No. 99-8508

In the Supreme Court of the United States

DANNY KYLLO, PETITIONER

v.

UNITED STATES OF AMERICA

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

SUPPLEMENTAL APPENDIX

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PETITION FOR CERTIORARI FILED: MARCH 7, 2000
CERTIORARI GRANTED: SEPTEMBER 26, 2000

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UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 96-30333

UNITED STATES OF AMERICA, PLAINTIFF-APPELLEE

v.

DANNY LEE KYLLO, DEFENDANT-APPELLANT

Argued and Submitted Nov. 5, 1997
Opinion Decided April 7, 1998

Petition for Rehearing with Suggestion
for Rehearing En Banc Decided
May 20, 1998

Petition for Panel Rehearing
Granted Jan. 12, 1999

Opinion Withdrawn July 29, 1999
Decided Sept. 9, 1999

Before: BRUNETTI,[1] NOONAN, and HAWKINS, Circuit Judges.

Opinion by Judge HAWKINS; Dissent by Judge NOONAN.

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[1] Judge Brunetti has been drawn to replace the Honorable Robert R. Merhige, Jr., Senior United States District Judge for the Eastern District of Virginia, in this case.

MICHAEL DALY HAWKINS, Circuit Judge:

As a matter of first impression in this circuit, Danny Lee Kyllo ("Kyllo") challenges the warrantless use of a thermal imaging device as a violation of the Fourth Amendment. Kyllo also challenges reliance on a portion of an affidavit discussing his marriage to Luanne Kyllo ("Luanne"), but omitting mention of his divorce, arguing it should not have been considered in determining whether there was probable cause to issue a warrant to search his home. We affirm, holding that the thermal image scan performed was not a search within the meaning of the Fourth Amendment, and that the district court did not clearly err in finding the omission of the Kyllos' divorce from the affidavit was not knowingly false or made in reckless disregard for the truth.

Factual and Procedural Background

Kyllo's arrest and conviction on one count of manufacturing marijuana in violation of 21 U.S.C. § 841(a)(1) followed an investigation by a law enforcement task force into a possible conspiracy to grow and distribute marijuana. While investigating the activities of Tova Shook, the daughter of the task force's original target, William Elliott ("Elliott"), an agent of the United States Bureau of Land Management, an agency participating in the task force, began to suspect Kyllo.

Oregon state law enforcement officers provided information to Elliott that strengthened his suspicions. He was told that Kyllo and Luanne resided in one unit of a triplex, another unit of which was occupied by Tova Shook and that a car registered jointly to Luanne and Kyllo parked at the triplex. Elliott was also informed

that Luanne had been arrested the month before for delivery and possession of a controlled substance and that Kyllo had once told a police informant that he and Luanne could supply marijuana.

Elliott then subpoenaed Kyllo's utility records. Elliott compared the records to a spreadsheet for estimating average electrical use and concluded that Kyllo's electrical usage was abnormally high, indicating a possible indoor marijuana grow operation.

At 3:20 in the morning in mid-January from the passenger seat of a car parked on the street, Sergeant Daniel Haas ("Haas") of the Oregon National Guard examined the triplex of homes where Kyllo resided with an Agema Thermovision 210 thermal imaging device ("the Agema 210").[2] All objects emit heat, in the form of infrared radiation, which can be observed and recorded by thermal imaging devices, such as the Agema 210. Specifically, thermal imagers detect energy radiated from the outside surface of objects, and internal heat that has been transmitted to the outside surface of an object, which may create a differential heat pattern.

In performing its function the Agema 210 passively records thermal emissions rather than sending out intrusive beams or rays—acting much like a camera.[3] A viewfinder then translates and displays the results to

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[2] Conducting a thermal emissions scan at night is a common practice, as it decreases the likelihood that "solar loading"—daytime solar energy accumulation by an object—will interfere with the effectiveness of the scan.

[3] Like all objects, thermal imagers themselves emit some level of infrared radiation.

the human eye, with the area around an object being shaded darker or lighter, depending on the level of heat being emitted. While at first used primarily by the military, thermal scanners have entered into law enforcement and civilian commercial use.[4]

Using the Agema 210, Haas concluded that there was high heat loss emanating from the roof of Kyllo's home above the garage, and from one wall. Haas also noted that Kyllo's house "showed much warmer" than the other two houses in the triplex. Elliott interpreted these results as further evidence of marijuana production, inferring that the high levels of heat emission indicated the presence of high intensity lights used to grow marijuana indoors.

Elliott presented this information in an Affidavit to a magistrate judge, seeking a search warrant for the Kyllo home. The warrant was issued and Elliott searched Kyllo's home. As Elliott had suspected, an indoor marijuana grow operation was found, with more than one hundred plants. Marijuana, weapons, and drug paraphernalia were seized.

Kyllo was indicted for manufacturing marijuana, based upon the evidence seized during the search. The district court denied Kyllo's motion to suppress the seized evidence, following a hearing. Kyllo entered a conditional guilty plea and was sentenced to a prison

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[4] Besides building scans such as the scan in question in this case, thermal imagers are used by law enforcement to aid in tasks including search and rescue, locating fugitives, perimeter security, and tracking covert illegal waste discharges. Commercial uses of thermal imagers include checks for moisture in roofs, overloading power lines, and faulty building insulation.

term of 63 months. Kyllo then appealed the denial of the suppression motion, challenging several portions of the Affidavit as well as the warrantless thermal imager scan.

A panel of this court found that while the portion of Elliott's Affidavit discussing Kyllo's energy usage was false and misleading, the false statements were not knowingly or recklessly made. *See United States v. Kyllo*, 37 F.3d 526 (9th Cir. 1994). While concluding it was therefore proper for the magistrate judge to consider that portion of the Affidavit in determining probable cause to issue the search warrant, the panel remanded for an evidentiary hearing on the intrusiveness and capabilities of the Agema 210 and a *Franks*[5] hearing on whether Elliott had knowingly or recklessly omitted Kyllo and Luanne's divorce from his Affidavit. *See id.* at 531.

Following a hearing on remand, the district court concluded that the omission of the divorce from the Affidavit, while misleading, was not knowingly false or made in reckless disregard for the truth. *See United States v. Kyllo*, No. Cr. 92-51-FR, 1996 WL 125594 (D. Or. Mar. 15, 1996). The district court, after hearing further evidence, made factual findings on the capabilities of the Agema 210 and concluded no warrant was required before the thermal scan. The district court therefore found probable cause to issue the warrant,

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[5] *See Franks v. Delaware*, 438 U.S. 154, 98 S. Ct. 2674, 57 L.Ed.2d 667 (1978).

and denied the motion to suppress. *See id.* Kyllo now challenges this decision.[6]

Standard of Review

"A district court must suppress evidence seized under a warrant when an affiant has knowingly or recklessly included false information in the affidavit." *See United States v. Dozier*, 844 F.2d 701, 705 (9th Cir. 1988). Because it is a factual finding, we review for clear error a determination of whether false statements or omissions are intentional or reckless. *See id.*; *United States v. Senchenko*, 133 F.3d 1153 (9th Cir. 1998).

We review de novo the validity of a warrantless search. *See United States v. Van Poyck*, 77 F.3d 285, 290 (9th Cir. 1996); *United States v. Ogbuehi*, 18 F.3d 807, 812 (9th Cir.1994). We review for clear error any underlying factual findings. *See Ornelas v. United States*, 517 U.S. 690, 699, 116 S. Ct. 1657, 134 L.Ed.2d 911 (1996); *United States v. Hernandez*, 27 F.3d 1403, 1406 (9th Cir. 1994).

Analysis

I. Search and Seizure Analysis

Kyllo's essential claim is that a warrant was constitutionally necessary before the government could employ the thermal imaging device. The Fourth Amendment's restrictions on governmental searches and seizures are triggered when the government invades an individual's privacy. *See Oliver v. United States*, 466 U.S. 170, 177-78, 104 S. Ct. 1735, 80 L.Ed.2d

[6] We note that a previously filed disposition of this appeal was withdrawn.

214 (1984). The individual need not show actual intrusion or invasion into a "protected space," as "the Fourth Amendment protects people—and not simply 'areas'—against unreasonable searches and seizures." *Katz v. United States*, 389 U.S. 347, 353, 88 S. Ct. 507, 19 L.Ed.2d 576 (1967). We follow a two-part test to determine whether the Fourth Amendment has been violated by a claimed governmental intrusion into an individual's privacy. *See id.* at 361, 88 S. Ct. 507 (Harlan, J., concurring); *see also Smith v. Maryland*, 442 U.S. 735, 740, 99 S. Ct. 2577, 61 L.Ed.2d 220 (1979) (adopting *Katz* reasoning). We evaluate whether the individual has made a showing of an actual subjective expectation of privacy and then ask whether this expectation is one that society recognizes as objectively reasonable. *See Katz*, 389 U.S. at 361, 88 S. Ct. 507 (Harlan, J., concurring); *see also California v. Ciraolo*, 476 U.S. 207, 211, 106 S. Ct. 1809, 90 L.Ed.2d 210 (1986).

In conducting this evaluation of whether a reasonable expectation of privacy has been infringed upon by government action, we consider the facts of the case at hand. *See Dow Chemical Co. v. United States*, 476 U.S. 227, 239 n. 5, 106 S. Ct. 1819, 90 L.Ed.2d 226 (1986); *United States v. Karo*, 468 U.S. 705, 712, 104 S. Ct. 3296, 82 L.Ed.2d 530 (1984) ("[W]e have never held that potential, as opposed to actual, invasions of privacy constitute searches for purposes of the Fourth Amendment.").

No one disputes that a warrant was not obtained before the Agema 210 was used to scan the thermal emissions from Kyllo's house. In its inquiry into the technological capacities of the Agema 210, the district court found that it was a "non-intrusive device which

emits no rays or beams and shows a crude visual image of the *heat* being radiated from the *outside* of the house." The court also found that "the device cannot and did not show any people or activity within the walls of the structure" and that it "recorded only the heat being emitted from the home." Based upon a review of the record, we cannot conclude that these findings were in clear error. *See Ornelas*, 517 U.S. at 699, 116 S. Ct. 1657.

Kyllo argues in opposition that the thermal scan intruded into activities within his home, in which he had an expectation of privacy, rather than measuring "waste heat" emitted from his home. We disagree with Kyllo, and follow our sister circuits in holding that the use of thermal imaging technology in this case did not constitute a search under contemporary Fourth Amendment standards. *See United States v. Robinson*, 62 F.3d 1325 (11th Cir. 1995); *United States v. Myers*, 46 F.3d 668 (7th Cir. 1995); *United States v. Ishmael*, 48 F.3d 850 (5th Cir. 1995); *United States v. Pinson*, 24 F.3d 1056 (8th Cir. 1994).[7] Whatever the "Star Wars" capabilities this technology may possess in the abstract, the thermal imaging device employed here intruded into nothing.

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[7] A Tenth Circuit panel opinion in *United States v. Cusumano*, 67 F.3d 1497, 1510 (10th Cir. 1995) finding warrantless use of a thermal imager violated the Fourth Amendment was vacated by an en banc court, and the case decided without reaching the question. *See United States v. Cusumano*, 83 F.3d 1247 (10th Cir. 1996) (en banc). We also note that the Montana Supreme Court's holding that thermal imaging in this context was a "search" was decided under a state constitutional provision, more protective of privacy than the federal constitution. *See State v. Siegal*, 281 Mont. 250, 934 P.2d 176, 183 (1997).

A. Subjective Expectation of Privacy

We reject Kyllo's argument that what occurred late that January night was government intrusion into activities in his home, in which he expected privacy, rather than a measurement of heat emissions radiating from his home. While Elliott inferred, correctly as it turned out, from the unusually high levels of thermal emissions being radiated from the roof and wall that a marijuana grow was within Kyllo's home, the Agema 210 did not literally or figuratively penetrate the walls of the Kyllo residence to expose this activity.

While Kyllo's decision to move his marijuana-growing operation indoors may well show he had some subjective expectation of privacy in the operation, he took no affirmative action to conceal the waste heat emissions created by the heat lamps needed for a successful indoor grow. The Agema 210 scan simply indicated that seemingly anomalous waste heat was radiating from the outside surface of the home, much like a trained police dog would be used to indicate that an object was emitting the odor of illicit drugs. *See United States v. Place*, 462 U.S. 696, 706-07, 103 S. Ct. 2637, 77 L.Ed.2d 110 (1983) (holding canine sniffs are not searches). Kyllo made no attempt to conceal these emissions, demonstrating a lack of concern with the heat emitted and a lack of a subjective privacy expectation in the heat. *See Robinson*, 62 F.3d at 1328-29; *Myers*, 46 F.3d at 669-70; *United States v. Ford*, 34 F.3d 992, 995 (11th Cir. 1994). *But see Ishmael*, 48 F.3d at 854-55 (finding subjective expectation of privacy although determining it was unreasonable). We conclude, like the district court, that the Agema 210's scan measured waste heat emissions that Kyllo had made no

attempt to conceal, rather than peering into Kyllo's home, and that Kyllo has demonstrated no subjective expectation of privacy in these emissions from his home.

B. Objectively Reasonable Expectation

Even if Kyllo could demonstrate a subjective expectation of privacy in the heat emissions from his residence, he has not established that this privacy expectation would be accepted by society as "objectively reasonable." "[T]he 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 182-83, 104 S. Ct. 1735.

While a heightened privacy expectation in the home has been recognized for purposes of Fourth Amendment analysis, *see Dow Chemical*, 476 U.S. at 237 n.4, 106 S. Ct. 1819, activities within a residence are not protected from outside, non-intrusive, government observation, simply because they are within the home or its curtilage. *See Florida v. Riley*, 488 U.S. 445, 449, 109 S. Ct. 693, 102 L.Ed.2d 835 (1989) (plurality opinion); *Ciraolo*, 476 U.S. at 213, 106 S. Ct. 1809. The use of technology to enhance government surveillance does not necessarily turn permissible non-intrusive observation into impermissible search. *See id.*; *Dow Chemical*, 476 U.S. at 238-39, 106 S. Ct. 1819. Much like the Fifth Circuit, we believe that, in evaluating whether technology has been used to aid in permissible observation or to perform an impermissible warrantless search, the "crucial inquiry, as in any search and seizure analysis, is whether the technology reveals 'intimate details.'" *Ishmael*, 48 F.3d at 855 (quoting *Dow Chemical*, 476 U.S. at 238, 106 S. Ct. 1819).

The thermal emission scan performed on Kyllo's residence, and the other houses in the triplex, while giving information unavailable to the naked eye, did not expose any intimate details of Kyllo's life. The scan merely indicated amorphous "hot spots" on the roof and exterior wall and not the detailed images of private activity that Kyllo suggests the technology could expose. "Such information is neither sensitive nor personal, nor does it reveal the specific activities within the . . . home." *Ford*, 34 F.3d at 997; *see also Pinson*, 24 F.3d at 1059. Like the Court in *Dow Chemical*, we reject Kyllo's attempt to rely on "extravagant generalizations" about the potential invasions of privacy that this sort of advanced technology may someday present. *See Dow Chemical*, 476 U.S. at 239, 106 S. Ct. 1819.

Considering the facts of this case, and the district court's findings on the technology used, we cannot conclude that this surveillance was "so revealing of intimate details as to raise constitutional concerns." *Id.* While this technology may, in other circumstances, be or become advanced to the point that its use will step over the edge from permissible non-intrusive observation into impermissible warrantless search, we find no violation of the Fourth Amendment on these facts. See *id.* at 239 and n. 5, 106 S. Ct. 1819; *Myers*, 46 F.3d at 670 n.1.

II. Omission of Divorce from the Affidavit

On remand, the district court concluded that it was misleading for Elliott to omit from his Affidavit seeking the search warrant that Kyllo and Luanne had divorced. The court then concluded, however, that the

omission was not knowingly false, or made in reckless disregard for the truth. Kyllo contests this conclusion.

At the hearing, no evidence was presented that Elliott, or the Oregon law enforcement officers who passed on information to him, knew of the divorce. Neither was there evidence showing that the failure to discover the divorce and include it in the affidavit was reckless.

It was not clearly erroneous for the district court to find that the omission of the divorce was not knowingly false or made in reckless disregard for the truth. *See Dozier*, 844 F.2d at 705. Thus, we agree with the district court that it was proper for the magistrate judge to consider the portion of the affidavit related to Kyllo's marriage to Luanne in determining whether probable cause existed to issue the warrant.

AFFIRMED.

NOONAN, Circuit Judge, dissenting:

The Thermovision 210, made and marketed by Agema Infrared Systems, (herein the Agema 210) is described by its maker in the following terms: "For law enforcement agencies and security organizations it provides a state-of-the-art means of extending operational capabilities and securing hard evidence not possible before. And it does it unobtrusively, noiselessly and immediately, requiring a minimum of operator training and effort." As to "Interior Surveillance," the company's sales brochure that is part of the record on appeal states: "With a field view of 8 degrees by 16 degrees, the 210, properly positioned, can monitor activity in critical rooms or large facilities, once again

providing a permanent time-tagged record when connected to a VCR."

The Agema 210 does not determine temperature but depends for its results on a comparison between the emissions from similar structures. It is not evident how these comparisons are reliable when the operator of the Agema 210 has no information about the interior insulation of either the structure he is examining or the structure he is using for comparison. The reliability of the readings of the machine is itself affected by the operator's decision to adjust it. The defendant's expert witness, who had had extensive experience working for the FBI, analyzed its vulnerability in these terms: "These infrared cameras can easily be manipulated to make a structure appear to be hot, when in reality it is not. This is achieved by increasing the gain and sensitivity buttons on the camera. The procedure is similar to using a 35 mm camera and manually opening the aperture on the lens." It is this manipulable, not very accurate or reliable but easily usable, surveillance machine which is at issue here.

The Fourth Amendment forbids an unreasonable search by the government. A search has been authoritatively defined as occurring "'when an expectation of privacy that society is prepared to consider reasonable is infringed.'" *United States v. Karo*, 468 U.S. 705, 712, 104 S. Ct. 3296, 82 L.Ed.2d 530 (1984) (quoting *United States v. Jacobsen*, 466 U.S. 109, 113, 104 S. Ct. 1652, 80 L.Ed.2d 85 (1984)). The term "search" is thus not itself a helpful term on which to focus. A court's attention is directed to the "expectation of privacy" and society's view of the reasonableness of the expectation.

I start with the proposition that "[t]he sanctity of the home is not to be disputed." *Segura v. United States*, 468 U.S. 796, 810, 104 S. Ct. 3380, 82 L.Ed.2d 599 (1984). A search "inside a home without a warrant" is "presumptively unreasonable absent exigent circumstances." *Karo*, 468 U.S. at 715, 104 S. Ct. 3296. At the same time the Fourth Amendment "protects people, not places." *Katz v. United States*, 389 U.S. 347, 351, 88 S. Ct. 507, 19 L.Ed.2d 576 (1967). As a consequence of this axiom, a forbidden search can occur even when no trespass is involved. It is, therefore, not helpful to the government that the Agema reaches into the interior only by inference. An invasion of property is not necessary to trigger the protection of the Amendment. *See Katz*, 389 U.S. at 353, 88 S. Ct. 507.

I have no doubt that Kyllo did have an expectation of privacy as to what was going on in the interior of his house and that this expectation was infringed by the government's use of the Agema 210 although the machine itself never penetrated into the interior. The closest analogy is use of a telescope that, unknown to the homeowner, is able from a distance to see into his or her house and report what he or she is reading or writing. Such an enhancement of normal vision by technology, permitting the government to discern what is going on in the home, violates the Fourth Amendment. *See United States v. Taborda*, 635 F.2d 131, 139 (2d Cir. 1980) (warrantless use of telescope to see objects not visible to the naked eye violates the Fourth Amendment). No principled difference exists between a machine capable of reading reflections of light that a telescope picks up and a machine reading the emissions of heat as does the Agema. In each case the amplification of the senses by technology defeats the home-

owner's expectation of privacy. The government is not entitled to defeat this expectation by technological means. *See Karo*, 468 U.S. at 715, 104 S. Ct. 3296.

The court holds that the Agema 210 merely reads emissions off the roof. The court notes, reasonably enough, that there is no evidence that Kyllo had any expectation of privacy as to these emissions. The emissions have been treated as waste energy, comparable to the waste disposed of as garbage that the government is entitled to inspect without violating the Constitution. *See United States v. Robinson*, 62 F.3d 1325 (11th Cir. 1995), *cert. denied*, 517 U.S. 1220, 116 S. Ct. 1848, 134 L.Ed.2d 949 (Cite as: 190 F.3d 1041, *1049) (1996); *United States* v. *Myers*, 46 F.3d 668 (7th Cir.), *cert. denied*, 516 U.S. 879, 116 S. Ct. 213, 133 L.Ed.2d 144 (1995); *United States v. Pinson*, 24 F.3d 1056 (8th Cir.), *cert. denied*, 513 U.S. 1057, 115 S. Ct. 664, 130 L.Ed.2d 598 (1994).

This analogy fails because, unlike garbage which is purposely discarded, emissions of heat occur without conscious attention by the homeowner. *See United States v. Ishmael*, 48 F.3d 850, 854 (5th Cir.) (finding warrantless thermal imagery permissible but rejecting the "waste heat" analogy), *cert. denied*, 516 U.S. 818, 818, 116 S. Ct. 74, 75, 133 L.Ed.2d 34, 34 (1995). It is strange to focus on the homeowner's non-existent expectation as to emissions. The homeowner's expectation is directed to the privacy of the interior of his home. It is that expectation which the Fourth Amendment is intended to protect.

On behalf of the government, two other analogies need to be considered. If Kyllo started a fire in his fireplace there is no doubt the government could use

the smoke rising from his chimney as a basis for securing a warrant if a fire in the house suggested the commission of a crime. If Kyllo was operating a methamphetamine laboratory in his home and the smell reached the nose of a policeman on the street, there would be probable cause to seek a warrant. *See United States v. Johns*, 948 F.2d 599, 603 (9th Cir. 1991). The trouble with these two analogies is that they both depend on unaided human senses reading the signs from the house. In each the homeowner has no reasonable expectation that the signs will not be observed. Our case involves amplification of the senses by technology. That kind of amplification is critical as it defeats the homeowner's expectation. It is the effect on this expectation that makes the amplification impermissible.

Given that Kyllo does have an expectation of privacy as to the interior of his home, is society prepared to view it as reasonable? Here is the point at which the protection of the Fourth Amendment is in tension with the social desirability of suppressing crime wherever it is found. The Fourth Amendment is not intended to make the home a sanctuary for the commission of crime with impunity. It is intended to allow governmental intrusion into the home only in exigent circumstances or upon judicial approval of the intrusion. A different rule might be fashioned, but the present rule is that even a search to find probable cause for obtaining a warrant—even such a search which has as its object the ultimate obtaining of a magistrate's approval—cannot be conducted without violation of the Fourth Amendment. *See Karo*, 468 U.S. at 710, 104 S. Ct. 3296. Society has determined that it is reasonable for the

home to be a citadel safe from warrantless inspection. *See Segura*, 468 U.S. at 810, 104 S. Ct. 3380.

It is argued that the several decisions by circuit courts already cited show society's disapproval of the expectation of privacy as to emission of heat. There are, however, cases in the contrary direction. Two state cases within this circuit, *State v. Siegal*, 281 Mont. 250, 934 P.2d 176 (1997), and *State v. Young*, 123 Wash. 2d 173, 867 P.2d 593 (1994), have found thermal imaging to violate state constitutions. Two courts have held it violative of the Fourth Amendment. *See People v. Deutsch*, 44 Cal. App. 4th 1224, 52 Cal. Rptr.2d 366 (1996); *United States v. Field*, 855 F. Supp. 1518 (W.D. Wis. 1994). In the end what society is prepared to find reasonable must, for us, be determined by the most relevant analyses and analogies. To conclude that because this court holds the expectation unreasonable it is unreasonable is to argue in a circle.

The only Court of Appeals to consider this question and determine that the use of thermal imaging is unconstitutional was the Tenth Circuit in *United States v. Cusumano*, 67 F.3d 1497 (10th Cir. 1995). The opinion was vacated on rehearing en banc on the ground that the court did not need to reach the thermal imaging question. *See United States v. Cusumano*, 83 F.3d 1247 (10th Cir. 1996). Consequently, the decision does not have more than a hypothetical character, but it has been praised as "the most exhaustive and compelling analysis of the use of a thermal imager." Wayne R. LaFave, *Search and Seizure: A Treatise on the Fourth Amendment*, § 2.2 (Supp. 1998). Professor LaFave himself argues forcefully in support of the analysis and conclusion. *See id.* The expectation analyzed by

Cusumano and LaFave is not the expectation of the homeowner as to the emissions from the roof, but the homeowner's expectation as to the privacy of the interior of the home. That the interior is the proper focus is argued by analogy with *Katz*—in *Katz* the focus having been on the phone conversation, not on "the molecular vibrations of the glass that encompassed [the] interior," which were the vibrations actually picked up by the bug. *Cusumano*, 67 F.3d at 1501. Technological enhancement that reveals conversation is impermissible. *See Katz*, 389 U.S. at 353, 88 S. Ct. 507.

The first reaction when one hears of the Agema 210 is to think of George Orwell's *1984*. Although the dread date has passed, no one wants to live in a world of Orwellian surveillance. On the hearing of this case on its first appeal we were prompt to express concern as to whether the Agema 210 could "detect sexual activity in the bedroom," and to state that a technology revealing sexual activity was impermissible. *United States v. Kyllo*, 37 F.3d 526, 530 (9th Cir. 1994). On this appeal the majority does not deviate from this position while it views the Orwellian dangers as speculative and at most potential.

The Agema 210 is a crude instrument. It reveals only two things: Heat-causing activity within a home and the rooms or area where the heat is being generated. For the majority these limited capacities let the Agema 210 pass muster: The "crucial inquiry" for the majority is whether the Agema 210 reveals "intimate details." Because what it reveals is not sensitive or personal or a specific activity, no unconstitutional search is being performed. It is as though if your home was searched

by a blind policeman you would have suffered no constitutional deprivation.

The majority's error has been to focus on a phrase from dicta on *Dow Chemical Co. v. United States*, 476 U.S. 227, 106 S. Ct. 1819, 90 L.Ed.2d 226 (1986). At issue in *Dow Chemical* was aerial photography of a 2,000 acre manufacturing plant. The Court held: "We conclude that the open areas of an industrial plant complex with numerous plant structures spread over an area of 2,000 acres are not analogous to the 'curtilage' of a dwelling for purposes of aerial surveillance." *Id.* at 239, 106 S. Ct. 1819. In reaching this conclusion, the Court observed: "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. But the photographs here are not so revealing of intimate details as to raise constitutional concerns." *Id.* at 238, 106 S. Ct. 1819. To rely on the phrase "intimate details" as stating the criterion is to wrench the phrase from context. *Dow Chemical* was not about a home, an enclosed space or anything going on in a home. If *Dow Chemical* is to be invoked at all, the dicta on intimate details is controlled by the dicta warning on the use of "highly sophisticated surveillance equipment not generally available to the public." *Id.* Because of its error as to the crucial inquiry, the majority sees the dangers presented by the Agema 210 as merely potential, not actual. To the contrary, the intrusion into the home, while gross and global, is also real. A variety of heat-producing activities can take place within the walls of a home. As to such of these activities as are innocent, no one doubts that society views the expectation of

privacy as reasonable—for example, the use of a sauna in a sauna room; the making of ceramics in a kiln in the basement; the hothouse cultivation of orchids, poinsettias or other plants in a domestic greenhouse. Any of such activities can cause the emission of heat from the home which the Agema 210 can detect. The activity will be reported as well as where it is taking place. That is the present, not potential, intrusion of privacy which the Agema 210 can effect.

The defense of the machine that it does not see very well hurts the government by underscoring the unreliability of the Agema 210. This defense amounts to saying that if a constable makes a blundering search, it should not really count as a search. The argument is the opposite of that which justified the examinations in *United States v. Place*, 462 U.S. 696, 707, 103 S. Ct. 2637, 77 L.Ed.2d 110 (1983), and *Jacobsen*, 466 U.S. at 123, 104 S. Ct. 1652,—they revealed only contraband and nothing else. The machine as blind or blundering constable does not pass the criteria of the Fourth Amendment.

The government does not contend that the information provided the magistrate was sufficient to sustain a search warrant without the addition of the Agema readings. As these readings violated the Constitution, they should be suppressed and the conviction reversed.

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 96-30333

UNITED STATES OF AMERICA, PLAINTIFF-APPELLEE

v.

DANNY LEE KYLLO, DEFENDANT-APPELLANT

Filed: July 29, 1999

Before: BRUNETTI,[8] NOONAN, and HAWKINS, Circuit Judges.

The Opinion filed April 7, 1998 and appearing at 140 F.3d 1249 (9th Cir.1998), is withdrawn. The panel, being unanimously of the view that the issues are well framed by the briefs filed to date, will proceed to issue an opinion without further argument.

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[8] Judge Brunetti was drawn to replace the Honorable Robert R. Merhige, Jr., Senior United States District Judge for the Eastern District of Virginia, in this case.

UNITED STATES COURT OF APPEALS
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Opinion by Judge MERHIGE; Dissent by Judge HAWKINS.

MERHIGE, District Judge:

Based on the readings from a thermal imager, the observation of unusually high power usage at Defendant-Appellant Danny Lee Kyllo's home, information provided by an informant, and other circumstantial evidence, federal law enforcement officers obtained a warrant to search the premises of Danny Lee Kyllo ("Kyllo"). The officers executed the warrant and

[9] Honorable Robert R. Merhige, Jr., Senior United States District Judge for the Eastern District of Virginia, sitting by designation.

discovered an indoor marijuana growing operation, weapons, and drug paraphernalia. After being indicted, Kyllo moved to suppress all the evidence obtained in the search of his residence. The district court denied his motion. We vacated that conviction and remanded for further proceedings. On remand, the district court again denied Kyllo's motion to suppress. This appeal presents an issue of first impression in this circuit, namely whether thermal imaging scanning is a search within the meaning of the Fourth Amendment. We hold that thermal imaging scanning is a search within the meaning of the Fourth Amendment.

I. Factual Background

While investigating a suspected marijuana growing and distribution operation, United States Bureau of Land Management Agent William Elliott ("Elliott") discovered information suggesting Kyllo's involvement. Elliott contacted Oregon state law enforcement officers who provided him with additional information, including the following: that Kyllo lived with his wife, Luanne Kyllo ("Luanne"), in one unit of a triplex in Florence, Oregon; that the triplex was occupied by other persons who were suspects in the investigation; that a car registered to Kyllo and Luanne at the triplex address was parked outside the triplex; that Kyllo had allegedly told a police informant that Luanne and he could supply the informant with marijuana; and that the previous month, Luanne had been arrested for delivery and possession of a controlled substance.

Elliott subpoenaed Kyllo's utility records. Using a chart for estimating average electricity use, Elliott concluded that Kyllo's electricity use was abnormally high. At Elliott's request, Staff Sergeant Daniel Haas

("Haas") of the Oregon National Guard examined Kyllo's home using an Agema Thermovision 210 thermal imaging device (the "Agema"). A thermal imager operates by observing and recording the differential heat patterns emanating from various objects within its view. The results of the measure of these differential heat patterns are then displayed on a viewfinder on top of the instrument which indicates the amount of heat emitted by objects by shading the area around the object a lighter or darker color. As the Tenth Circuit explained,

> [a]ctivities that generate a significant amount of heat . . . produce a heat "signature" that the imager can detect. Under optimal conditions—viewing through an open window into a darkened room, for example—the imager (or one much like it) might well be able to resolve these heat signatures into somewhat indistinct images. The utility of the machine depends therefore not on the inevitable and ubiquitous phenomenon of heat loss but on the presence of distinguishable heat signatures inside the structure.

United States v. Cusumano, 67 F.3d 1497, 1501 (10th Cir. 1995), *vacated on other grounds*, 83 F.3d 1247 (10th Cir. 1996).

Haas' search revealed what he considered abnormally high levels of heat emanating from Kyllo's home. Elliott concluded that this heat signature indicated the presence of high intensity lights used to grow marijuana indoors. Elliott presented the information he had gathered about Kyllo in an affidavit (the "Affidavit") to a federal magistrate judge for the United States District Court for the District of Oregon and requested a

search warrant for Kyllo's home. The magistrate issued the warrant. Elliott searched Kyllo's home. He discovered an indoor marijuana growing operation and seized a number of items, including marijuana, weapons, and drug paraphernalia.

Kyllo was indicted on one count of the manufacture of marijuana in violation of 21 U.S.C. § 841(a)(1). After holding a suppression hearing, the district court denied Kyllo's motion. Kyllo pled guilty and was sentenced to 63 months in custody. Kyllo appealed the district court's denial of his motion to suppress the evidence to this Court. In a memorandum disposition, this Court found that, while the portion of the Affidavit relating to Kyllo's electricity use was false and misleading, the district court was not clearly erroneous in concluding that the false statements were not knowingly or recklessly made. *See United States v. Kyllo*, 37 F.3d 526 (9th Cir. 1994). Thus, the portion of Elliott's affidavit relating to Kyllo's electricity use was properly considered by the magistrate judge in determining whether there was probable cause to issue a warrant.

This Court then remanded the case to the district court to hold an evidentiary hearing on the capabilities of the Agema and on whether Elliott knowingly or recklessly omitted from the Affidavit the fact that Kyllo and Luanne were divorced. "A district court must suppress evidence seized under a warrant when an affiant has knowingly or recklessly included false information in the affidavit." *United States v. Dozier*, 844 F.2d 701, 705 (9th Cir.), *cert. denied*, 488 U.S. 927, 109 S. Ct. 312, 102 L.Ed.2d 331 (1988). The district court found that, while Elliott's omission from the Affidavit of the fact that Kyllo and Luanne were divorced

was misleading, it was not knowingly false or made in reckless disregard for the truth. *See United States v. Kyllo*, No. Cr. 92-51-FR, 1996 WL 125594 (D. Or. Mar. 15, 1996). We review the district court's finding that these statements were not made with reckless regard for the truth under the clearly erroneous standard. *See Dozier*, 844 F.2d at 705.

In light of the evidence presented at the suppression hearing, it was not clearly erroneous for the district court to find that Elliott's omission from the Affidavit of the fact that Kyllo and Luanne were divorced was not knowingly false or made in reckless disregard for the truth. No evidence was presented at the hearing that either Elliott or the Oregon State law enforcement officers who supplied him information knew that Kyllo and Luanne were divorced. Furthermore, there was no evidence presented showing that their failure to discover and report the fact of Kyllo's divorce was reckless. Thus, the portion of Elliott's affidavit relating to Kyllo's relationship to Luanne was properly considered by the magistrate judge in determining whether there was probable cause to issue a warrant.

After holding the evidentiary hearing, the district court found that Elliott did not knowingly or recklessly omit information about Kyllo's divorce from the Affidavit. Regarding the Agema, the district court found that (1) it revealed no intimate details of Kyllo's home, (2) it did not intrude on the privacy of persons inside Kyllo's home, (3) it could not penetrate walls or windows or reveal human activities or conversations, and (4) it "recorded only the heat being emitted from the home." *United States v. Kyllo*, No. CR 92- 51-FR (D. Or. Mar. 15, 1996). Based on its factual findings, the district court

concluded that the warrantless search of Kyllo's home with the Agema was permissible and that there was probable cause to issue the warrant to search Kyllo's home.

On appeal, Kyllo argues that the use of the thermal imaging scanner to measure the heat emanating from his house was a search within the meaning of the Fourth Amendment and, therefore, required a warrant to be valid. As a result, Kyllo argues that the search was unconstitutional, rendering the search warrant based on the results of Agema's measurements invalid. Kyllo further argues that the district court erred in finding that Elliott's omission from the Affidavit of the fact that Kyllo and Luanne were divorced was not knowingly false or made in reckless disregard for the truth. Kyllo contends that neither the findings from the warrantless search with the Agema nor Elliott's omissions from the Affidavit should have been considered by the magistrate in determining whether there was probable cause to issue the search warrant. Thus, Kyllo argues, the evidence obtained during the search should be suppressed.

II. Warrantless Search with Thermal Imaging Device

Kyllo first argues that the warrantless use of a thermal imaging device to scan his home constituted a "search" within the meaning of the Fourth Amendment, and that the fruits of this warrantless search must therefore be suppressed. The validity of a warrantless search is reviewed de novo. *See United States v. Van Poyck*, 77 F.3d 285, 290 (9th Cir.), *cert. denied*, 519 U.S. 912, 117 S. Ct. 276, 136 L.Ed.2d 199 (1996). The district court's findings of fact on the capabilities of the Agema

are reviewed for clear error. *See Ornelas v. United States*, 517 U.S. 690, 698-700, 116 S. Ct. 1657, 1663, 134 L.Ed.2d 911 (1996); *United States v. Hernandez*, 27 F.3d 1403, 1406 (9th Cir. 1994).

The Fourth Amendment provides that "[t]he right of the people to be secure in their persons, houses, papers, and other effects, against unreasonable searches and seizures, shall not be violated." U.S. Const. amend. IV. We must apply the two-prong test enunciated by the Supreme Court in *Katz* to determine whether a warrantless search violated a defendant's legitimate expectation of privacy: the defendant must have a subjective expectation of privacy, and that expectation must be one that society is prepared to acknowledge as reasonable. *See Katz v. United States*, 389 U.S. 347, 361, 88 S. Ct. 507, 516-17, 19 L.Ed.2d 576 (Harlan, J., concurring); *see also California v. Ciraolo*, 476 U.S. 207, 211, 106 S. Ct. 1809, 1811-12, 90 L.Ed.2d 210 (1986). We conclude that Kyllo had a subjective expectation of privacy that activities conducted within his home would be private. Although the Supreme Court ultimately held that the search conducted in Ciraolo was constitutional, it first concluded that the defendant, who enclosed his backyard marijuana crop with a double fence, "ha[d] met the test of manifesting his own subjective intent and desire to maintain privacy as to his unlawful agricultural pursuits." Cite as: 140 F.3d 1249, *1253) *Ciraolo*, 476 U.S. at 211, 106 S. Ct. at 1811-12. Surely a defendant, such as Kyllo, who moves his agricultural pursuits inside his house has similarly manifested a subjective expectation of privacy in those activities. *See United States v. Ishmael*, 48 F.3d 850, 854 (5th Cir. 1995).

In cases involving the use of thermal imagers, other circuits have framed the inquiry in the first prong of Katz differently. Those circuits have analogized the excess heat measured by a thermal imager to the excess trash left on the curb, and have asked whether the defendant has manifested a subjective expectation of privacy in the "waste heat" emanating from their homes. Those courts have held, citing *California v. Greenwood*, 486 U.S. 35, 108 S. Ct. 1625, 100 L.Ed.2d 30 (1988), that such defendants have failed to manifest a subjective expectation of privacy in the excess heat. *See United States v. Robinson*, 62 F.3d 1325, 1328-29 (11th Cir. 1995); *United States v. Myers*, 46 F.3d 668, 669-70 (7th Cir. 1995); *United States v. Pinson*, 24 F.3d 1056, 1058 (8th Cir. 1994). We respectfully reject the "heat waste" analogy. The purpose and utility of the thermal imager is to reveal the heat signatures of various objects and activities occurring inside a structure. "The pertinent inquiry is not, therefore, whether the Defendants retain an expectation of privacy in the 'waste heat' radiated from their home but, rather, whether they possess an expectation of privacy in the heat signatures of the activities, intimate or otherwise, that they pursue within their home." *United States v. Cusumano*, 67 F.3d 1497, 1502 (10th Cir. 1995), *vacated on other grounds*, 83 F.3d 1247 (10th Cir. 1996); *see also Katz*, 389 U.S. at 353, 88 S. Ct. at 512 (holding the defendant had exhibited a subjective expectation of privacy although he had not taken every precaution against electronic eavesdropping); *Ishmael*, 48 F.3d at 854-55 (holding warrantless search with thermal imager constitutional but rejecting the "waste heat" analogy).

We now must address whether Kyllo's subjective expectation of privacy regarding the heat signatures of the activities within his home is one that society is prepared to acknowledge as reasonable. As the Supreme Court has stated, "[a]t the risk of belaboring the obvious, . . . [the individual's expectation in the privacy of a residence] is plainly one that society is prepared to recognize as reasonable." *United States v. Karo*, 468 U.S. 705, 714, 104 S. Ct. 3296, 3303, 82 L.Ed.2d 530 (1984). The Supreme Court has repeatedly emphasized that "[a]t the very core [of the Fourth Amendment] stands the right of a man to retreat into his own home and there be free from unreasonable governmental intrusion." *Silverman v. United States*, 365 U.S. 505, 511, 81 S. Ct. 679, 683, 5 L.Ed.2d 734 (1961). Because of the respect for the sanctity of the home, "the Fourth Amendment has drawn a firm line at the entrance to the house. Absent exigent circumstances, that threshold may not reasonably be crossed without a warrant." *Payton v. New York*, 445 U.S. 573, 590, 100 S. Ct. 1371, 1382, 63 L.Ed.2d 639 (1980). Therefore, warrantless searches and seizures in the home are "presumptively unreasonable." *Id.*

Other circuits that have considered the warrantless use of thermal imagers have held that because of the technical inadequacies of the thermal imager used in their respective cases, the scan of defendants' homes did not reveal enough intimate details to raise constitutional concerns, all citing *Dow Chemical v. United States*, 476 U.S. 227, 106 S. Ct. 1819, 90 L.Ed.2d 226 (1986). *See Robinson*, 62 F.3d at 1328 (11th Cir. 1995); *Ishmael*, 48 F.3d at 854 (5th Cir. 1995); *Myers*, 46 F.3d at 669-70 (7th Cir. 1995); *Pinson*, 24 F.3d at 1059 (8th Cir. 1994); *contra Cusumano*, 67 F.3d at 1504 (10th Cir.

1995). We too are concerned about the nature of the information that the thermal imager used to scan Kyllo's home is able to reveal. As we stated on remand,

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

United States v. Kyllo, 37 F.3d 526, 530-31 (9th Cir. 1994).

In the evidentiary hearing conducted on remand, Kyllo presented considerable evidence to the district court about the capabilities of near-end thermal imagers such as the Agema Thermovision 210. Carlos Ghigliotty presented a videotape he had created for the district court which clearly demonstrated the ability of the Agema and other near short wave infrared cameras to see through glass. Mr. Ghigliotty is president of Infrared Technologies, a company that does testing of the limitations and capabilities of infrared cameras and tests ways infrared cameras can be applied in the field, and has been involved in thermal imaging and infrared technology for fourteen years. The videotape demonstrated that an Agema camera used in the dark to scan a car with tinted, closed windows clearly showed a person waving inside the car. The videotape also depicted the image displayed on the Agema which revealed a man standing inside a glass door of a house,

and showed details such as his movements to open the door, and his hand waving. Mr. Ghigliotty testified that this was a common capability among near-end thermal imagers such as the Agema.

Bill Martin, the director of sales for Flir Systems Incorporated which manufactures infrared imaging equipment, testified for the government. Mr. Martin had previously worked for the Agema company, and the company had provided Mr. Martin extensive training in infrared technology, including specific training on the Agema Thermovision 210. (T-2, 24). Mr. Martin admitted that if a window was open and it was dark in the room, any thermal imager could detect activity through the opening. (T-2, 100). He furthermore stated that the imager could "see" people behind curtains if they were very close to the window, and could reveal people embracing if the window was open and it was dark out. Mr. Martin also testified that thermal imagers have physiology applications, as they can detect subsurface problems in the human body.

The record also contains a brochure published by the Agema company describing the capabilities of an Agema Thermovision 210: "Sensitive to temperature differences as small as 0.9 F, the Thermovision 210 can detect and delineate objects or persons in complete darkness, or under natural cover, as far away as 1500 feet. Operations can be conducted in any level of ambient light and at air temperatures from 14 to 131 F. Even at that distance . . . the rugged 210 can easily distinguish between a domestic animal and a human being."

We conclude that the details unveiled by a thermal imager are sufficiently "intimate" to give rise to a

Fourth Amendment violation. Although the Tenth Circuit's opinion in *Cusumano* was later vacated on rehearing en banc on other grounds, we agree with its initial conclusion that

> [o]ur fellow circuits have, we think, misapprehended the most pernicious of the device's capabilities. 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 that data allows the government to monitor those domestic activities that generate a significant amount of heat. Thus, while the imager cannot reproduce images or sounds, it nonetheless strips the sanctuary of the home of one vital dimension of its security: 'the right to be let alone' from the arbitrary and discretionary monitoring of our actions by government officials.

United States v. Cusumano, 67 F.3d 1497, 1504 (10th Cir. 1995), *vacated on other grounds*, 83 F.3d 1247 (10th Cir. 1996). It is not disputed whether the Agema 210 could reveal details such as intimate activities in a bedroom. According to the manufacturer, the imager used in this case is sensitive to temperature differences as small as 0.9 F. As the court noted in *Cusumano*, it would not be difficult to determine the origin of two commingled objects emitting heat in a bedroom at night. *Id.* at 1504. Even assuming that the Agema, apparently a relatively unsophisticated thermal imager, is unable to reveal such intimate details, technology improves at a rapid pace, and much more powerful and sophisticated thermal imagers are being developed which are increasingly able to reveal the intimacies that

we have heretofore trusted take place in private absent a valid search warrant legitimizing their observation.

Furthermore, even if a thermal imager does not reveal details such as sexual activity in a bedroom, with a basic understanding of the layout of a home, a thermal imager could identify a variety of daily activities conducted in homes across America: use of showers and bathtubs, ovens, washers and dryers, and any other household appliance that emits heat. *See United States v. Field*, 855 F. Supp. 1518, 1519 (W.D. Wis. 1994) (stating that a thermal imager had detected the presence of a dehumidifier in use in a closet). Even the routine and trivial activities conducted in our homes are sufficiently "intimate" as to give rise to Fourth Amendment violation if observed by law enforcement without a warrant. *Compare Arizona v. Hicks*, 480 U.S. 321, 325, 107 S. Ct. 1149, 1152-53, 94 L.Ed.2d 347 (1987) ("It matters not that the search uncovered nothing of any great personal value to respondent. . . . A search is a search, even if it happens to disclose nothing but the bottom of a turntable.") and *United States v. Karo*, 468 U.S. 705, 104 S. Ct. 3296, 82 L.Ed.2d 530 (1984) (holding that revelation of a single detail about the interior of the home, whether or not the beeper placed in can of ether was still inside the home, was sufficient to violate the Fourth Amendment) with *Florida v. Riley*, 488 U.S. 445, 452, 109 S. Ct. 693, 697, 102 L.Ed.2d 835 (1989) (plurality decision) (visual surveillance of interior of greenhouse revealed "no intimate details connected with the use of the home") (dicta) and *Dow Chemical*, 476 U.S. at 237-39, 106 S. Ct. at 1826-27 (surveillance by camera revealing outlines of commercial buildings did not disclose intimate details of the home). We therefore conclude that the use of a thermal imager to observe

heat emitted from various objects within the home infringes upon an expectation of privacy that society clearly deems reasonable.

Because scanning with a thermal imager without a warrant violates the Fourth Amendment, the Agema readings should not have been considered by the magistrate judge. However, the district court did not consider whether the information provided to the magistrate was sufficient to sustain a search warrant without the addition of the readings from the thermal imager. Therefore, we remand for the district court to make that determination. On remand, the district court should be cognizant of the Court's holdings that the portions of Elliott's affidavit relating to Kyllo's electricity use and his relationship to Luanne were properly considered by the magistrate judge in determining whether there was probable cause to issue a warrant.

REVERSED and REMANDED.

HAWKINS, Circuit Judge, dissenting:

My colleagues have made the best case imaginable for the proposition that the use of a thermal imaging device constitutes a search within the meaning of the Fourth Amendment. I am not persuaded.

A search, whether of a home, a car, or a body, is, at bottom, an intrusion; a non-consensual invasion of protected space. Whatever its Star Wars capabilities, the thermal imaging device employed here intruded into nothing. Rather, it measured the heat emanating from and on the outside of a house. Nor did law enforcement randomly choose its choice of targets: the agents employing the device were alerted to Kyllo's

house because of its extraordinary use of electricity, a use consistent with indoor marijuana cultivation.

I would follow the lead of our sister circuits and hold that the use of thermal imaging technology does not constitute a search under contemporary Fourth Amendment standards.

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF OREGON

CR NO. 92-51-FR

UNITED STATES OF AMERICA, PLAINTIFF

v.

DANNY KYLLO, DEFENDANT

[Filed: Mar. 15, 1996]

OPINION

FRYE, Judge:

The matter before the court is the motion of the defendant, Danny Kyllo, to suppress evidence upon remand of this case from the United States Court of Appeals for the Ninth Circuit.

On December 2, 1994, this court denied Kyllo's motion to suppress evidence. Kyllo argued, among other grounds, that:

1) the law enforcement officers had misled the magistrate judge who issued the search warrant with deliberate omissions of fact in order to obtain the search warrant; and

2) the use of a thermal imaging device constituted an impermissible search.

On October 4, 1994, the United States Court of Appeals for the Ninth Circuit remanded the case for a further hearing regarding 1) the technological capacities of the thermal imaging device used in this case; 2) whether omissions of material facts regarding Kyllo's marital status resulted from a deliberate or reckless disregard of the truth. *United States v. Kyllo*, 37 F.3d 526 (9th Cir. 1994).

The court has conducted a full evidentiary hearing allowing the parties an opportunity to present evidence as to the issues on remand.

1. Warrantless Use of a Thermal Imaging Device

The United States Court of Appeals for the Ninth Circuit wrote:

> Without a warrant, law enforcement officers used a thermal imaging device to scan Kyllo's residence. Kyllo claims that the use of a thermal imaging device constitutes a "search" within the meaning of the Fourth Amendment, and that the fruits of this warrantless search must be suppressed.
>
> In order to determine whether the scan constituted a "search" for purposes of the Fourth Amendment, we must decide whether Kyllo exhibited an actual expectation of privacy and whether that expectation is one that society is prepared to acknowledge as reasonable. *See California v. Ciraolo*, 476 U.S. 207, 211, 106 S. Ct. 1809, 1811-12,

> 90 L.Ed.2d 210 (1986). But this inquiry cannot be conducted in the abstract. We must have some factual basis for gauging the intrusiveness of the thermal imaging device, which depends on the quality and the degree of detail of information that it can glean. For example, our analysis will be affected by whether, on the one extreme, this device can detect sexual activity in the bedroom, as Kyllo's expert suggests, or, at the other extreme, whether it can only detect hot spots where heat is escaping from a structure.
>
> The district court, however, held no evidentiary hearing and made no findings regarding the technological capabilities of the thermal imaging device used in this case. In particular, the court made no findings on the device's ability to detect the shapes of heat-emitting objects inside a home.
>
> Without explicit findings, we are ill-equipped to determine whether the use of the thermal imaging device constituted a search within the meaning of the Fourth Amendment. Accordingly, we remand to the district court for findings on the technological capacities of the thermal imaging device used in this case.

37 F.3d at 550-31 (footnote omitted).

The AGEMA Thermovision 210 imaging device used by Staff Sergeant Daniel Haas of the Oregon National Guard in the investigation of this case is a non-intrusive device which emits no rays or beams and shows a crude visual image of the heat being radiated from the outside of the house. The device was operated from the passenger seat of a vehicle parked on the street. The device

cannot and did not show any people or activity within the walls of the structure.

In his report, Sergeant Haas states, in part: "On the 16th of Jan. the thermal scan showed high heat loss from the roof of 878 Rhododendron above the garage and from the wall facing 890 Rhododendon [sic] as shown in the two (2) diagrams below. . . . The center bldg. showed much warmer than the blds [sic] on either side." Sergeant Haas testified at the hearing that "[t]he main conclusion that I reached was that there was definitely something unusual within the structure that was generating that excess heat." Transcript, p. 1139.

Under *Katz v. United States*, 389 U.S. 347, 361 (1967), an expectation of privacy is only reasonable where 1) the individual manifests a subjective expectation of privacy in the object of the challenged search; and 2) society is willing to recognize that subjective expectation as reasonable. The second element turns on "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).

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

The use of a device to detect surface waste heat from a home does not amount to a "search" of the home within the meaning of the Fourth Amendment. Kyllo did not have a reasonable expectation of privacy in the heat emanating from his home, and the device used did no more than detect the heat emanating from his home. *See United States v. Myers*, 46 F.3d 668, 669-70 (7th Cir. 1995); *United States v. Ford*, 34 F.3d 992, 995-97 (11th Cir. 1994); and *United States v. Pinson*, 24 F.3d 1056, 1058-59 (8th Cir. 1994).

2. Omissions Regarding Kyllo's Marital Status

In his affidavit in support of the search warrant, the law enforcement officer, Special Agent William V. Elliott, stated that "Det. Dorman told me that he was aware that on 12-06-90, Danny Kyllo's wife, Luanne Kyllo, was arrested for delivery and possession of a controlled substance. A check with DMV revealed that Danny Kyllo and Luanne Kyllo had a 1972 Datsun . . . which was registered at [Danny Kyllos' address]." Search Warrant Affidavit, p. 3.

The United States Court of Appeals for the Ninth Circuit stated, in part:

> While no statement in this paragraph is false, Elliott omitted the following uncontested facts: at the time of Luanne Kyllo's arrest, Luanne was separated from Danny Kyllo; she was living in a different state, California; and, she was using her maiden name. . . .
>
> . . . .

. . . . These omissions were material since these facts would have substantially undermined any inference that Danny Kyllo was involved with drugs because his wife was. . . .

. . . .

Second, Kyllo has shown that he was prejudiced by this omission. If material facts about Kyllo's marital status had not been omitted, the information about the wife's arrest would have been neutralized. That would have left in the affidavit three principal factual allegations: 1) Kyllo's electric power consumption was abnormally high; 2) Kyllo's residence emitted heat patterns indicative of a marijuana grow operation; 3) Kyllo once sold marijuana.

As discussed above, the first allegation was false; therefore, we will disregard it in our prejudice inquiry. As we discuss below, the record does not contain sufficient facts for us to determine whether the use of a thermal imaging device constitutes a search under the Fourth Amendment. For that reason, in determining the prejudicial effect of the omission in the search warrant of relevant facts concerning Luanne Kyllo, we will disregard the allegation in the affidavit concerning the heat emitted from Kyllo's residence. What is left in the affidavit, then, is the third allegation, which is hearsay many times over: Elliott heard it from a detective who heard it from another detective who heard it from an informant who overheard Kyllo's offer to sell drugs. Moreover, the information was stale. This third factual allegation, the only one left in the affidavit to consider, would fail to establish

> probable cause by itself. Accordingly, Kyllo has demonstrated prejudice.

37 F.3d at 529-30 (footnote omitted).

This court heard testimony as to whether the affiant deliberately or recklessly omitted material facts and, if so, whether the omitted material facts resulted from a deliberate or reckless disregard for the truth. The affiant, Special Agent Elliott, testified that he believed Luanne Kyllo was living with Danny Kyllo at 878 Rhododendron Drive based upon:

> the fact that the vehicle that Detective Dorman spotted out in front of 878 Rhododendron Drive was currently registered to Danny and Luanne Kyllo. And then the second piece of information was information provided to me by Detective Nafziger who had contact with Brookings Police Department in which they had an informant who related to him that during a conversation Danny Kyllo regarding—talking about a marijuana transaction stated that if he wasn't at the residence then Luanne would be there in order to get him the marijuana.

Transcript, p. 263.

Special Agent Elliott testified that he did not request that Detective Dorman obtain the police report regarding the arrest of Luanne Kyllo in November of 1990, which indicated that Luanne Kyllo used to be married to Danny Kyllo and was living in California at the time of Danny Kyllo's arrest. Special Agent Elliott testified that "[w]e normally do not ask for police

reports when we get the basic information like that." Transcript, p. 264.

On cross-examination, Special Agent Elliott stated that Detective Dorman told him that he had contacted the landlord and the landlord had told Detective Dorman that "Danny Kyllo was living at 878 Rhododendron Drive." Transcript, p. 266. Special Agent Elliott testified that he did not put the information that Detective Dorman got from the landlord into his affidavit in support of the search warrant.

Detective Dorman testified at the hearing that he was personally involved in the arrest of Luanne Kyllo in November of 1990. Detective Dorman testified that he had assisted another officer in securing and in searching the residence in the execution of the search warrant and the arrest of a Luanne Schirman, who was identified through the Department of Motor Vehicles records in the affidavit in support of the search warrant as Luanne Kyllo. Detective Dorman testified that he did not prepare the affidavit in support of the search warrant in November of 1990; that he did not write any reports in the case; and that he had not reviewed the affidavit in support of the search warrant prior to the execution of the search warrant in November 1990. Detective Dorman testified that he had no independent recollection from the 1990 arrest that Luanne Kyllo was living in California, and no independent recollection from the 1990 arrest so to Luanne Kyllo's marital status. Detective Dorman testified that in January of 1992, when he was assisting Special Agent Elliott in the investigation of Danny Kyllo, he did not connect the cases.

There is no evidence that the affiant, Special Agent Elliott, knew of and deliberately or recklessly omitted from the affidavit the facts that 1) at the time of Luanne Kyllo's arrest, she was separated from Danny Kyllo; 2) that she was living in a different state, the State of California; and 3) that she was using her maiden name. The court finds Detective Dorman to be credible when he stated that in January of 1992, when he was assisting Special Agent Elliott in the investigation of Danny Kyllo, he did not connect that investigation with the arrest of Luanne Kyllo in November of 1990. There is evidence that Special Agent Elliott omitted from the affidavit the fact that only Danny Kyllo's name was associated with the address by the landlord. However, the facts in the case do not warrant a finding that Special Agent Elliott deliberately or recklessly omitted this information from the affidavit in order to mislead the magistrate judge. The fact that only Danny Kyllo's name was associated with the address by the landlord is not inconsistent with the statement that "[a] check with DMV revealed that Danny Kyllo and Luanne Kyllo had a 1972 Datsun . . . which was registered at [Danny Kyllo's address]." Search Warrant Affidavit, p. 3. There was no testimony that Special Agent Elliott or Detective Dorman omitted any evidence known to them that would lead the agent or the magistrate judge to believe that Luanne Kyllo did not reside at 878 Rhododendron Drive.

RULING OF THE COURT

In *Franks v. Delaware*, 438 U.S. 154 (1978), the United States Court held that a defendant could challenge a facially valid affidavit by making a

substantial preliminary showing that "(1) the affidavit contains intentionally or recklessly false statements, and (2) the affidavit purged of its falsities would not be sufficient to support a finding of probable cause." *United States v. Lefkowitz*, 618 F.2d 1313, 1317 (9th Cir.), *cert. denied*, 449 U.S. 824 (1980). In *United States v. Stanert*, 762 F.2d 775, 781 (9th Cir. 1985), the court held that a defendant can challenge the affidavit in support of a search warrant which is valid on its face when it contains deliberate or reckless omissions of facts that tend to mislead.

If, after the limited evidentiary hearing, the court concludes that the magistrate judge or judge was misled by information in the affidavit that the affiant knew was false, or would have known was false except for his reckless disregard of the truth, then suppression is an appropriate remedy. *United States v. Leon*, 468 U.S. 897, 923 (1984).

In *United States v. Kyllo*, 37 F.3d 526 (9th Cir. 1994), the appeals court concluded that it was not clearly erroneous for the district court to find that the statements in the affidavit of Special Agent Elliott regarding the power usage at the Kyllo home did not rise to the level of reckless disregard for the truth. *Id.* at 529. Upon remand, the court conducted a further hearing to determine whether the affidavit contained intentionally or recklessly false statements or, put another way, whether the magistrate judge or judge was misled by information in the affidavit that the affiant knew was false or would have known was false except for his reckless disregard of the truth. After the evidentiary hearing, the court found that the false statements or omitted facts were not deliberate and

were not made in reckless disregard for the truth or for the purpose of misleading the magistrate judge. In light of these findings, suppression is not an appropriate remedy in this case.

To insure the magistrate judge's function has been adequately performed, the court must "conscientiously review the sufficiency of affidavits on which warrants are issued. *Illinois v. Gates*, 462 U.S. 213, 239 (1983). The review must determine whether the magistrate judge in the case had "a 'substantial basis for . . . conclud[ing]' that a search would uncover evidence of wrongdoing." *Id.* at 236 (quoting *Jones v. United States*, 362 U.S. 257, 271 (1960)). In the absence of any finding of a deliberate or reckless disregard of the truth, this court concludes that the magistrate judge had a substantial basis for finding probable cause to believe that a search warrant would uncover evidence of wrongdoing.

CONCLUSION

Kyllo's motion to suppress is denied. An updated presentence report is ordered. Upon the completion of the updated presentence report, the court will schedule a sentencing hearing in order to consider the issue of an appropriate sentence at this stage in the proceedings.

DATED this 15 day of March, 1996.

/s/ HELEN J. FRYE
HELEN J. FRYE
United States District Judge

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 93-30231

UNITED STATES OF AMERICA, PLAINTIFF-APPELLEE

v.

DANNY LEE KYLLO, DEFENDANT-APPELLANT

Argued and Submitted May 5, 1994
Memorandum Filed June 14, 1994
Memorandum Withdrawn Sept. 29, 1994
Decided Oct. 4, 1994

Before: ALARCON, NORRIS, and LEAVY, Circuit Judges.

WILLIAM A. NORRIS, Circuit Judge:

Defendant-Appellant Danny Lee Kyllo was convicted on one count of manufacturing marijuana in violation of 21 U.S.C. § 841(a)(1) and sentenced to 63 months. Before trial, Kyllo filed a motion to suppress all the evidence obtained in a search of his residence. The district court denied his motion. We vacate this conviction and remand for further proceedings.

I

Factual Background

In 1990, a law enforcement task force began investigating Sam Shook for the crime of conspiring to grow

and distribute marijuana. In July 1991, four search warrants were issued and executed by the task force. As a result of evidence obtained from these searches, the task force began to focus on Sam Shook's daughter, Tova. On January 16, 1992, Special Agent Elliott took Sergeant Daniel Haas of the Oregon National Guard to the respective homes of Danny Kyllo and Tova Shook, where Haas used a thermal imaging device to detect the level of heat within the homes. Special Agent Elliott submitted an affidavit stating that the level of power usage at Kyllo's residence was indicative of drug manufacturing and that Kyllo's wife had been recently arrested for possession and delivery of a controlled substance. Based on this affidavit, a magistrate issued a warrant to search Kyllo's residence.

Upon execution of the search warrant at Kyllo's residence, law enforcement officers found an indoor marijuana grow involving more than one hundred marijuana plants. On February 20, 1992, a federal grand jury indicted Kyllo for the crime of manufacturing marijuana based on the evidence located in his residence.

Kyllo filed a motion to suppress evidence on two theories. First, he claimed that the affidavit filed to secure the search warrant manifested a reckless disregard for the truth by including false information about the power usage levels at his home, and by omitting material information about his marital status. Second, he claimed that the use of a thermal imaging device to gather information from his home constituted a "search", which was conducted without a warrant in violation of the Fourth Amendment. The district court granted Kyllo a hearing to determine the veracity of

the statements made before the magistrate, but limited its scope to the question of whether the statements about power usage at Kyllo's residence that were used to obtain the search warrant were submitted with reckless disregard for the truth. After conducting this hearing, the district court rejected both of Kyllo's theories of suppression and denied the motion.

II

The Search Warrant

A. Power Usage

Kyllo claims that Special Agent Elliott made statements in his affidavit before the magistrate about the power usage at Kyllo's residence with reckless disregard for the truth. To establish probable cause, Special Agent Elliott stated in his affidavit that the electricity consumption at Kyllo's residence was indicative of a marijuana grow operation. He based his claim of overconsumption on a spreadsheet that lists average monthly electricity bills for single family homes as a function of residence size. It is undisputed, however, that Elliott's use of the spreadsheet was false and misleading.[10]

"A district court must suppress evidence seized under a warrant when an affiant has knowingly or

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[10] He erroneously claimed that the spreadsheet was an *official* Portland General Electric Company document when it was not. He erroneously claimed that the spreadsheet listed "appropriate" or "maximum" power usage when it listed only "average" usage. Finally, he erroneously claimed that Kyllo was using too much electricity on the incorrect assumption that power consumption would decrease linearly with the square footage of the residence.

recklessly included false information in the affidavit." *United States v. Dozi*er, 844 F.2d 701, 705 (9th Cir.), *cert. denied*, 488 U.S. 927, 109 S. Ct. 312, 102 L.Ed.2d 331 (1988). In the absence of evidence that Elliott *knowingly* misused the spreadsheet, the issue is whether his mistakes constitute *reckless* or merely *negligent* disregard for the truth. *See United States v. Davis*, 714 F.2d 896 (9th Cir.1983). The district court found that Elliott did not act recklessly. We review the district court's finding that these statements were not made with reckless disregard for the truth under the clearly erroneous standard. *Dozier*, 844 F.2d at 705.

A comparison between the facts of this case and the facts of *Dozier* shows that the district court's finding in this case is not clearly erroneous. In *Dozier*, the affiant stated that the suspect had been convicted of multiple drug violations, when in fact, the suspect had been convicted of only one violation fifteen years ago as a juvenile, and that conviction had been set aside under state law. The affiant's explanation was that he did not know how to read the rap sheet correctly. The affiant also alleged that cars on the suspect's property belonged to certain persons although the affiant had earlier performed a DMV search that showed that the cars did not belong to those persons. *See Dozier*, 844 F.2d at 706. On these facts, we held that it was not clearly erroneous for the district court to find that the false statements arose from negligence rather than recklessness.

If the district court's finding based on the evidence in *Dozier* was not clearly erroneous, then neither was the court's finding in this case. Here, Elliott relied on a spreadsheet he received from the head of the Regional

Crime Narcotics Enforcement Team, who in turn received it unofficially from a PGE employee. In addition, Elliott had used the spreadsheet "in a number of prior cases to successfully predict" marijuana grow operations. *See id.* In light of these facts, it was not clearly erroneous for the district court to find that the mistakes Elliott made in characterizing and applying the chart did not rise to the level of *reckless* disregard for the truth.

B. Marital Status

Kyllo claims that the district court erred in refusing to hold a *Franks* hearing on the issue of whether Special Agent Elliott omitted statements about Kyllo's marital status with reckless disregard for the truth. In his affidavit, Elliott stated:

> Det. Dorman told me that he was aware that on 12-06-90, Danny Kyllo's wife, Luanne Kyllo, was arrested for delivery and possession of a controlled substance. A check with DMV revealed that Danny Kyllo and Luanne Kyllo had a 1972 Datsun ... which was registered at [Danny Kyllo's address].

E.R. at 51. While no statement in this paragraph is false, Elliott omitted the following uncontested facts: at the time of Luanne Kyllo's arrest, Luanne was separated from Danny Kyllo; she was living in a different state, California; and, she was using her maiden name. Although these facts appear in Detective Dorman's police report, Elliott did not examine the report itself and simply relied on Dorman's oral recounting of the facts.

Kyllo argued to the district court that Elliott's failure to check Dorman's report reveals a reckless disregard for the truth. Kyllo requested that this issue be considered in the district court's Franks hearing, but the court refused. *See Franks v. Delaware*, 438 U.S. 154, 98 S. Ct. 2674, 57 L.Ed.2d 667 (1978). We review *de novo*. *See United States v. Homick*, 964 F.2d 899, 904 (9th Cir.1992).

To be entitled to a *Franks* hearing on this issue, Kyllo must first make a substantial preliminary showing that the affidavit contained a misleading omission and that the omission resulted from a deliberate or reckless disregard of the truth. Second, he must demonstrate that had there been no omission, the affidavit would have been insufficient to establish probable cause. *See United States v. Chesher*, 678 F.2d 1353, 1360 (9th Cir. 1982).

First, Kyllo has made the required substantial preliminary showing. Three facts regarding Luanne and Danny Kyllo's marital status were omitted from the affidavit. These omissions were material since these facts would have substantially undermined any inference that Danny Kyllo was involved with drugs because his wife was. Furthermore, the fact that Elliott relied on information received from another law enforcement officer does not *ipso facto* mean that Elliott's omissions were not reckless. *See United States v. Roberts*, 747 F.2d 537, 546 n.10 (9th Cir. 1984).

Our opinion in *United States v. Chesher*, 678 F.2d 1353 (9th Cir. 1982), is instructive. In *Chesher*, the affiant spoke several times with another police officer who had prepared a report indicating that Chesher was no longer a member of the Hell's Angels. Despite the

existence of this report and affiant's conversations with the author of the report, the affiant informed a magistrate that Chesher was a member of the Hell's Angels in order to secure a search warrant. We reversed the district court's decision not to hold a *Franks* hearing and stated that Chesher had satisfied the requirement of a substantial preliminary showing. *See id.* at 1362. We added:

> Clear proof is not required—for it is at the evidentiary hearing itself that the defendant, aided by live testimony and cross-examination, must prove actual recklessness or deliberate falsity.

Id. As did Chesher, Kyllo has made a sufficient preliminary showing to warrant a *Franks* hearing on this issue.

Second, Kyllo has shown that he was prejudiced by this omission. If material facts about Kyllo's marital status had not been omitted, the information about the wife's arrest would have been neutralized. That would have left in the affidavit three principal factual allegations: 1) Kyllo's electric power consumption was abnormally high; 2) Kyllo's residence emitted heat patterns indicative of a marijuana grow operation; 3) Kyllo once sold marijuana.

As discussed above, the first allegation was false; therefore, we will disregard it in our prejudice inquiry. As we discuss below, the record does not contain sufficient facts for us to determine whether the use of a thermal imaging device constitutes a search under the Fourth Amendment. For that reason, in determining the prejudicial effect of the omission in the search warrant of relevant facts concerning Luanne Kyllo, we

will disregard the allegation in the affidavit concerning the heat emitted from Kyllo's residence. What is left in the affidavit, then, is the third allegation,[11] which is hearsay many times over: Elliott heard it from a detective who heard it from another detective who heard it from an informant who overheard Kyllo's offer to sell drugs. Moreover, the information was stale. This third factual allegation, the only one left in the affidavit to consider, would fail to establish probable cause by itself. Accordingly, Kyllo has demonstrated prejudice.

Because Kyllo satisfied the two prongs required to entitle him to a *Franks* hearing, the district court erred in refusing to consider his claim that the affiant recklessly omitted material information about his marital relationship. We therefore remand this issue for a *Franks* hearing.

III

Thermal Imaging Device

Without a warrant, law enforcement officers used a thermal imaging device to scan Kyllo's residence. Kyllo claims that the use of a thermal imaging device constitutes a "search" within the meaning of the Fourth Amendment, and that the fruits of this warrantless search must be suppressed.

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[11] Det. Nafziger told me he contacted Detective Plaseter of the Brookings Police Department who told him that he had a CRI who told him that in late 1989, or early 1990 he was told by this CRI that the CRI overheard a conversation between Danny Kyllo and another unknown person indicating that Danny Kyllo had marijuana for sale. . . . E.R. at 52.

In order to determine whether the scan constituted a "search" for purposes of the Fourth Amendment, we must decide whether Kyllo exhibited an actual expectation of privacy and whether that expectation is one that society is prepared to acknowledge as reasonable. *See California v. Ciraolo*, 476 U.S. 207, 211, 106 S. Ct. 1809, 1811-12, 90 L.Ed.2d 210 (1986). But this inquiry cannot be conducted in the abstract. We must have some factual basis for gauging the intrusiveness of the thermal imaging device, which depends on the quality and the degree of detail of information that it can glean. For example, our analysis will be affected by whether, on the one extreme, this device can detect sexual activity in the bedroom, as Kyllo's expert suggests, or, at the other extreme, whether it can only detect hot spots where heat is escaping from a structure.[12]

The district court, however, held no evidentiary hearing and made no findings regarding the technological capabilities of the thermal imaging device used in this case. In particular, the court made no findings on the device's ability to detect the shapes of heat-emitting objects inside a home. Without explicit findings, we are ill-equipped to determine whether the use of the

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[12] *Cf. Dow Chemical Co. v. United States*, 476 U.S. 227, 238, 106 S.Ct. 1819, 1826-27, 90 L.Ed.2d 226 (1986) ("It may well be . . . that surveillance of private property by *using highly sophisticated surveillance equipment not generally available to the public*, such as satellite technology, might be constitutionally prescribed absent a warrant. But the photographs here are not *so revealing of intimate details* as to raise constitutional concerns. Although they undoubtedly give EPA more detailed information than naked-eye views, they remain *limited to an outline of the facility's buildings* and equipment.") (emphasis added).

thermal imaging device constituted a search within the meaning of the Fourth Amendment. Accordingly, we remand to the district court for findings on the technological capacities of the thermal imaging device used in this case.

IV

Sentence Enhancement

Finally, Kyllo claims that the district erred in increasing his base offense level for possession of a firearm. "[I]n applying § 2D1.1(b)(1) the court need not find a *connection* between the firearm and the offense. If it finds that the defendant *possessed* the weapon during the commission of the offense, the enhancement is appropriate." *United States v. Restrepo*, 884 F.2d 1294, 1296 (9th Cir. 1989). In other words, an enhancement pursuant to U.S.S.G. § 2D1.1(b)(2) may be applied as long as the "weapon was present" unless it is "clearly improbable that the weapon was connected with the offense." *United States v. Willard*, 919 F.2d 606, 609 (9th Cir. 1990), *cert. denied*, 502 U.S. 872, 112 S. Ct. 208, 116 L.Ed.2d 167 (1991).

It is undisputed that two guns were present in the same residence as the grow operation. *See United States v. Gillock*, 886 F.2d 220, 223 (9th Cir. 1989) (possessing gun in close proximity to drugs is sufficient for firearm enhancement). Furthermore, weighing all the evidence, the district court determined that the enhancement was appropriate and impliedly found that it was not clearly improbable that the guns were connected with the marijuana grow operation. Because this finding is not clearly erroneous, *see United States*

v. Palmer, 946 F.2d 97 (9th Cir. 1991), the sentence enhancement was appropriate.

The conviction is VACATED and the case is REMANDED for the purposes of a *Franks* hearing on the marital status issue and an evidentiary hearing on the intrusiveness of the thermal imaging device. The district court's order denying the motion to suppress is otherwise AFFIRMED.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF OREGON

CR No. 92-51-FR

UNITED STATES OF AMERICA, PLAINTIFF

v.

DANNY KYLLO, DEFENDANT

[Filed: Dec. 4, 1992]

OPINION

Frye, Judge:

The matter before the court is the motion of the defendant, Danny Kyllo, to suppress evidence (#30) on the following three grounds: (1) law enforcement officers lacked probable cause to search his home and misled the magistrate judge with deliberate false statements and omissions of fact in order to obtain a search warrant; (2) the use of a thermal imaging device constituted an impermissible search; and (3) the use of a National Guardsman to operate the thermal imaging device was unlawful.

BACKGROUND

In 1990, a task force of law enforcement officers began investigating Sam Shook for the crime of conspiring to grow and to distribute marijuana. The investigation of Sam Shook was conducted jointly by

several agencies, including the United States Department of Interior, the Bureau of Land Management, the Tillamook County Sheriff's Department, and the Oregon State Police Bureau. In July, 1991, four search warrants supported by the sworn affidavit of Special Agent William Elliott of the Bureau of Land Management were issued by United States Magistrate Judge George E. Juba and subsequently executed by the task force.

After these search warrants had been executed and the fruits of the executions of the search warrant had been analyzed, the investigation focused on Tova Shook, the daughter of Sam Shook. On January 16, 1992, between 3:30 and 4:00 a.m., Special Agent Elliott took Sergeant Daniel Haas of the Oregon National Guard to the homes of Kyllo and Shook, where he used a thermal imaging device to detect the level of heat within the homes. Magistrate Judge Juba then issued two more warrants based on an affidavit prepared by Special Agent Elliott, to search the residence occupied by Tova Shook at 890 Rhododendron Drive, Florence, Oregon and the residence occupied by Kyllo at 878 Rhododendron Drive, Florence, Oregon. The applications for these two search warrants were patterned in a fashion similar to the affidavits for the four prior search warrants.

When the search warrants were executed, law enforcement officers found an indoor marijuana "grow" involving more than one hundred marijuana plants located in the residence at 878 Rhododendron Drive, and dried marijuana and indications that marijuana was being distributed at the residence located at 890 Rhododendron Drive.

On February 20, 1992, a federal grand jury indicted Kyllo for the crime of manufacturing marijuana based on the evidence located in his residence. On February 24, 1992, Kyllo entered a plea of not guilty. The matter was set for trial. On May 18, 1992, Kyllo filed this motion to suppress evidence.

On June 10, 1992, the court granted Kyllo's request for a *Franks* hearing, limiting the evidence to be received and the issues to be addressed to the statements claimed by Kyllo to be false as to the power usage at the residence located at 878 Rhododendron Drive. The court found that Kyllo had made a substantial showing that the part of the sworn statement of Special Agent Elliott which related to the power usage at the residence located at 878 Rhododendron Drive was made with reckless disregard for the truth, and that the part of the statement made with reckless disregard for the truth was essential to the determination of the magistrate judge that there was probable cause to issue to issue the search warrant.

CONTENTIONS OF THE PARTIES

Kyllo first contends that Magistrate Judge Juba was misled by deliberate false statements and omissions into issuing the warrant to search Kyllo's residence. Kyllo asserts that if the false statements were corrected or the false statements were excised from the affidavit in support of the search warrant, there would be no probable cause to issue the search warrant. Kyllo also contends that the warrantless use by law enforcement officers of a thermal imaging device constituted an unreasonable search and seizure, and that the use of the National Guard in civilian law enforcement is unlawful.

The government contends that none of the statements of Special Agent Elliott were false or misleading, and the information that Special Agent Elliott provided portrayed the facts as he believed them to be; that the use of a thermal imaging device does not constitute "a search;" and that the assistance of the National Guard was not a violation of the prohibition on military involvement in civilian law enforcement.

APPLICABLE LAW

1. Validity of the Search Warrant

In *Franks v. Delaware*, 438 U.S. 154, 155-56 (1978), the Supreme Court stated:

> [W]here the defendant makes a substantial preliminary showing that a false statement knowingly and intentionally, or with reckless disregard for the truth, was included by the affiant in the warrant affidavit, and if the allegedly false statement is necessary to the finding of probable cause, the Fourth Amendment requires that a hearing be held at the defendant's request.

If the court determines, as a result of a *Franks* hearing, that false statements were deliberately or recklessly included in the affidavit and that "the affidavit is insufficient to establish probable cause without the false material, the court must set aside the search warrant and suppress the fruits of the search." *United States v. Burnes*, 816 F.2d 1354, 1357 (9th Cir. 1987)

This court granted to Kyllo a *Franks* hearing limited to the issue of whether the following statements of

Special Agent Elliott as to the power that was used at the residence located at 878 Rhododendron Drive were made with reckless disregard for the truth in the affidavit that he prepared in support of the search warrant:

> A subpoena for the power usage served on Central Lincoln PUD indicated the address of 878 Rhododendron Dr, Florence was in the name of Danny Kyllo. These records show that the power usage for the residence at 878 Rhododendron Dr. during the months of May through December held a usage that ranged from 730 Kilowatt Hours in the summer months gradually building to a high of 2206 Kilowatt Hours in winter.
>
> . . . .
>
> The Portland General Electric Company has developed a guide for estimating appropriate power usage relative to square footage, type of heating and accessories, and the number of people who occupy the residence. Using the Tax assessors report previously mentioned herein, the reported square footage of 540 square feet per each residence would be calculated as follows; The guide indicates a maximum power usage of 1348 KWH for a structure consisting of 1000 square feet, thus a structure of approximately half that square footage should generate a maximum power output of 674 kwh. The difference in maximum KHW's between the guide and the residences would indicate a[n] excessive power usage of 1532 kwh for 878 Rhododendron Dr., and a[n] excessive power usage of 1020 kwh for 890 Rhododendron Dr.

> . . . . In studying the power usage consumption for 878 Rhododendron Drive it appears that the power is consistently high, which would indicate that this address is consistent with having a continues [sic] marijuana grow operation.

Search Warrant Affidavit, pp. 4-5 (references to exhibits omitted).

Kyllo contends that at the evidentiary hearing, Special Agent Elliott deliberately misrepresented the purpose and function of the PGE chart, as well as what the chart actually means. Kyllo argues that Special Agent Elliott persuaded the magistrate judge that his conclusions were objectively made based on scientific facts provided by PGE, even though, according to Kyllo, Special Agent Elliott did not discuss the facts of this case or the PGE chart with anyone at PGE.

Kyllo contends that PGE has never held out its chart as establishing appropriate power usage, maximum power usage, or normal power usage, and that the magistrate judge was led to believe that PGE had done so by Special Agent Elliott in his affidavit. Kyllo contends that Special Agent Elliott took advantage of the magistrate judge's familiarity with Special Agent Elliott's prior applications for search warrants and did not fairly disclose to the magistrate judge the shortcomings of this particular affidavit.

Kyllo further submits that the affiant, Special Agent Elliott, distorted the conclusions that could be drawn from power records by taking one month's power usage out of context and making conclusions about that usage without consultation with any expert or knowledgeable individual in the energy field. Kyllo contends that no

one can take an isolated month of power usage and fairly conclude that the usage was excessive because the usage that month was above the monthly average. Kyllo also contends that his monthly average usage of power was actually below the average shown on the PGE chart; that the statistics from which the chart is derived are not adaptable to homes located on the Oregon coast; that the statistics have a built-in bias; and that energy consumption is a function of many individual factors, only one of which is the square footage of the residence, despite the fact that Special Agent Elliott informed the magistrate judge that a smaller house would use proportionately less power.

The government contends that Kyllo has not met his burden of showing that the statements made by Special Agent Elliott in the affidavit in support of the search warrant were deliberately false or made with reckless disregard for the truth. The government contends that the PGE chart used by Special Agent Elliott in his investigation has not been shown to be inaccurate, and that even assuming that the chart was inaccurate, Special Agent Elliott was not reckless in using the chart.

The government contends that while the experts produced by Kyllo agreed that it was improper to cut in half the figures on the PGE chart as Special Agent Elliott did, these same experts also agreed that a smaller home would use less power. The government argues that Special Agent Elliott was, at most, negligent in cutting in half the figures on the PGE chart, and that his action does not amount to recklessness, a deliberate disregard for the truth, or an intentional falsehood. The government contends that Kyllo

has not shown that Special Agent Elliott acted with any intent to deliberately mislead the magistrate judge.

ANALYSIS AND RULING

The court has carefully considered all of the evidence presented as to whether or not certain statements made by Special Agent Elliott in his affidavit in support of the search warrant as to the power usage at the residence located at 878 Rhododendren Drive were made by him with a reckless disregard for the truth.

Special Agent Elliott testified that he had used these same power charts in a number of prior cases to successfully predict whether or not there was marijuana growing at a particular location. Special Agent Elliott testified that he did not intend to mislead the magistrate judge by dividing the power usage in half, and that he believed that this was the correct thing to do at the time.

The court finds that Special Agent Elliott was credible when he testified that he believed PGE's power chart was accurate and that it was reasonable for him to use it. Special Agent Elliott testified that he made no deliberately false statements in his affidavit in support of the search warrant.

Special Agent E1liott investigated this case with Detective David Nafziger of the Oregon State Police Department. Detective Nafziger obtained PGE's power chart in June, 1991 from Detective Bert Royster of the Oregon State Police Department assigned to the Regional Crime Narcotics Enforcement Team. Detective Royster has a broad range of experience in drug investigations and provides training to other law

enforcement officers. Under the facts and circumstances of this case, this court concludes that Special Agent Elliott did not act recklessly in using the information provided to him by Detective Nafziger and did not use this information in a reckless manner. Therefore, Kyllo's motion to suppress evidence on the grounds that the magistrate judge was deliberately or recklessly misled by false statements and omissions into issuing the warrant for the search of his residence is denied.

2. Warrantless Use of a Thermal Imaging Device

Kyllo contends that the use by law enforcement officers of a thermal imaging device to detect the heat emanating from his home without first obtaining a warrant to do so constituted an unreasonable search and seizure in violation of the Fourth Amendment.

"[T]he invasion of a constitutionally protected area by federal authorities is, as the Court has long held, presumptively unreasonable in the absence of a search warrant." *Katz v. United* States, 389 U.S. 347, 361 (1967). Technological progress since the Fourth Amendment was enacted has forced courts to expand this concept of a government "invasion" beyond purely physical intrusions to include nonphysical invasions under certain circumstances: "[T]he use of sophisticated modern mechanical or electronic devices and the frightening implications of their possible development have led to abandonment of the test of physical trespass within the protected area and a broadening of protection to cover a 'reasonable expectation of privacy.'" *United States v. Solis*, 536 F.2d 880, 886 (9th Cir. 1976).

Under *Katz*, an expectation of privacy is only reasonable where (1) the individual manifests a subjective expectation of privacy in the object of the challenged search; and (2) society is willing to recognize that subjective expectation as reasonable. *Id.* at 361. The second element turns on "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).

Kyllo contends that he had a reasonable expectation of privacy in the heat generated within his home; that he did all he reasonably could do to contain the heat in his home; and that society "is well prepared to regard it reasonable that the citizenry not be surveilled by sophisticated electronic technology in order to detect personal lifestyles, including heat and cooling, within their homes." Memorandum of Law in Support of Motion to Suppress Evidence, p. 28.

The government contends that Kyllo did nothing to indicate his desire to protect his privacy in the heat generated within his home, and that even if the court found that Kyllo had a subjective expectation of privacy in the heat generated within his home, society would not consider that expectation reasonable. The government argues that heat generation is fundamentally different from telephone conversations, which were the subject of dispute in *Katz*, that by their nature are made with the expectation of privacy. The government argues that Special Agent Elliott's detection of the heat emanating from Kyllo's home is similar to the observation of smoke coming from the chimney of a house and inferring that the owner had a fire in the fireplace. The government contends that the detection of the heat

emanating from Kyllo's home was not an intrusion into the home; that the detection of the heat lost to the outside of the home did not reveal intimate details as to the inside of the home; and that none of the interests which form the basis for the need for protection of the curtilage, namely the intimacy, the personal autonomy, and the privacy associated with a home, are threatened by thermal imagery.

This court agrees with the court in *United States v. Penny-Feeney*, 773 F. Supp. 220 (D. Haw. 1991), which found that the use of a device to detect surface waste heat from a home does not amount to a "search" of the home within the meaning of the Fourth Amendment. *Id.* at 228. The court finds that the use of the thermal imaging device here was not an intrusion into Kyllo's home. No intimate details of the home were observed, and there was no intrusion upon the privacy of the individuals within the home.

Kyllo's motion to suppress evidence on the grounds that Special Agent Elliott's use of a thermal imaging device to detect the heat emanating from Kyllo's home without first obtaining a warrant constituted an unreasonable search and seizure in violation of the Fourth Amendment is denied.

3. Use of National Guardsman to Operate Thermal Imaging Device

Kyllo moves to suppress evidence based on his contention that the use of a member of the Oregon National Guard to enforce federal law in the State of Oregon is unlawful under the Posse Comitatus Act. Kyllo argues that the Oregon National Guard is a component of the federal Army National Guard, which

cannot be used for domestic law enforcement without legislative approval. The government contends that National Guardsmen play a dual role as both federal and state employees but remain state employees, and thus are exempt from the restrictions of the federal Posse Comitatus Act unless they are called into federal service by the President of the United States.

Staff Sergeant Haas, who operated the thermal imaging device, is a member of the Oregon National Guard and is an employee of the State of Oregon until and unless he is called into federal service. The Commander-in-Chief of Staff Sergeant Haas is the Governor of the State of Oregon . The Supreme Court has recognized the dual nature of a National Guard and the fact that National Guardsmen only lose their status as a member of a state National Guard when they are "drafted into federal service by the President." *Perpich v. Department of Defense*, ___ U.S. ___, 110 S. Ct. 2418, 2424 (1990). As a member of the Oregon National Guard; Staff Sergeant Haas is permitted to assist the federal government in law enforcement, as he did here. The National Guard is specifically authorized by Congress to assist in counter-drug activities when not drafted into federal service by the President. 32 U.S.C. § 112.

Kyllo's motion to suppress evidence on the grounds that it is unlawful to use a member of the Oregon National Guard in federal law enforcement in the State of Oregon is denied.

CONCLUSION

The court finds that the statements made as to the power usage at the residence at 878 Rhododendron Drive, Florence, Oregon were not made with reckless disregard for the truth and, as such, should not be omitted from the affidavit in support of the search warrant; that the use of a thermal imaging device does not constitute an impermissible search under the Fourth Amendment; and that the use of a National Guardsman to operate the thermal imaging device was not unlawful.

Kyllo's motion to suppress evidence (#30) is denied.

DATED this 4 day of December, 1992.

/s/ HELEN J. FRYE
HELEN J. FRYE
United States District Judge

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 96-30333
D.C. No. CR-92-00051-1-HJF

UNITED STATES OF AMERICA, PLAINTIFF-APPELLEE

v.

DANNY LEE KYLLO, DEFENDANT-APPELLANT

[Filed: Dec. 14, 1999]

ORDER

Before: BRUNETTI, NOONAN, and HAWKINS, Circuit Judges.

Judges Brunetti and Hawkins have voted to deny the petition for rehearing and the petition for rehearing en banc. Judge Noonan has voted to grant the petition for rehearing and the petition for rehearing en banc.

The full court has been advised of the petition for rehearing en banc and no active judge has requested a vote on whether to rehear the matter en banc. Fed. R. App. P. 35.

The petition for rehearing and the petition for rehearing en banc are denied.