

**EMOTx**.com

**Ekahau Active RFID  
Wi-Fi Asset Tracking and  
Temperature Monitoring**

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# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

## 1. Medical Devices

- Physician/Clinical/Dental equipment
- Wheelchairs
- Beds, Stretchers
- IV Pumps
- IT assets



## 2. Staff tracking

- Staff safety – alarms
- Process/workflow improvement
- Scheduling, Patient transports

## 3. Patient tracking

- Patients at risk
- Long-term care, elderly care
- Manage disaster situations
- Process/workflow improvement



## 4. Temp Control

- Refrigerators/Freezers: Medication, blood, tissue, organ
- Patient Room
- Any where temperature is critical

# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

- The Ekahau System possesses the widest selection of tags of any Wi-Fi based RTLS system

- Most of Ekahau's tags can operate in three modes:



- » Cisco CCX ( standard one-way Cisco "blink mode"
- » Ekahau Beacons ( advanced one-way "blink mode")
- » Smart-Mode ( 2-way, secure and managed mode for mission critical use)
- » Combined Smart and Blink modes

- All Ekahau Tags can support different IP schemes:

- » No IP address
- » Static or Dynamic addressing
- » Forthcoming DoD IPv6 mandate for network devices

- Ekahau Tags feature "Smart" capabilities such as:

- » On-board alerting ( eg. temperature, staff duress, etc.)
- » Over The Air (OTA) programming & configuration ( for touch-free operation )
- » 2-way messaging including alarms/ alerts, acknowledgements, text messages, sensor alarms ( with confirmation ) and multiple push buttons.

- Ekahau RTLS and Tags have the widest acceptance and compatibility in the market with over 28 mutual certifications covering LWAPP, Autonomous, Mesh and Outdoor Access Point-based networks.



Asset Tag



Badge/Pager



Temp Tag



Temperature + Humidity



Patient Wristband



PDA's Handheld VOIP Phones

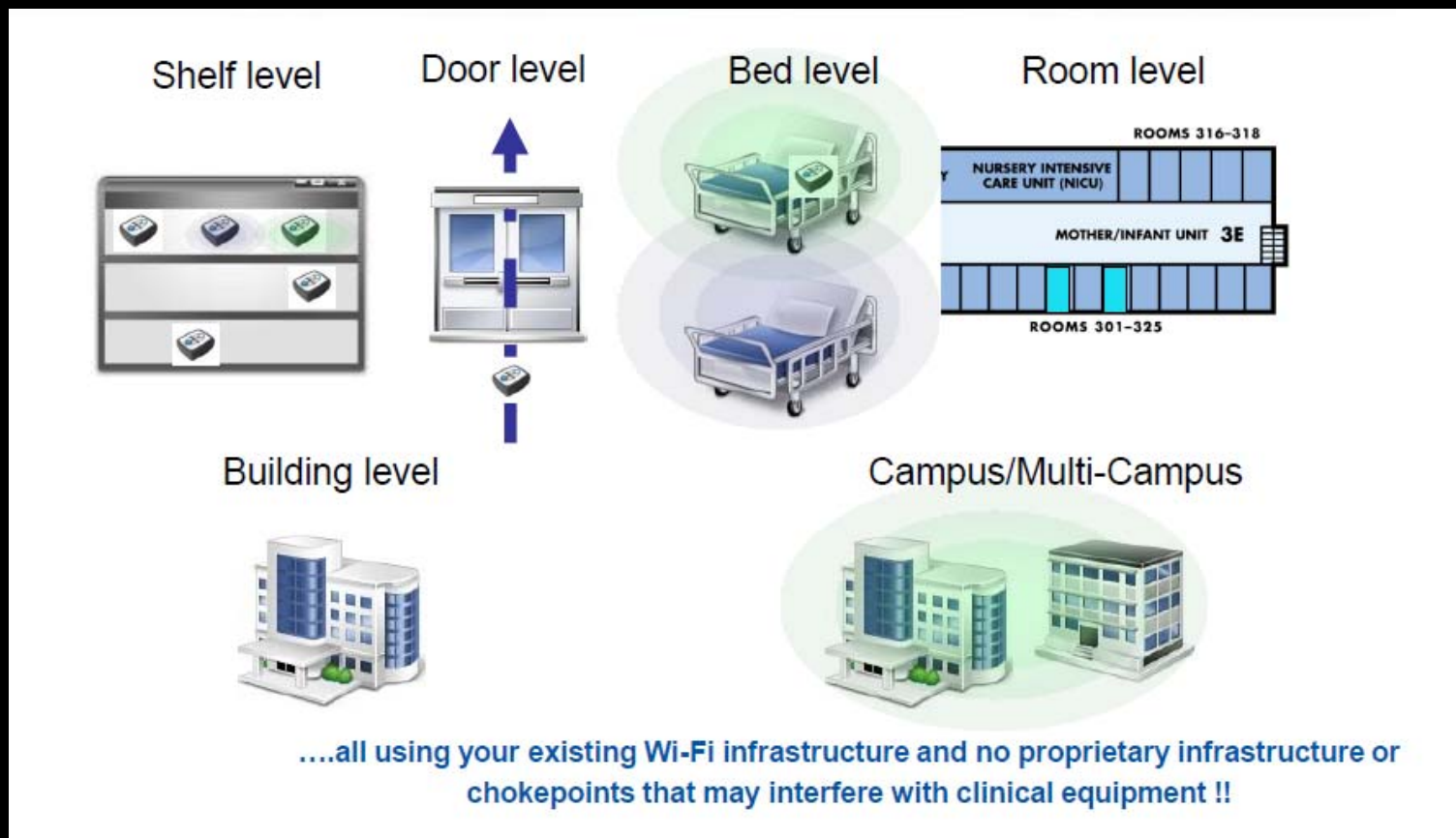
# EMOTx WiFi Temperature Tags with Ekahau "Vision" Software and Nurse/Station Management Badges

- Leverages leading edge 802.11 System on a Chip ( SOC ) technology
- Built-in CPU, 802.11-b radio, full IP stack, application memory, battery and power circuitry
- Temperature ranges:
  - -50C to + 200C ( basic probe configuration )
  - -200C to + 200C( Platinum probe )
- +/- 1C temperature variation
- Temperature measurement and reporting intervals are fully programmable including on-board alerting
- OTA ( Over the Air ) configuration and re-programming ( 4Q/09 )
- Supports WEP, WPA and WPA2
- Battery life up to three years ( dual battery unit) with 15 minute reporting interval



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# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions



# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

- **The Ekahau T-301-T Sensor performance metrics have been gauged to comply with:**
- Healthcare – Joint Commission and FDA requirements for specimen, medication and food monitoring.



# Technology Currently Being Utilized in the Healthcare Industry

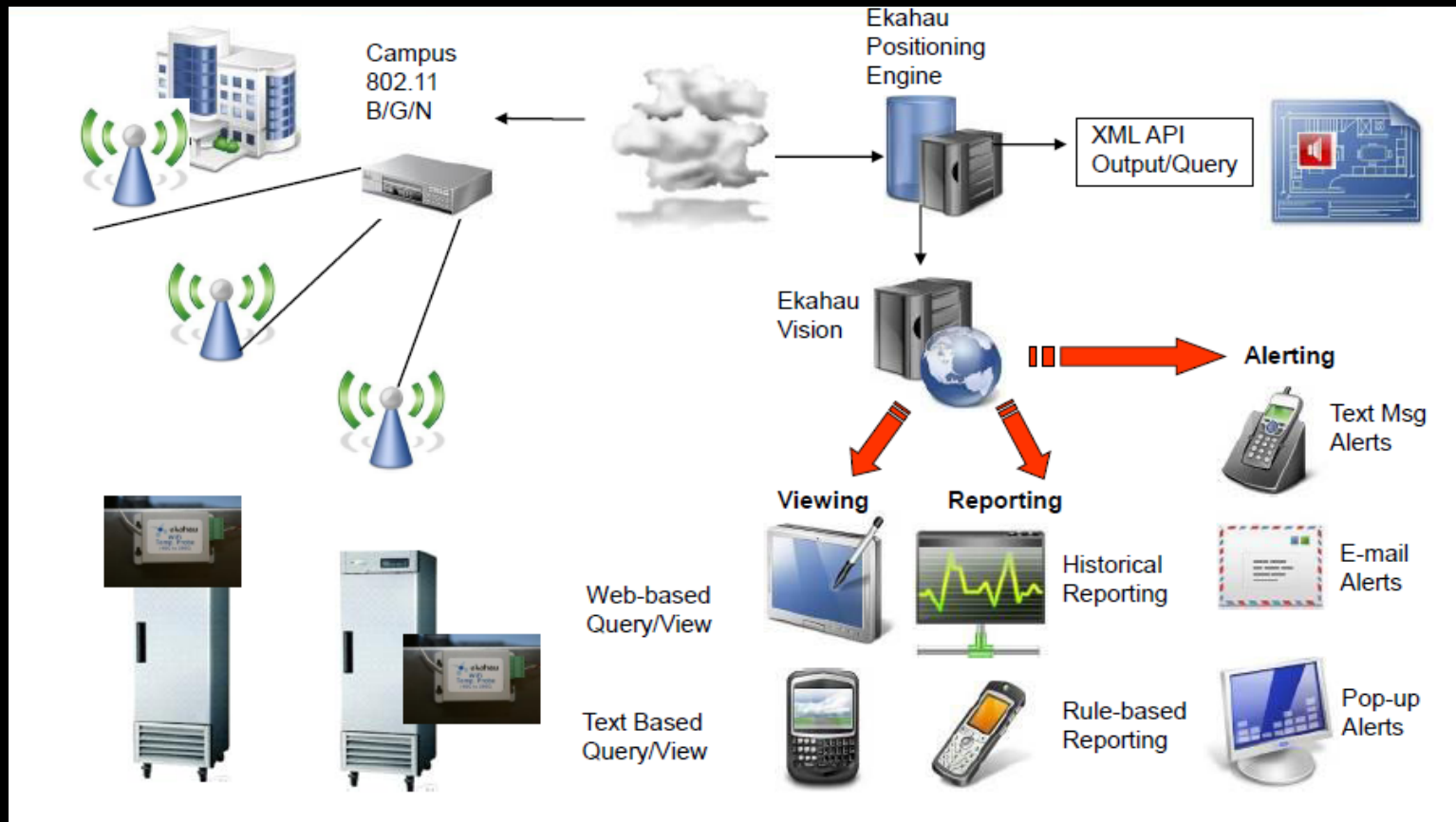
ITEM	OWNER	TEMP RANGE	# TIMES/DAY TO CHECK
Tissues	CMO, Pathology	Refrigerator, Freezer or Deep Freezer (-40 F or C)	Every 4 hours (AABB)
Food	Cafeteria, Facilities	37-43 F (2.5 to 6 C)	Once per day (JCAHO)
Pharmaceuticals	Pharmacists	36-46 F (2.2 to 7.8 C)	Once per day (JCAHO)
Vaccines	Nurse	35-46 F or if frozen, 0-10 F (-18 to 12.2 C)	Once per day (JCAHO)
Blood	Lab	34-49 F (1.1 to 9.4 C)	Every 4 hours (AABB)
Patient Test Results	Pathology, Lab	36-42 F (2.2 to 5.6 C)	Every 4 hours (CAP)
Plasma	Lab	-29 F (-34 C)	Every 4 hours (AABB)
Organs	CMO, Pathology	Refrigerator, Freezer or Deep Freezer (-40 F or C)	Once per day (JCAHO)
Clean Rooms, Patient Rooms	Varies/Bio-med	18- 22 C	Twice per day (JCAHO)
Specimens	Laboratory	- 186 C	Twice per day (JCAHO)
Bacteria, DNA, Cells	Lab, OR	- 86 C	Twice per day (JCAHO)
Warmers (Food, Blankets)	Cafeteria	Varies	As Needed
Breast Milk	Nurse, L & D	34-40 F (1.1 to 4.5 C)	Once per day (JCAHO)

# Achieve Immediate ROI from Wireless Temperature Monitoring

- Leverages leading edge 802.11 System on a Chip ( SOC ) technology
- Temperature ranges:
  - -50C to + 200C ( Standard probe, red )
  - -200C to + 200C( Platinum probe )
- +/- 1C temperature variation
- Both probes are NIST certified/traceable
- Unit samples temperature every 15 sec.
- Flashing LED when in alarm
- On board programmable alarm limits and delay if needed when monitoring abeyant air
- Temperature measurement and reporting intervals are fully programmable
- User can calibrate temp tags threw EPE to match a calibrated thermometer
- OTA ( Over the Air ) configuration and re-programming
- Supports WEP, WAP and WPA2 (Q4/09)
- Battery life up to three years (dual battery unit) with 15 minute reporting interval



# Overview of Network Solutions



# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

The screenshot displays the Ekahau Vision web application interface within a Windows Internet Explorer browser window. The browser address bar shows the URL <http://192.168.15.2:8500/>. The application header includes the Ekahau Vision logo, navigation tabs for DEPART, FIND, RULES, EVENTS, REPORTS, and TAG MANAGEMENT, and a user login status of "logged in as admin".

The main content area is divided into two sections:

- FIND:** A search panel on the left with a "Find" input field and dropdown menus for "Item Group", "Item List", "Map", and "Zone", all currently set to "None". It also includes a "Battery (%)" field and a "Find" button.
- ACTIVE SEARCH RULES (0):** A table view on the right showing search results. The table has columns for "Group Information", "Name", "Temperature", "Tag ID", and "Ti". It displays four rows of data for "Temperature Sensors" located in various areas.

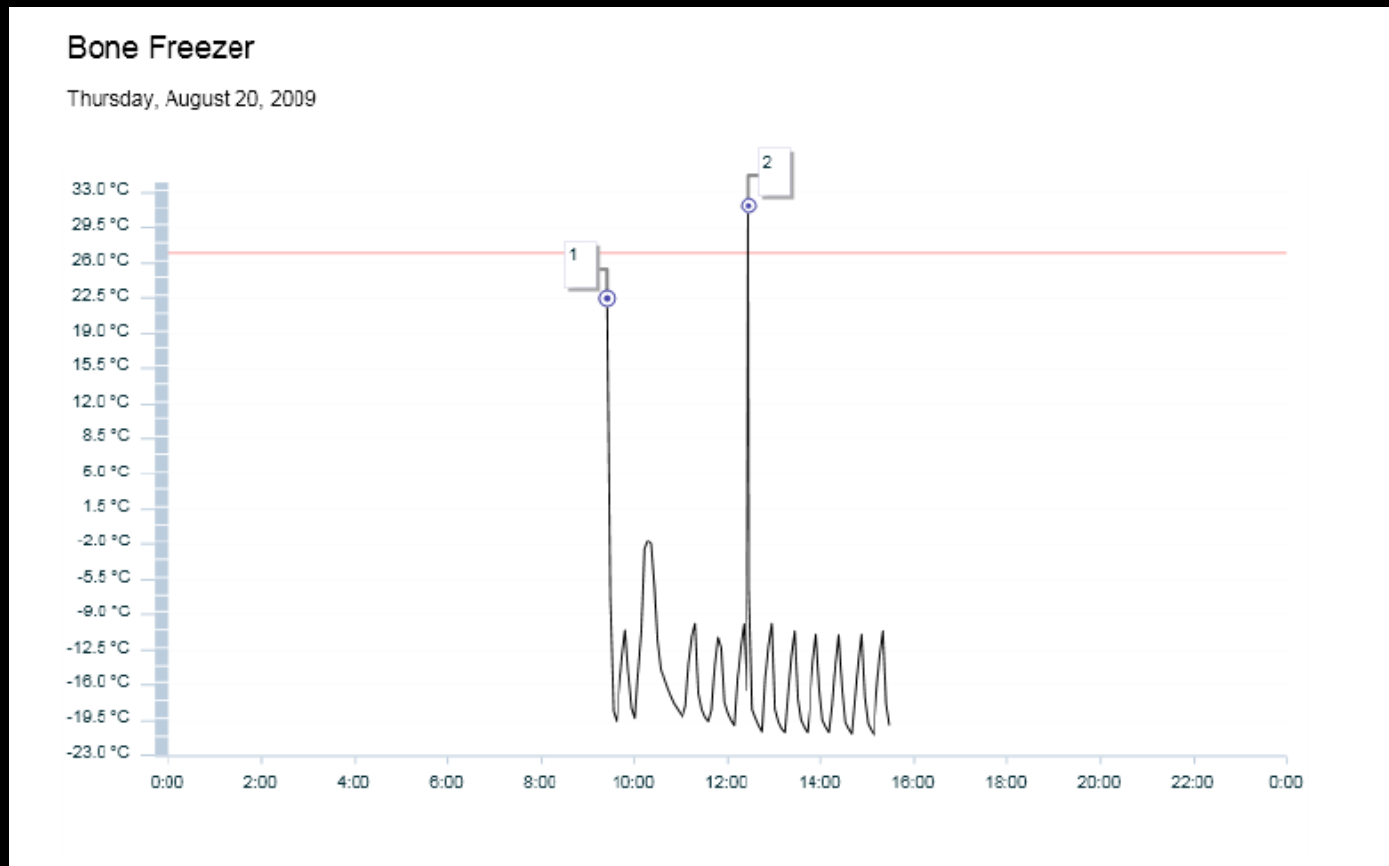
Group Information	Name	Temperature	Tag ID	Ti
Temperature Sensors	Freezer 01	-27.25 °C	8124202000000000	
Temperature Sensors	Refrigerator 02	-2.5 °C	8124205600000000	
Temperature Sensors	Conference Room A	22.9375 °C	8124204800000000	
Temperature Sensors	Server Rack 31	30.6875 °C	8124204C00000000	

The footer of the application shows "EKAHAU VISION 1.4.0-UNCHECKED" and "© 2008 Ekahau, Inc." The browser status bar at the bottom indicates "Comp: Done" and "Internet" with a 100% zoom level.

# Immediate Real Time Asset Management Temperature Recording, and Alerting.



# Twenty-Four Hour Data Logging of Each Tagged Location



# Action Screens for Resolution Reports

## 1. Temperature Check

Thu Aug 20 2009 09:24:06 AM

Accepted:

Closed:

Cause:

Fix:

## 2. High Alarm Bone Freezer

Thu Aug 20 2009 12:27:07 PM

The measured temperature 31.7 °C is above the limit 27.0 °C.

Accepted:

Closed: admin 03:25:40 PM

Cause: Door left open.

Fix: Closed Door, then verified temp went back to normal range.

# Alarms and Text Alerts for Immediately Addressing Adverse Events

- **Setting up alarm notification is simple and quick**
- **Enter a name, description is optional**
- **Now pick how temp alarm will be activated and then enter temperature.**
- **You can not proceed to the next page until proper information is entered**

The screenshot shows a software window titled "TEMPERATURE EVENT RULE" with a close button in the top right corner. The window is divided into two main sections. The left section is titled "Step 1 of 3" and "Temperature". It contains two text input fields: "Name" with the value "Lab Freezer 22" and "Description" with the value "Tissue". Below these is a section labeled "Create event when temperature" which includes a dropdown menu currently set to "below", a numeric input field with the value "0", and a unit selector set to "°C". A small menu is open over the dropdown, showing options: "below", "above", and "not between". The right section is titled "STEP 1:" and contains a text area with the text "Name: Lab Freezer 22" and "Description: Tissue". At the bottom of the window are four buttons: "Back", "Next", "Finish", and "Cancel".

# Custom Rules and Conditions Applied to Each Individual Tag

**TEMPERATURE EVENT RULE**

**Step 2 of 3**

**Tag(s)**

Apply Rule to all tags in the system

Apply Rule to specific tag groups

Apply Rule to specific tags

Type in any part of tag's name, serial number or MAC address.  
Press Enter or click Add to confirm your selection.

**Add**

Tag ID	Name

Find Tags by  Name

Serial Number

MAC Address

Optionally, import items from a item list

**None**

**STEP 1:**

Name: Lab Freezer 22  
Description: Tissue  
Creates an event when a tag reports temperature above -10°C

**STEP 2:**

Event rule is active for selected tags in the system

**STEP 3:**

NOTIFY  
-event log

**Back** **Next** **Finish** **Cancel**

# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

- Notifications can be as simple as a pop-up message on a computer screen
- Tag Message lets you send an alert to a T301BD tag



- Other messaging options include delivering alerts to communications systems, cell-phone text messages, VOIP handsets, etc.

A screenshot of the Ekahau Temperature Event Rule configuration interface. The window title is "TEMPERATURE EVENT RULE". It shows "Step 3 of 3" in the configuration process. Under "Action(s)", the "Notify" option is selected. Below this, there are five checkboxes for different notification methods: "By Pop-up Message", "By Tag Blower", "By E-mail", "By Tag Message", and "By Emergen Message", each with a "Configure" button. At the bottom, there is an "Event Log" section with a "Log Message" field containing "Lab Freezer 21". On the right side, there are three "STEP" sections: "STEP 1:" with "Name: Lab Freezer 22" and "Description: Tissue. Created an event when a tag reports temperature above -10°C"; "STEP 2:" with "Event rule is active for selected tags in the system"; and "STEP 3:" with "NOTIFY -event log". At the bottom of the window are "Back", "Finish", and "Cancel" buttons.

# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

- **Setting up alerts to a badge tag is very easy**
- **Type in a message that describes the alert you want to send**
- **This message can be sent to any tag, a group of tags or all badge tags.**
- **After the message delivery is set, save the rule set and the system is active**



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**Tag Message Configuration**

Message:   Instant Message

Send Message to:

Originator tag

All display tags in the system

Display tags in specific tag groups

Specific display tags

Exclude originator tag

Type in any part of tag's name, serial number or MAC address.  
Press Enter or click Add to confirm your selection.

Tag ID	Name

Find Tags by:  Name

Serial Number

MAC Address

Optionally, import items from a item list:

# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

The screenshot displays the Ekahau VISION web interface. The top navigation bar includes 'EKAHAU VISION', 'DESKTOP', and several icons for 'RFID', 'RFID PC', 'EVENTS', 'REPORTS', and 'TAG MANAGEMENT'. The user is logged in as 'admin' and has a 'LOGOUT' button. A 'Customize' button with a help icon is also present.

The main content area features a window titled 'FREEZERS ALL' with 'List' and 'Map' tabs. Below the tabs, it shows 'Items: 2' and an 'Auto refresh list every 10s' checkbox. The data is presented in a table:

Name	Temperature	Temperature Time	Alarm Range	Department	Hospital	Room	Contact #
Lab Freezer 23	22.9 °C	42 s	1 to 27C	Stat Lab	Main Hospital	2-256	123-1234
Bone Freezer	-13.1 °C	2 min					

At the bottom right of the interface, the text reads: 'EKAHAU VISION 1.7.0-RC1 © 2009 Ekahau, Inc.'

# Ekahau Active RFID Asset Tracking and Healthcare Temperature Monitoring Solutions

Name	Temperature	Temperature Time
Roving Networks 77:01:13	17.6 °C	4 min
Roving Networks 77:03:0C	17.5 °C	28 s
Cryo 1	19.1 °C	3 min
Freezer	18.4 °C	2 min

THANK YOU!