

EXHIBIT A

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Valtrus provides the following infringement claim chart subject to all reservations, objections, statements, and disclaimers set forth herein and in Valtrus’ Infringement Contentions, as well as any amendment, supplement, or modification thereof, which are incorporated herein by reference in their entirety. These claim charts also incorporate by reference Valtrus’ Complaint.

Valtrus contends that the data centers charted below are representative of other Digital Realty data centers, as set forth in Valtrus’ Infringement Contentions.

Valtrus has prepared these infringement claim charts identifying, as specifically as possible at this stage of discovery, where each element of each asserted claim is found within the Accused Products. Valtrus contends that each element of the Asserted Claims is practiced literally by such Accused Products. To the extent Defendant disputes literal infringement, Valtrus contends that any such disputed element is infringed by the Accused Products under the doctrine of equivalents. Valtrus reserves the right to update these charts, upon confirmation through discovery to the extent more information relating to the Accused Products or identification of additional products becomes available, including through inspections of Defendant’s data centers.

This claim chart is not intended to and does not construe the claims of the Asserted Patents and does not limit Valtrus’ contentions. Valtrus specifically reserves the right to modify and supplement this claim chart. This preliminary claim chart is provided to illustrate exemplary information practically available at this stage of discovery.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
[1pre] A method of controlling atmospheric conditions within a building, said method comprising the steps of:	The Accused Products use a method of controlling atmospheric conditions within a building comprising the steps below. For example, Digital Realty has used the Schneider Electric StruxureWare cooling technology in its data centers to control atmospheric conditions.  https://youtu.be/PI6ygk-Jmk, at 3:01.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 https://www.youtube.com/watch?v=yFMS-88wXn8, at 0:32. Digital Realty has also used Vigilant cooling technology in its data centers to control atmospheric conditions.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

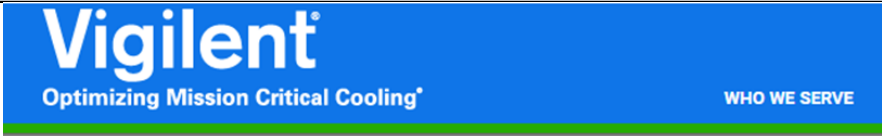
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 DIGITAL REALTY “We found that upgrading fans and adding fan speed controls in our data centers allowed us to cool them more effectively and efficiently. In addition, the facility’s electrical energy usage was reduced, as was the average and peak electric power demand, resulting in a more energy efficient and sustainable data center environment.” – Jim Smith, Chief Technology Officer, Digital Realty https://www.vigilent.com/digital-realty/

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	DIGITAL REALTY DECREASES DATA CENTER COOLING ENERGY USAGE BY 66% Energy Management Software and Variable Speed Fans Dramatically Reduce Carbon Emissions, PUE San Francisco, CA – December 12, 2012 – Digital Realty Trust, Inc. (NYSE: DLR), Vigilent® Corporation, and Lawrence Berkeley National Laboratory today announced the results of a joint study focused on improving the energy efficiency of a data center designed, owned and operated by Digital Realty. https://www.vigilent.com/digital-realty-decreases-data-center-cooling-energy-usage-by-66/

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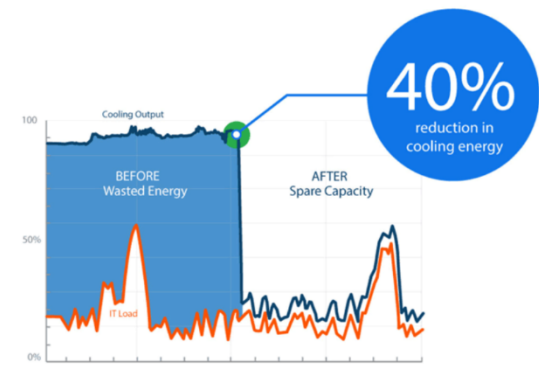
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	VIGILENT CONTINUOUSLY MATCHES COOLING OUTPUT TO HEAT LOAD Optimized airflow eliminates hot spots. Vigilent continuously optimizes the airflow in your facility, delivering improved reliability and availability. The system automatically finds and eliminates hot spots, while its comprehensive reports and tools facilitate easier operations management. Our system delivers the right amount of cooling exactly where it's needed. This typically results in up to a 40% reduction in carbon emissions and your cooling energy bill. We achieve that with sophisticated AI-based technology that learns your environment and adapts to change.  https://www.vigilent.com/who-we-serve/by-facility/data-centers/.

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Closed Loop Wireless Control Diagram Source: Lawrence Berkeley National Laboratory High-Tech and Industrial Systems Group DIGITAL REALTY Data Center Solutions https://www.vigilent.com/wp-content/uploads/2014/06/DigitalRealty.pdf Digital Realty has also used Vertiv and Liebert cooling technology in its data centers to control atmospheric conditions. Liebert’s cooling units are controlled, for example, by Liebert’s iCOM and/or iCOM-S Intelligent Communication and Monitoring System.

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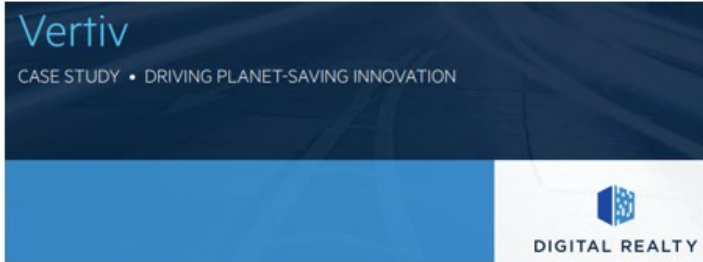
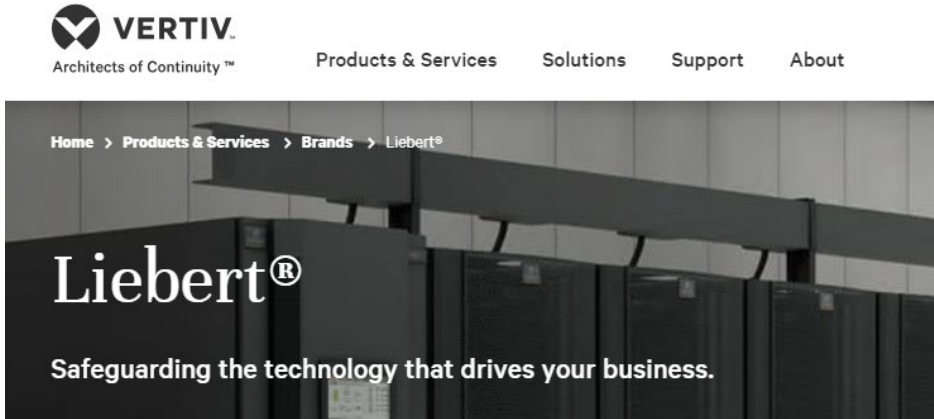
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 Partnering to prove the worth of pumped refrigerants Vertiv developed their Liebert DSE system for data centers where chilled water thermal management was either too expensive or simply too big for the space available. Digital Realty was open to exploring a new cooling solution. For nine months, Vertiv and Digital Realty worked together to explore the energy savings and operational performance benefits of a pumped refrigerant system and compared it to that of a chilled water system. The companies shared their results with the CEC and apply for a formal exception to the air- and water- only rule in order to bring a promising new cooling solution to market. Digital Realty has saved more than 1 billion gallons of water since 2013, by using Liebert DSE pumped refrigerant systems in its data centers, compared to using chilled water systems. https://www.vertiv.com/4a10eb/globalassets/products/thermal-management/room-cooling/vertiv-and-digital-realty-case-study.pdf , pp. 1, 3.  https://www.vertiv.com/en-us/products/brands/liebert/

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	 https://www.vertiv.com/49d637/globalassets/shared/liebert-icom-thermal-system-controls-brochure.pdf (“iCOM Brochure”).

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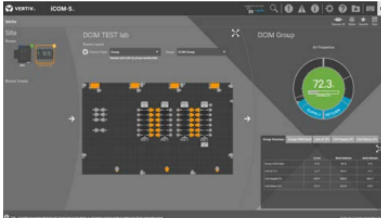
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	At the cooling unit level, the Liebert iCOM unit control provides the highest protection available and optimal performance. • Monitors 380 unit and component points to eliminate single points of failure • Self-healing features avoid passing unsafe operating thresholds • Highly intuitive, full-color, touch screen simplifies operations to save time and reduce human error • Multiple, automated unit protection routines, including lead/lag, cascade, rapid restart, refrigerant protection and valve calibration  At the supervisory level, the Liebert iCOM-S system control offers a revolutionary way to harmonize and optimize thermal system performance to optimize capacity across the data center, gain quick access to actionable data, and automate system diagnostics and trending. • Advanced monitoring and at-a-glance reporting on performance metrics and trends for efficiency, capacity and adverse events • Up to 50% system efficiency gains • 30% lower deployment costs • Teamwork modes that prevent conflict between units and allow them to adapt to changes in facility and IT demand to improve efficiency and availability and reduce system wear and tear – saving more than \$10,000 per unit per year in energy costs • Simple and easy to deploy — auto-configuration to detect and configure up to 4,800 sensors, eliminating the need for custom integration to building management systems and cutting sensor deployment times in half  Liebert iCOM unit control and Liebert iCOM-S system control are available for new Vertiv™ data center cooling units or as retrofits. iCOM Brochure at p. 3. Regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others), the Accused Products satisfy this limitation.

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
[1a] supplying a conditioned fluid inside said building;	The Accused Products supply a conditioned fluid inside said building, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See, e.g.:</i> https://www.vertiv.com/4afe7d/globalassets/products/thermal-management/room-cooling/liebert-dse-80-165kw-23-43-tons-downflow-system-design-manual.pdf, at p. 6.

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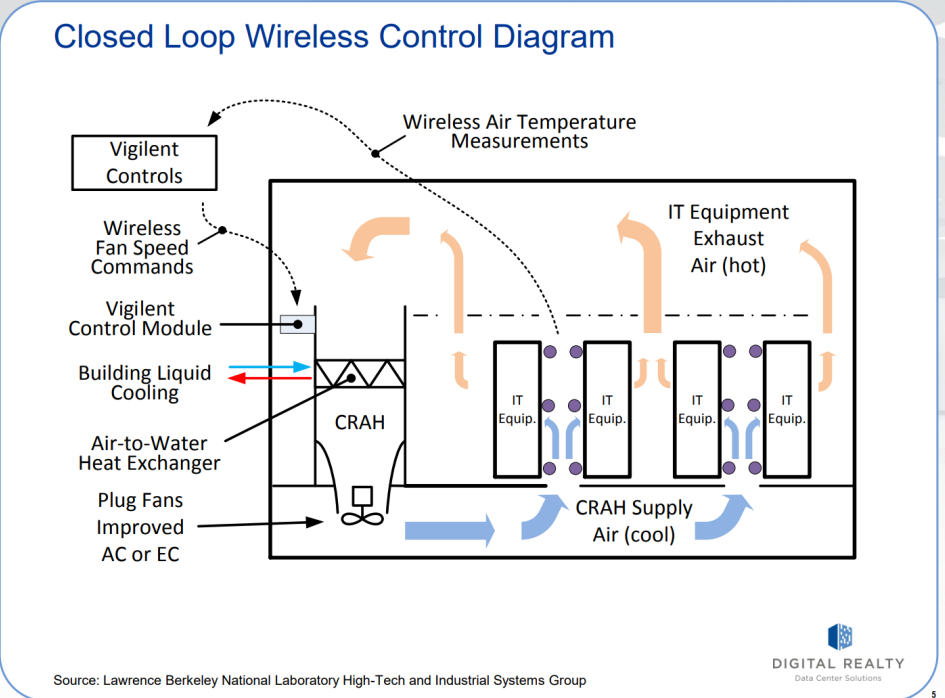
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Closed Loop Wireless Control Diagram  Source: Lawrence Berkeley National Laboratory High-Tech and Industrial Systems Group DIGITAL REALTY Data Center Solutions https://www.vigilent.com/wp-content/uploads/2014/06/DigitalRealty.pdf
[1b] sensing at least one atmospheric parameter in a plurality of locations inside said building;	The Accused Products sense at least one atmospheric parameter in a plurality of locations inside said building, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, Schneider’s system senses at least one atmospheric parameter (e.g., temperature, dew point, humidity) in a plurality of locations inside the data centers.

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Working with the 3D Temperature Map You can review the data center temperature map in 3D as a calculated or measured map. The calculated map provides an estimate based on the maximum load servers would have (nameplate). The measured map is more accurate because it has more detailed data available. It is based on real sensor readings retrieved through discovered devices rather than estimates.  Follow the below steps or watch this video tutorial to see how to configure the temperature map. Room size limitation: The 3D temperature map currently does not support rooms bigger than 70x100 m. Configuring temperature map based on real sensor readings 1. Retrieve live values from the sensors in the data center. a. Configure external system integration with a system that provides real temperature measurements. See more here. b. In Planning>Device Association, discover and associate devices. See more here. 2. Position the sensors in the correct locations in the model. a. In the Association map overlay, map each temperature sensor to the correct physical location (devices, racks, or rooms) using drag'n'drop. For example, drag an InRow CRAC upper plenum exhaust temperature sensor to the upper position in the rear of the CRAC. b. Specify a precise location in a rack. i. Right-click the rack that contains the sensor and select Properties>Device Sensor. ii. Use the X, Y, Z % fields to define the location expressed as a percentage on the axes, starting with 0%, 0%, 0% in the lower left corner. 3. Calculate the 3D temperature map. a. Open the 3D view to preview the sensors in the correct locations. b. In Cooling plane type, select Measured plane and click Calculate. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 45. As another example, Vigilent’s system senses at least one atmospheric parameter (e.g., temperature, dew point, humidity) in a plurality of locations inside the data centers. Temperature Sensor Temperature sensors are used to capture thermal temperatures within the facility. They are most commonly used to measure rack inlet temperatures on IT equipment or bays of telecom equipment, but they can also be used to measure rack exhaust temperatures.

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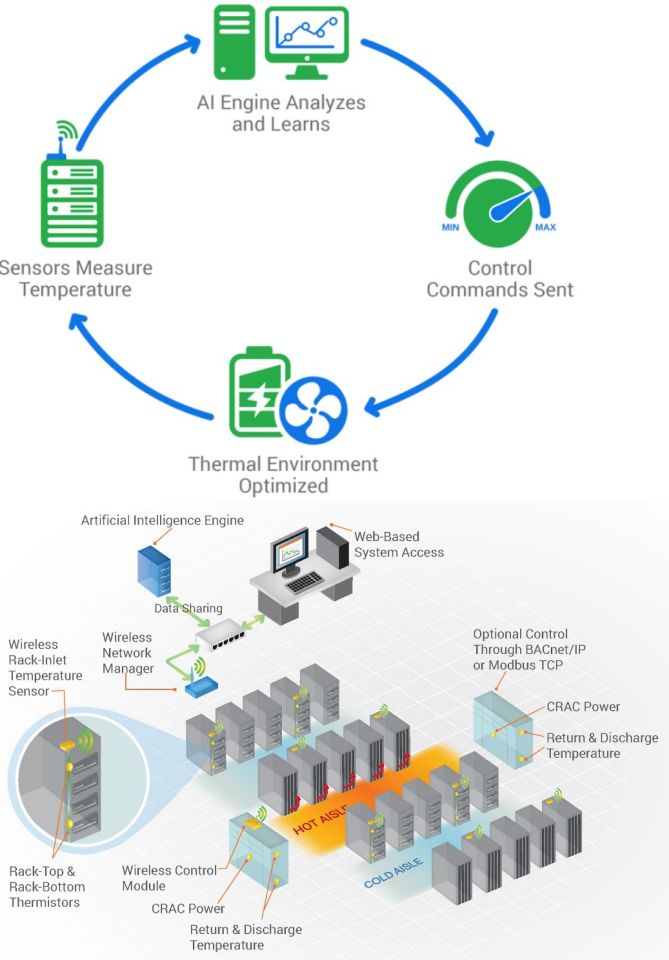
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF , pp.119. 

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	https://www.vigilent.com/products-and-services/dynamic-control/ Wireless Rack-Inlet Temperature Sensor – Wireless sensor that measures temperature at the top and bottom of the rack inlet. Rack-Top and Rack-Bottom thermistors – Attached via a cable sleeve, these are the physical monitoring points for each temperature sensor. Wireless sensors are typically deployed every third rack to measure the inlet air temperature every minute. The sensors have two thermistors, one to capture temperature at rack bottom, the other at rack top. https://www.vigilent.com/technology/system-architecture/ CHECK TEMPERATURES With a few clicks, you can quickly dive down from a broad facility view into the real-time temperature data of one specific rack sensor. https://www.vigilent.com/who-we-serve/by-facility/data-centers/ As another example, Liebert iCOM senses at least one atmospheric parameter (e.g., temperature, dew point, humidity) in a plurality of locations inside the data centers.

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	User Temperature Setpoint Options 2nd Temperature Setpoint Alternate setpoint activated by customer input (remote alarm device). When customer input connection is 2nd Setpoint, this value becomes the active temperature setpoint. BMS Backup Temp Setpoint Selects a temperature setpoint that activates in the event of a BMS timeout. The BMS timer must be configured for this setpoint to activate. See Setting BMS Backup Setpoints on page 117 . Optimized Aisle Enabled Read-only. Indicates that iCOM™ is configured for optimized-aisle operation. See Teamwork Mode 3—Optimized Aisle Operation on page 102 . Temperature Control Sensor Selects sensor that controls cooling. Values are: • Supply Sensor: Temperature control is based on maintaining the temperature of the discharge air from the cooling unit. See Supply Sensors on page 158 . • Remote Sensor: Temperature control is based on the temperature reading(s) from wired remote sensor(s). See Wired Remote Sensors on page 156 . • Return Sensor: Temperature control is based on maintaining the temperature of the air returning to the cooling unit.

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	User Humidity Setpoint Options Dew Point Setpoint Desired dew point (based on actual return air temperature and humidity) by adding moisture to or removing moisture from the air. Humidity Control Sensor Selects sensor used when calculating relative humidity. Humidity Control Type Control when staging humidification operations. Valid values: • Relative: Percent of humidification/dehumidification is determined by the difference between the humidity-sensor reading and the humidity setpoint. • Compensated: Percent of humidification/dehumidification is determined by considering the actual deviation from the temperature setpoint and adjusts the humidity setpoint accordingly. The recalculated humidity setpoint displays on the screen. • Predictive: Percent of humidification/dehumidification is determined by considering the actual deviation from the temperature setpoint and adjusts the humidity sensor reading accordingly. The adjusted humidity sensor reading displays on the screen. • Dew point: Percent of humidification/dehumidification is determined by the difference between the dew point calculated from the humidity sensor reading and the dew point setpoint. https://www.vertiv.com/49b8b2/globalassets/shared/liebert-icom-user-manual_sl-31075.pdf (“iCOM Manual”) at p. 15-16.
[1c] generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;	The Accused Products generate an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, Schneider software generates a 3D temperature map.

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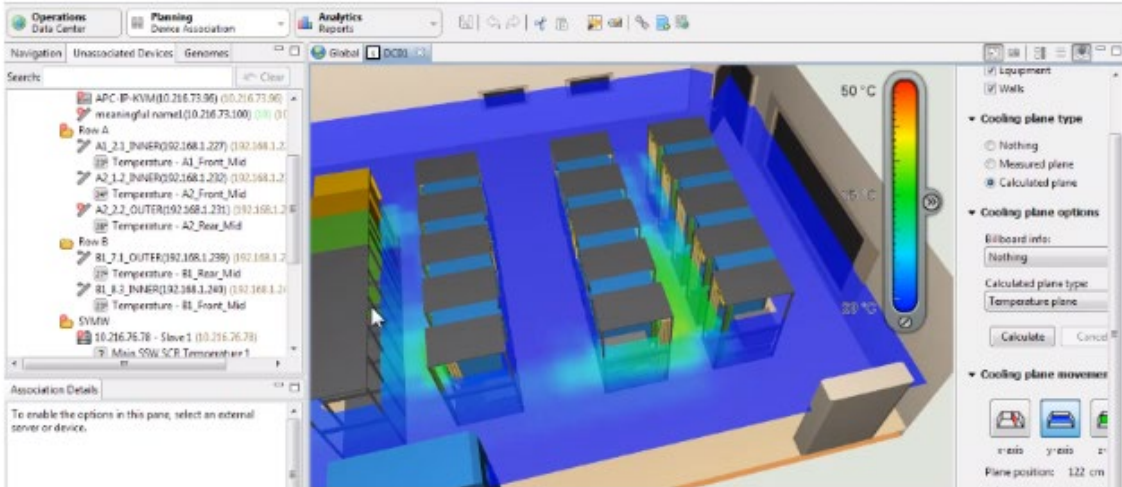
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Working with the 3D Temperature Map You can review the data center temperature map in 3D as a calculated or measured map. The calculated map provides an estimate based on the maximum load servers would have (nameplate). The measured map is more accurate because it has more detailed data available. It is based on real sensor readings retrieved through discovered devices rather than estimates.  Follow the below steps or watch this video tutorial to see how to configure the temperature map. Room size limitation: The 3D temperature map currently does not support rooms bigger than 70x100 m. StruxureWare Manual at p. 45.  StruxureWare Manual at p. 46. As another example, Vigilent software generates data center temperature maps.

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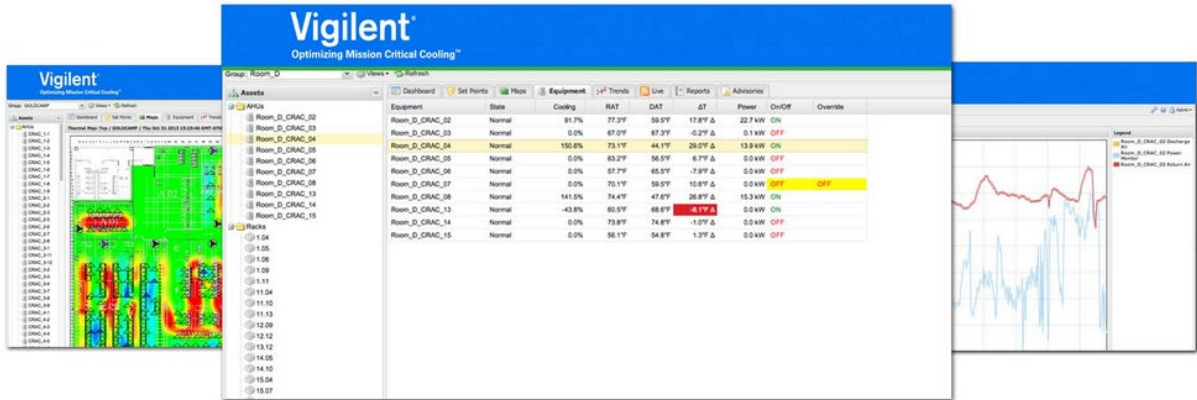
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 EVERYDAY TOOLS With our intuitive, at-a-glance system interface, checking the current status of your facility is always at your fingertips. https://www.vigilent.com/who-we-serve/by-facility/data-centers/ As another example, Libert software generates temperature maps. CHECK TEMPERATURES With a few clicks, you can quickly dive down from a broad facility view into the real-time temperature data of one specific rack sensor. EASY TRENDING Customize data to quickly surface the information you need.

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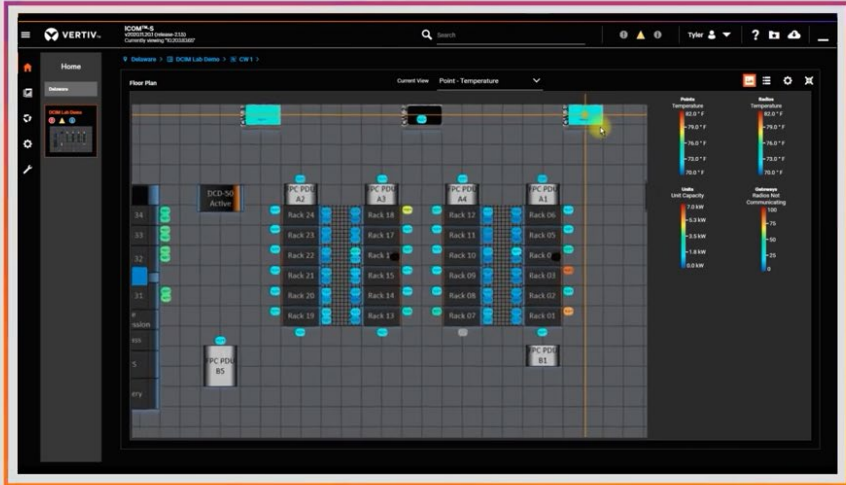
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	The screenshot displays the Vertiv iCOMPS4 BMS interface. It features a central floor plan grid with various server racks labeled, such as 'DCD-50 AirFlow', 'PC-PDS 82', 'PC-PDS 83', 'PC-PDS 84', 'PC-PDS 81', and several 'Rack' units (e.g., Rack 24, Rack 18, Rack 17, Rack 11, Rack 10, Rack 09, Rack 08, Rack 07, Rack 06, Rack 05, Rack 04, Rack 03, Rack 02, Rack 01). To the right of the floor plan, there are two vertical color-coded scales: 'Points' (ranging from 78.0°F to 82.0°F) and 'Racks' (ranging from 0 to 100). The interface includes a top navigation bar with the Vertiv logo and a search bar, and a left sidebar with navigation icons. The video player controls at the bottom show a progress bar at 0:43 / 1:44. Integrate your Device and BMS Data https://www.youtube.com/watch?v=pJutGw7rrF0 at 0:43.

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	5.1 Preparing for U2U Group Set Up Cooling units in the network will be assigned to groups, which affects how units function in teamwork, standby, rotation, and cascading operations. Especially in large rooms, it is important to consider several factors before setting up groups to balance cooling unit operation with room conditions. NOTE: For ease of set-up and use, we recommend using only one group unless you have multiple rooms, differing software versions, or different types of cooling units. 1. Make a map of the room and indicate the location of all heat-generating devices and cooling units to plan for proper heat load management and cooling-air distribution. 2. Note the type of units by product/model, size, etc. 3. Determine the number of units to network together to ensure proper air flow and environmental control, up to 32 units. 4. Determine number of standby units. iCOM Manual at p. 94.
[1d] comparing said empirical atmospheric map to a template atmospheric map; and	The Accused Products compare said empirical atmospheric map to a template atmospheric map (e.g., a calculated map, map defined by the user, or predefined setpoint map), regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others), the empirical map is compared to a template atmospheric map. For example, this is shown below for Schneider’s system: Working with the 3D Temperature Map You can review the data center temperature map in 3D as a calculated or measured map. The calculated map provides an estimate based on the maximum load servers would have (nameplate). The measured map is more accurate because it has more detailed data available. It is based on real sensor readings retrieved through discovered devices rather than estimates.  Follow the below steps or watch this video tutorial to see how to configure the temperature map. Room size limitation: The 3D temperature map currently does not support rooms bigger than 70x100 m.

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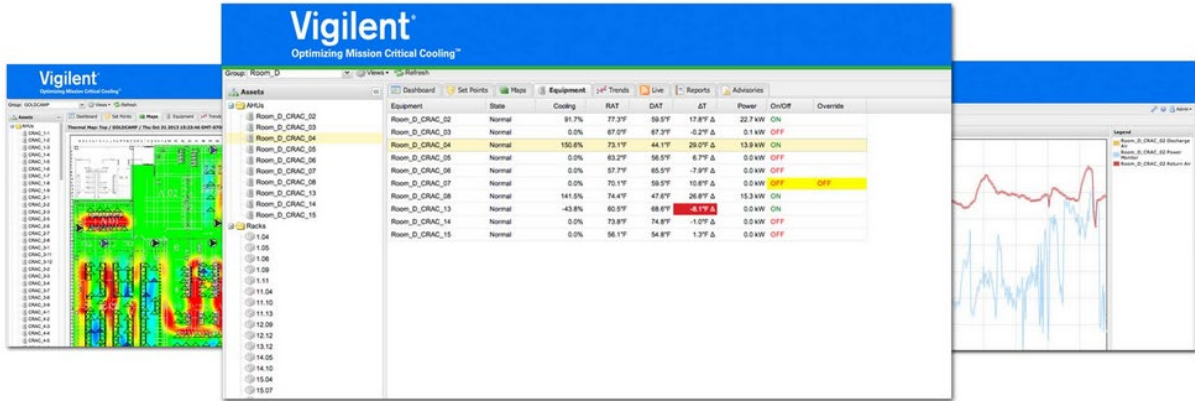
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	StruxureWare Manual at p. 45. As another example, this is shown for Vigilent's system:  EVERYDAY TOOLS With our intuitive, at-a-glance system interface, checking the current status of your facility is always at your fingertips. CHECK TEMPERATURES With a few clicks, you can quickly dive down from a broad facility view into the real-time temperature data of one specific rack sensor. EASY TRENDING Customize data to quickly surface the information you need. https://www.vigilent.com/who-we-serve/by-facility/data-centers/

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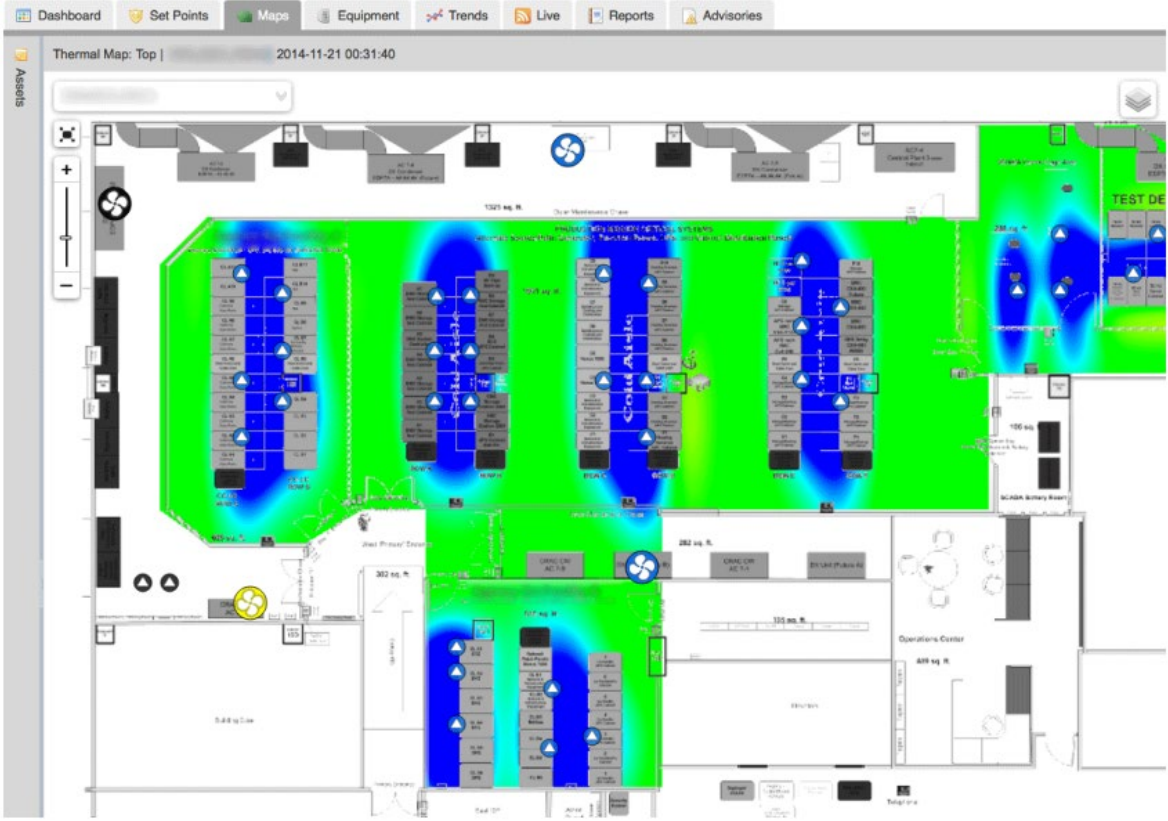
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 The thermal map legend gives you a quick visual assessment of your AHU performance. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF

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	Underneath that, a histogram shows the distribution of all temperatures in the date range specified by the user. The dotted lines show the upper and lower temperature thresholds specified by the user. Vertical bars higher than the orange dotted line indicate hot spots compared to the user defined threshold. Vertical bars lower than the purple dotted lines indicate cold spots compared to the user defined threshold. On the second page of the report, the top high and low temperatures, their locations, and time above/below thresholds are broken out to give you a detailed look at trouble spots in the facility. The number of temperatures listed on the second page are defined by the user input. Data Used ● Rack inlet temperature - only for sensors that have a setpoint used for control (i.e. cold aisle sensors). Monitor points are excluded. Calculations The temperature histogram does not perform any calculations on the data. It shows how the actual temperatures (solid vertical bars) over the entire date range compare to the user input thresholds (dotted vertical lines). Bars to the right of the orange line indicate hot spots. Bars to the left of the purple line indicate cold spots. The goal is to get all the bars between the two dotted lines. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF, p. 45. As another example, this is shown for Liebert iCOM's system: 2.4 Viewing Sensor Data The Sensor Data panel lists the standard and optional sensors monitored by iCOM™ and the current reading of each sensor. • Touch , then  > Sensor Data. The SENSOR DATA panel opens. A secondary panel displays the DAILY SENSOR READING SUMMARY, which shows temperature, humidity and dew-point readings for the cooling unit. iCOM Manual at p. 20.

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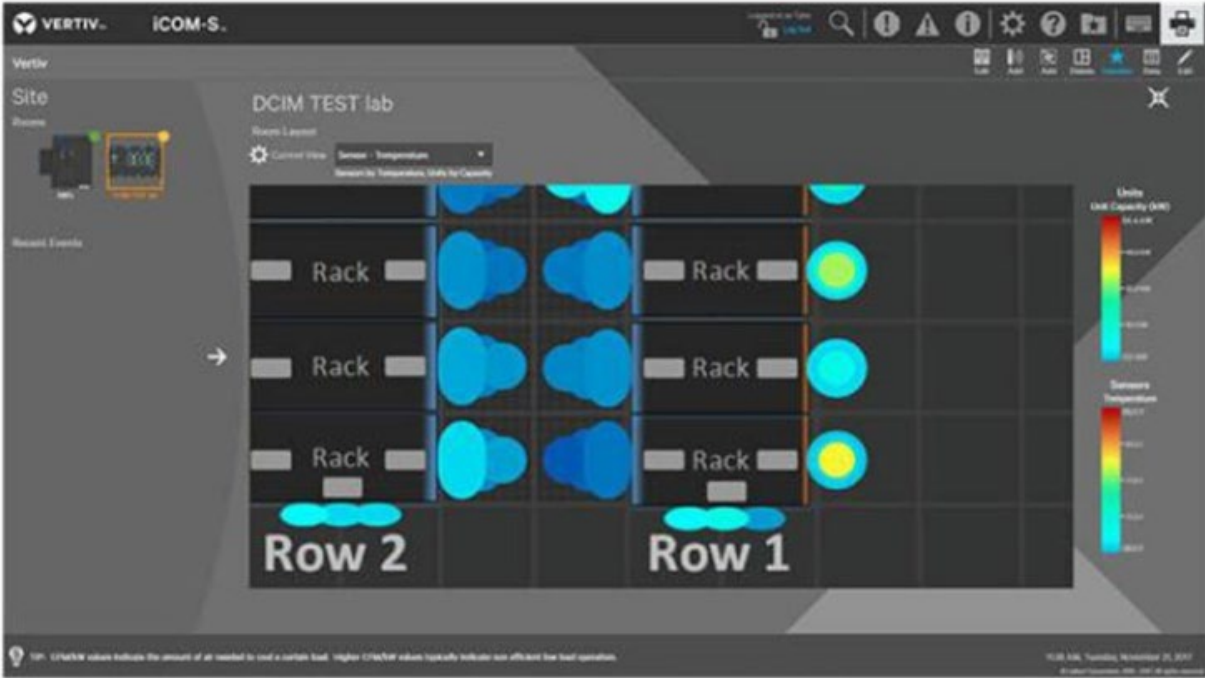
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	 https://www.dksh.com/global-en/products/iot/vertiv-thermal-control-and-monitoring
[1e] identifying pattern differentials between said empirical and template atmospheric maps.	The Accused Products identify pattern differentials between said empirical and template atmospheric maps, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others). For example, Schneider’s capture index overlay provide a fail/pass indication of the effectiveness of the active cooling configuration (e.g., pattern differentials between the empirical and template atmospheric maps).

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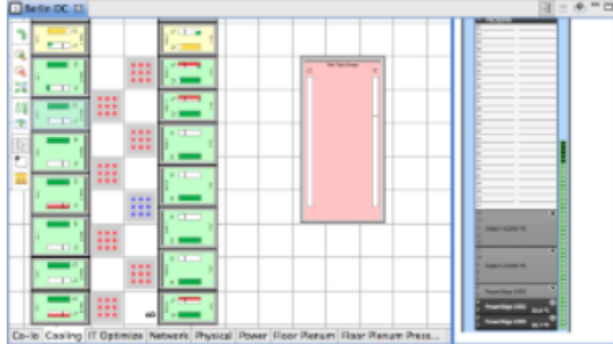
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	The graphical floor plan of the configured data center layout includes overlays showing capture index (CI), plenum pressure, plenum velocities, and 3D rendering of the temperature map, including airflow, temperature thresholds, load. These overlays give you a fail/pass indication of the effectiveness of the active cooling configuration. As the design takes place, you get a qualified estimation of the effect of changes in supply temperature, airflow, and number of cooling units and room-based cooling parameters.  Watch this video tutorial to learn how to configure different types of cooling. Capture index The Cooling overlay of the data center floor layout shows a color-coded overview of the Capture Index. You can use this view to get an overview of the reasons why the tile airflow may not be the same across the room. Each rack in a well-formed hot aisle / cold aisle layout shows a color-coded capture index percentage. The CI value identifies inlet air which is supplied by what fraction of the equipment's exhaust airflow is captured by the InRow® cooling units included in that row pair or by the CRAC or CRACs in the room through the perforated tiles.  StruxureWare Manual at p. 42. As another example, Vigilent cooling technology identifies pattern differentials between current (e.g., empirical) and historic (e.g., template) data.

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	AT A GLANCE Cooling becomes a managed resource that reacts to real-time data, which reduces the chances of downtime. Automated hot spot reduction The system can automatically removes 95% (or more) of hot spots and diagnoses how to treat the remaining problems through facility adjustments. Instant results From the moment the system goes live, the energy savings and carbon emissions reductions are immediate. Cost savings The system finds the perfect balance between delivering the right amount of cooling and the lowest possible energy expenditure. Constantly adapting The AI engine constantly changes cooling when it detects new equipment and varying IT loads. Analytics Our system turns mountains of current and historic data into focused, actionable information. Risk mitigation System failsafes help avoid costly outages. https://www.vigilent.com/who-we-serve/by-facility/data-centers/

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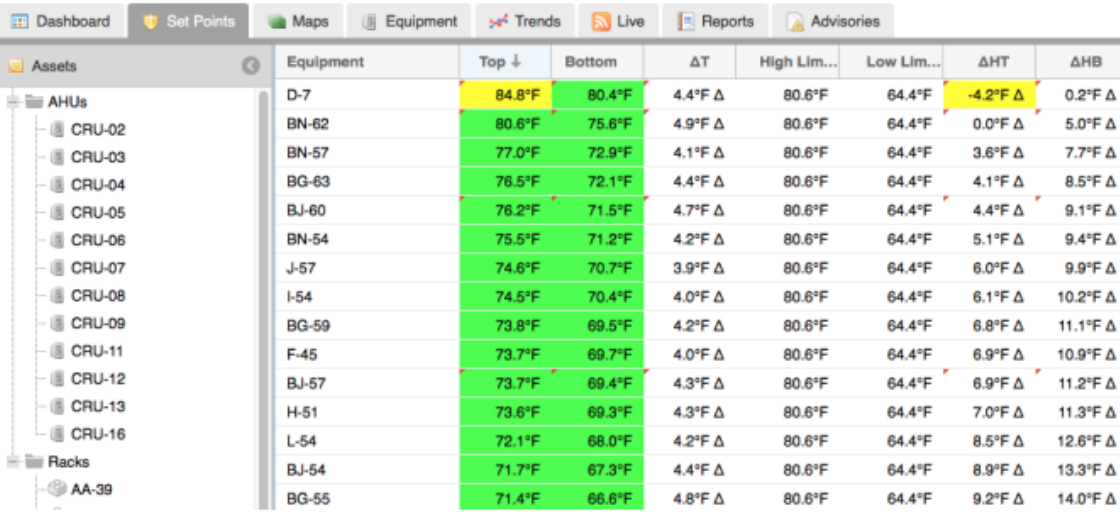
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	The Set Points Tab for Data Centers, Telcos, and Colocation Facilities The Set Points Tab is where you can configure the desired rack inlet temperatures for your facility.  In the Assets navigation panel on the left, all of your facility assets are displayed for the selected Group in the global navigation, broken down by AHU and Racks. In the main panel, data is displayed showing the following information for your selected group: • The Equipment column displays the name of the rack • The Top column displays the high temperature for that rack • The Bottom column displays the low temperature for that rack • The ΔT column displays the difference between the top and bottom rack temperatures. • The High Limit is your desired set point for the high temperature in your facility • The Low Limit is your desired set point for the low temperature in your facility • The ΔHT shows the difference between the current high temperature for the top of the rack and your high limit • The ΔHB shows the difference between the current high temperature for the bottom of the rack and your high limit

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

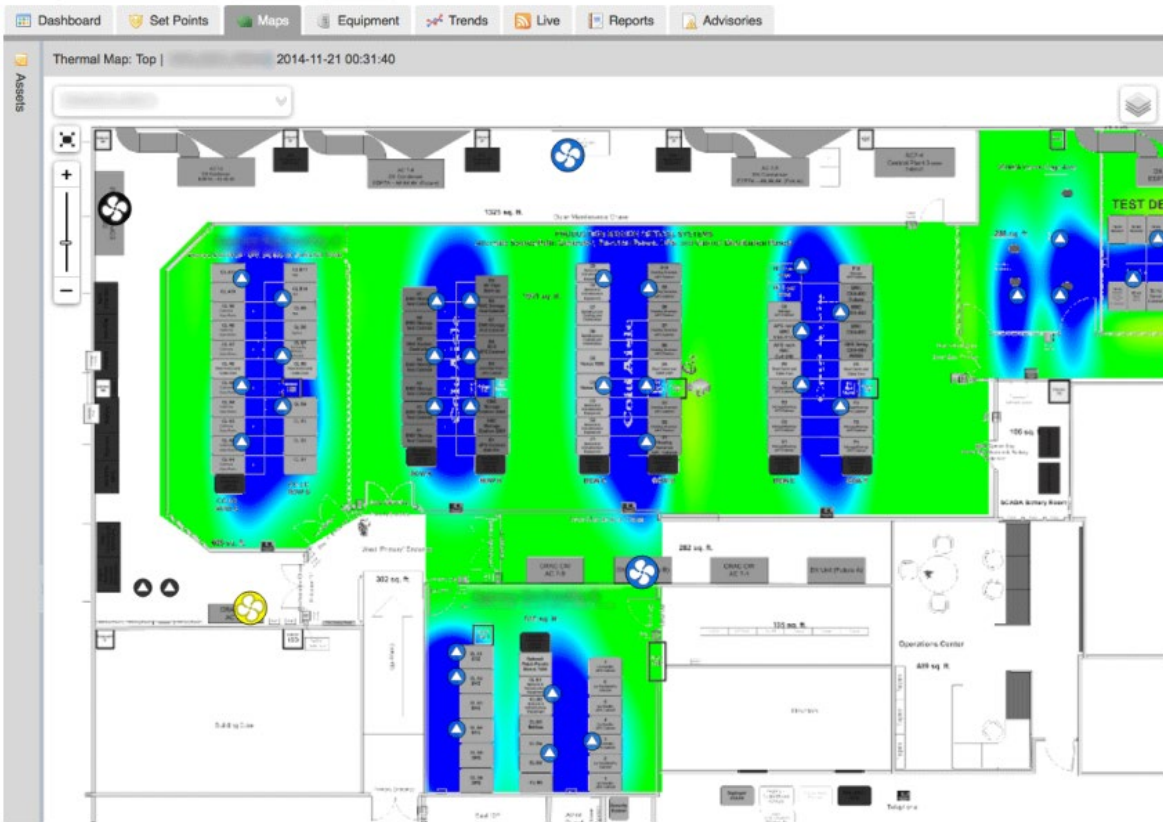
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF, p. 15.  The thermal map legend gives you a quick visual assessment of your AHU performance. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	As another example, Liebert cooling technology identifies pattern differentials between the empirical and template map (e.g., when sensors are reporting conditions that exceed template conditions). 4.2 Enabling Events and Editing Event Settings In the ALARMS & EVENTS panel, events are grouped into categories for easier management, for example, the factory set remote sensor alarms and humidification/dehumidification events. In some cases, touch the group heading provides edit options for the entire group, like thresholds, delays and enable/disable. Each event includes settings specific for that event and the notification option where event type and alarm notifications are selected (See Selecting Event Type and Setting Alarm/Warning Notification on the facing page).  1. Touch , then  > <i>Alarm/Event Setup</i>. The ALARMS & EVENTS panel opens. 2. Scroll or search to find the event, touch the set's heading to display the properties and values for the entire set in the EDIT panel. – or – Touch an individual alarm or event to display its specific values in the EDIT panel. iCOM Manual at p. 80.

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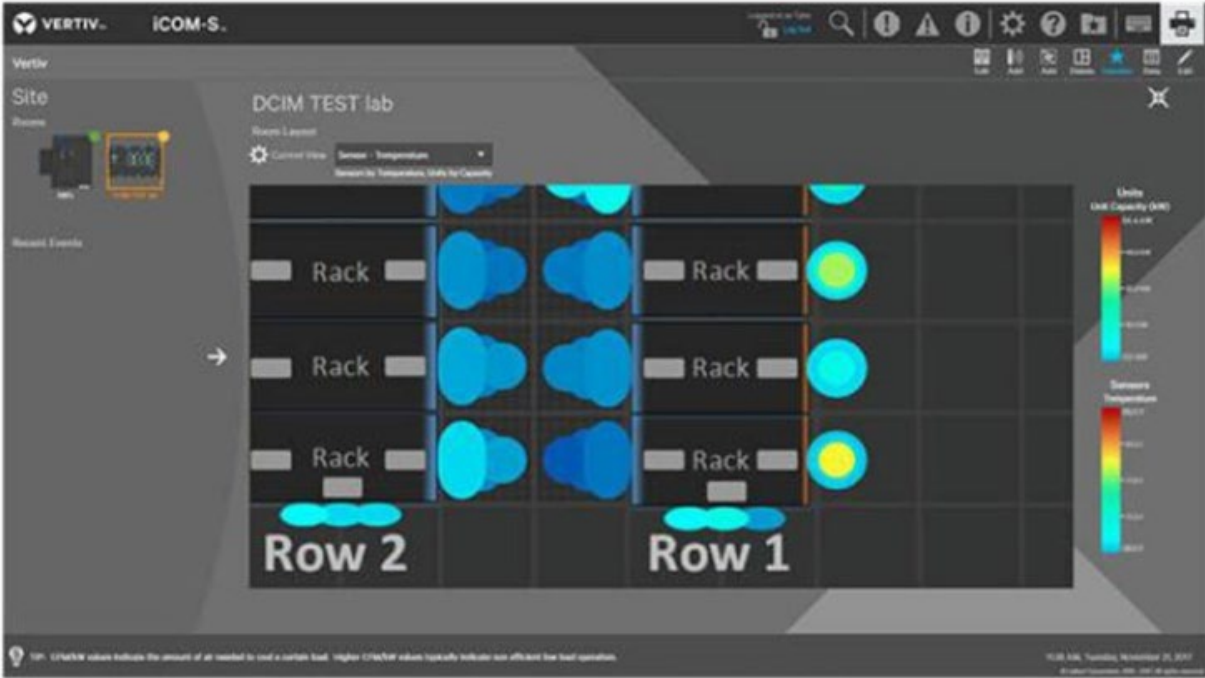
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 https://www.dksh.com/global-en/products/iot/vertiv-thermal-control-and-monitoring
[2] The method as claimed in claim 1, further comprising the steps of: determining corrective action to reduce said pattern differentials; and varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said determining step.	The Accused Products infringe claim 1. <i>See supra.</i> The Accused Products perform the steps of determining corrective action to reduce said pattern differentials; and varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said determining step. For example, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others), Digital Realty determines a corrective action to take (e.g., altering fan speed, reducing hotspots, optimizing cooling). For example, Schneider’s system is shown below:

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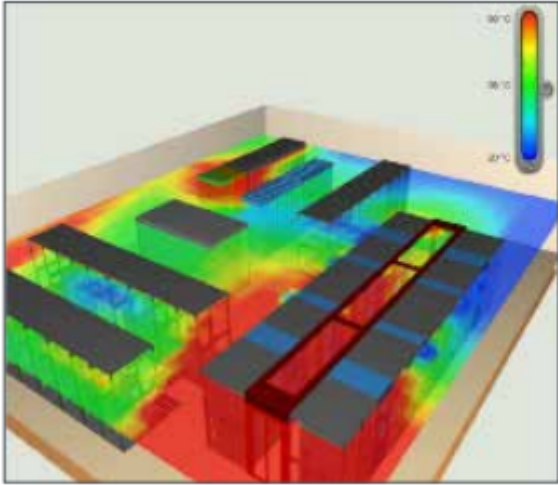
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 Analysis, optimization, and operations Data Center Operation enables vendor-agnostic inventory management with real-time device failures and data shown within your data center physical layout, as well as recommendations on how to resolve issues. > Extends the life cycle of the data center through optimization of power, cooling, network, and space capacities. > Provides dynamic cooling optimization and intelligent control. > Reduces IT system energy usage through in-depth optimization of server utilization for increased data center performance. https://www.power-solutions.com/wp-content/uploads/2012/01/StruxureWare-brochure.pdf Select the Cooling tab in the floor layout. 1. Add CRACs, InRow® cooling units and perforated tiles as needed by dragging them from the Genomes pane into the layout. 2. Review or modify the cooling settings of the added equipment or the room as needed by right-clicking the item, and selecting Properties, and using the settings in the Cooling page. 3. Simulate failure of one or more cooling units by selecting one or more cooling units in the floor layout, right-clicking, and deselecting Activate. 4. Simulate cooling performance changes of one or more racks by selecting one or more racks in the floor layout, right-clicking and selecting Cooling>Normal: 160 CFM/kW, Blade: 105 CFM/kW or another value*, if available. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 45 (simulations determine whether distribution of said conditioned fluid as part of the cooling process would reduce pattern differentials).

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	The Cooling overlay gives you a good indication of the effectiveness of the active cooling configuration as well as a qualified estimation of the effect of changes in supply temperature, airflow, and number of cooling units and room-based cooling parameters. Equipment is colored to describe cooling as green: sufficient; yellow: partial; red: insufficient. The tooltip shows you important cooling indicators, such as a cooling unit's capacity (load in kW) and estimated return temperature. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 24. As another example, Vigilent’s system is shown below:

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	AT A GLANCE Cooling becomes a managed resource that reacts to real-time data, which reduces the chances of downtime. Automated hot spot reduction The system can automatically removes 95% (or more) of hot spots and diagnoses how to treat the remaining problems through facility adjustments. Instant results From the moment the system goes live, the energy savings and carbon emissions reductions are immediate. Cost savings The system finds the perfect balance between delivering the right amount of cooling and the lowest possible energy expenditure. Constantly adapting The AI engine constantly changes cooling when it detects new equipment and varying IT loads. Analytics Our system turns mountains of current and historic data into focused, actionable information. Risk mitigation System failsafes help avoid costly outages. https://www.vigilent.com/who-we-serve/by-facility/data-centers/

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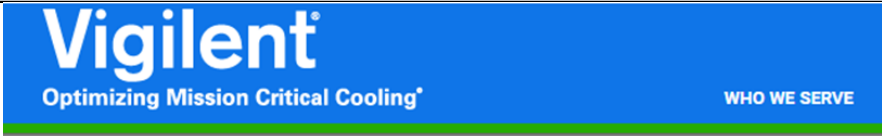
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 DIGITAL REALTY “We found that upgrading fans and adding fan speed controls in our data centers allowed us to cool them more effectively and efficiently. In addition, the facility’s electrical energy usage was reduced, as was the average and peak electric power demand, resulting in a more energy efficient and sustainable data center environment.” – Jim Smith, Chief Technology Officer, Digital Realty https://www.vigilent.com/digital-realty/

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	DIGITAL REALTY DECREASES DATA CENTER COOLING ENERGY USAGE BY 66% Energy Management Software and Variable Speed Fans Dramatically Reduce Carbon Emissions, PUE San Francisco, CA – December 12, 2012 – Digital Realty Trust, Inc. (NYSE: DLR), Vigilent® Corporation, and Lawrence Berkeley National Laboratory today announced the results of a joint study focused on improving the energy efficiency of a data center designed, owned and operated by Digital Realty. https://www.vigilent.com/digital-realty-decreases-data-center-cooling-energy-usage-by-66/

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

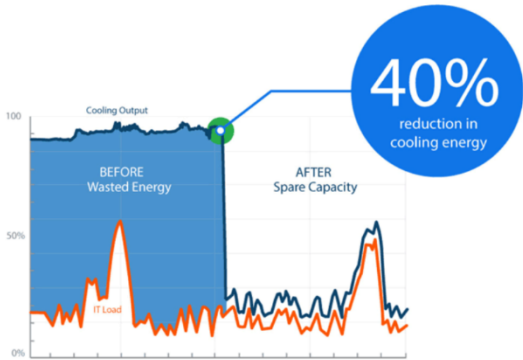
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	VIGILENT CONTINUOUSLY MATCHES COOLING OUTPUT TO HEAT LOAD Optimized airflow eliminates hot spots. Vigilent continuously optimizes the airflow in your facility, delivering improved reliability and availability. The system automatically finds and eliminates hot spots, while its comprehensive reports and tools facilitate easier operations management. Our system delivers the right amount of cooling exactly where it's needed. This typically results in up to a 40% reduction in carbon emissions and your cooling energy bill. We achieve that with sophisticated AI-based technology that learns your environment and adapts to change. https://www.vigilent.com/who-we-serve/by-facility/data-centers/. 

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	How does the software control each cooling unit? There are many differences in how a cooling unit can be controlled. Some units can only be turned ON and OFF. Some have Variable Frequency Drives (VFDs) for fan speed control, and others have been retrofitted with EC Plug Fans, which also have fan speed control. The Vigilent System is designed to work with all of these units and even a mix of different types. The Vigilent System can control the following types of units: • Start/Stop – These units can only be turned ON and OFF. The software can send either an ON or OFF command to these types of units. • Fan Speed Control – These units are typically outfitted with VFDs or EC Plug fans. Individual fan speeds can be controlled on these units. • Start/Stop and Fan Speed Control – Some units have the ability to accept a fan speed command and a Start/Stop command. In this case, the Vigilent System will primarily control the fan speed, however, if the fan speed is set to minimum and the facility still requires less cooling the unit may be turned OFF. • Return Air Temperature Set Point – Some cooling units already have built-in control mechanisms that operate based on the return air temperature set point. In this case, the Vigilent System will take control based on the return air temperature set point for each unit. Vigilent Manual at 104. As another example, Liebert iCOM’s system is shown below:

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	3.1.12 Automatic Fan Speed Control Temperature sensors can control fan speed using one of three modes based on the type of sensor selected as the fan-control sensor: supply, return, or remote, see Table 3.2 below . Control is based on the selected sensor for both fan control and temperature control and their setpoints as follows: • Coupled: The fan control and temperature control sensor selection is the same. When coupled, fan speed is determined by the temperature setpoints. • Decoupled: The fan control and temperature control sensor selection is different. When decoupled, fan speed is determined by the fan setpoints. Table 3.2 Fan Speed Controlling Sensor Options <table><tr><th colspan="2" rowspan="2"></th><th colspan="3">Temperature Control Sensor Selected</th></tr><tr><th>Supply Sensor</th><th>Remote Sensor</th><th>Return Sensor</th></tr><tr><th rowspan="3">Fan Control Sensor Selected</th><th>Supply Sensor</th><td>Coupled</td><td>N/A</td><td>N/A</td></tr><tr><th>Remote Sensor</th><td>Decoupled (Recommended)</td><td>Coupled</td><td>N/A</td></tr><tr><th>Return Sensor</th><td>Decoupled</td><td>Decoupled</td><td>Coupled</td></tr></table> iCOM Manual at p. 45.			Temperature Control Sensor Selected			Supply Sensor	Remote Sensor	Return Sensor	Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A	Remote Sensor	Decoupled (Recommended)	Coupled	N/A	Return Sensor	Decoupled	Decoupled	Coupled
				Temperature Control Sensor Selected																		
		Supply Sensor	Remote Sensor	Return Sensor																		
Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A																		
	Remote Sensor	Decoupled (Recommended)	Coupled	N/A																		
	Return Sensor	Decoupled	Decoupled	Coupled																		
[3] The method as claimed in claim 2, wherein said supplying step comprises the step of operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.	The Accused Products infringe claim 2. <i>See supra</i>. The Accused Products’ supplying step comprises the step of operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, Digital Realty data centers include at least one of a plurality of vents, at least one blower, and at least one source of conditioned air. For instance, Schneider’s system is shown below:																					

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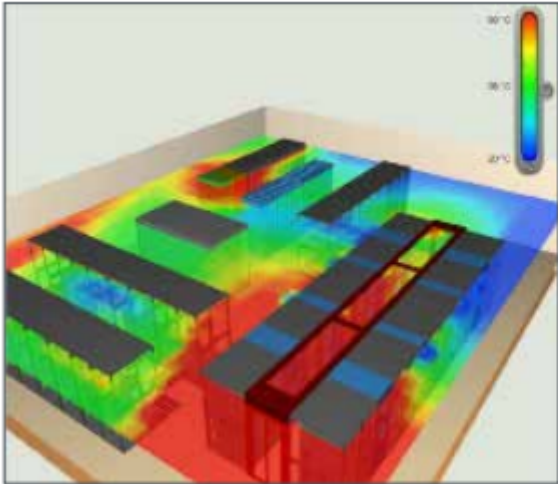
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 Analysis, optimization, and operations Data Center Operation enables vendor-agnostic inventory management with real-time device failures and data shown within your data center physical layout, as well as recommendations on how to resolve issues. > Extends the life cycle of the data center through optimization of power, cooling, network, and space capacities. > Provides dynamic cooling optimization and intelligent control. > Reduces IT system energy usage through in-depth optimization of server utilization for increased data center performance. https://www.power-solutions.com/wp-content/uploads/2012/01/StruxureWare-brochure.pdf Select the Cooling tab in the floor layout. 1. Add CRACs, InRow® cooling units and perforated tiles as needed by dragging them from the Genomes pane into the layout. 2. Review or modify the cooling settings of the added equipment or the room as needed by right-clicking the item, and selecting Properties, and using the settings in the Cooling page. 3. Simulate failure of one or more cooling units by selecting one or more cooling units in the floor layout, right-clicking, and deselecting Activate. 4. Simulate cooling performance changes of one or more racks by selecting one or more racks in the floor layout, right-clicking and selecting Cooling>Normal: 160 CFM/kW, Blade: 105 CFM/kW or another value*, if available. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 45.

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	The Cooling overlay gives you a good indication of the effectiveness of the active cooling configuration as well as a qualified estimation of the effect of changes in supply temperature, airflow, and number of cooling units and room-based cooling parameters. Equipment is colored to describe cooling as green: sufficient; yellow: partial; red: insufficient. The tooltip shows you important cooling indicators, such as a cooling unit's capacity (load in kW) and estimated return temperature. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 24. Cooler airflow in cubic feet per minute (CFM) is assumed to be: <table><tr><th>Cooler type</th><th>Minimum CFM</th><th>Maximum CFM</th></tr><tr><td>InRow RC (300 mm)</td><td>1450</td><td>2900</td></tr><tr><td>InRow RC (600 mm)</td><td>2760</td><td>6900</td></tr><tr><td>InRow RP (600 mm Chilled Water)</td><td>2760</td><td>6900</td></tr><tr><td>InRow RP (600 mm Air Cooled)</td><td>1920</td><td>4800</td></tr><tr><td>InRow RD (600 mm Air Cooled)</td><td>2000</td><td>5000</td></tr><tr><td>InRow RD (300 mm Air Cooled)</td><td>916</td><td>2300</td></tr><tr><td>InRow RD (300 mm Fluid Cooled)</td><td>916</td><td>2300</td></tr></table> Rack airflow is by default assumed to be 160 CFM/kW based on the total rack power. This value can be changed by right-clicking a rack and selecting Properties, to change to, for example, 105 CFM/kW for blade server racks. CRAC airflow is, by default, assumed to be 6000 CFM. This can be changed by right-clicking a CRAC and selecting Properties. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 50. As another example, Vigilent’s system is shown below:	Cooler type	Minimum CFM	Maximum CFM	InRow RC (300 mm)	1450	2900	InRow RC (600 mm)	2760	6900	InRow RP (600 mm Chilled Water)	2760	6900	InRow RP (600 mm Air Cooled)	1920	4800	InRow RD (600 mm Air Cooled)	2000	5000	InRow RD (300 mm Air Cooled)	916	2300	InRow RD (300 mm Fluid Cooled)	916	2300
Cooler type	Minimum CFM	Maximum CFM																							
InRow RC (300 mm)	1450	2900																							
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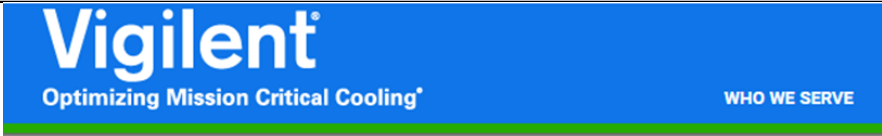
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 DIGITAL REALTY “We found that upgrading fans and adding fan speed controls in our data centers allowed us to cool them more effectively and efficiently. In addition, the facility’s electrical energy usage was reduced, as was the average and peak electric power demand, resulting in a more energy efficient and sustainable data center environment.” – Jim Smith, Chief Technology Officer, Digital Realty https://www.vigilent.com/digital-realty/

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	DIGITAL REALTY DECREASES DATA CENTER COOLING ENERGY USAGE BY 66% Energy Management Software and Variable Speed Fans Dramatically Reduce Carbon Emissions, PUE San Francisco, CA – December 12, 2012 – Digital Realty Trust, Inc. (NYSE: DLR), Vigilent® Corporation, and Lawrence Berkeley National Laboratory today announced the results of a joint study focused on improving the energy efficiency of a data center designed, owned and operated by Digital Realty. https://www.vigilent.com/digital-realty-decreases-data-center-cooling-energy-usage-by-66/

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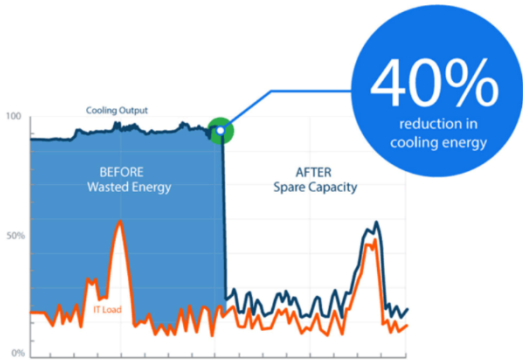
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	VIGILENT CONTINUOUSLY MATCHES COOLING OUTPUT TO HEAT LOAD Optimized airflow eliminates hot spots. Vigilent continuously optimizes the airflow in your facility, delivering improved reliability and availability. The system automatically finds and eliminates hot spots, while its comprehensive reports and tools facilitate easier operations management. Our system delivers the right amount of cooling exactly where it's needed. This typically results in up to a 40% reduction in carbon emissions and your cooling energy bill. We achieve that with sophisticated AI-based technology that learns your environment and adapts to change. https://www.vigilent.com/who-we-serve/by-facility/data-centers/. 

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	3.1.12 Automatic Fan Speed Control Temperature sensors can control fan speed using one of three modes based on the type of sensor selected as the fan-control sensor: supply, return, or remote, see Table 3.2 below . Control is based on the selected sensor for both fan control and temperature control and their setpoints as follows: • Coupled: The fan control and temperature control sensor selection is the same. When coupled, fan speed is determined by the temperature setpoints. • Decoupled: The fan control and temperature control sensor selection is different. When decoupled, fan speed is determined by the fan setpoints. Table 3.2 Fan Speed Controlling Sensor Options <table><tr><th colspan="2" rowspan="2"></th><th colspan="3">Temperature Control Sensor Selected</th></tr><tr><th>Supply Sensor</th><th>Remote Sensor</th><th>Return Sensor</th></tr><tr><td rowspan="3">Fan Control Sensor Selected</td><td>Supply Sensor</td><td>Coupled</td><td>N/A</td><td>N/A</td></tr><tr><td>Remote Sensor</td><td>Decoupled (Recommended)</td><td>Coupled</td><td>N/A</td></tr><tr><td>Return Sensor</td><td>Decoupled</td><td>Decoupled</td><td>Coupled</td></tr></table> iCOM Manual at p. 45.			Temperature Control Sensor Selected			Supply Sensor	Remote Sensor	Return Sensor	Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A	Remote Sensor	Decoupled (Recommended)	Coupled	N/A	Return Sensor	Decoupled	Decoupled	Coupled
				Temperature Control Sensor Selected																		
		Supply Sensor	Remote Sensor	Return Sensor																		
Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A																		
	Remote Sensor	Decoupled (Recommended)	Coupled	N/A																		
	Return Sensor	Decoupled	Decoupled	Coupled																		
[4] The method as claimed in claim 3, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.	The Accused Products infringe claim 3. <i>See supra</i>. The Accused Products’ determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, Schneider cooling technology uses a color coded capture index to simulate where to place equipment/CRACs without overheating or creating hotspots.																					

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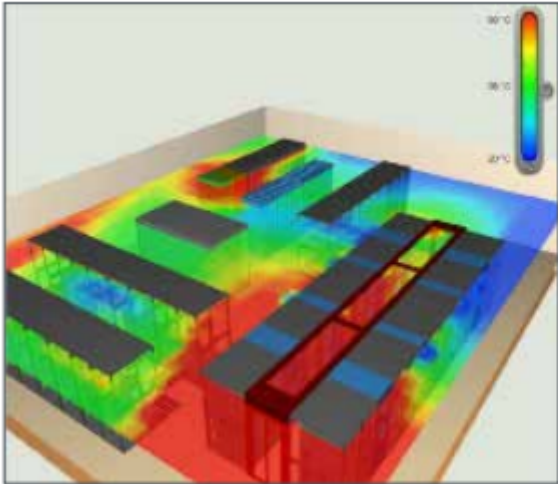
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	 Analysis, optimization, and operations Data Center Operation enables vendor-agnostic inventory management with real-time device failures and data shown within your data center physical layout, as well as recommendations on how to resolve issues. > Extends the life cycle of the data center through optimization of power, cooling, network, and space capacities. > Provides dynamic cooling optimization and intelligent control. > Reduces IT system energy usage through in-depth optimization of server utilization for increased data center performance. https://www.power-solutions.com/wp-content/uploads/2012/01/StruxureWare-brochure.pdf

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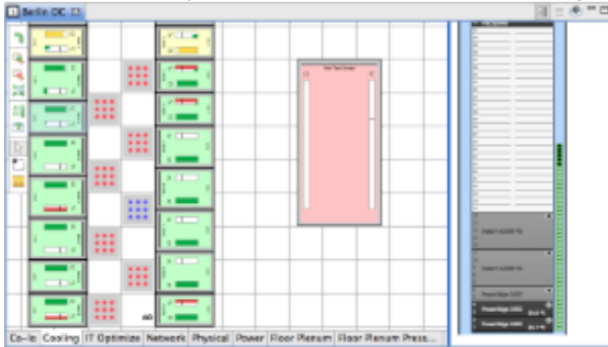
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	The graphical floor plan of the configured data center layout includes overlays showing capture index (CI), plenum pressure, plenum velocities, and 3D rendering of the temperature map, including airflow, temperature thresholds, load. These overlays give you a fail/pass indication of the effectiveness of the active cooling configuration. As the design takes place, you get a qualified estimation of the effect of changes in supply temperature, airflow, and number of cooling units and room-based cooling parameters.  Watch this video tutorial to learn how to configure different types of cooling. Capture index The Cooling overlay of the data center floor layout shows a color-coded overview of the Capture Index. You can use this view to get an overview of the reasons why the tile airflow may not be the same across the room. Each rack in a well-formed hot aisle / cold aisle layout shows a color-coded capture index percentage. The CI value identifies inlet air which is supplied by what fraction of the equipment's exhaust airflow is captured by the InRow® cooling units included in that row pair or by the CRAC or CRACs in the room through the perforated tiles.  https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 43.

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	In the Cooling overlay of the data center floor layout, you can see a color-coded overview the Capture Index (CI). You can use this view to get an overview of the reasons why the tile airflow may not be the same across the room. You can simulate where to place equipment without overheating the room or creating hotspots by following the color-coded indications, for example position new devices and move or delete existing devices without exceeding recommended exhaust air captured by the cooling units. Subsequently, you can use the plenum overlays to drill down into looking at specific pressure or velocity issues in the plenum. Each rack in a well-formed hot aisle/cold aisle layout shows a color-coded capture index (CI) percentage. The CI value identifies inlet air which is supplied by what fraction of the equipment's exhaust airflow is captured by the InRow® cooling units included in that row pair or by the CRAC or CRACs in the room through the perforated tiles. Select the Cooling tab in the floor layout. 1. Add CRACs, InRow® cooling units and perforated tiles as needed by dragging them from the Genomes pane into the layout. 2. Review or modify the cooling settings of the added equipment or the room as needed by right-clicking the item, and selecting Properties, and using the settings in the Cooling page. 3. Simulate failure of one or more cooling units by selecting one or more cooling units in the floor layout, right-clicking, and deselecting Activate. 4. Simulate cooling performance changes of one or more racks by selecting one or more racks in the floor layout, right-clicking and selecting Cooling>Normal: 160 CFM/kW, Blade: 105 CFM/kW or another value*, if available. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 44. Vigilent cooling technology similarly uses thermal data to determine the optimal cooling output by making decisions for each cooling unit based on the collected thermal data.

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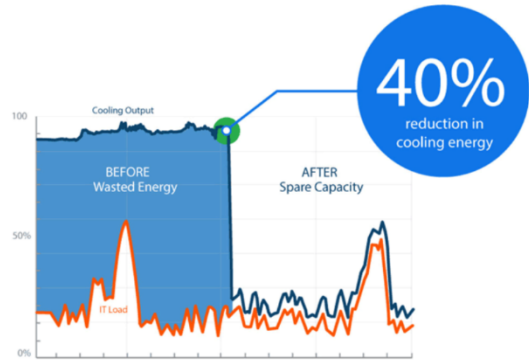
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	VIGILENT CONTINUOUSLY MATCHES COOLING OUTPUT TO HEAT LOAD Optimized airflow eliminates hot spots. Vigilent continuously optimizes the airflow in your facility, delivering improved reliability and availability. The system automatically finds and eliminates hot spots, while its comprehensive reports and tools facilitate easier operations management. Our system delivers the right amount of cooling exactly where it's needed. This typically results in up to a 40% reduction in carbon emissions and your cooling energy bill. We achieve that with sophisticated AI-based technology that learns your environment and adapts to change.  https://www.vigilent.com/who-we-serve/by-facility/data-centers/. The AI control software uses the real-time thermal data to learn and build an airflow model of the environment. The model is used to determine the optimal cooling output to ensure that the thermal environment is maintained with a minimal amount of energy. The software then makes active control decisions for each cooling unit. The Data Center Control section provides more detail on the different control capabilities of the system. The real-time temperature monitoring provides thermal feedback as the software begins to control the environment. This constant monitoring and control response occurs automatically and dynamically to optimize your thermal environment. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF, p. 106-107.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	How does the software control each cooling unit? There are many differences in how a cooling unit can be controlled. Some units can only be turned ON and OFF. Some have Variable Frequency Drives (VFDs) for fan speed control, and others have been retrofitted with EC Plug Fans, which also have fan speed control. The Vigilent System is designed to work with all of these units and even a mix of different types. The Vigilent System can control the following types of units: • Start/Stop – These units can only be turned ON and OFF. The software can send either an ON or OFF command to these types of units. • Fan Speed Control – These units are typically outfitted with VFDs or EC Plug fans. Individual fan speeds can be controlled on these units. • Start/Stop and Fan Speed Control – Some units have the ability to accept a fan speed command and a Start/Stop command. In this case, the Vigilent System will primarily control the fan speed, however, if the fan speed is set to minimum and the facility still requires less cooling the unit may be turned OFF. • Return Air Temperature Set Point – Some cooling units already have built-in control mechanisms that operate based on the return air temperature set point. In this case, the Vigilent System will take control based on the return air temperature set point for each unit. Vigilent Manual at 104. Liebert cooling technology similarly uses the location, size, and intensity of said pattern differentials to control fan speed.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty																					
	3.1.12 Automatic Fan Speed Control Temperature sensors can control fan speed using one of three modes based on the type of sensor selected as the fan-control sensor: supply, return, or remote, see Table 3.2 below . Control is based on the selected sensor for both fan control and temperature control and their setpoints as follows: • Coupled: The fan control and temperature control sensor selection is the same. When coupled, fan speed is determined by the temperature setpoints. • Decoupled: The fan control and temperature control sensor selection is different. When decoupled, fan speed is determined by the fan setpoints. Table 3.2 Fan Speed Controlling Sensor Options <table><tr><th colspan="2" rowspan="2"></th><th colspan="3">Temperature Control Sensor Selected</th></tr><tr><th>Supply Sensor</th><th>Remote Sensor</th><th>Return Sensor</th></tr><tr><th rowspan="3">Fan Control Sensor Selected</th><th>Supply Sensor</th><td>Coupled</td><td>N/A</td><td>N/A</td></tr><tr><th>Remote Sensor</th><td>Decoupled (Recommended)</td><td>Coupled</td><td>N/A</td></tr><tr><th>Return Sensor</th><td>Decoupled</td><td>Decoupled</td><td>Coupled</td></tr></table> iCOM Manual at p. 45.			Temperature Control Sensor Selected			Supply Sensor	Remote Sensor	Return Sensor	Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A	Remote Sensor	Decoupled (Recommended)	Coupled	N/A	Return Sensor	Decoupled	Decoupled	Coupled
				Temperature Control Sensor Selected																		
		Supply Sensor	Remote Sensor	Return Sensor																		
Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A																		
	Remote Sensor	Decoupled (Recommended)	Coupled	N/A																		
	Return Sensor	Decoupled	Decoupled	Coupled																		
[5] The method as claimed in claim 4, wherein said varying step comprises adjusting at least one of the opening of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.	The Accused Products infringe claim 4. <i>See supra</i>. The Accused Products’ varying step comprises adjusting at least one of the opening of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, Schneider’s system is shown below:																					

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Select the Cooling tab in the floor layout. 1. Add CRACs, InRow® cooling units and perforated tiles as needed by dragging them from the Genomes pane into the layout. 2. Review or modify the cooling settings of the added equipment or the room as needed by right-clicking the item, and selecting Properties, and using the settings in the Cooling page. 3. Simulate failure of one or more cooling units by selecting one or more cooling units in the floor layout, right-clicking, and deselecting Activate. 4. Simulate cooling performance changes of one or more racks by selecting one or more racks in the floor layout, right-clicking and selecting Cooling>Normal: 160 CFM/kW, Blade: 105 CFM/kW or another value*, if available. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 45. The Cooling overlay gives you a good indication of the effectiveness of the active cooling configuration as well as a qualified estimation of the effect of changes in supply temperature, airflow, and number of cooling units and room-based cooling parameters. Equipment is colored to describe cooling as green: sufficient; yellow: partial; red: insufficient. The tooltip shows you important cooling indicators, such as a cooling unit's capacity (load in kW) and estimated return temperature. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 24.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty																								
	Cooler airflow in cubic feet per minute (CFM) is assumed to be: <table><tr><th>Cooler type</th><th>Minimum CFM</th><th>Maximum CFM</th></tr><tr><td>InRow RC (300 mm)</td><td>1450</td><td>2900</td></tr><tr><td>InRow RC (600 mm)</td><td>2760</td><td>6900</td></tr><tr><td>InRow RP (600 mm Chilled Water)</td><td>2760</td><td>6900</td></tr><tr><td>InRow RP (600 mm Air Cooled)</td><td>1920</td><td>4800</td></tr><tr><td>InRow RD (600 mm Air Cooled)</td><td>2000</td><td>5000</td></tr><tr><td>InRow RD (300 mm Air Cooled)</td><td>916</td><td>2300</td></tr><tr><td>InRow RD (300 mm Fluid Cooled)</td><td>916</td><td>2300</td></tr></table> Rack airflow is by default assumed to be 160 CFM/kW based on the total rack power. This value can be changed by right-clicking a rack and selecting Properties, to change to, for example, 105 CFM/kW for blade server racks. CRAC airflow is, by default, assumed to be 6000 CFM. This can be changed by right-clicking a CRAC and selecting Properties. https://dcimsupportattachments.ecostruxureit.com/140711358/StruxureWare%20Data%20Center%20Operation%20User's%20Guide.pdf (“StruxureWare Manual”) at p. 50. As another example, Vigilent’s system is shown below:	Cooler type	Minimum CFM	Maximum CFM	InRow RC (300 mm)	1450	2900	InRow RC (600 mm)	2760	6900	InRow RP (600 mm Chilled Water)	2760	6900	InRow RP (600 mm Air Cooled)	1920	4800	InRow RD (600 mm Air Cooled)	2000	5000	InRow RD (300 mm Air Cooled)	916	2300	InRow RD (300 mm Fluid Cooled)	916	2300
Cooler type	Minimum CFM	Maximum CFM																							
InRow RC (300 mm)	1450	2900																							
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InRow RP (600 mm Chilled Water)	2760	6900																							
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Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

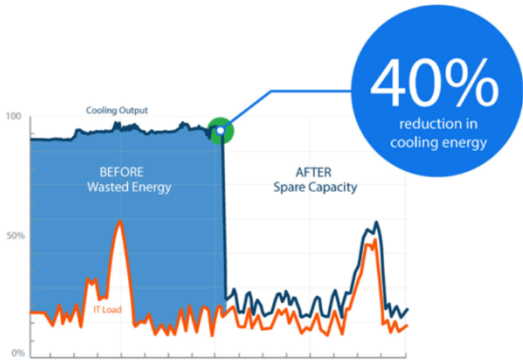
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	VIGILENT CONTINUOUSLY MATCHES COOLING OUTPUT TO HEAT LOAD Optimized airflow eliminates hot spots. Vigilent continuously optimizes the airflow in your facility, delivering improved reliability and availability. The system automatically finds and eliminates hot spots, while its comprehensive reports and tools facilitate easier operations management. Our system delivers the right amount of cooling exactly where it's needed. This typically results in up to a 40% reduction in carbon emissions and your cooling energy bill. We achieve that with sophisticated AI-based technology that learns your environment and adapts to change.  https://www.vigilent.com/who-we-serve/by-facility/data-centers/.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	How does the software control each cooling unit? There are many differences in how a cooling unit can be controlled. Some units can only be turned ON and OFF. Some have Variable Frequency Drives (VFDs) for fan speed control, and others have been retrofitted with EC Plug Fans, which also have fan speed control. The Vigilent System is designed to work with all of these units and even a mix of different types. The Vigilent System can control the following types of units: • Start/Stop – These units can only be turned ON and OFF. The software can send either an ON or OFF command to these types of units. • Fan Speed Control – These units are typically outfitted with VFDs or EC Plug fans. Individual fan speeds can be controlled on these units. • Start/Stop and Fan Speed Control – Some units have the ability to accept a fan speed command and a Start/Stop command. In this case, the Vigilent System will primarily control the fan speed, however, if the fan speed is set to minimum and the facility still requires less cooling the unit may be turned OFF. • Return Air Temperature Set Point – Some cooling units already have built-in control mechanisms that operate based on the return air temperature set point. In this case, the Vigilent System will take control based on the return air temperature set point for each unit. Vigilent Manual at 104. As another example, Liebert iCOM’s system is shown below:

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty																					
	3.1.12 Automatic Fan Speed Control Temperature sensors can control fan speed using one of three modes based on the type of sensor selected as the fan-control sensor: supply, return, or remote, see Table 3.2 below . Control is based on the selected sensor for both fan control and temperature control and their setpoints as follows: • Coupled: The fan control and temperature control sensor selection is the same. When coupled, fan speed is determined by the temperature setpoints. • Decoupled: The fan control and temperature control sensor selection is different. When decoupled, fan speed is determined by the fan setpoints. Table 3.2 Fan Speed Controlling Sensor Options <table><tr><th colspan="2" rowspan="2"></th><th colspan="3">Temperature Control Sensor Selected</th></tr><tr><th>Supply Sensor</th><th>Remote Sensor</th><th>Return Sensor</th></tr><tr><td rowspan="3">Fan Control Sensor Selected</td><td>Supply Sensor</td><td>Coupled</td><td>N/A</td><td>N/A</td></tr><tr><td>Remote Sensor</td><td>Decoupled (Recommended)</td><td>Coupled</td><td>N/A</td></tr><tr><td>Return Sensor</td><td>Decoupled</td><td>Decoupled</td><td>Coupled</td></tr></table> iCOM Manual at p. 45.			Temperature Control Sensor Selected			Supply Sensor	Remote Sensor	Return Sensor	Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A	Remote Sensor	Decoupled (Recommended)	Coupled	N/A	Return Sensor	Decoupled	Decoupled	Coupled
				Temperature Control Sensor Selected																		
		Supply Sensor	Remote Sensor	Return Sensor																		
Fan Control Sensor Selected	Supply Sensor	Coupled	N/A	N/A																		
	Remote Sensor	Decoupled (Recommended)	Coupled	N/A																		
	Return Sensor	Decoupled	Decoupled	Coupled																		
[6] The method as claimed in claim 1, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map.	The Accused Products infringe claim 1. <i>See supra</i>. The Accused Products’ generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, regardless of which cooling technology is used, the software may include thermal mapping software. <i>See</i>, limitation 1[c].																					

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

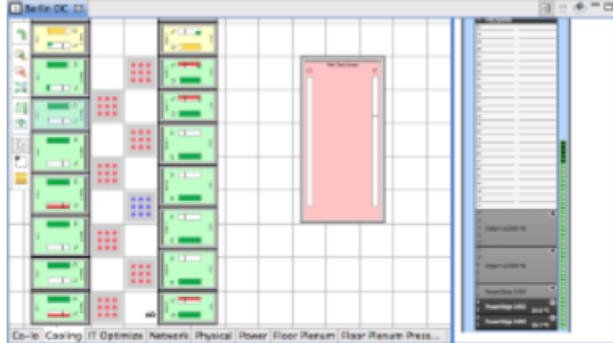
Claim Language	Exemplary Evidence of Infringement by Digital Realty
[7] The method as claimed in claim 1, wherein said identifying step comprises using pattern recognition software.	The Accused Products infringe claim 1. <i>See supra.</i> The Accused Products’ identifying step comprises using pattern recognition software, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, on information and belief, Schneider, Vigilent, and Liebert cooling technologies use pattern recognition software. <i>See, e.g.:</i> The graphical floor plan of the configured data center layout includes overlays showing capture index (CI), plenum pressure, plenum velocities, and 3D rendering of the temperature map, including airflow, temperature thresholds, load. These overlays give you a fail/pass indication of the effectiveness of the active cooling configuration. As the design takes place, you get a qualified estimation of the effect of changes in supply temperature, airflow, and number of cooling units and room-based cooling parameters.  Watch this video tutorial to learn how to configure different types of cooling. Capture index The Cooling overlay of the data center floor layout shows a color-coded overview of the Capture Index. You can use this view to get an overview of the reasons why the tile airflow may not be the same across the room. Each rack in a well-formed hot aisle / cold aisle layout shows a color-coded capture index percentage. The CI value identifies inlet air which is supplied by what fraction of the equipment's exhaust airflow is captured by the InRow® cooling units included in that row pair or by the CRAC or CRACs in the room through the perforated tiles. 

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	StruxureWare Manual at p. 42. For example, Vigilent cooling technology uses pattern recognition software. AT A GLANCE Cooling becomes a managed resource that reacts to real-time data, which reduces the chances of downtime. Automated hot spot reduction The system can automatically removes 95% (or more) of hot spots and diagnoses how to treat the remaining problems through facility adjustments. Instant results From the moment the system goes live, the energy savings and carbon emissions reductions are immediate. Cost savings The system finds the perfect balance between delivering the right amount of cooling and the lowest possible energy expenditure. Constantly adapting The AI engine constantly changes cooling when it detects new equipment and varying IT loads. Analytics Our system turns mountains of current and historic data into focused, actionable information. Risk mitigation System failsafes help avoid costly outages. https://www.vigilent.com/who-we-serve/by-facility/data-centers/ Digital Realty also has used Liebert iCOM, which uses pattern recognition software.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

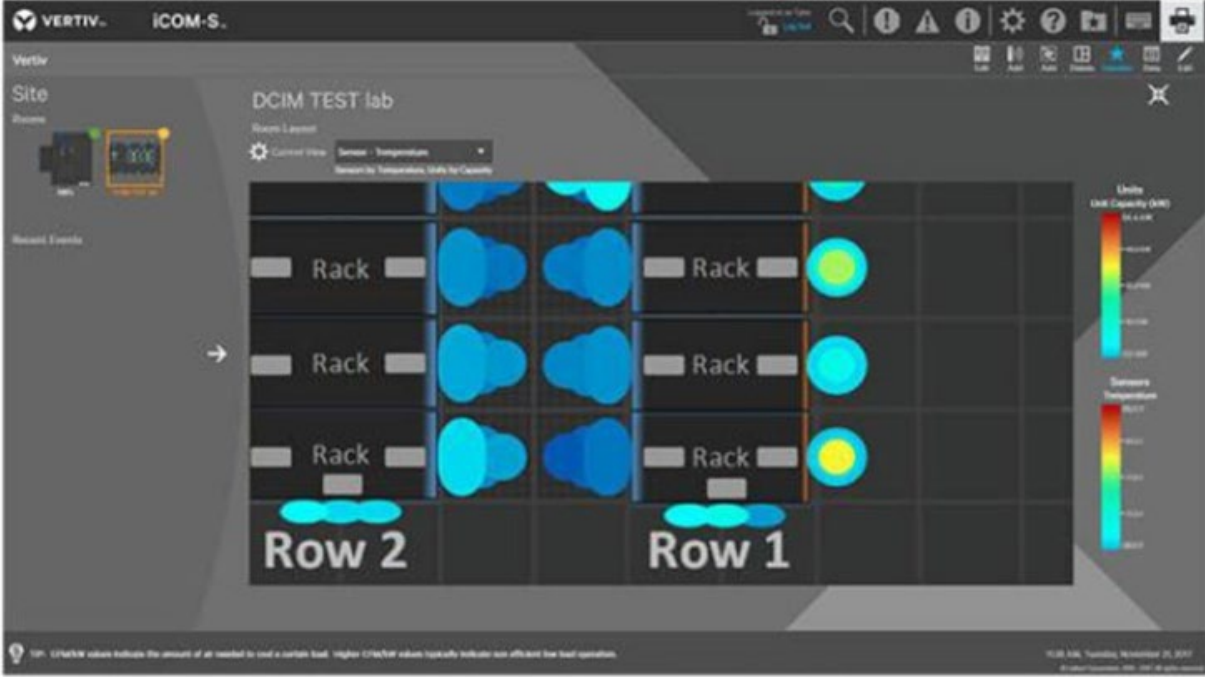
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 https://www.dksh.com/global-en/products/iot/vertiv-thermal-control-and-monitoring
[8] The method as claimed in claim 1, wherein said plurality of locations of said sensing step comprises locations at various elevations within said building.	The Accused Products infringe claim 1. <i>See supra.</i> The Accused Products’ plurality of locations of said sensing step comprises locations at various elevations within said building, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others). For example, locations may be towards the top or bottom of racks. This is shown below for Schneider:

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Working with the 3D Temperature Map You can review the data center temperature map in 3D as a calculated or measured map. The calculated map provides an estimate based on the maximum load servers would have (nameplate). The measured map is more accurate because it has more detailed data available. It is based on real sensor readings retrieved through discovered devices rather than estimates.  Follow the below steps or watch this video tutorial to see how to configure the temperature map. Room size limitation: The 3D temperature map currently does not support rooms bigger than 70x100 m. StruxureWare Manual at p. 45. Configuring temperature map based on real sensor readings 1. Retrieve live values from the sensors in the data center. a. Configure external system integration with a system that provides real temperature measurements. See more here. b. In Planning>Device Association, discover and associate devices. See more here. 2. Position the sensors in the correct locations in the model. a. In the Association map overlay, map each temperature sensor to the correct physical location (devices, racks, or rooms) using drag'n'drop. For example, drag an InRow CRAC upper plenum exhaust temperature sensor to the upper position in the rear of the CRAC. b. Specify a precise location in a rack. i. Right-click the rack that contains the sensor and select Properties>Device Sensor. ii. Use the X, Y, Z % fields to define the location expressed as a percentage on the axes, starting with 0%, 0%, 0% in the lower left corner. 3. Calculate the 3D temperature map. a. Open the 3D view to preview the sensors in the correct locations. b. In Cooling plane type, select Measured plane and click Calculate. StruxureWare Manual at p. 46.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

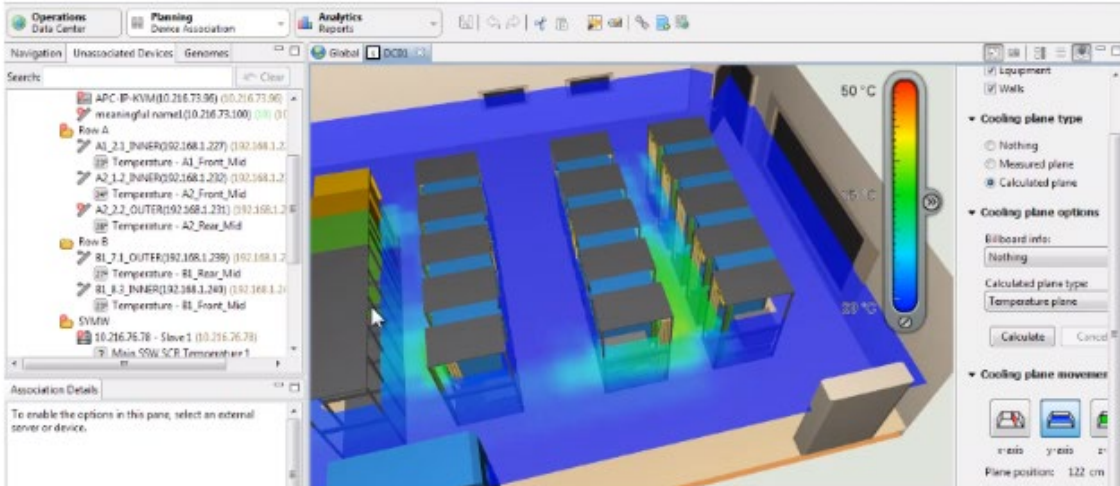
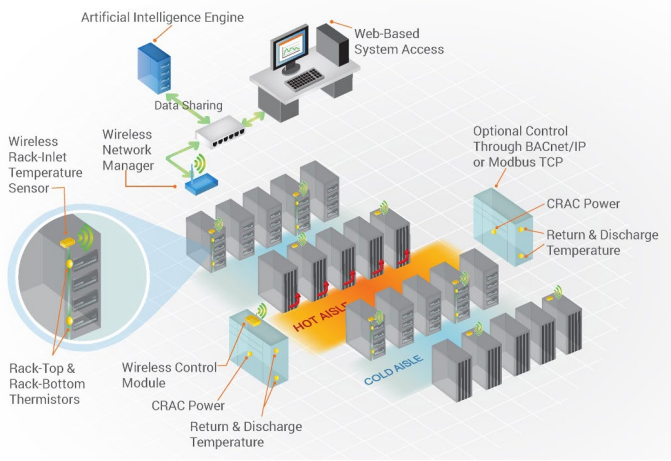
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 The screenshot displays the StruxureWare software interface. On the left, a 'Search' panel lists various components like 'APC IP-KVM', 'Row A', 'Row B', and 'SYM'. The main area shows a 3D perspective view of a server room with a color-coded temperature heatmap overlaid on the floor and equipment. A vertical temperature scale on the right ranges from 20°C to 50°C. On the far right, there are configuration panels for 'Cooling plane type' (with options: Nothing, Measured plane, Calculated plane) and 'Cooling plane options' (with options: Nothing, Calculated plane type, Temperature plane). Below these are 'Cooling plane movement' icons and a 'Plane position' field set to 122 cm. StruxureWare Manual at p. 46. This is also shown below for Vigilent as another example:  The diagram illustrates a server room cooling system architecture. It shows a central 'Web-Based System Access' point connected to an 'Artificial Intelligence Engine' and a 'Data Sharing' hub. The system includes 'Wireless Rack-Inlet Temperature Sensor', 'Wireless Network Manager', 'Rack-Top & Rack-Bottom Thermistors', 'Wireless Control Module', 'CRAC Power', 'Return & Discharge Temperature', and 'Optional Control Through BACnet/IP or Modbus TCP'. The server racks are arranged in a 'HOT AISLE' and 'COLD AISLE' configuration, with 'CRAC Power' units positioned to cool the aisles.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	https://www.vigilent.com/products-and-services/dynamic-control/ Wireless Rack-Inlet Temperature Sensor – Wireless sensor that measures temperature at the top and bottom of the rack inlet. Rack-Top and Rack-Bottom thermistors – Attached via a cable sleeve, these are the physical monitoring points for each temperature sensor. Wireless AHU Control Kit – Hardware device that integrates with each cooling unit to provide direct control signals. Return and Discharge Temperature Sensors – Measures the return air and discharge air temperature for each cooling unit AHU Power Sensors – Measures power for each cooling unit. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF, p. 6. Using wireless temperature sensors, the system collects granular information about the thermal environment of your facility. Temperature sensors are placed every three to four racks measuring temperature at the top and bottom of the rack. Thermal data is communicated via a wireless mesh network back to the control software. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF, p. 106. And this is shown for Liebert iCOM as another example:

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

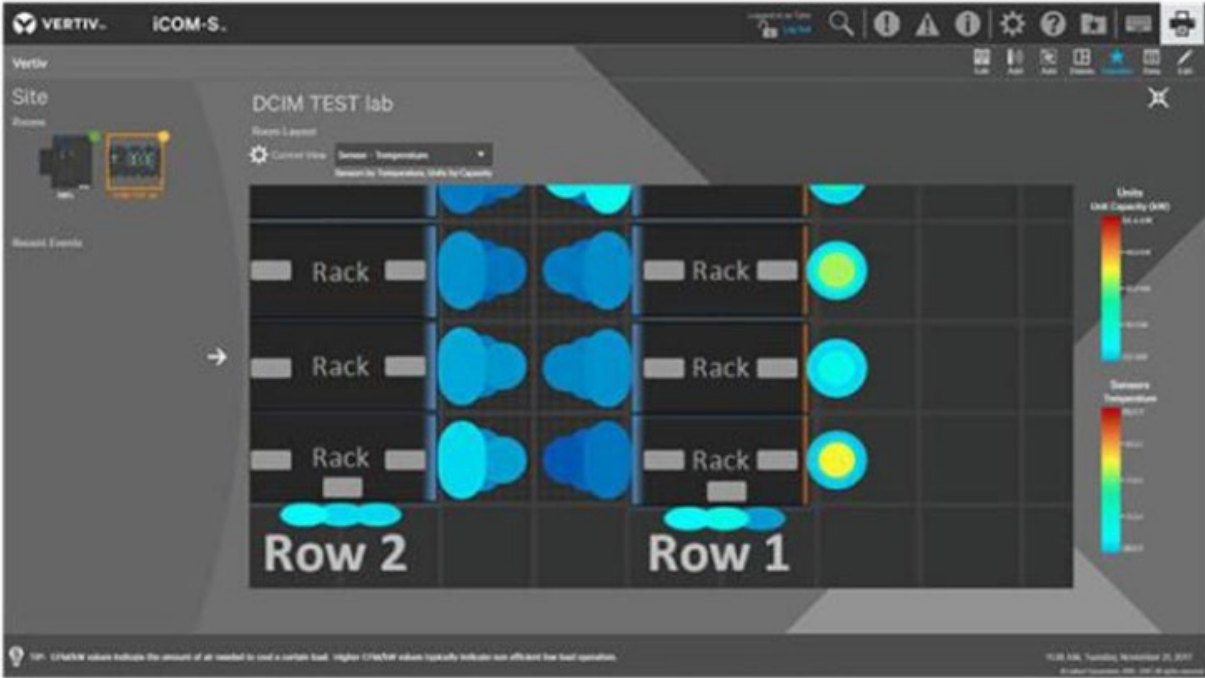
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	2.4 Viewing Sensor Data The Sensor Data panel lists the standard and optional sensors monitored by iCOM™ and the current reading of each sensor.  , then  > <i>Sensor Data</i>. The SENSOR DATA panel opens. A secondary panel displays the DAILY SENSOR READING SUMMARY, which shows temperature, humidity and dew-point readings for the cooling unit. iCOM Manual at p. 20.  https://www.dksh.com/global-en/products/iot/vertiv-thermal-control-and-monitoring

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
[9] The method as claimed in claim 1, wherein said sensing step comprises using at least one of temperature sensors, humidity sensors, pressure sensors, particle sensors, smoke sensors, and velocity sensors.	The Accused Products infringe claim 1. <i>See supra</i>. The Accused Products’ sensing step comprises using at least one of temperature sensors, humidity sensors, pressure sensors, particle sensors, smoke sensors, and velocity sensors, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, at least temperature sensor and humidity sensors are used. Schneider’s sensing step uses at least temperature sensors as shown below: Working with the 3D Temperature Map You can review the data center temperature map in 3D as a calculated or measured map. The calculated map provides an estimate based on the maximum load servers would have (nameplate). The measured map is more accurate because it has more detailed data available. It is based on real sensor readings retrieved through discovered devices rather than estimates.  Follow the below steps or watch this video tutorial to see how to configure the temperature map. Room size limitation: The 3D temperature map currently does not support rooms bigger than 70x100 m. StruxureWare Manual at p. 45.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

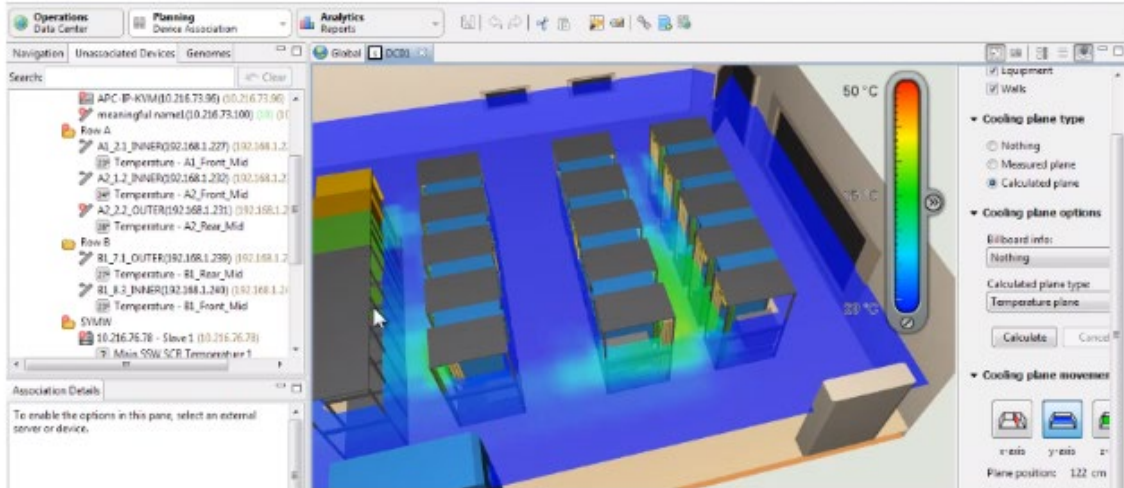
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Configuring temperature map based on real sensor readings 1. Retrieve live values from the sensors in the data center. a. Configure external system integration with a system that provides real temperature measurements. See more here. b. In Planning>Device Association, discover and associate devices. See more here. 2. Position the sensors in the correct locations in the model. a. In the Association map overlay, map each temperature sensor to the correct physical location (devices, racks, or rooms) using drag'n'drop. For example, drag an InRow CRAC upper plenum exhaust temperature sensor to the upper position in the rear of the CRAC. b. Specify a precise location in a rack. i. Right-click the rack that contains the sensor and select Properties>Device Sensor. ii. Use the X, Y, Z % fields to define the location expressed as a percentage on the axes, starting with 0%, 0%, 0% in the lower left corner. 3. Calculate the 3D temperature map. a. Open the 3D view to preview the sensors in the correct locations. b. In Cooling plane type, select Measured plane and click Calculate. StruxureWare Manual at p. 46.  StruxureWare Manual at p. 46.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

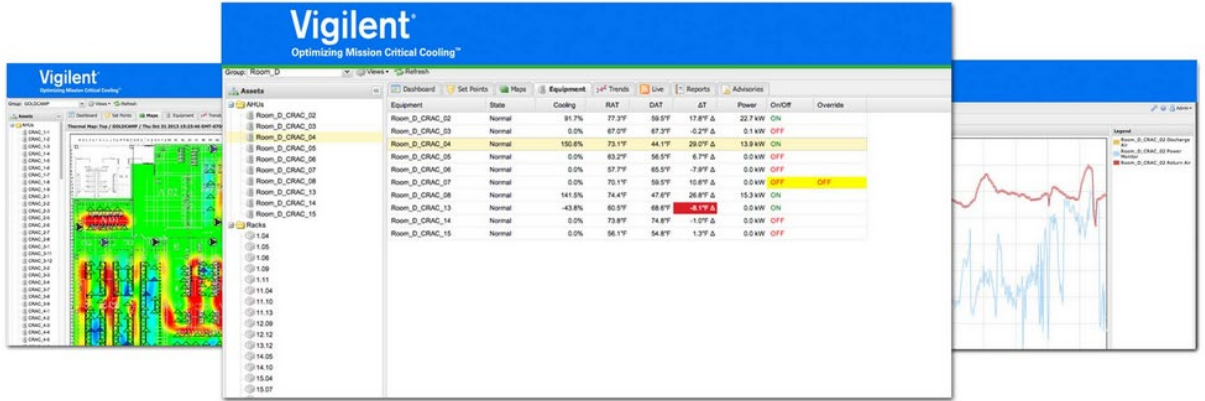
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	Vigilent’s system also uses at least temperature sensors:  EVERYDAY TOOLS With our intuitive, at-a-glance system interface, checking the current status of your facility is always at your fingertips. CHECK TEMPERATURES With a few clicks, you can quickly dive down from a broad facility view into the real-time temperature data of one specific rack sensor. EASY TRENDING Customize data to quickly surface the information you need.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

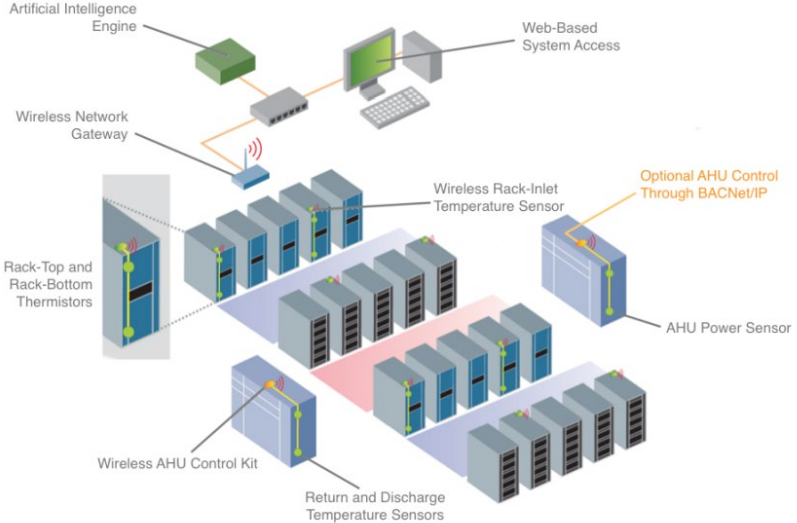
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 Wireless Rack-Inlet Temperature Sensor – Wireless sensor that measures temperature at the top and bottom of the rack inlet. Rack-Top and Rack-Bottom thermistors – Attached via a cable sleeve, these are the physical monitoring points for each temperature sensor. Wireless sensors are typically deployed every third rack to measure the inlet air temperature every minute. The sensors have two thermistors, one to capture temperature at rack bottom, the other at rack top. https://www.vigilent.com/technology/system-architecture/ CHECK TEMPERATURES With a few clicks, you can quickly dive down from a broad facility view into the real-time temperature data of one specific rack sensor.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	https://www.vigilent.com/who-we-serve/by-facility/data-centers/ Temperature Sensor Temperature sensors are used to capture thermal temperatures within the facility. They are most commonly used to measure rack inlet temperatures on IT equipment or bays of telecom equipment, but they can also be used to measure rack exhaust temperatures. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF , pp.119. Liebert iCOM also uses at least temperature and humidity sensors: 2.4 Viewing Sensor Data The Sensor Data panel lists the standard and optional sensors monitored by iCOM™ and the current reading of each sensor. • Touch , then  > <i>Sensor Data</i>. The SENSOR DATA panel opens. A secondary panel displays the DAILY SENSOR READING SUMMARY, which shows temperature, humidity and dew-point readings for the cooling unit. iCOM Manual at p. 20.

Exhibit A – Infringement Claim Chart for U.S. Patent No. 6,718,277 – Digital Realty

Claim Language	Exemplary Evidence of Infringement by Digital Realty
	User Temperature Setpoint Options 2nd Temperature Setpoint Alternate setpoint activated by customer input (remote alarm device). When customer input connection is 2nd Setpoint, this value becomes the active temperature setpoint. BMS Backup Temp Setpoint Selects a temperature setpoint that activates in the event of a BMS timeout. The BMS timer must be configured for this setpoint to activate. See Setting BMS Backup Setpoints on page 117 . Optimized Aisle Enabled Read-only. Indicates that iCOM™ is configured for optimized-aisle operation. See Teamwork Mode 3—Optimized Aisle Operation on page 102 . Temperature Control Sensor Selects sensor that controls cooling. Values are: • Supply Sensor: Temperature control is based on maintaining the temperature of the discharge air from the cooling unit. See Supply Sensors on page 158 . • Remote Sensor: Temperature control is based on the temperature reading(s) from wired remote sensor(s). See Wired Remote Sensors on page 156 . • Return Sensor: Temperature control is based on maintaining the temperature of the air returning to the cooling unit.

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	User Humidity Setpoint Options Dew Point Setpoint Desired dew point (based on actual return air temperature and humidity) by adding moisture to or removing moisture from the air. Humidity Control Sensor Selects sensor used when calculating relative humidity. Humidity Control Type Control when staging humidification operations. Valid values: • Relative: Percent of humidification/dehumidification is determined by the difference between the humidity-sensor reading and the humidity setpoint. • Compensated: Percent of humidification/dehumidification is determined by considering the actual deviation from the temperature setpoint and adjusts the humidity setpoint accordingly. The recalculated humidity setpoint displays on the screen. • Predictive: Percent of humidification/dehumidification is determined by considering the actual deviation from the temperature setpoint and adjusts the humidity sensor reading accordingly. The adjusted humidity sensor reading displays on the screen. • Dew point: Percent of humidification/dehumidification is determined by the difference between the dew point calculated from the humidity sensor reading and the dew point setpoint. iCOM Manual at p. 15-16.
[10] The method as claimed in claim 1, wherein the step of generating an empirical atmospheric map comprises generating a map composed of temperature contours that define various isothermal regions.	The Accused Products infringe claim 1. <i>See supra.</i> The Accused Products’ step of generating an empirical atmospheric map comprises generating a map composed of temperature contours that define various isothermal regions, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others). For example, the use of a map composed of temperature contours that define various isothermal regions is shown through colored maps. For instance, Schneider’s temperature map is shown below:

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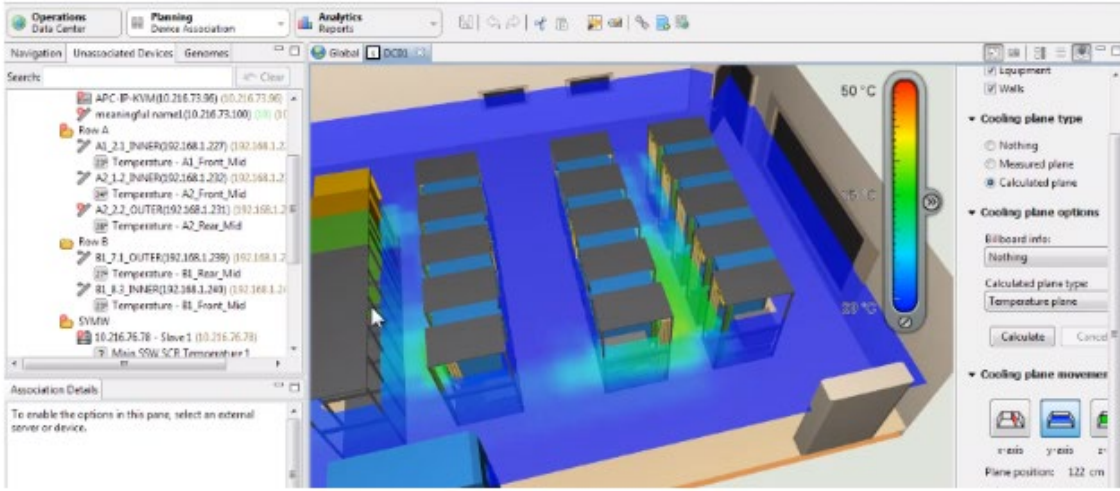
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 StruxureWare Manual at p. 46. As another example, Vigilent's temperature map is shown below:

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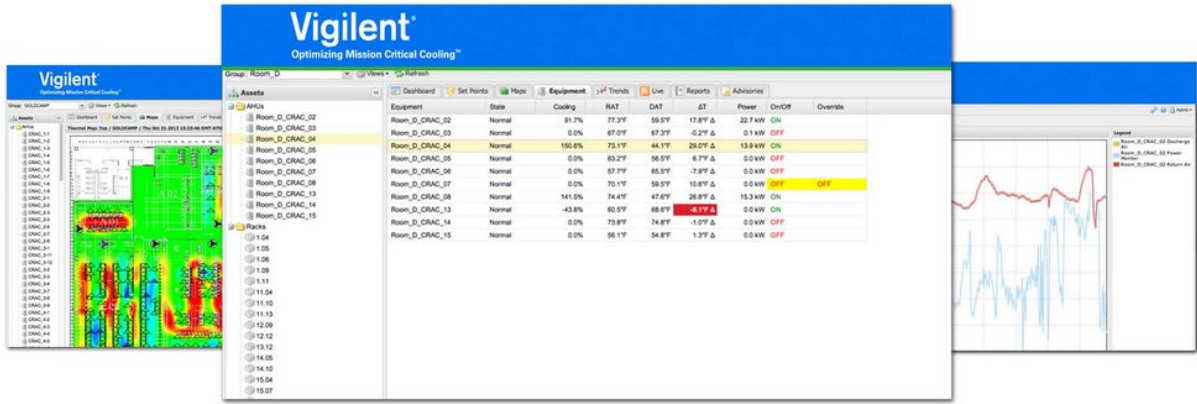
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 EVERYDAY TOOLS With our intuitive, at-a-glance system interface, checking the current status of your facility is always at your fingertips. https://www.vigilent.com/who-we-serve/by-facility/data-centers/ As another example, Liebert iCOM’s temperature map is shown below: CHECK TEMPERATURES With a few clicks, you can quickly dive down from a broad facility view into the real-time temperature data of one specific rack sensor. EASY TRENDING Customize data to quickly surface the information you need.

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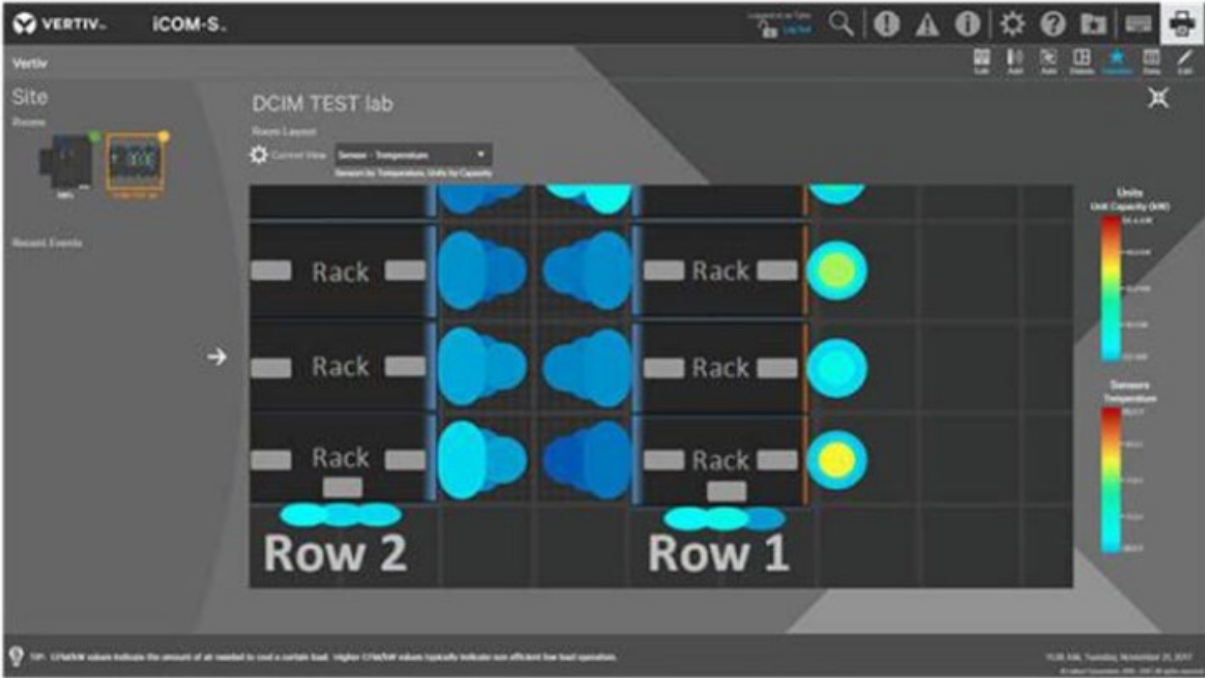
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 https://www.dksh.com/global-en/products/iot/vertiv-thermal-control-and-monitoring
[11] The method as claimed in claim 1, wherein the step of identifying pattern differentials between said empirical and template atmospheric maps comprises performing at least one of extrapolation and triangulation to determine locations of one or more hot spots.	The Accused Products infringe claim 1. <i>See supra.</i> On information and belief, the Accused Products’ step of identifying pattern differentials between said empirical and template atmospheric maps comprises performing at least one of extrapolation and triangulation to determine locations of one or more hot spots, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others). For example, triangulation and extrapolation occur in the identification of hotspots. Schneider performs this step, as shown below:

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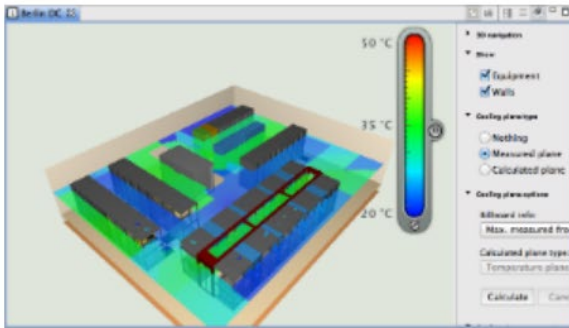
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	3D temperature map In the 3D view, you can see the room's airflow above the raised floor. Velocity vector and temperature results look like those from traditional CFD applications and provide the same ability to quickly locate problem spots and understand the underlying causes. You can have multiple rooms open in the 3D view at a time. When you have opened a room in 3D view or applied changes to the configuration, click Calculate to show the updated view. Subsequently, you can select File>Export and export to .xml or export directly to .pdml without using conversion tools.  StruxureWare Manual at 42-43. As another example, Vigilent performs this step: Hot spots that can not be cooled by the Vigilent system are usually a result of poor airflow in specific areas on the floor. These hot spots can be identified using one or more of the following in the VX Console: • The <u>Set Points Tab</u> lists the real time temperatures. Sort from hottest to coldest by clicking on the 'Top' or 'Bottom' column. • The <u>Maps Tab</u> quickly shows the location of hot spots on the floor plan • The <u>Temperature Compliance Report</u> quantifies the severity of hot spots to help identify the most persistent hot spots in the facility https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF, p. 146.

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	AT A GLANCE Cooling becomes a managed resource that reacts to real-time data, which reduces the chances of downtime. Automated hot spot reduction The system can automatically removes 95% (or more) of hot spots and diagnoses how to treat the remaining problems through facility adjustments. Instant results From the moment the system goes live, the energy savings and carbon emissions reductions are immediate. Cost savings The system finds the perfect balance between delivering the right amount of cooling and the lowest possible energy expenditure. Constantly adapting The AI engine constantly changes cooling when it detects new equipment and varying IT loads. Analytics Our system turns mountains of current and historic data into focused, actionable information. Risk mitigation System failsafes help avoid costly outages. https://www.vigilent.com/who-we-serve/by-facility/data-centers/ The Thermal Map provides an overhead view of your facility's thermal profile. It is the quickest way to get a visual “snapshot” of real-time hot spots. Each sensor that is currently live appears in the image at its proper location on the physical floor.

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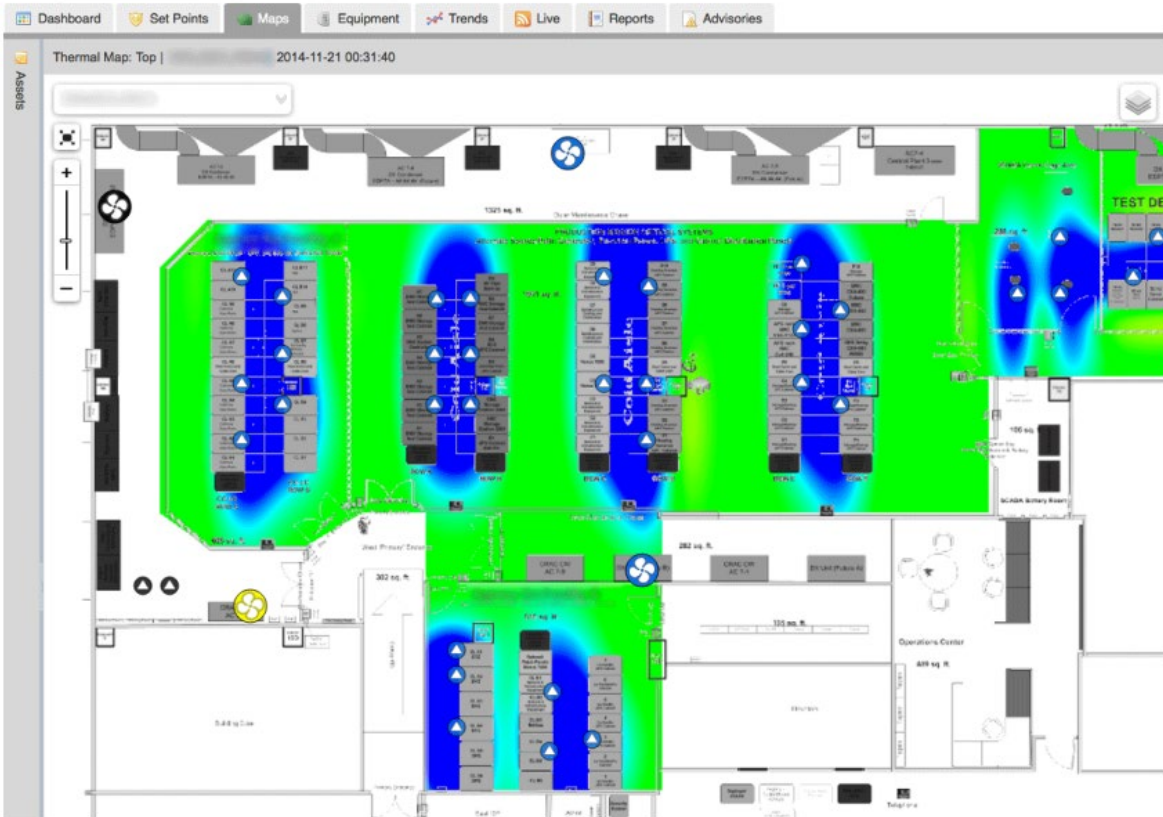
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 The thermal map legend gives you a quick visual assessment of your AHU performance. https://fccid.io/ANATEL/01612-15-08292/MANUAL/16006226-67DD-49FB-8873-2E15C3330211/PDF , p. 19-20. As another example, Liebert iCOM performs this step:

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	4.2 Enabling Events and Editing Event Settings In the ALARMS & EVENTS panel, events are grouped into categories for easier management, for example, the factory set remote sensor alarms and humidification/dehumidification events. In some cases, touch the group heading provides edit options for the entire group, like thresholds, delays and enable/disable. Each event includes settings specific for that event and the notification option where event type and alarm notifications are selected (See Selecting Event Type and Setting Alarm/Warning Notification on the facing page).  1. Touch , then  > <i>Alarm/Event Setup</i>. The ALARMS & EVENTS panel opens. 2. Scroll or search to find the event, touch the set's heading to display the properties and values for the entire set in the EDIT panel. – or – Touch an individual alarm or event to display its specific values in the EDIT panel. iCOM Manual at p. 80.

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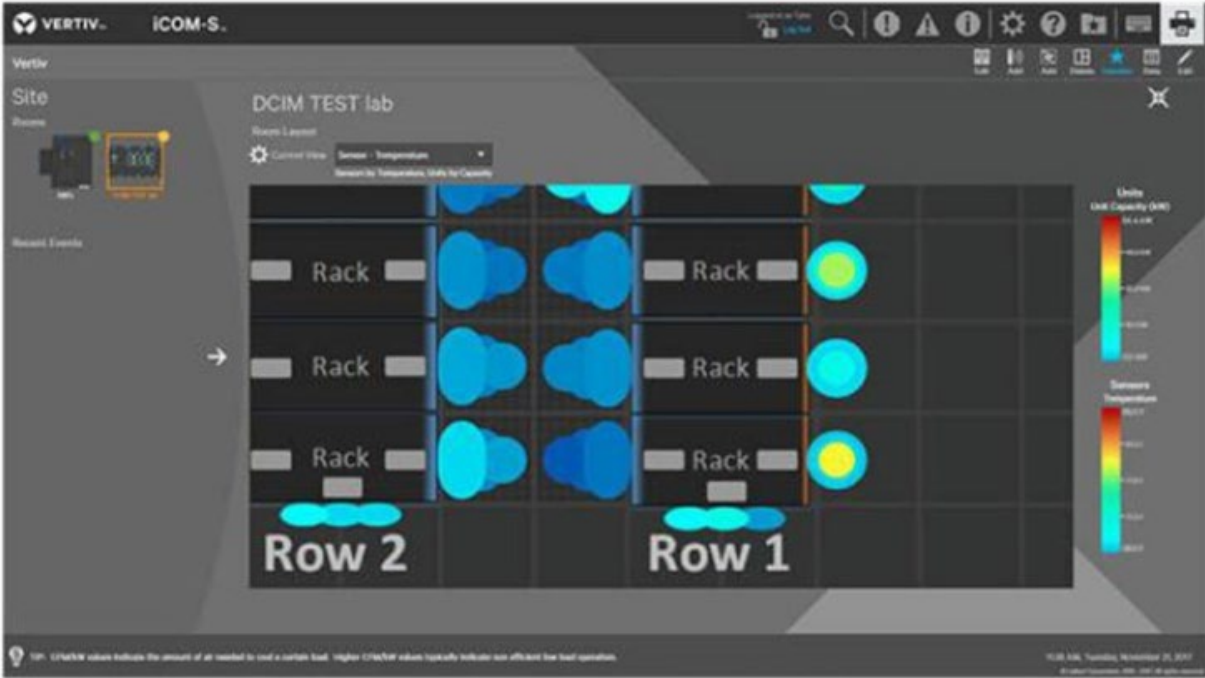
Claim Language	Exemplary Evidence of Infringement by Digital Realty
	 https://www.dksh.com/global-en/products/iot/vertiv-thermal-control-and-monitoring
[12pre] A method of cooling a data center having equipment therein, said method comprising the steps of:	The Accused Products use a method of cooling a data center having equipment therein. For example, the data centers have cooling equipment therein, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others). <i>See limitation [1pre].</i>
[12a] supplying a cooling fluid within said data center to cool said equipment within said data center;	The Accused Products supply a cooling fluid within said data center to cool said equipment within said data center, regardless of which cooling technology is used (Schneider, Vigilant, Liebert, or others).

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
	For example, the cooling fluid may be a conditioned fluid. <i>See</i> limitation [1a].
[12b] sensing temperature within said data center in a plurality of locations;	The Accused Products sense temperature within said data center in a plurality of locations, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, temperature is one atmospheric condition sensed by the Accused Products. <i>See</i> limitation [1b]; claim 9.
[12c] generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map;	The Accused Products generate an empirical thermal map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See</i> limitation [1c]; claims 6, 10.
[12d] comparing said empirical thermal map to a template thermal map; and	The Accused Products compare said empirical thermal map to a template thermal map, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). For example, a template thermal map may be the template atmospheric map. <i>See</i> limitation 1[<i>See</i> claims 6, 10; limitation [1d].
[12e] identifying pattern differentials between said empirical and template thermal maps.	The Accused Products identify pattern differentials between said empirical and template thermal maps, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See</i> limitations [1d]; [12d].
[13] The method as claimed in claim 12, further comprising the steps of: determining corrective action to reduce said pattern differentials; and	The Accused Products infringe claim 12. <i>See supra</i> . Digital Realty determines corrective action to reduce said pattern differentials; and

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
varying at least one of the quantity, quality, and distribution of said cooling fluid in accord with said determining step.	varying at least one of the quantity, quality, and distribution of said cooling fluid in accord with said determining step, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 2.</i>
[14] The method as claimed in claim 13, wherein said supplying step comprises operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.	The Accused Products infringe claim 13. <i>See supra.</i> Digital Realty’s supplying step comprises the step of operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 3.</i>
[15] The method as claimed in claim 14, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.	The Accused Products infringe claim 14. <i>See supra.</i> Digital Realty’s method includes a determining step comprising correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 4.</i>
[16] The method as claimed in claim 15, wherein said varying step comprises adjusting at least one of the opening of at least one of said plurality of vents, the speed of said at least one blower, and the	The Accused Products infringe claim 15. <i>See supra.</i> Digital Realty’s varying step comprises adjusting at least one of the opening of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others).

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
output of said at least one source of conditioned air.	<i>See claim 5.</i>
[17] The method as claimed in claim 12, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical thermal map, wherein said thermal mapping software triangulates locations of hot spots.	The Accused Products infringe claim 12. <i>See supra.</i> Digital Realty’s generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical thermal map, wherein said thermal mapping software triangulates locations of hot spots, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 6; claim 11.</i>
[18] The method as claimed in claim 12, wherein said identifying step comprises using pattern recognition software.	The Accused Products infringe claim 12. <i>See supra.</i> Digital Realty’s identifying step comprises using pattern recognition software, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 7.</i>
[19] The method as claimed in claim 12, wherein said plurality of locations of said sensing step comprises locations at various elevations within said data center.	The Accused Products infringe claim 12. <i>See supra.</i> Digital Realty’s plurality of locations of said sensing step comprises locations at various elevations within said data center, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 8.</i>
[20] The method as claimed in claim 12 wherein the step of generating an empirical atmospheric map comprises generating a map composed of	Digital Realty infringes claim 12. <i>See supra.</i>

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Claim Language	Exemplary Evidence of Infringement by Digital Realty
temperature contours that define various isothermal regions.	Digital Realty’s step of generating an empirical atmospheric map comprises generating a map composed of temperature contours that define various isothermal regions, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 10.</i>
[21] The method as claimed in claim 12, wherein the step of identifying pattern differentials between said empirical and template atmospheric maps comprises performing at least one of extrapolation and triangulation to determine locations of one or more hot spots.	Digital Realty infringes claim 12. <i>See supra.</i> Digital Realty’s step of identifying pattern differentials between said empirical and template atmospheric maps comprises performing at least one of extrapolation and triangulation to determine locations of one or more hot spots, regardless of which cooling technology is used (Schneider, Vigilent, Liebert, or others). <i>See claim 11.</i>