exists.

D. The Opinion Below Wrongly Applied *Katz*.

By characterizing the migration of invisible heat as waste, the majority below justified electronically sensing the "waste heat" as no greater intrusion than dog sniffs which can detect the odor of illicit drugs. This conclusion was bolstered by reference to decisions of the Seventh and Eleventh Circuits. *United States v. Robinson,* 62 F. 3d 1325 (11th Cir. 1995); *United States v. Ford,* 34 F. 3d 992 (11th Cir. 1994); *United States v. Myers,* 46 F. 3d 668 (7th Cir. 1995).[15] All of these ***30** cases are predicated on *United States v. Penny-Feeney,* 773 F. Supp. 220 (D. Haw. 1991), *aff'd on other grounds sub nom. United States v. Feeney,* 984 F. 2d 1053 (9th Cir. 1993), the first reported case to hold that thermal imaging was *not* a search. The analogies employed are badly flawed.

1. *The waste heat analogy is wrong.*

The majority below incorrectly characterized thermal radiation as uncontained waste heat and reasoned that detecting waste heat is similar to searching garbage. The waste heat analogy relies on a fundamental misapplication of this Court's ruling in *California v. Greenwood,* 486 U.S. 35 (1988); *see* Zabel, *A High-Tech Assault* at 287-90. This approach is neither good law nor good physics. *People v. Deutsch,* 44 Cal. App. 4th 1224, 52 Cal. Rptr. 2d 366, 368 (1996).[16]

In *Greenwood*, this Court held that society did not accept as reasonable an expectation of privacy in garbage left outside the curtilage of the home because this act made the garbage readily accessible to the public.

> … we conclude that respondents exposed their garbage to the public sufficiently to defeat their claim to Fourth Amendment protection. It is common knowledge that plastic garbage bags left on or at the side of a public street are readily accessible to animals, children, scavengers, snoops, and other members of the public.

Greenwood, 486 U.S. at 40. Greenwood assumed a known risk by doing so.

***31** Escaping heat is unlike garbage that is physically and intentionally taken to the curb for disposal.

> Taking out the trash is a conscious act that affirmatively demonstrates an abandonment of the contents of the trash can. Loss of heat from a home occurs, for the most part, without any conscious decision by the homeowner to relinquish it.

Field, 855 F. Supp. at 1532; *see also Kyllo III*, 190 F. 3d at 1049 (Noonan, J. dissenting); *Young*, 867 P. 2d at 602. The natural

emittance of heat from the home cannot be fairly characterized as abandoned, with the same connotation of intentionality or assumption of a preventable risk of detection. *See* Huskins, *Marijuana Hot Spots: Infrared Imaging and the Fourth Amendment*, 63 U. Chi. L. R. 655, 667-71 (1996). It is neither deliberate nor preventable.[17]

The laws of physics, not any action by the individual, control the emission of radiating heat, which naturally escapes through the walls and roof no matter what a person does.
While choice of building materials and insulation will slow infrared emissions from the inside of a structure, as long as the atmosphere surrounding a structure is cooler than its interior, the laws of thermodynamics dictate that heat will inevitably be transferred to the atmosphere and that this energy cannot be contained indefinitely.

Siegal, 934 P. 2d at 181; *Ishmael*, 48 F. 3d at 854-55 (defendant could not take every precaution against detection of thermal energy); *Young*, 867 P. 2d at 603 (the only way to avoid the risk of exposure would be to turn off all heat sources in the home).

***32** Nor is heat emanating from a home accessible to a scavenging public. Unlike garbage, which may be seen and rummaged through, thermal energy radiating from the interior of a home is imperceptible to the human senses and undetectable to the public. And while one person's trash may be another's treasure, there is no similar reason why the public would *want* to examine a person's heat. *See Young*, 867 P. 2d at 603 (it is difficult to say that one should expect people to use sophisticated equipment to view heat).

Further, garbage is left for disposal by garbage collectors, another example of assumption of risk by purposely conveying it to a third party. *Greenwood*, 486 U.S. at 40. Mr. Kyllo did not convey his heat to a third party for collection, disposal, or otherwise.

Finally, comparing naturally emanating heat to intentionally discarded garbage is antithetical to *Katz.* Such an approach might surmise that as Katz spoke he gave off waste sound waves, which traveled to the surveillance device attached to the outside of the telephone booth. Under this approach, Katz could not reasonably expect privacy because he allowed his sound waves to escape. *See Cusumano*, 83 F. 3d at 1257.

2. *Thermal imaging is not similar to canine sniffs.*

Thermal imaging is nothing like a dog sniff. *United States v. Place,* 462 U.S. 696 (1983) (brief detention of a traveler's luggage in order to conduct a canine sniff is reasonable; sniffing is not a search under the Fourth Amendment). It is much more intrusive and nonspecific. It is more susceptible to human judgment, interest, and manipulation. It gathers information that is far beyond the human senses and is therefore more than mere sense-enhancement.

To begin with, this Court emphasized that a canine sniff is "*sui generis* ", *Place*, 462 U.S. at 707, and therefore distinct from all other investigative procedures. *Sui generis* means "of ***33** its own kind or class; *i.e.*, the *only one* of its kind." *Black's Law Dictionary*, Revised Fourth Edition (emphasis in original).
We are 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.

Place, 462 U.S. at 707; *see also Young*, 867 P.2d at 603 (*citing Place*). That being the case, it is inappropriate for comparisons or analogies, even though this Court did extend *Place* somewhat in *United States v. Jacobsen,* 466 U.S. 109 (1984).

Thermal imaging is intrusive. A dog sniff is seen as less intrusive than other searches because it is discreet and does not expose noncontraband items that otherwise would remain hidden from public view. *Place*, 462 U.S. at 707. The dog reacts instinctually; the dog handler is only alerted to the existence of illegal drugs.

Thermal imager is indiscriminate in its ability to detect illegal activity, empowering the government to detect a vast array of innocent heat-producing conduct, *Cusumano*, 83 F. 3d at 1264, such as saunas, pottery kilns, dehumidifiers, or legal indoor gardens. *Kyllo III*, 190 F. 3d at 1050 (Noonan, J. dissenting). It cannot distinguish between "contraband heat" and "legal heat," as the dog sniff distinguishes drugs. A thermal image operator views all heat emanating from the home and is free to

draw inferences about the sources of the heat. *Field*, 855 F. Supp. at 1533. Thermal imaging therefore presents dangers similar to the general warrant. It is much broader in scope than the dog sniff, subject to much greater arbitrariness and manipulation, unlimited in time and place, and can be expanded to greater domestic surveillance of legal activity.

Moreover, thermal imaging can never be characterized as instinctual as is the dog's sniff. The animal reacts as trained without any interest in or understanding of the broader ***34** implications of its reaction. The thermal imager must be *operated* and is subject to manipulation by a human being with greater understanding of factual nuances and legal implications. The operator introduces the reality of personal prejudices, professional esteem, and even financial interests by virtue of potential asset forfeiture (Def. Exh. 102, p. 3, 6). The fact that the operator can manipulate the image, choose to videotape or not, "interpret" the image, and even contrive an answer, all contrast with the unique nature of animal instinct.

Analysis of this Court's reasoning in *Place* also demonstrates that it is inaptly stretched to the context of thermal imaging. *Place* concerned a brief *Terry*-type[18] detention of luggage in a very public place. The decision was no doubt influenced by the exigent circumstances inherent in the transitory nature of drug trafficking, and the risk of disappearance, as well as the utter uniqueness of the dog sniff as an investigative tool.[19] It also appears that the public nature of airport travel itself played a role, travel which by its very nature is highly mobile and inevitably subjects travelers and their luggage to minor searches and inconveniences. In this context, subjecting individuals to brief stops and their suspect luggage to a *Terry*-style frisk was regarded as a minimal intrusion when balanced against the needs of law enforcement.

Nevertheless, the Court carefully limited this new doctrine by enunciating a rationale. First, the luggage was not opened, and no noncontraband items were exposed as would be the case ***35** if an officer rummaged through the contents. Second, the manner of obtaining the information was much less intrusive than a typical search. Third, the sniff disclosed only the presence of narcotics, a contraband item. The limited disclosure, in turn, ensured that the owner was not subjected to the embarrassment or inconvenience of more intrusive methods. *Place*, 462 U.S. at 707.

None of the context of *Place* is present with thermal imaging of the home. First, the *Place* doctrine applies to public places, not the home. *Hicks*, 480 U.S. at 327-28; *United States v. Thomas,* 757 F. 2d 1359, 1367 (2nd Cir.) *cert. denied*, 474 U.S. 818 (1986) (use of a dog to sniff for drugs outside defendant's apartment was an unlawful search). Second, there is no exigency, risk of rapid disappearance, or any other circumstance underlying the stop and frisk situation. The detention of a traveler's luggage is a highly specific situation which cannot be equated with surveillance of a private home.

Finally, the limited nature of information gained about the interior of a home, as well as the minimal intrusiveness of the technique have both been rejected as a basis for dispensing with the warrant requirement. *Karo*, 468 U.S. at 715-17.

E. Mr. Kyllo's Expectation Of Privacy Was Reasonable.

The majority below incorrectly concluded that Mr Kyllo did not satisfy *Katz*'s second prong. It did so by failing to examine the electronic monitoring activity against the historical purpose of the Fourth Amendment. Rather, it looked at the result of the search and then asserted that Mr. Kyllo did not establish that his expectation of privacy is objectively reasonable by characterizing thermal imaging as a non-intrusive observation that did not expose any intimate details of his life. The majority was also not troubled by the extra-sensory nature of thermal imaging, noting this Court's cases that approve of the use of technology to enhance surveillance.

***36** This argument is seriously flawed. *First*, the cases the majority relies upon do not involve the heightened privacy protection of the home. *Second*, thermal imaging is not merely sense enhancement. Disregarding this difference carries an unwarranted assumption that whatever the technology is detecting is so knowingly exposed to public view that it can be constitutionally captured without judicial approval. *Third*, the intimate details test wrongly focuses on the results of the search rather than the government's activity.

1. *There is a core privacy value in the home.*

The focus of the second *Katz* prong must be on what personal and societal values are protected by the Fourth Amendment. The test of legitimacy is not whether the individual chooses to conceal assertedly "private" activity. Rather, the correct inquiry is whether the government's intrusion infringes upon the personal and societal values protected by the Fourth

Amendment.

Oliver, 466 U.S. at 182-183. Therefore, the focus must be on the intrusion and what it intrudes on.

Electronic monitoring of the home is intrusive, as this Court has used that term. This intrusion infringes on personal privacy in the home by capturing with fairly pinpoint accuracy information about activity inside a dwelling that could not otherwise be known without physical entry and inspection. The information gathered need not be intimate or detailed to be an intrusion.

Mr. Kyllo's expectation that the privacy of his home would not be infringed by intrusive electronic monitoring aimed at determining what he was doing inside is one that society is prepared to recognize as reasonable. This is an expectation grounded in our history, our Constitution, and our prevailing customs.

***37** Society would certainly honor a person's normal efforts to maintain privacy, and would respect the right to maintain that privacy by conducting activities purely within the home. Society would be offended by the specter of extra-sensory monitoring of dwellings that breaches this recognized private enclave.

This Court has long expressed concerns about such intrusive technology.
The progress of science in furnishing the Government with means of espionage is not likely to stop with wire-tapping. Ways may someday be developed by which the Government, without removing papers from secret drawers, can reproduce them in court, and by which it will be enabled to expose to a jury the most intimate occurrences of the home.

Olmstead, 277 U.S. at 474 (Brandeis, J., dissenting).
But the search of one's home or office no longer requires physical entry, for science has brought forth far more effective devices for the invasion of a person's privacy than the direct and obvious methods of oppression which were detested by our forebears and which inspired the Fourth Amendment. Surely the spirit motivating the framers of that Amendment would abhor these new devices no less.

Goldman v. United States, 316 U.S. 129, 139 (1941)(Murphy, J., dissenting). Limiting the Fourth Amendment to only those methods that physically invade privacy is "bad physics as well as bad law, for reasonable expectations of privacy may be defeated by electronic as well as physical invasion." *Katz*, 389 U.S. at 362 (Harlan, J. concurring).

Similarly, the fact that the intrusion is electronic, therefore passive[20] , has never been a basis for dispensing with the Fourth ***38** Amendment. In the end, Mr. Kyllo had a perfectly reasonable expectation of privacy in his home from thermal imaging.

2. *Technology that exceeds the human senses destroys the ability to maintain privacy.*

This Court has never said that it is constitutionally permissible to monitor the home with technology that completely replaces the human senses. In fact, this Court has said the opposite. The Fourth Amendment is violated when "the Government surreptitiously employs an electronic device to obtain information that it could not have obtained by observation from outside the curtilage of the house." *Karo*, 468 U.S. at 715.
… it is beyond dispute that the home is entitled to special protection as the center of the private lives of our people. Security of the home must be guarded by the law in a world where privacy is diminished by enhanced surveillance and sophisticated communications systems.

Carter, 525 U.S. at 99 (Kennedy, J. concurring).

The majority below justified its conclusion that society would not regard Mr. Kyllo's expectation of privacy as objectively reasonable because the use of technology to enhance government surveillance does not necessarily turn permissible non-intrusive observation into an impermissible search. The critical inquiry was felt to be whether the technology revealed intimate details, relying on *Ishmael*, 48 F. 3d at 855-56.

For the most part, the sense enhancement cases merely permit police to improve upon what they, or any member of the public, can naturally see on their own. Anyone flying over Dow's plant could have seen what the camera recorded. *Dow Chemical*, 476 U.S. at 238-239. Anyone driving the road could ***39** have followed Knotts's vehicle. *United States v. Knotts,* 460 U.S. 276, 281-282 (1983). Both *California v. Ciraolo,* 476 U.S. 207 (1986), and *Florida v. Riley,* 488 U.S. 445 (1989), are explicitly limited to naked eye observations of the curtilage of the home from a public, albeit unusual, vantage point. Even *Place* involved enhancement of what could have been smelled.

The rationale underlying these cases is found in *Katz*, that "[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection." *Katz*, 389 U.S. at 351. This provides a reasonable guide for protecting one's privacy by protecting only those activities that are not knowingly exposed to public view. However, technology that exceeds the human senses undermines this basic premise.

Surveillance techniques that go beyond the human senses are a quantum leap beyond what people normally expect and have never been approved by this court. Thermal imaging is *extra*sensory in that it detects what no human can. It is not mere enhancement of the senses. It leaves the homeowner defenseless because the technology overwhelms normal methods of maintaining privacy by rendering our walls and roofs superfluous.

In *Dow Chemical*, a high-resolution camera revealed greater details than could be seen by the unaided eye. Human vision was only "enhanced somewhat," and the pictures were "limited to an outline of the facility's buildings and equipment." *Dow Chemical* 476 U.S. at 238. This Court held that the pictures did not violate the Fourth Amendment, but stated:
It may well be, as the Government concedes, that surveillance of *private property* by using highly sophisticated surveillance equipment not generally available to the public, such as satellite technology, might be constitutionally proscribed absent a warrant.

Dow Chemical, 476 U.S. at 238 (emphasis added). The Court also found "it important that this enhancement was *not* in an ***40** area immediately adjacent to a private home, where privacy expectations are most heightened." *Dow Chemical*, 476 U.S. at 237 n.4 (emphasis by Court).

Scientific advances that jeopardize the core values of the Fourth Amendment by compromising the traditional barriers of privacy and personal security in the home are a threat to liberty. Mr. Kyllo did *not* knowingly expose his invisible heat to the public, and did *not* relinquish his privacy interest in the activities occurring within his home which produced the heat. His expectation of privacy was completely reasonable. The fact that thermal imaging *can* detect what is hidden behind walls does not mean it should be permitted without a warrant.

3. *Whether intimate details are revealed is not a test for whether an unconstitutional search has occurred.*
This Court has never qualified any activities *within* the home as "intimate" or "non-intimate", thereby placing non-intimate activities beyond constitutional protection.
Where in the Fourth Amendment or in our cases is there any warrant for imposing a requirement that activity observed must be "intimate" in order to be protected by the Constitution?

Florida v. Riley, 488 U.S. at 463 (Brennan, J. dissenting). Constitutional protection of the home does not depend on characterizing certain activity as intimate, trivial, innocent or criminal. Such a gloss would strip the amendment of its vitality by subjugating the protection of the home to the government's interpretation of the importance or intimacy of activity occurring therein.

All activity occurring within the home is private, and thus protected from government surveillance by the Fourth Amendment, unless it is knowingly exposed. "At the very core [of the Fourth Amendment] stands the right of a [person] to ***41** retreat into his own home and there be free from unreasonable governmental intrusion." *Silverman*, 365 U.S. at 511.
A resident has a reasonable expectation of privacy in what occurs within the home.

Karo, 468 U.S. at 714, 716.

Constitutional protection of the privacy of the home has never been dependent on the quantity or quality of information sought, and the intrusiveness of any given device is not measured by the "intimacy" of life details it might reveal. *Byars v. United States,* 273 U.S. 28, 29 (1927)(a search in violation of the Constitution is not made lawful by what it brings to light). The Fourth Amendment's core protection of activities within the home does not depend on either the *type* of activity taking place, *Karo*, 468 U.S. at 717 (those suspected of drug offenses are no less entitled to Fourth Amendment protection than others), or the *degree* of intrusion. *Karo*, 468 U.S. at 715, 717; *Hicks*, 480 U.S. at 324.

The *Kyllo III* majority erroneously concluded that any subjective expectation of privacy Mr. Kyllo may have had was not objectively reasonable because thermal imaging does not reveal "intimate details." *Kyllo III*, 190 F.3d at 1046-47. This focus is a misapplication of language from *Dow Chemical Co. v. United States*, 476 U.S. 227 (1986), and from a plurality opinion in *Florida v. Riley*, 488 U.S. 445, 452 (1989). The majority below wrenched these terms from their proper context, to fashion this argument. *Kyllo III*, 190 F.3d at 1050 (Noonan, J., dissenting).

In *Dow Chemical*, the core argument was that Dow had a right to protect its business secrets, and it sought to extend Fourth Amendment protection to the "business curtilage". The Court rejected this argument, noting that the magnified photographs in question were "limited to an outline of the facility's buildings and equipment" and did not reveal "intimate details." *Dow Chemical*, 476 U.S. at 238. This Court's reference to intimate details was only important for distinguishing ***42** the curtilage (a constitutionally protected *extension* of the home) from an open field, *Oliver*, 466 U.S. at 180; *United States v. Dunn,* 480 U.S. 294, 300-301 (1987), and was part of the "business" curtilage analysis.

The majority below wrenched the "intimate details" phrase from its limited context. *Kyllo III*, 190 F.3d at 1049 (Noonan, J. dissenting). As a result, the majority decided that what thermal imaging reveals is not an intimate enough life detail to be protected by the Constitution. But this Court has already noted that a detail is intimate enough if it is "connected with the use of the home." *Riley*, 488 U.S. at 452. The Fourth Amendment is violated when an electronic device is surreptitiously used to obtain information that could not have been obtained by observation from outside the home. *Karo*, 468 U.S. at 715. It does not have to be a sexual secret, a conversation, or even the observation of a human being.

In *Karo*, the object of the electronic surveillance was a can of chemicals, hardly an "intimate detail." In *Arizona v. Hicks,* 480 U.S. 321 (1987), the officer moved a turntable in order to read serial numbers on the bottom.[21] The relevant question should be whether thermal imaging reveals *any* information about the interior of the home that could not have been known without physical intrusion. *Karo*, 468 U.S. at 715-17.

Here, the thermal imager pinpointed the location of heat lamps in Mr. Kyllo's attic that could not have been detected without physical intrusion and inspection. This is a fact "that the Government is extremely interested in knowing and that it could not have otherwise obtained without a warrant." ***43** *Karo,* 468 U.S. at 715. The fact that the images produced by the Agema 210 are crude is not constitutionally significant.[22]

Intrusiveness is not measured by whether intimate life details are revealed. Such a new test would be unworkable, is at odds with traditional ways in which searches are evaluated, and should be avoided for several reasons. *First*, it is a result-oriented approach, assessing the constitutionality of police conduct based on what is discovered. *Second*, intimacy is such a vague, subjective, and standardless concept that people can never know what this will protect. This uncertainty threatens the people's right to be secure in their own homes. *Third*, it would encourage police to rummage at will so long as they don't find anything later viewed as intimate. It is uncertain how much information police could learn about non-intimate details before it would be too much. *Fourth*, it would necessarily thrust the courts into an unprecedented role of making after-the-fact value judgments about people's private lives in order to determine which details society deems intimate enough to reasonably be entitled to an expectation of privacy. This would yield a heretofore unimagined authority to define the extent of personal privacy in the home. *Fifth*, the notion of intimate details fails to focus on the government's conduct and the aims of the Fourth Amendment.

CONCLUSION

The use of a thermal imager to electronically detect information emanating through the walls of one's house, information that

is invisible and inaudible to the passerby, transgresses the Fourth Amendment when done by government ***44** agents without a warrant. For all of the reasons stated above, this Court should grant the Writ of Certiorari and reverse the judgment of the Ninth Circuit Court of Appeals.

Footnotes

[1] Relevant exhibits introduced in the district court are being lodged with the Clerk of the Court for convenient reference, either because they are videotapes, photographs, and brochures that do not copy well, or are on standard 8 1/2 x 11 documents that could not be reduced to appendix format. The search warrant and affidavit, with its attached exhibits, are so lodged, and also appear in the district court file (DCR 7, 31) and in Appellant's Excerpt of Record (Volume I) in the Court of Appeals.

[2] *Franks v. Delaware,* 438 U.S. 154 (1978).

[3] First, the affiant misrepresented the purpose of the PGE power chart, falsely telling the magistrate that PGE had "developed a guide for estimating appropriate power usage." Second, he deliberately altered the chart by cutting all of the figures in half, thereby grossly misrepresenting that Mr. Kyllo was over-consuming electricity when he was not. Third, he made erroneous assertions that there was a "maximum" monthly power usage that would be "appropriate" for a home the size of Mr. Kyllo's when the chart only established monthly averages on an annualized basis. Fourth, he arranged the starting and ending months of Mr. Kyllo's power records that he referenced in the affidavit in a way that created an illusion that his electrical consumption was building up.

[4] Exhibit 108 is a videotape prepared by the defense expert that contrasts the images displayed by the Agema Thermovision 210 used in this case with images attainable by a more sophisticated Mitsubishi imager.

[5] The government and the promoters of thermal imaging often claim that imagers cannot penetrate glass because of its reflective quality. (Lodging, Def. Exh. 102, p. 14).

[6] No thermal imager detects the entire infrared spectrum (JA 50-1). Some thermal imagers detect wavelengths on the near (to visible) end of the thermal infrared scale, typically in the range of 3-5 microns (JA 51, 93). Other imagers detect wavelengths farther on the scale, in the range of 8-14 microns (JA 93-4). With certain lenses, the near-end cameras can detect down to the range of 2 microns, overlapping the visible light scale (JA 93).

[7] Government witnesses admitted that ground based thermal imagers are used furtively, in covert operations at night (JA 153), and can easily detect images from a distance of one-half mile to a mile (JA 161).

[8] On October 21, 1996, the court took new testimony on resentencing and determined that two firearms that had been found in Mr. Kyllo's home were not possessed in relation to the offense. The court found that he fit the criteria for safety valve treatment. 18 U.S.C. § 3553(f).

[9] Mr. Kyllo asserted that the selection of a different judge after issuance of an opinion resulted in formation of a new three-judge panel, and that one such panel may not overrule the decisions of another panel of equal authority.

[10] Each panel below has agreed that most of the other information provided in, or omitted from, the search warrant affidavit was false and misleading, but that the district court's finding that these were not in reckless disregard of the truth was not clear error. *Kyllo*, 37 F. 3d at 528 (power consumption assertions were "false and misleading"). *Kyllo III*, 190 F. 3d at 1047 (omission of marital breakup and landlord's information was misleading). The government has never suggested that the affidavit contains sufficient probable cause without the thermal imaging results. *Kyllo III*, 190 F.3d at 1050.

[11] *See Field*, 855 F. Supp. at 1530; *Cusumano*, 83 F. 3d at 1263 (McKay, Seymour, Henry, JJ. dissenting); *Gindlesperger*, 743 A. 2d at 905; *Young*, 867 P. 2d at 601-602; *Deutsch*, 52 Cal. Rptr. 2d at 368-369 (1996).

[12] The Court has looked to whether there is a government intrusion, *Oliver v. United States,* 466 U.S. 170, 183-183 (1984), that "violated", *Katz v. United Stales,* 389 U.S. at 353, "infringed" *United States v. Jacobsen,* 466 U.S. 109, 113 (1984), *Oliver v. United States,* 466 U.S. at 178, or "invaded", *Rakas v. Illinois,* 439 U.S. 128, 143 (1978) an individual's privacy.

[13] It is noteworthy that none of this Court's home search decisions explicity use the *Katz* test, or that the Court has taken it as given that the home is an enclave imbued with a constitutionally protected expectation of privacy from unwarranted searching, with the sole exception of determining whether a third party may expect privacy in another person's house. *See Minnesota v. Carter,* 525 U.S. 83 (1998); *Minnesota v. Olson,* 495 U.S. 91 (1990); *Rakas v. Illinois,* 439 U.S. 128 (1978).

[14] Justice Harlan himself expressed alarm over the lack of attention to the values underlying the Fourth Amendment, leading "to the substitution of words for analysis." *United States v. White,* 401 U.S. 745, 786 (1971) (Harlan, J., dissenting).

[15] *See also United States v. Pinson,* 24 F. 3d 1056 (8th Cir. 1994) *State v. Cramer,* 174 Ariz 522, 851 P. 2d 147 (1992); *State v. McKee,* 181 Wis. 2d 354, 510 N.W. 2d 807 (Wis. App. 1993); *LaFollette v. Commonwealth,* 915 S.W. 2d 747 (Ky. 1996); *State v. Neil* 671 So. 2d 1111 (La. App. 3 Cir. 1996).

[16] The Fifth Circuit rejected this analysis in *United States v. Ishmael,* 48 F. 3d 850, 854 (5th Cir. 1995 (waste heat analogy is too restrictive and would render *Katz* meaningless), and held that the defendant did have a subjective expectation of privacy, even in an open field. Three judges of the Tenth Circuit also question the "waste" analogy, *Cusumano*, 83 F. 3d at 1256-59 (McKay, Seymour and Henry, JJ., dissenting), and it has been rejected by the Supreme Courts of Pennsylvania, Washington and Montana. *Gindlesperger*, 743 A. 2d at 898; *Young*, 867 P. 2d at 604; *Siegal*, 934 P. 2d at 185-86 (Mont. 1997); *see also Field*, 855 F. Supp. at 1532.

[17] Mr. Kyllo's case factually differs from others in which courts make fact-bound conclusions based on expelling heat. In *Ford*, 34 F. 3d at 997, *Pinson*, 24 F. 2d at 1058, and *Penney-Feeney*, 773 F. Supp. at 225, the defendants used vents to expel heat from the premises. Mr. Kyllo did not purposefully expel heat from his residence.

[18] *Terry v. Ohio,* 392 U.S. 1 (1968).

[19] *Place* did not address the *Katz* test when it said that such sniffs were not a "search" within the meaning of the Fourth Amendment. Therefore it is unknown whether Place himself had no subjective expectation of privacy, whether the Court did not regard his expectation as reasonable, or whether the Court simply carved out a new exception to the stop-and-frisk or warrant requirements. In this specific situation the practicality of accomplishing a luggage frisk in a reasonable suspicion context led the Court to approve of canine sniff, even though there was no armed and dangerous component.

[20] Passive devices are the very type of surveillance techniques that are most capable of invading a person's reasonable expectation of privacy in the home by revealing what occurs therein. *Field*, 855 F. Supp. at 1530. Passivity, which makes them undetectable, is their *raison d'etre.* Huskins, *supra* at 685-86.

[21] Even outside the home, this Court has condemned manipulative feeling and squeezing without a warrant that did not reveal "intimate details" but did reveal facts that heightened suspicion. *Minnesota v. Dickerson,* 508 U.S. 366 (1993); *Bond v. United States,* 528 U.S. ___, 120 S.Ct. 1462, 146 L.Ed.2d 365 (2000).

[22] The dissent below felt that the gross quality of the pictures, and global nature of the information detected, both made the instrument more invasive than a dog sniff and underscored its unreliability. *Kyllo III*, 190 F. 3d at 1050-51. While Mr. Kyllo challenged the reliability of the thermal imager below, it is not a question presented here for resolution.

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