User Interface Specification

VDT985

(Project V1601)

Vick's Bluetooth Digital Stick Thermometer

TEM-04030101 Rev 1 Effective Date 30-APR-2009

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1   INTRODUCTION

1.1 Purpose

This document identifies and defines the tactile, visual, and audio interactions with the thermometer device and mobile app of the VDT985 consumer model Vicks Bluetooth Digital Stick Thermometer.

1.2 Scope

Included in this UIS are the definitions of thermometer button functions, audio signals, light signals, user workflows and associated app display interactions for the VDT985 Bluetooth Digital Stick Thermometer.

1.3 References

SOP-05000000 Design Control

PRD-V1601 Product Requirements Document

1.4 Terms and Abbreviations

Term/Abbreviation	Definition
UI	User Interface
S, sec	Seconds

2   RESPONSIBILITIES

Program Manager- Distributes document to cross-functional team, files document in the Design History File and assigns team members for document approval.

3   USER INTERFACE

3.1 Device ID

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O/I Button

Green LED, Red LED

3.2 App ID

App Icons	Meaning
1. 2.	1. Bluetooth enabled indicator 2. Bluetooth NOT enabled indicator
1. 2.	1. Therm connected/paired indicator 2. Therm NOT connected/paired indicator
‹ Back	Back button, brings user to previous screen (located in upper left-hand corner)
(i)	More Info
?	Anonymous measurement. Marks a saved temperature measurement that is saved in history but is not assigned to a profile.
?	Symbol appears next to Bluetooth and thermometer icons in upper right and provides helpful information

4   DEVICE WORKFLOW

4.1 User action with thermometer workflow

EVENT/MODE	USER ACTION	AUDIO	LED
Power ON therm	-User turns On thermometer by pressing the power button (when device is OFF) -User can press once or press and hold. -Unit cannot be turned off for 5 seconds	1 short beep	Solid Green – About 1-2 seconds

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	after power on.		
Therm NOT paired (standby mode)	User only needs to take action for first time paring. Subsequent pairing occurs automatically	none	Blinking red (same as all errors)
1st time paring	1. Thermometer can be ON or OFF 2. User presses and holds down power button (while normal turn on LED sequence displays: green LED followed immediately by red blinking LED) 3. **After exactly 3 seconds,** red blinking light on thermometer will change to STEADY red light. 4. App screen will prompt user to press "CONFIRM STEADY…." Button on app 5. Screen will show "Connecting" 6. When pairing has successfully completed, the thermometer's green LED appears solid, and the therm is ready to use.	none.	When user presses and holds power button normal turn on LED sequence occurs: solid green LED followed immediately by red blinking LED to indicate not paired status) Therm will change from blinking red to STEADY red after **exactly 3 seconds.** After user confirms STEADY red LED by pushing app button,, LED will change to GREEN.
Therm IS paired (standby mode)	None. (Therm is ready to take a measurement and communicate with app.)	none	Solid Green
Initiate Measurement	-User opens app and goes through take temp sequence on app.	none	Same as standby —Solid Green (if paired) or Blinking Red (if not paired)
Measurement in progress	-User should keep therm inserted until measurement completes. -User will see temp increasing on the app screen. -Power button is locked (therm cannot be powered off) until measurement completes	none	Blinking Green
Measurement Completes (no errors)	User can remove thermometer and read temperature on app screen	1 long beep	Back to standby —Solid Green (if paired) or Blinking Red (if not paired)

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Measurement Error Ambient Error Hi/Lo Temp Error System Error	Error message will appear on app screen (See below for specific error message app screens.)	2 quick beeps repeated 5x (same as V966)	Steady RED appears on thermometer until Take temp button is pressed or user navigates away from error screen
10% & 20% Low Therm Battery	Low battery warning displays on app screen only.	none	none
Less than 2.2 V Battery	Dead battery warning displays on app screen only.	2 quick beeps repeated 5x (same as V966)	Steady red
Power OFF therm	-User presses power button (when device is ON, but not actively taking a measurement) -**Cannot be powered off within 5secs of power on- do we still want this?**	1 short beep	LED off
Therm auto powers OFF	Device powers OFF automatically after 2mins of continuous standby	1 short beep	LED off

Short beep ~0.5sec

Long beep ~2 sec

5   APP WORKFLOW

5.1 First Time App Launch: Terms, Privacy, & App Tour

The following screen sequence illustrates the first time the app is opened after being downloaded. User is prompted to accept privacy policy, take tour and pair thermometer.

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5.2 TOUR:

If user selects TAKE TOUR from opening sequence, below app screens appear.
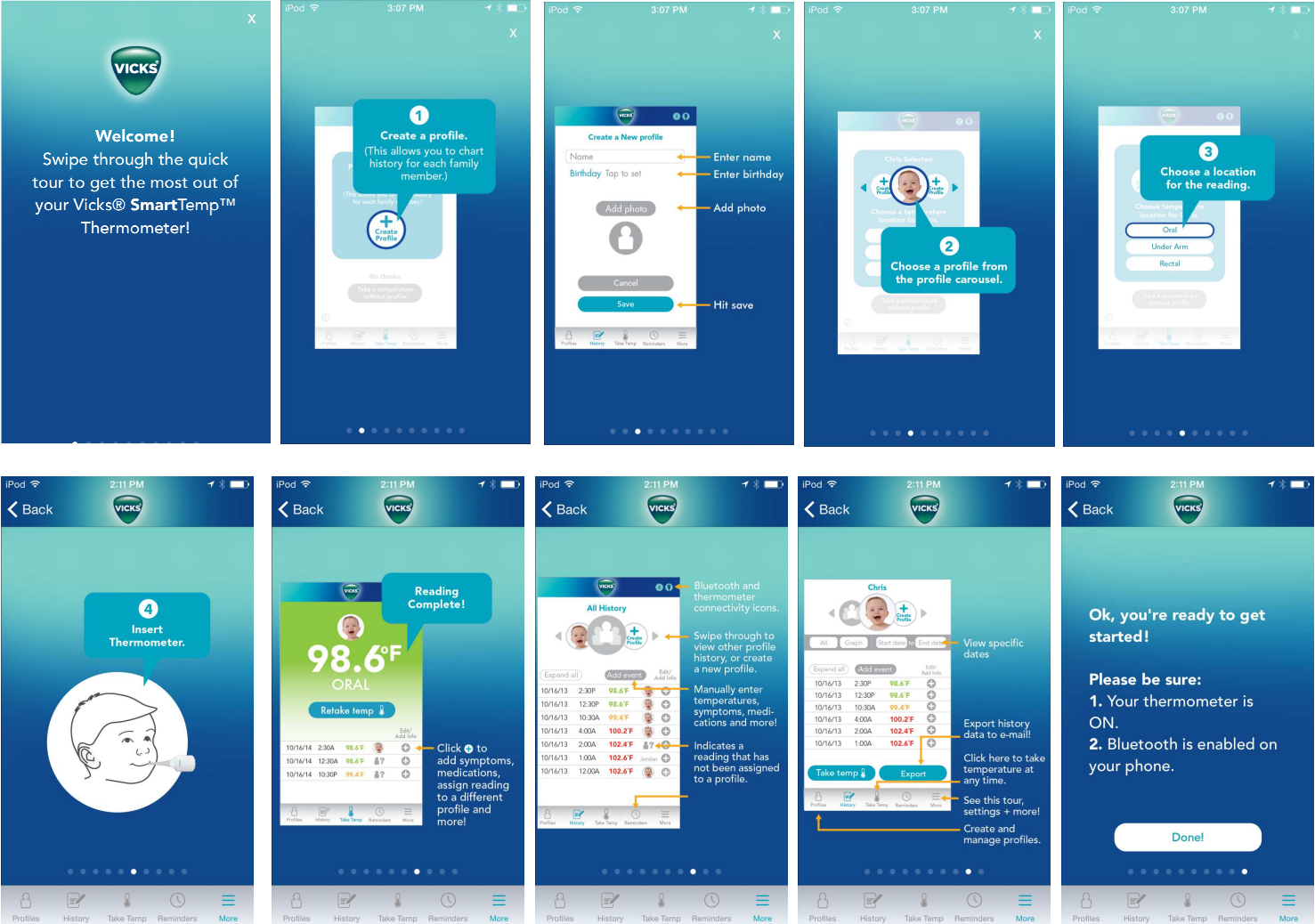
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5.3 First Time Pairing
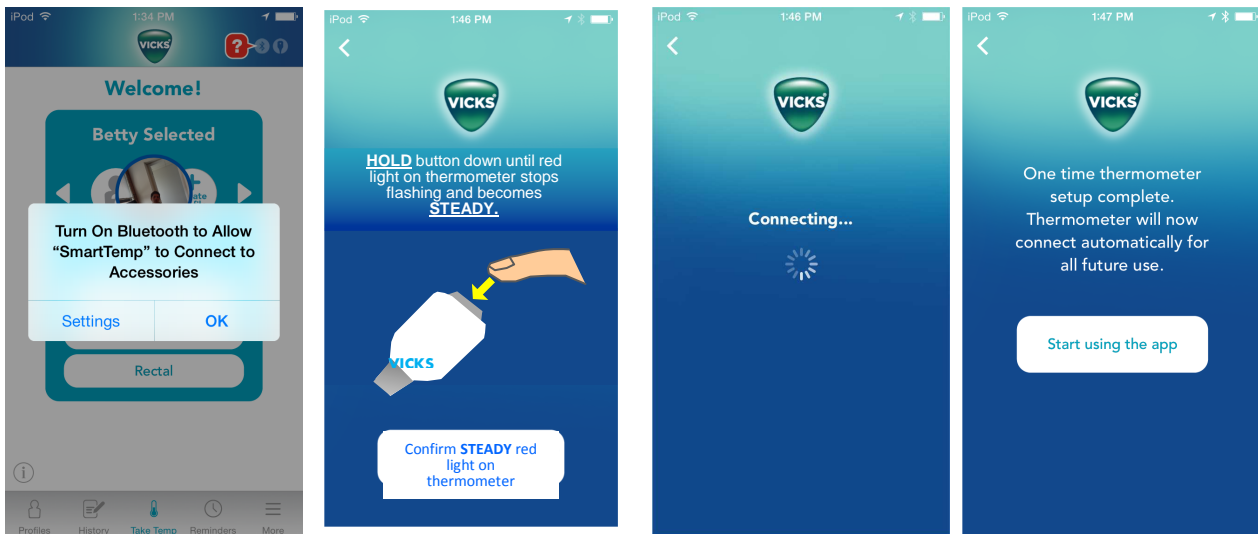
Bluetooth should be "ON" in phone, if not pop up will appear. User must go to phone settings to turn on Bluetooth. When BT is on, the App will prompt to pair thermometer with APP by HOLDing temp button until steady red light, then confirm red light by pressing app button and then therm will connect to app and user can begin to take measurements.

After the first time use and thermometer has been paired, when the app is launched it will bring you directly to the Home screen (see below) after the splash page, skipping the rest of the first-time-use screens.

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5.4 Home Screen (Take Temp)

Fig 1   Fig 2   Fig 3

Upon initial launch, App will prompt user to create profile in the profile carousel. It they want to take measurement without a profile, thet can choose to take a temperature without a profile. The measurement will appear in ALL HISTORY screen as an unassigned reading. 1st fig- shows HOME screen upon launch, 2nd fig, HOME screenone profile created, 3rd fig-HOME screen 2 profiles created) Icon with question mark is "no profile selected."
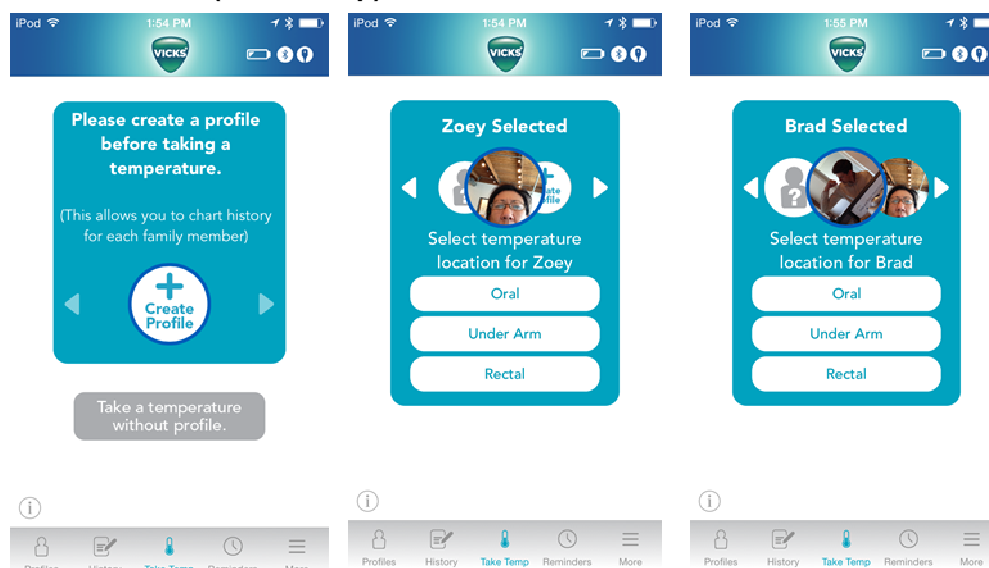
When a user presses on any of the bottom bar icons (Profiles, History, Reminders, & More) the user will be brought to that section of the app. See the relevant sections below for details. (5.6 Profiles, 5.7 History, 5.8 Reminders, 5.9 More Menu)

The "Take Temp" icon in the bottom bar will always take users to the home page as shown above.

The App prompts the user to create profile FIRST so that measurements can be logged against created profiles ot patients.
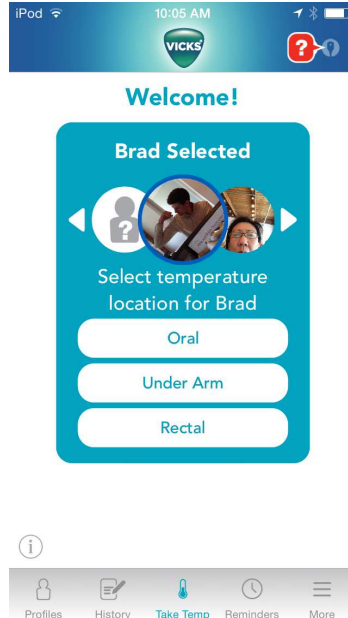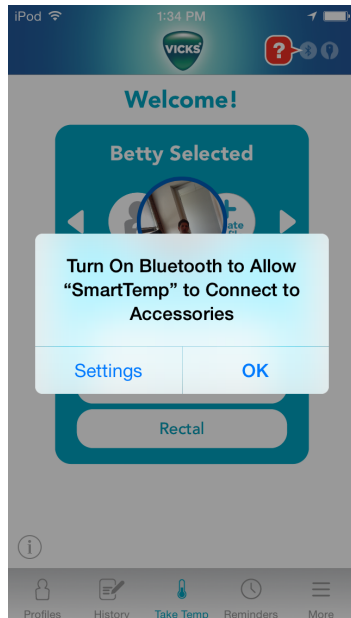
5.5 Taking a Measurement

5.5.1 Enabling Bluetooth and Selecting Profile

If the APP is reopened after being closed, it will first make sure BT is enabled on the phone and then proceed to home screen. If BT is not enabled screen below will appear. User will

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enable Bluetooth on PHONE settings. User selects profile by using arrows to rotate carousel.
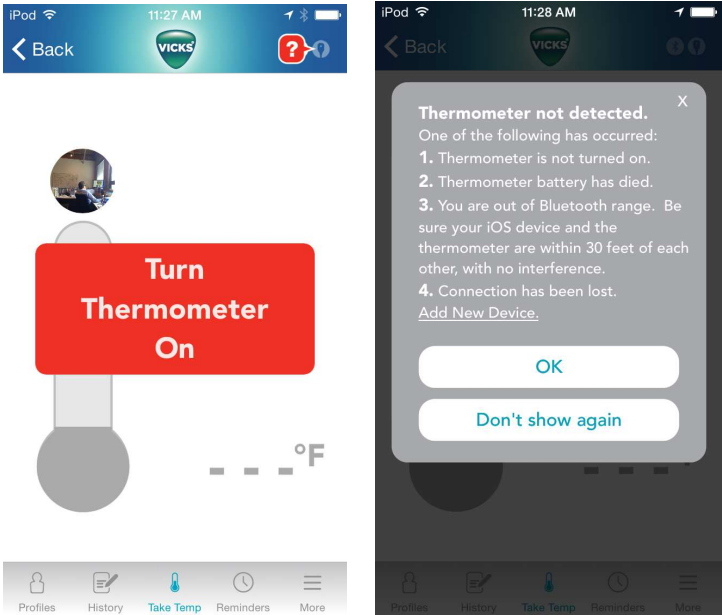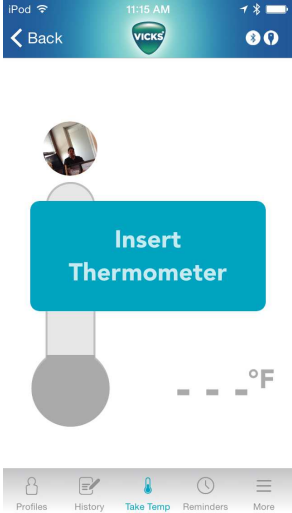
5.5.2 Bluetooth and Thermometer status -Sequence to take Measurement

Conditions at start of measurement (in order of hierarchy)…
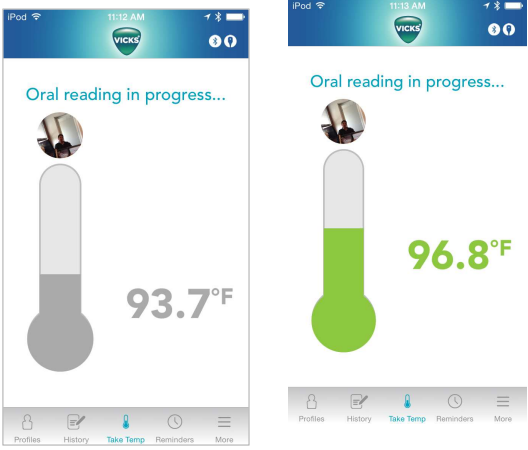
• If Bluetooth is not turned on when trying to take a measurement the app will provide a prompt to Enable Bluetooth. (if user ignores prompt on 6.1 and presses OK, but does not change phone setting.) • The Bluetooth status icon in the upper right corner will be grayed out indicating that the phone's Bluetooth is not enabled. • If the user presses the red question bubble pop-up next to the grayed out icon a window will pop-up detailing the problem.	

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- If the thermometer is off or the app does not detect the thermometer, the app will display the "Turn Thermometer On" prompt when trying to take a measurement.

- The grayed out Thermometer status icon in the upper right corner, indicates that the thermometer is not connected.

- If the user presses the red question bubble pop-up next to the grayed out icon a window will pop-up detailing the problem.1. no power, battery is dead, out of range, or device has lost pairing click on Add New Device

- If the thermometer is ON and paired with the app, but not inserted when the measurement starts the app will display the "Insert Thermometer" prompt

- (uses same animation as the Turn on Thermometer prompt)

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- If the thermometer is ON and paired and inserted properly the user will see the "Reading in progress" screen
- This screen shows an active animation of the real time temperature being measured (displays increasing highest temperature)

Full Measurement sequence
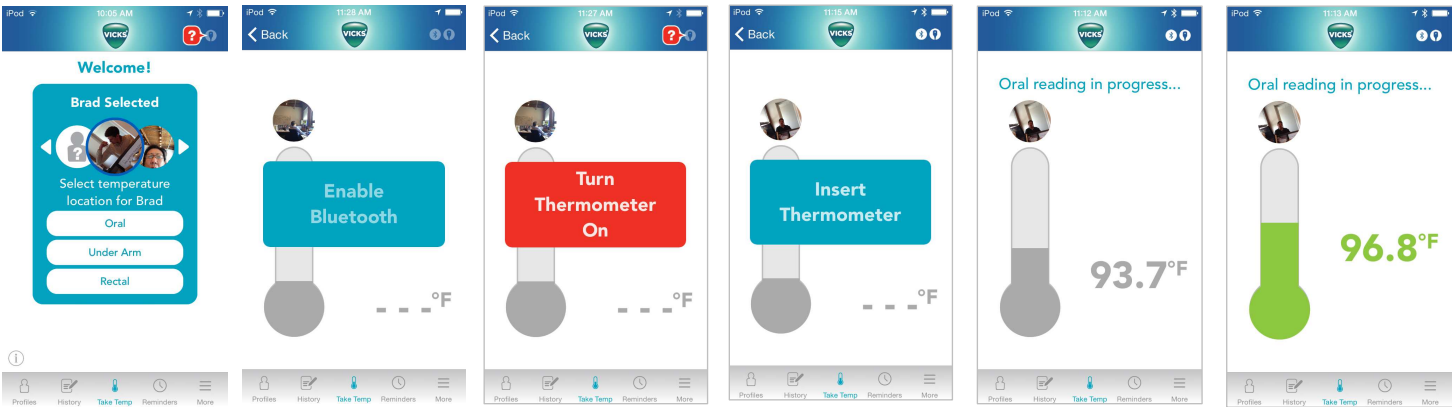
5.5.3 Measurement complete

Measurement will appear in color relating to Fever Reference Chart. Profile, location and last 3 measurements of that profile will be displayed.

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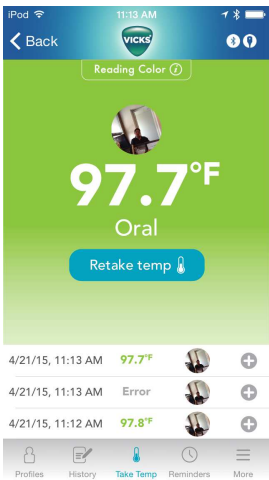
5.6 Profiles

User can create Profile from the Home screen by pressing the CREATE PROFILE button on the Carousel. They can also create profiles by pressing the profiles button on the bottom tab. When they press "create profile" the "Create a new profile" screen appears.

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5.7 History

- Users can select to see ALL history or a date range of the history.

- The History will always default to display in List view (as seen above). By clicking on "List/Graph" button, you can switch from viewing in List format or viewing in Graph format (as seen below).

- The blue "Take temp" button goes to the "Home" screen (same as the Take Temp icon in the bottom gray bar)

- The blue "Export" button allows user to send their data to an external source via email. (See "Export data" section for more details)

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5.7.1 Add Manual Event

When user touches "Add Event" button on the History screen, they will be brought to the following screen, where they can manually enter the appropriate information for a temperature that may not have been taken with the VDT985. App will prompt for location if temperature is input.

If user enters a temperature, the word "location" should blink next.
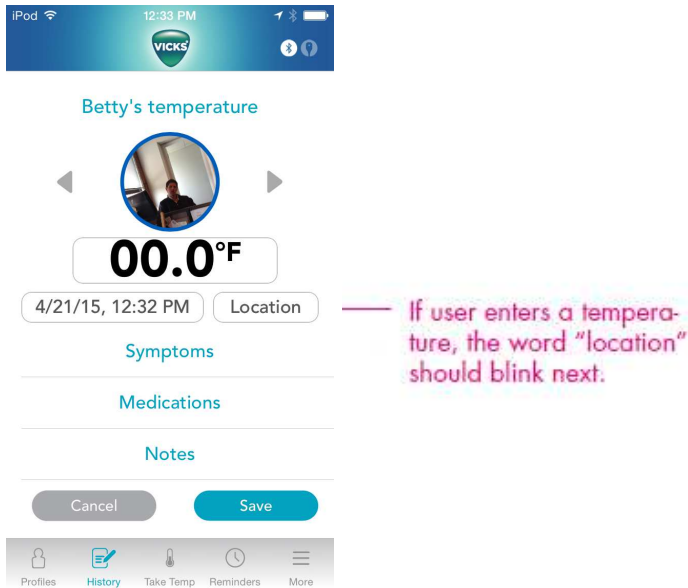
5.7.2 Edit a Measurement

When user touches "Edit/Add Info" next to reading on history screen, user can add, save, delete information or change the profile that the measurement was initially assigned to.
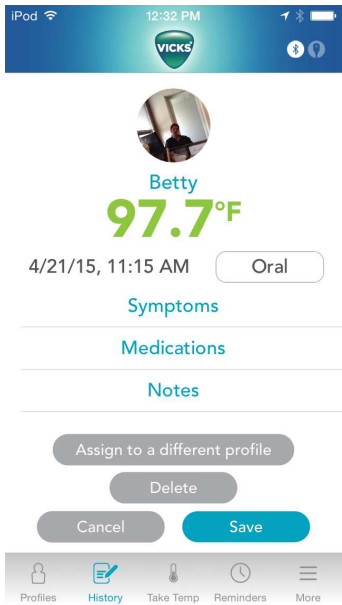
5.7.3 Exporting Data

When user touches "Export" button on the History screen, they will be brought to the following screen, where she can select history range and export format and where to export information to.
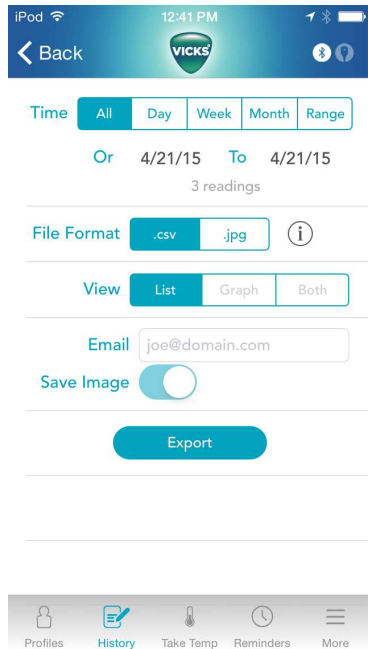
5.8 Reminders

When user touches "Reminder" tab on bottom of Home screen, they will be brought to the Reminder screen. User can create reminders that will be "pushed" to the phone and appear a on phone home screen.
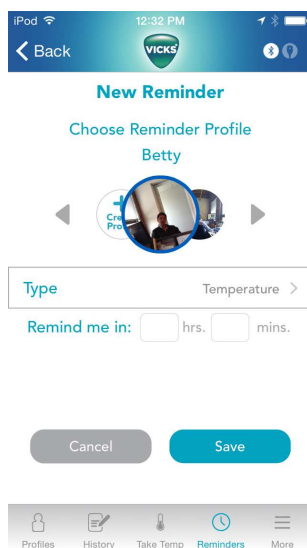
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5.9 "More Menu" functions
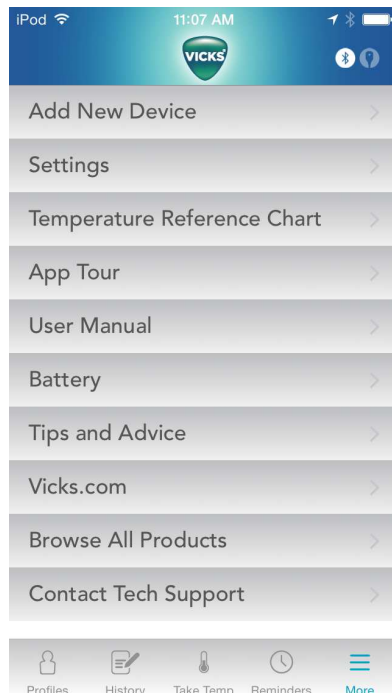
5.9.1 Add new device

Will enable user to pair or repair thermometers to the app. Will revert to First Time Pairing sequence. See section 5.3.

5.9.2 Settings (switch C/F)

Allows you to switch the displayed temperatures between Celsius and Fahrenheit

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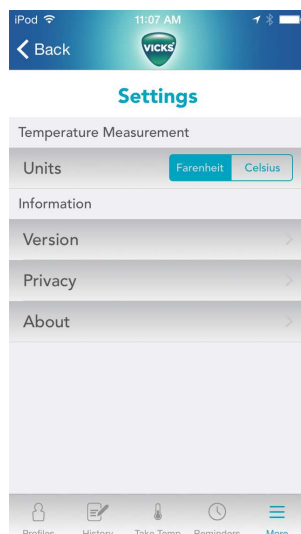
5.9.3   Temperature Reference Chart

Will show below fever reference chart:
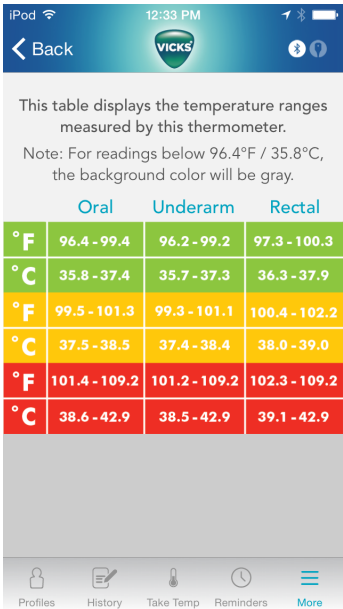
5.9.4   App Tour

Will launch tour. Go to section 5.2

5.9.5   User Manual

This tab will take you to the online Owner's Manual. The content below will appear in this version of the Owner's Manual.
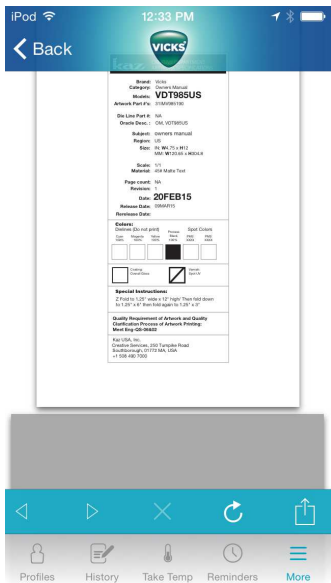
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5.9.5.1 FCC Identification Number

<u>FCC ID: 2ABRGVDT985</u>

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

5.9.5.2 FCC Warning

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

5.9.5.3 FCC Statement

<u>NOTE:</u> This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- □ Reorient or relocate the receiving antenna.
- □ Increase the separation between the equipment and receiver.
- □ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- □ Consult the dealer or an experienced radio/TV technician for help**.**

5.9.6 Battery

Will enable user to pair or repair thermometers to the app.
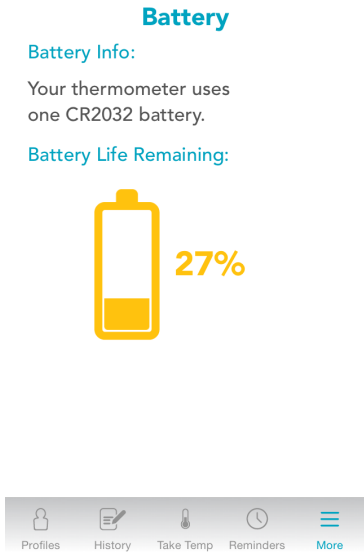
5.9.7 Tips and Advice

Will take user to this webpage:

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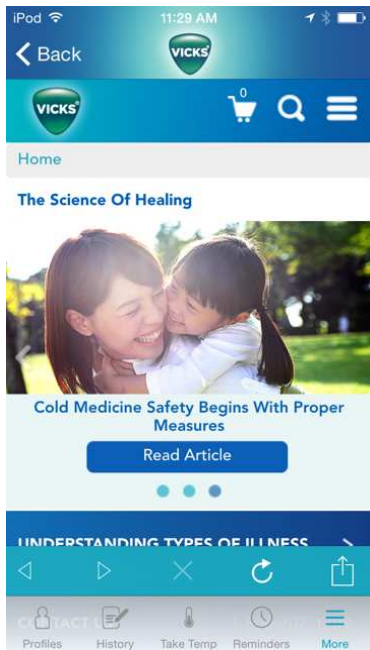
5.9.8 Vicks. Com

Will take user to this webpage:
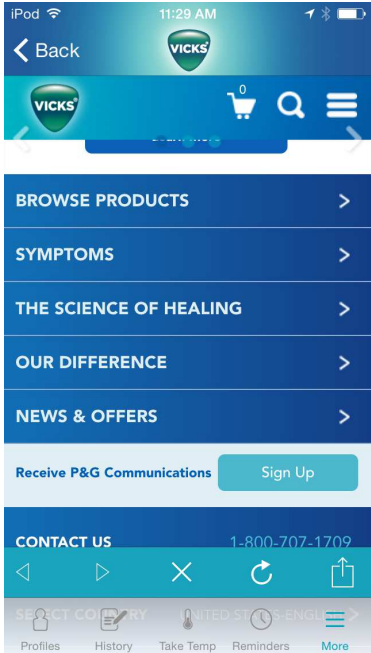
5.9.9 Browse All Products

Will take user to this webpage:

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5.9.10 Contact Tech Support

Will direct users to http://www.vickshumidifiers.com/support

5.10 LOW BATTERY INDICATOR

When battery has 10% life left, App screen will display: "*WARNING! Thermometer has 20% battery life remaining. Please replace with CR2032 battery.*"

When battery has less than 2.2.V, App screen will display: "*REPLACE BATTERY! Thermometer battery has run out. Please replace with CR2032 battery.*"
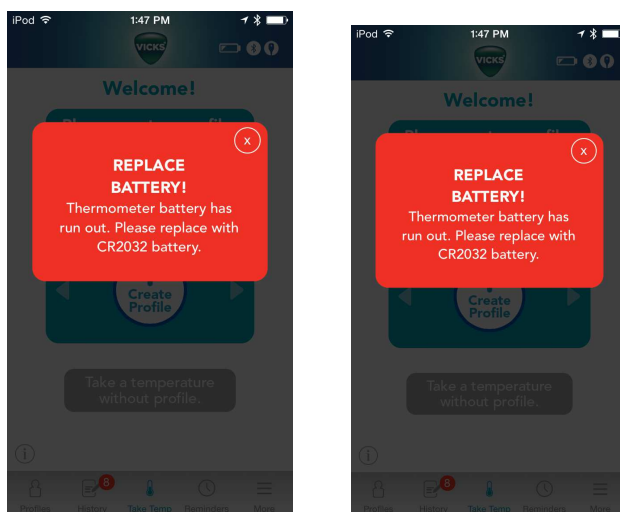
5.11 ERROR MESSAGES

When measured temperature is higher than 42.9°C or 109.22, the App will display "*INVALID MEASUREMENT Please remove thermometer for 8 seconds and reinsert to start another measurement.*"

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5.11.1 Low temperature display

When measured temperature is below 89.6F or 32C App will display:

"INVALID MEASUREMENT   Please remove thermometer for 8 seconds and reinsert to start another measurement."

5.11.2 Ambient Error

When ambient temperature is *BELOW 50F or 10C,* the App will display: *"ENVIRONMENT TOO COLD. Please move to a warmer temperature for 15 minutes and try again."*

Pop up appears when ambient temperature is BELOW 50F (10C)

Pop up appears when thermometer reading is ABOVE 104F (40C)

#5a

#5b

When ambient temperature is *ABOVE 104F or 40C,* the App will display: *"ENVIRONMENT TOO HOT. Please move to a warmer temperature for 15 minutes and try again."*

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If ambient temperature is in the same range as human temperature (89-108F) AND thermometer has not detected insertion or removal (temp change) within 20 seconds, App will display button *screen below.* User presses button to initiate thermometer to take reading. (Scenario- if ambient temperature is exactly same as human body measured temperature, thermometer will not know when to take a reading.))

If ambient temperature is in the same range as human temperature (89-108F) **AND** thermometer has not detected insertion or removal (temp change) **within 20 seconds**, pop up appears. User presses button to initiate thermometer to take reading. *(Scenario- for audit purposes, if ambient temperature is exactly same as human body measured temperature, thermometer will not know when to take a reading.)*

#8
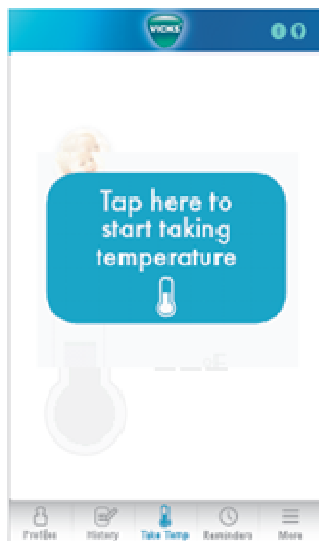
5.11.3 System Error

When a system error occurs such as a short or broken circuit, the app displays
"Please call customer service at 1-800-477-0457" (Clickable- to dial out.)

Pop up appears when thermometer
has critical system malfunction like
circuit error

#6
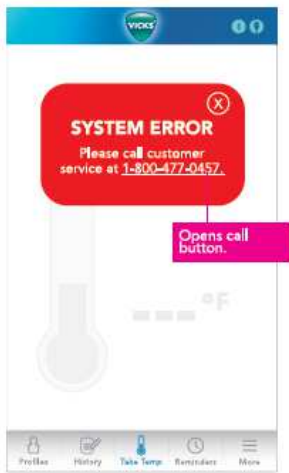
5.11.4 Premature Removal of Thermometer

If user removes thermometer before measurement is complete, App will display…"Error.
Please reinsert thermometer and wait for confirmation beep."

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5.11.5 Remove Thermometer Error

If a reading has already been completed AND the thermometer has not detected insertion or removal of thermometer (temp change), the App displays: "*REMOVE THERMOMETER Please remove thermometer for 8 seconds and reinsert to start another measurement.*" (Scenario-If user tries to take another temperature right after a measurement, but doesn't remove thermometer

5.12 Enter Water bath/Calibration mode

JIM/DANIEL TO INPUT

6   INSIGHT TABLES (PROGRAMMED INTO THE APP)

For all of the following tables:

Temperatures below the "No color" range or above the "Red" range will not display a temperature value, and instead will show an error message on the app. The device will also display the red blinking error LED and beeps.

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6.1 US app Insight colors -No AgeSmart

Site	Scale	No Color (but temp displays)		Green (Healthy Temperature)		Yellow (Slightly Elevated)		Red (Elevated)	
Oral	°F							1.3	≤109.2
	°C							.5	≤42.9
Under Arm	°F	≥89.6	≤96.1	>96.1	≤99.2	>99.2	≤101.1	>101.1	≤109.2
	°C	≥32.0	≤35.6	>35.6	≤37.3	>37.3	≤38.4	>38.4	≤42.9
Rectal	°F	≥89.6	≤97.2	>97.2	≤100.3	>100.3	≤102.2	>102.2	≤109.2
	°C	≥32.0	≤36.2	>36.2	≤37.9	>37.9	≤39.0	>39.0	≤42.9

(JIM/DANIEL TO CHECK)

6.2 EMEA and CA app Insight colors –With AgeSmart

Site	Age Range	No Color (but temp displays)	Green (Healthy Temperature)	Yellow (Slightly Elevated)	Red (Elevated)
Oral	≤ 3 months	<96.4°F **or** <35.8°C	≥96.4°F **or** ≥35.8°C ≤99.4°F **or** ≤37.4°C	N/A	>99.4°F **or** >37.4°C
	>3 months ≤ 36 mont	<95.7°F **or** <35.4°C	≥95.7°F **or** ≥35.4°C ≤99.6°F **or**	>99.6°F **or** >37.6°C ≤101.3°F **or**	>101.3°F **or** >38.5°C
	>36 months	<95.7°F **or** <35.4°C	≥35.4°C ≤99.9°F **or** ≤ 37.7°C	37.7°C ≤103.0°F **or** ≤39.4°C	>103.0°F **or** >39.4°C

(JIM/DANIEL TO CHECK)

Site	Age Range	No Color (but temp displays)	Green (Healthy Temperature)	Yellow (Slightly Elevated)	Red (Elevated)

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Underarm	≤ 3 months	<96.2°F **or** <35.7°C	≥96.2°F **or** ≥35.7°C ≤99.2°F **or** ≤37.3°C	N/A	>99.2°F **or** >37.3°C
	>3 months ≤ 36 months	<95.5°F **or** <35.3°C	≥95.5°F **or** ≥35.3°C ≤99.4°F **or** ≤37.4°C	>99.4°F **or** >37.4°C ≤101.1°F **or** ≤38.4°C	>101.1°F **or** >38.4°C
	>36 months	<95.6°F **or** <35.3°C	≥95.6°F **or** ≥35.3°C ≤99.4°F **or** ≤ 37.4°C	>99.4°F **or** >37.4°C ≤102.9°F **or** ≤ 39.4°C	>102.9°F **or** >39.4°C

Site	Age Range	No Color (but temp displays)	Green (Healthy Temperature)	Yellow (Slightly Elevated)	Red (Elevated)
Rectal	≤ 3 months	<97.3°F **or** <36.3°C	≥97.3°F **or** ≥36.3°C ≤100.3°F **or**	N/A	>100.3°F **or** >37.9°C
	>3 months ≤ 36 months	<96.6°F **or** <35.9°C	≥96.6°F **or** ≥35.9°C ≤100.5°F **or** ≤38.1°C	>100.5°F **or** >38.1°C ≤102.2°F **or** ≤39.0°C	>102.2°F **or** >39.0°C
	>36 months	<96.6°F **or** <35.9°C	≥96.6°F **or** ≥35.9°C ≤100.8°F **or** ≤ 38.2°C	>100.8°F **or** > 38.2°C ≤103.9°F **or** ≤ 39.9°C	>103.9°F **or** >39.9°C

JIM/DANIEL TO CHECK

7 DOCUMENT INFORMATION AND APPROVAL

7.1 Revision History

Old Rev	New Rev	Date	Originator/ Author	Change Description
-	A	7/25/2014	Katie Sofia	Initial Release
	2	2-13-2015	Zoey Juhng	

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3	2_13_2015	Zoey Juhng	
4	4_21_15	Zoey Juhng	
6	4_28_15	Zoey Juhng	
7	4_29-15	Zoey Juhng	

7.2 Approval

7.3 Effective date:

Approval signatures are filed at Document Control

Function	Name	Signature	Date
Program Management	Daniel Lawton		
Industrial Design	Zoey Juhng		
Marketing (US)	Lynne Hammell		
Marketing (Canada)	Bhawna Sharma		
Marketing (EMEA)	Julien Charriere		
Research and Development (PE)	Gary Hu		
Operations (Microlife)	Willis Chan		
Regulatory?	Raj K		
Quality?	Billy Li		

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