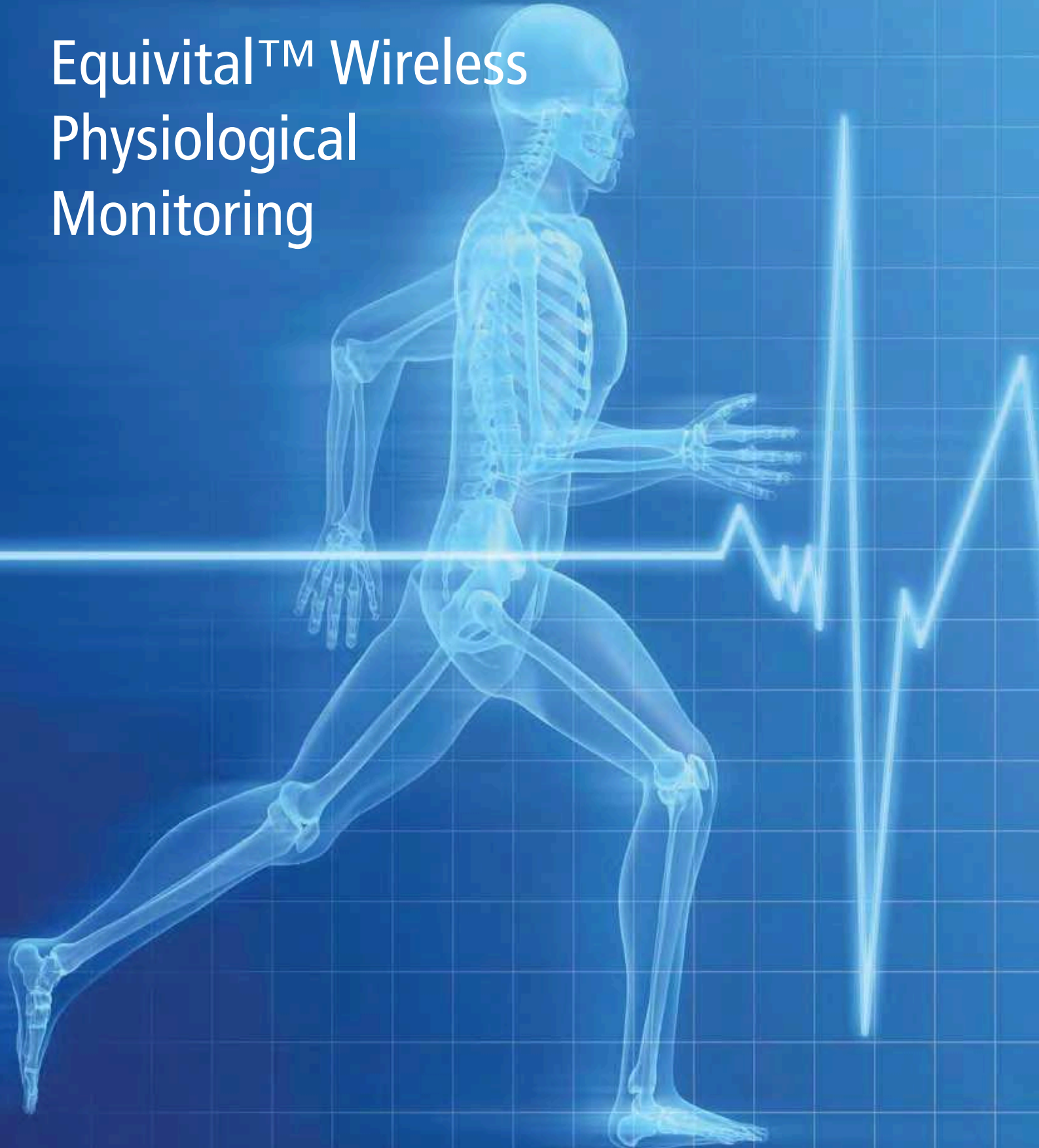




# Equivital™ Wireless Physiological Monitoring



Physiological Monitoring Solutions for Field and Laboratory  
Based Human Performance Research



# Physiological Monitoring Solutions for Effective Human Performance Research

## Equivital™ - Advanced Physiological Monitoring

The Equivital System is a complete human physiological monitoring platform, suitable for both laboratory based and field research. Incorporating proprietary, patented algorithms, the system delivers noise-free, live physiological data suitable for review by medical personnel. This cutting edge technology combines the measurement of human physiology with human movement using an integrated tri-axis accelerometer. It is also the only medically approved, multi-parameter, ambulatory monitoring system capable of measuring core body temperature.

### Core Platform Overview

The core Equivital system comprises the EQ-01 monitoring unit, communications element and data viewing and analysis tools.

#### PARAMETERS MEASURED

- Heart rate
- 2 lead ECG
- Respiratory rate and effort
- Skin temperature
- Movement and body orientation

#### OPTIONAL SENSORS

- Core body temperature
- Oxygen saturation
- Galvanic skin response
- Geo-location

### The Monitoring Unit

The Equivital Sensor Electronics Module (SEM) weighs just 75g, is robust and water resistant. The SEM processes the wearer's vital signs and transmits them via a Class 1 Bluetooth interface.

The Equivital monitoring belt features a system of sensors and electrodes which connect with the Sensor Electronics Module.



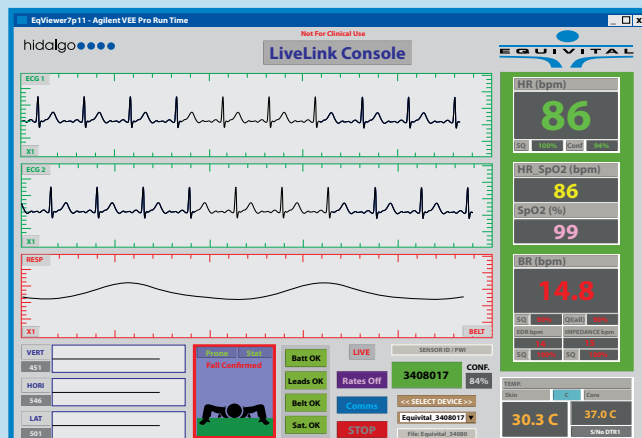
Equivital EQ-01 Physiological Monitor

### Data Communication & Viewing

Data can be viewed in real time and retrospectively by recording data to the EQ-01 device memory. For real time use, the device can be configured to transmit physiological data continuously or at set intervals. Equivital offers two proprietary PC software viewing platforms - Equivital LiveLink Console & Equivital Explorer - and a PDA or mobile phone based viewing software, Pocket EQ-View.

#### Equivital LiveLink Console

Equivital LiveLink Console enables viewing of multiple data sets in both waveform 'full disclosure' mode and summary 'partial disclosure' mode.



#### Equivital Explorer

Equivital Explorer is a windows based platform which enables web based viewing of summary partial disclosure data and GPS based location during outdoor research activities.

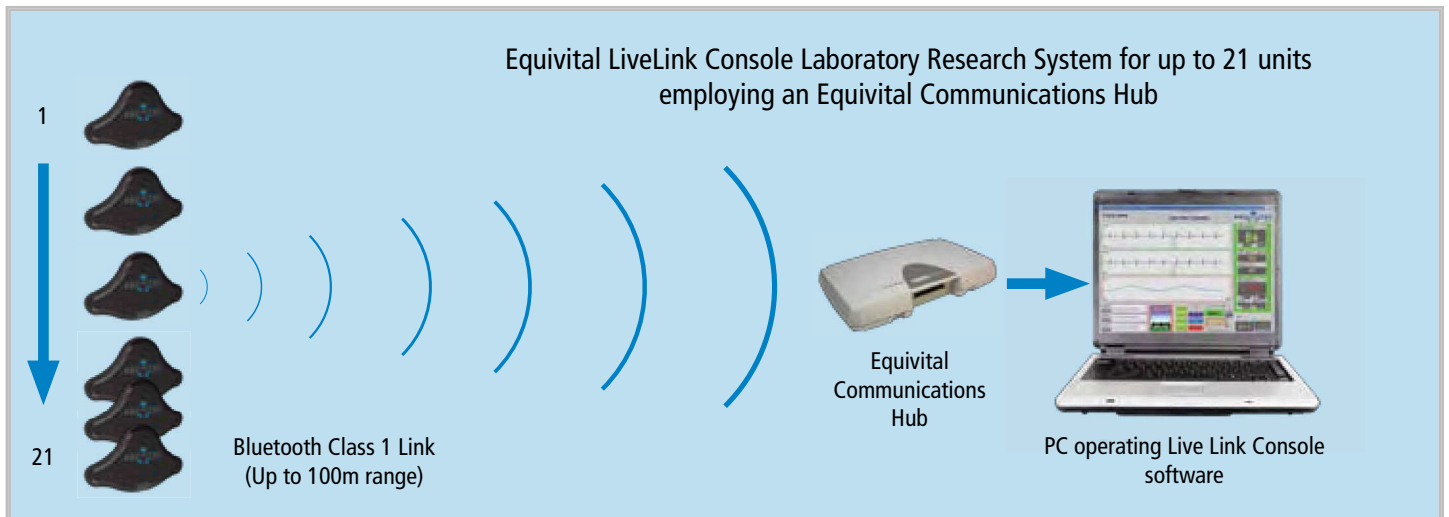
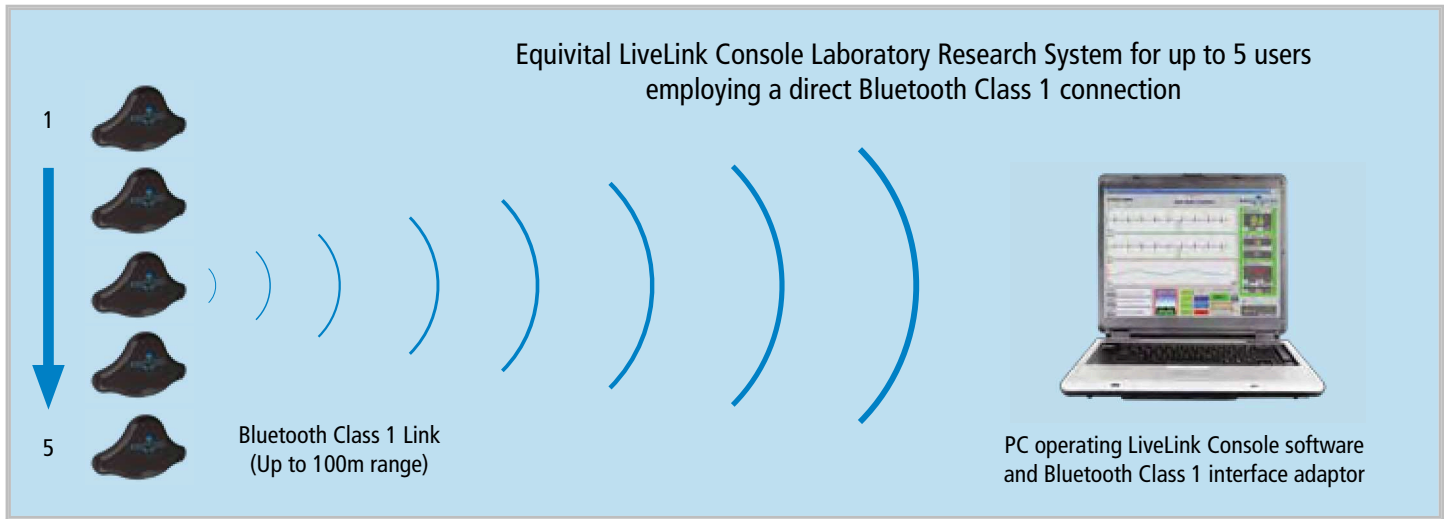


### Equivital™ System Developers Kit

For integration into a wider system, the Equivital Systems Developers Kit enables the development of custom software platforms.



# Equivital™ Laboratory System Configuration



## System Features

### LIVE VIEWING

#### Multiple live data stream viewing capability

The 'Laboratory Research' Equivital system can offer real time data views from up to 21 people wearing Equivital EQ-01 monitoring units by using an Equivital Hub. Multiple Equivital Hubs can also be networked to view data from more than 21 subjects. In this arrangement both 'Full Disclosure' live waveform and 'Partial Disclosure' summary data can be viewed using the Equivital LiveLink software platform.

#### Live Alerts

Equivital offers the ability to set limits for alerts or alarms for each recorded parameter. An individual alert will be displayed on the live screen.

#### Welfare Index

The system features a 'physiological welfare index' which uses predefined parameter limits to create a contextual welfare alarm based on the wearer's physiology and movement.

### DOWNLOADING DATA AND RETROSPECTIVE VIEWING

#### Internal Memory of the EQ-01 Device

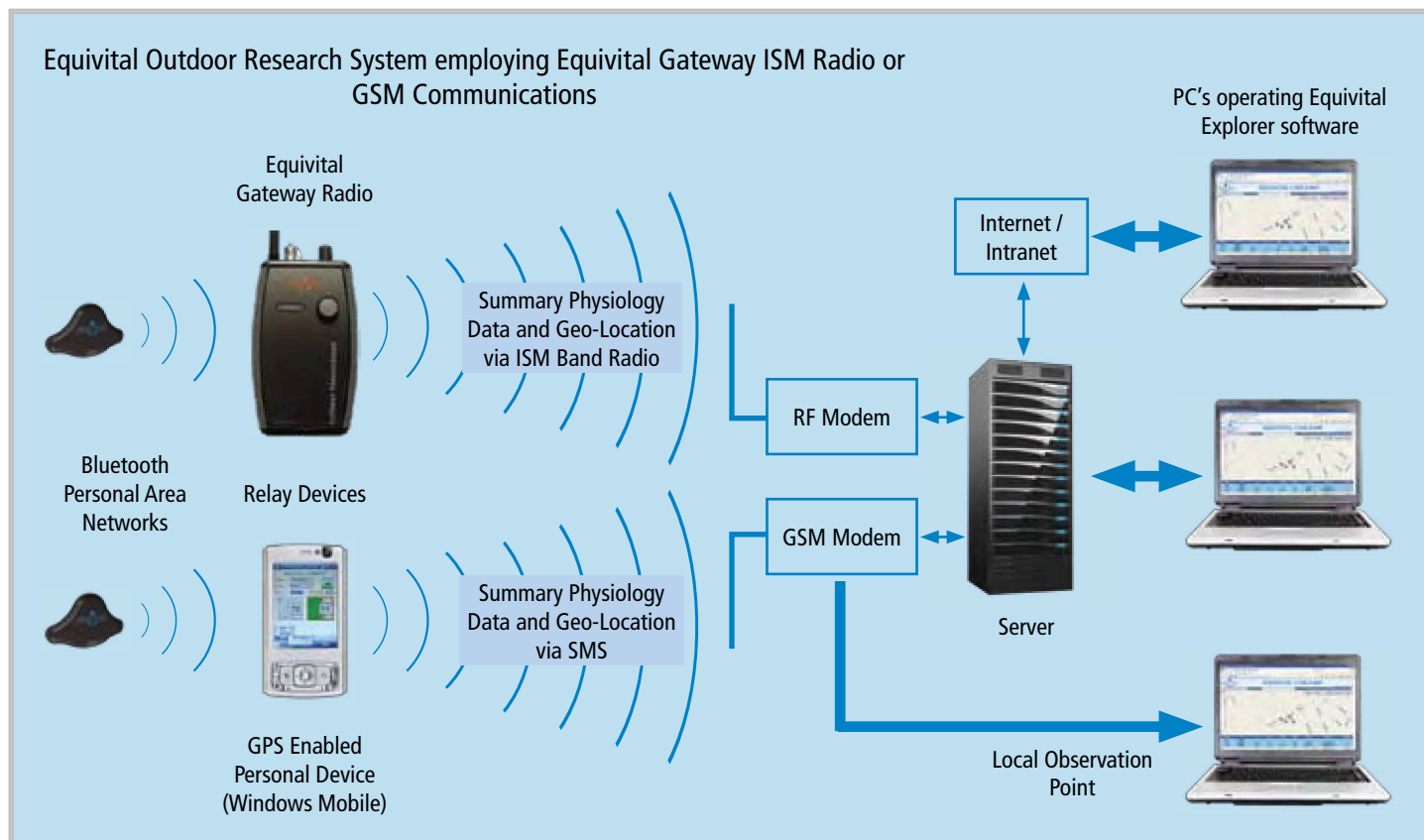
Each Equivital EQ-01 device has an integral 2Gb micro SD memory card. This is sufficient for continuous full disclosure data to be recorded for a period of approximately 10 days.

#### Data Download and Export

Data can be exported as a CSV file for further manipulation in a spreadsheet or database application. The data is time-stamped using an integrated real time clock.



# Equivital™ Outdoor System Configuration



## System Features

### FLEXIBLE COMMUNICATIONS CAPABILITY

#### Multiple Radio Interfaces

The Equivital 'Outdoor Research' system has a multifaceted communications capability which includes GSM, TETRA, Tactical Military Radio (with customisation option for near field communications as part of roll out of multiple systems) and a proprietary Equivital™ Gateway Radio Solution.

#### Equivital™ Gateway

Equivital Gateway is a convenient field radio communications system enabling the physiology measurements of multiple subjects to be monitored. The Gateway personal radio unit is linked to the subjects Equivital unit via Bluetooth and operates on ISM band radio (2.5GHz or 900MHz) at a range of up to 5Km, depending upon environment and terrain. An optional 10m field mast and antenna system is available to ensure maximum area coverage.

### LIVE VIEWING

#### Multiple Live Data Stream Viewing Capability and integrated Geo-Location

The Equivital 'Outdoor Research' system can use the 'Equivital Explorer' software to provide the user with live physiological data integrated with geo-location. This is enabled by each Equivital EQ-01 unit being associated with a variable GPS data feed.

#### Web Based Viewing Platform

The web based 'Equivital Explorer' Platform enables multiple users to remotely view real time data. *Example; Live monitoring of individuals taking part in a running event. Each individual would carry a GSM enabled device e.g. mobile phone with Pocket Eq-View software installed on it.*

#### Summary Message Data

The system allows summary data to be viewed at time intervals which are set by the user or can be configured to only send data when there is an alert.

#### Live Alerts

Equivital offers the ability to set alert or alarm limits for each recorded parameter. An individual alert will be displayed on the live screen.

#### Welfare Index

The system features a 'physiological welfare index' which uses predefined parameter limits to create a contextual welfare alarm based on the wearer's physiology and movement.

#### Trends

The live Equivital Explorer viewer allows trends data for each EQ-01 device connected to the system to be displayed in real time, with annotated time stamps.



## EQUIVITAL™ TECHNICAL SPECIFICATIONS

SYSTEM MEMORY	
Internal memory	2Gb micro SD
INTERFACE	
Interface	Class 1 Bluetooth (100m)
Data Communications	Integration with Equivital™ Communications Hub, Gateway ISM radio system or personal communications device
POWER SUPPLY	
Power source	2 x 1.5v AAA LR03 Alkaline cells or 3.7V 740mA Li-ION rechargeable cell (Recharge Time: From Flat 1hr)
PHYSICAL	
Weight	SEM - 75g
Operating temperature	-10°C to +55°C
Operating Humidity	0% to 95% RH Non-Condensing
Storage Temperature	-20°C to +65°C
Storage Humidity	0% to 95% RH Non-Condensing
Environmental Protection	IP67 (0.4m/30mins)
APPROVALS	
Approvals	CE Certified Device Safety EN60601-1 Classification Shock Protection: Type BF Applied Part, Internally Powered Equipment Mode of Operation: Continuous FDA Device Classification: Class II EU Device Classification: Class IIb FCC Part 15 This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation. Type 0 Radio Interface: Type 1 Radio Interface FCC ID: T85 EQ001 FCC: QOQWT11



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