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Subject	User Manual to external lab TUV	Doc No		
Author	Eunice Law	Created	15 th Dec, 2017	
CC	Michael, DY, KK Ma	Status	Initial Release	

VizComm View TempTale GEO Eagle 3G US

Real Time Tracking Temperature Monitor

User Manual Rev.0

Rev No	Revision Details	By	Date
0	Initial Release	Eunice Law	15-Dec-2017

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Operating Description

Temp Tale GEO Eagle 3G (US) is real-time tracking device to monitor health of perishable goods product during transit period inside container truck or sea onboard ocean containers. The tracking device reports remotely its temperature history and location information in periodic intervals to a remote server.

The device are consist of temperature sensor, light sensor, status LED's, 2push button switches, battery level sensor, non-volatile storage EEPROM memory and 3G modem module for internet connectivity to transmit data (no voice application required).

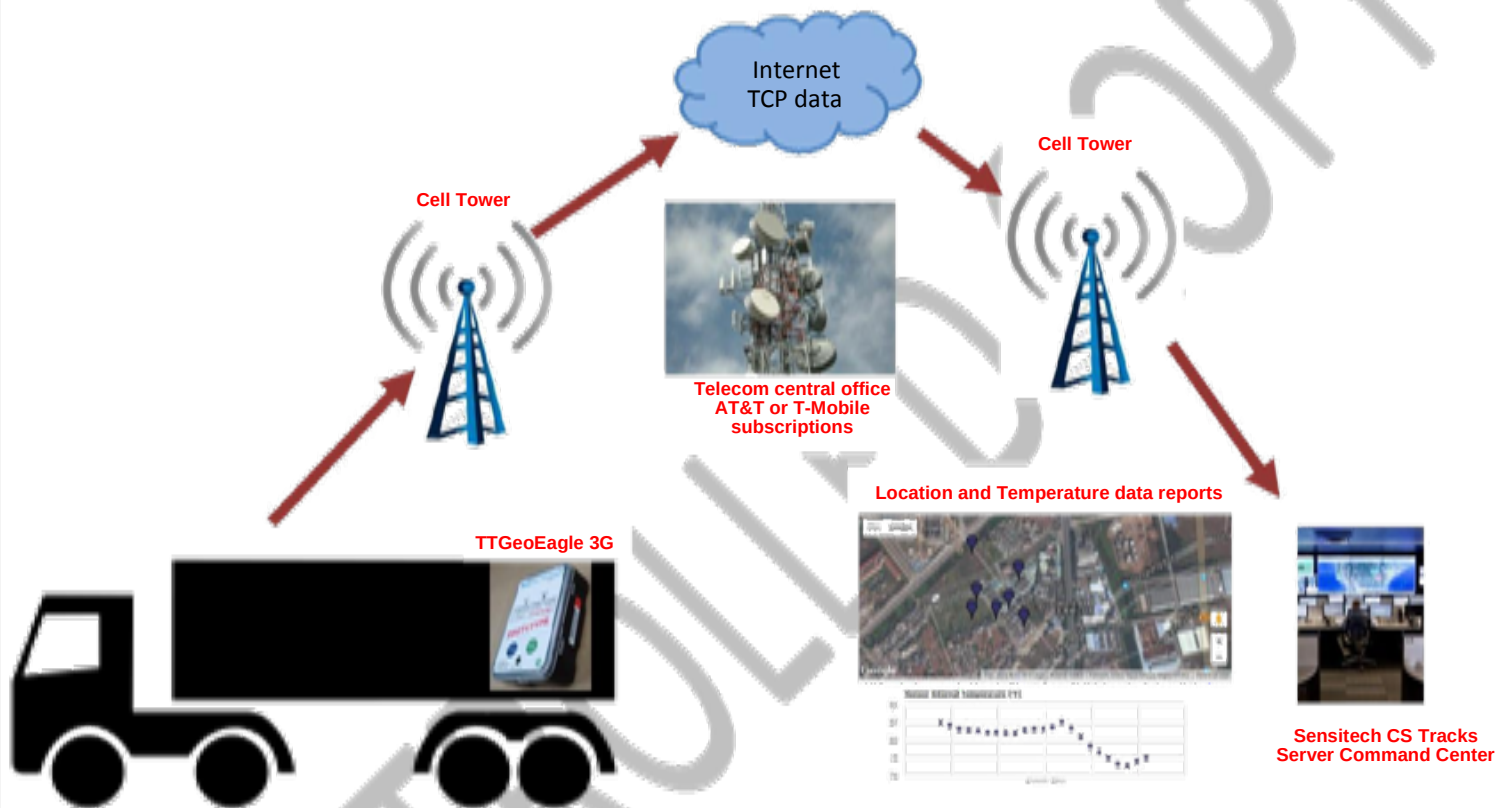
The application of cellular data transmission is active only when the device is within land geographical areas with cellular towers. For ocean container condition, the tracking device shall set to a timer mode with disabled cellular data transmission and device goes to sleep mode, while the temperature recording is still active that wakes up in a specific time intervals to record temperature data w/o cellular data transmission.

It was envisioned that this product will be used in a variety of transport situations, varying from short parcel delivery trips. The rate at which the devices logs and reports data will be variable in order to allow usage flexibility of battery and memory consumption to accommodate different trip durations, but the following use cases were defined in some transportation scenarios in the table below.

	OTR	Temperature Recording Intervals	Tower Reporting Intervals	Temperature range
Food st	7 days	15mins	15mins	- 20 to +85 °C ± 0.5C
	17 days	15mins	30mins	
	26 days	15mins	60mins	
Frozen Food customers	7 days	15mins	15mins	- 30 to +85 °C ± 0.5C
	17 days	15mins	30mins	
	26 days	15mins	60mins	
Ocean container	90 days	60mins	60mins	- 20 to +85 °C ± 0.5C

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Below illustration is an activated real-time tracking device inside a container truck transporting food stuffs in various domestic areas.



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Applicant Information

Applicant Information

Company Name: SENSITECH Inc.

Address: 800 Cumming Center, Beverly MA, USA

Manufacturer Information

Company Name: SENSITECH Inc.

Address: 800 Cumming Center, Beverly MA, USA

Importer Information

Company Name: XXXXXXXXXXXXX

Address: XXXXXXXXXXXXXXXXXXXXX

Product General Description

- **Product Name**
 - VizComm View TempTale Geo Eagle 3G US
- **Model Name**
 - T11012700
- **Operating Voltage:**
 - Extreme Low: 4.8V
 - Typical: 6V
 - Extreme High: 7.5V
- **Operating Temperature:**
 - Extreme Low: -30°C
 - Typical: 25°C
 - Extreme High: +55°C

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- **Frequency of oscillator**
 - External RTC: 32.768kHz
 - Internal system clock (On-Chip-Osc) 32MHz
- **Type of Antenna**
 - PCB Trace antenna
- **Modem Module**
 - Quectel UC15-A
 - Manufacturer P/N: UC15AA-128-NCH-STD
- **Antenna frequency**
 - UMTS850
 - UMTS1900
- **Modem FCC ID**
 - SRMT11012700
- **Modem IC**
 - 10224A-201410UC15

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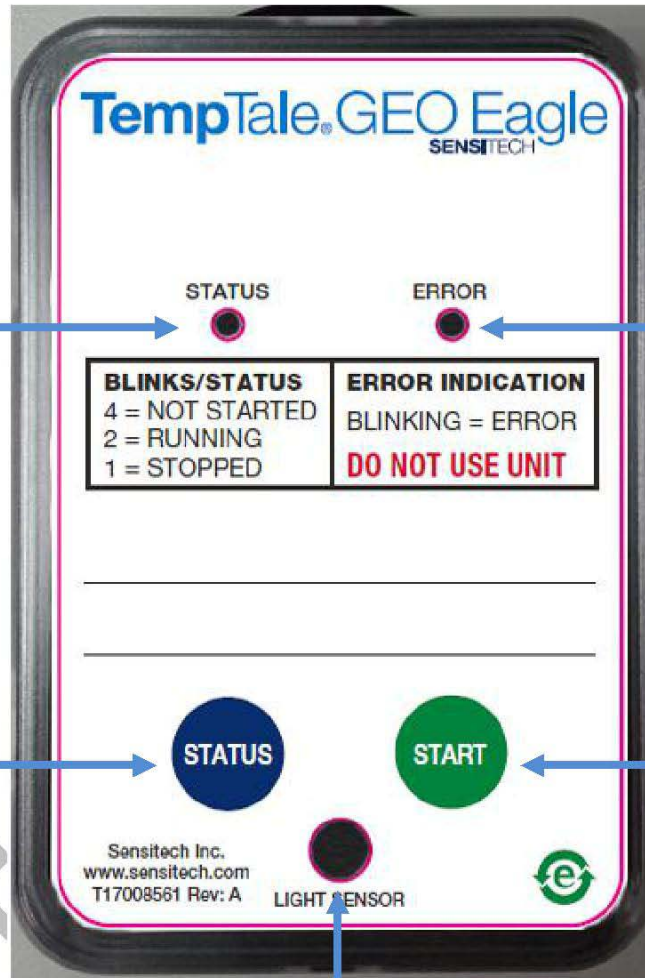
User Interface

Green LED:

- Mode status
 - 16 blinks – Un-configured device
 - 8 blinks – Start-up delay Mode
 - 4 blinks – Sleep Mode
 - 2 blinks – Run Mode
 - 1 blink – Stop Mode
- Self-Test rapid blinking approx. 30s
- Transmit Busy 5s blinking interval for less than 2mins.

Status Button:

When pressed will activate status LED.



Light Sensor peephole:

Light status will be checked 30s sampling interval. Response is unnoticeable to user.

Red LED:

Error LED blinks when it comes true into 3 conditions:

1. Low Battery
2. No SIM card
3. Modem failed in self-test

Start/Stop Button:

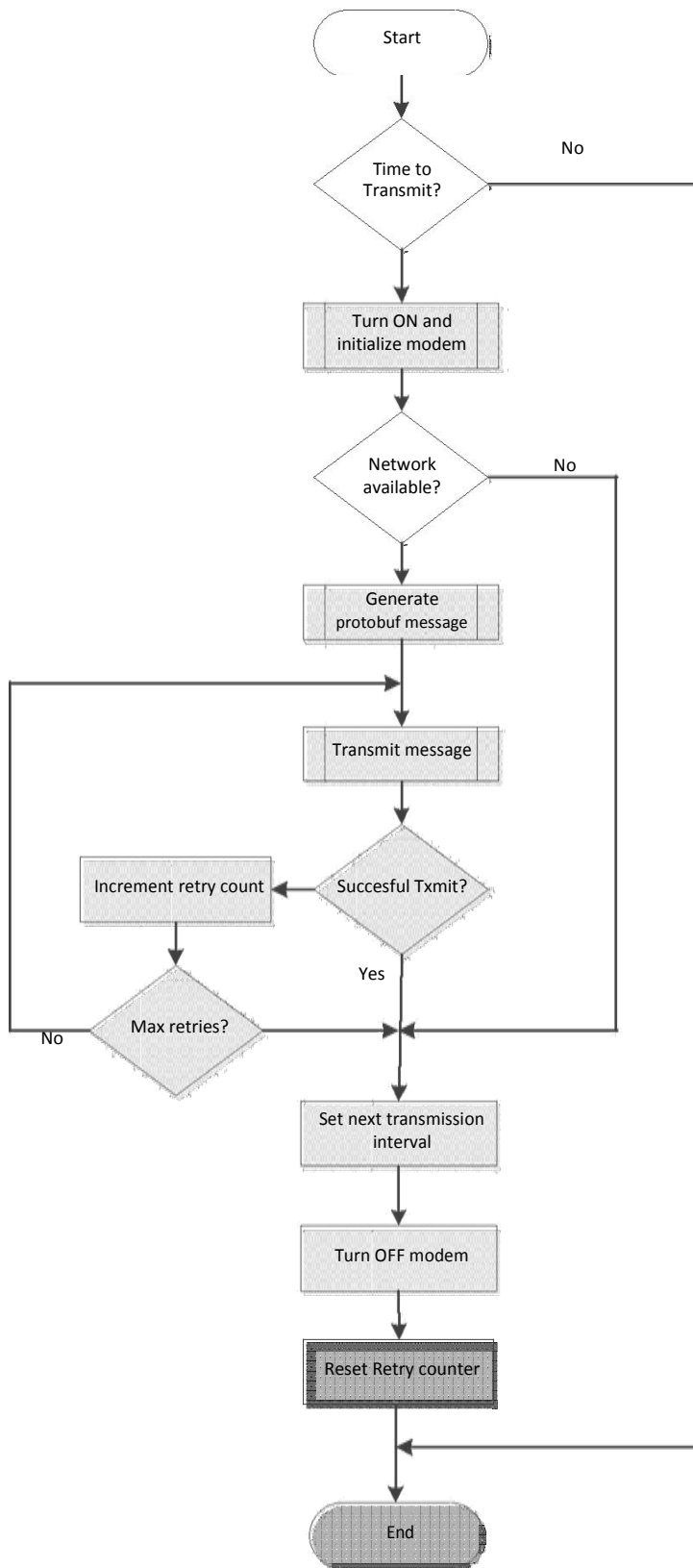
Starting the device:

1. If device is not started, pressed START button will activate device immediately if Start Key option is disabled.
2. If device is not started, pressed hold START button for 3s will activate device if Start Key option is enabled.

Stopping the device:

1. If device had been started, pressed START button will de-activate device immediately if Stop Key option is enabled.
2. If device had been started, pressed hold START button for 5s will de-activate device if Stop Key delay option is enabled.

Sugarloaf Modem Manager



Each Protobuf message should contain the following:

- A. Device Identifier (1=Monadnock, 2=Greylock, 3=Sugarloaf)
- B. Header
 - a. Protocol Version
 - b. Message Number
 - c. Message Type
 - d. Message Time stamp
- C. Device Message
 - a. Device Information:
 - i. Firmware Revision
 - ii. Hardware Revision
 - iii. Hardware ID
 - iv. ICCID
 - v. MSISDN
 - b. Device Status:
 - i. RSSI value (dBm * -1)
 - c. Cell Information
 - i. Cell Info Timestamp
 - ii. 0 - 6 Cell Sector information. Each sector should have:
 - 1) MCC
 - 2) MNC
 - 3) LAC
 - 4) CID
 - 5) Signal (dBm * -1)
 - d. Sensor Samples
 - i. 0 - TBD battery samples. Each sample should have:
 - 1) Timestamp
 - 2) Value
 - ii. 0 - TBD light samples. Each sample should have:
 - 1) Timestamp
 - 2) Value
 - iii. 0 - TBD temperature samples. Each sample should have:
 - 1) Timestamp
 - 2) Value

Protobuf Message Sequence after entering RUN mode:

1. Check In message
 - Should be the first message sent.
2. Run Mode Start message
 - Should be generated when device is started.
 - Timestamp should be the same as start time.
 - Should be transmitted immediately after Check In message.
3. Sensor message
 - Should be transmitted at the start of each transmit interval if temperature sample is available.
4. Stop Mode/End of Trip message
 - Should be generated when the device stopped because:
 - a. Memory is full,
 - b. Trip length was met, OR
 - c. User pressed the STOP button for 3 seconds
 - Timestamp should be the same as stop time.
 - Should not contain temperature samples.
 - Should be transmitted after all pending messages have been sent.

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RF Specifications

Note: mentioned specifications are in the Quectel's UC15A 3G module as reference

1.1. Operating Frequencies

Dual-band UMTS operating frequencies 850/1900MHz

Band	Frequencies	Region	Receive	Transmit	ARCHN
UMTS	850MHz	US,NA	869–894MHz	824–849MHz	128–251
UMTS	1900MHz	US,NA	1930–1990MHz	1850–1910MHz	512–810

1.2. Antenna Requirement

Type	Requirements
Frequency Range	● UMTS850MHz/UMTS1900MHz
VSWR	≤2
Max Input Power	50W
Input Impedance	50Ω
Polarization	Vertical

1.3. TRP Requirements

Frequency	Min
UMTS850	+25dBm
UMTS1900	+25dBm

1.4. TIS Requirements

Frequency	Min Receive Sensitivity
UMTS850	<−107dBm
UMTS1900	<−107dBm

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1.5. Module Conducted RF Power

Frequency	Max	Min
UMTS850	+24dBm	-56dBm
UMTS1900	+24dBm	-56dBm

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FCC Warning

FCC Statements:

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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or 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 technician for help.

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.

MODIFICATION: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the device.

IC Statements:

-English:

This device complies with Industry Canada RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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

-French:

Le présent appareil est conforme aux CNR d'Industrie Canada applicable aux appareils radio
Exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

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2. Safety Warning

2.1. Battery Warning Label

- Risk of explosion if battery is replaced by an incorrect type
- Dispose of used batteries according to the instructions
- Use only the types of the batteries which are indicated in this manual



2.2. Safety Use Distance

- 7-10 meters

2.3. Antenna Safety Use Distance

To comply with FCC/IC/CE RF exposure limits for general population / uncontrolled exposure, under normal use conditions, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 31 cm from all persons