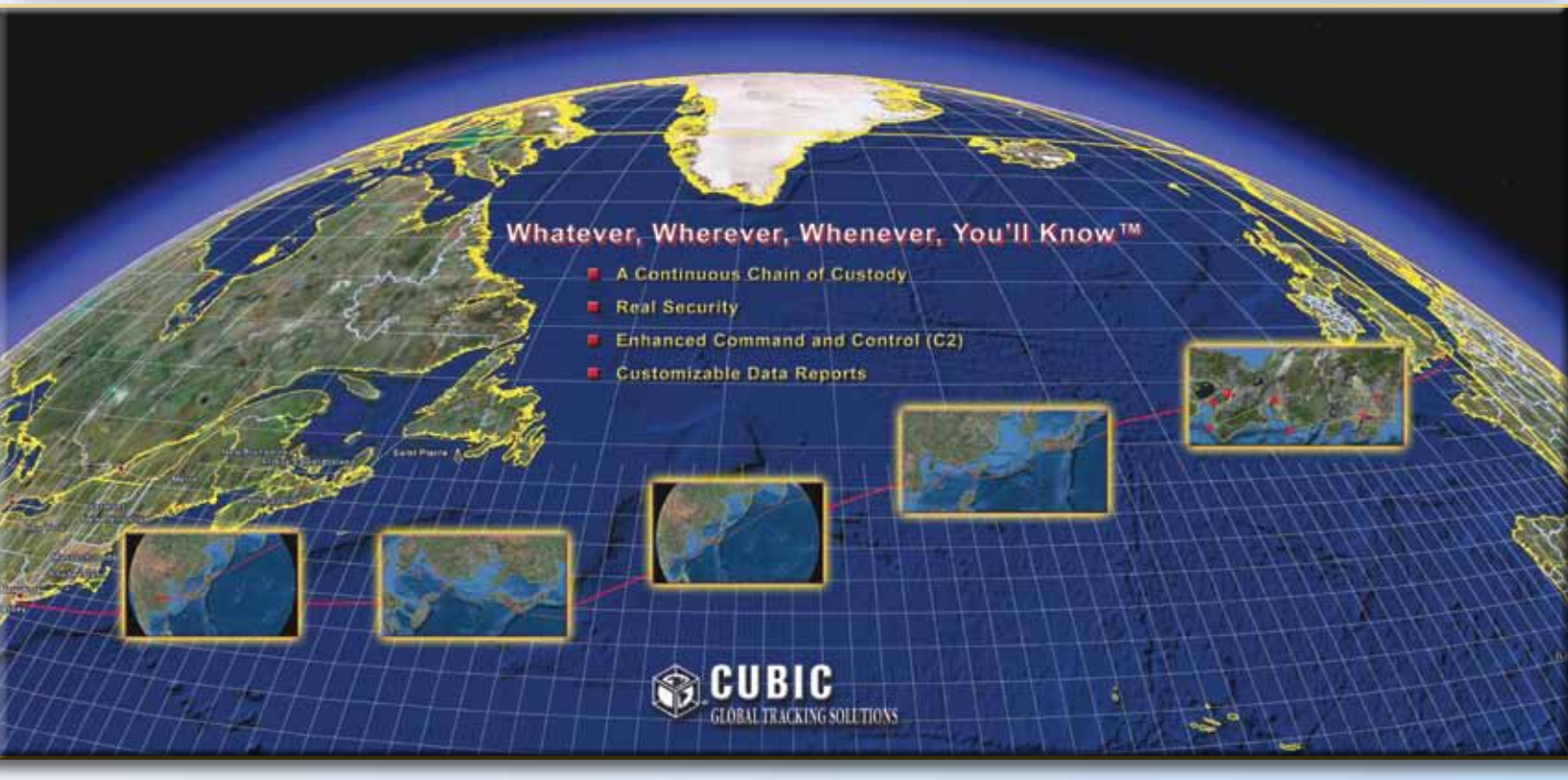
MESH ASSET TAG (RSU-3 FULL SENSORS)

Next Generation Wireless Mesh Technology



Track and Monitor Your Assets Without Fixed Infrastructure

To meet the challenges of increasingly complex global supply chains, defense and commercial organizations require smarter technologies to effectively track and manage cargo on land or at sea. Cubic Global Tracking Solutions (Cubic GTS) offers an innovative, affordable solution to deliver immediate worldwide reporting on the location, condition and security status of any asset.

Developed by Cubic GTS for the U.S. DoD, the Mesh Asset Tag (MAT) employs a wireless mesh network for logistics applications. The solution is a combination of technologies, devices and services using a mesh network protocol optimized for ad hoc configuration, security and ultra-low power.

Cubic GTS mesh uses a network topology in which the tags talk to each other. This allows for continuous connections and dynamic reconfiguration around broken or blocked paths by "hopping" from tag to tag until the information reaches a Fixed Mesh Gateway (FMG) or a Mobile Mesh Gateway (MMG).

All data is sent encrypted to the Cubic Device Management Center (DMC™), where it is authenticated, decrypted and processed. Events and customized reports are made available to authorized customers via secure web applications, API, XML data feed, SMS text message and e-mail.

Cubic's MAT is demonstrated at Mechanicsburg, PA for the Navy AIT Office showing how the range is only limited by the distance between the tags unlike active RFID.

www.cubic.com

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RSU-3 FULL SENSORS TECHNICAL SPECIFICATION (02-0083-04)

Physical Characteristics

- Dimensions ..... 148 x 76 x 33 mm
  5.8 x 3.0 x 1.3 in
- Weight ..... 0.26 kg (9.5 oz)
- Color ..... Light Grey (RAL7035)
- Connector ..... None

Environmental

- Temperature ..... -40 C to +85 C
- Humidity ..... 100% @ 40 C
- Vibration SAE J1455 2006
  6 G RMS all axis
- Shock (survival) ..... 1 meter drop 6-sided
- Ingress Protection Rating ..... IP67 (w/humidity)
  IP65/67 (w/o humidity)

Mesh Radio

- Radio Standard ..... 802.15.4 Phy only
- Transmit ..... 2402 MHz – 2480 MHz
- Receive ..... 2402 MHz – 2480 MHz
- EIRP ..... 1.27 mW
- Sensitivity ..... -98 dBm
- Modulation ..... DSSS
- DSSS Chip Rate ..... 2 Mchips/sec
- Data Rate ..... 250 Kbps
- Channels 16
- Channel Bandwidth ..... 3 MHz
- Range
  - Device-Device ..... 200 m (90° to mount)
  - Device-Device ..... 100 m (±70°)
  - Device-Device ..... 20 m (long axis)

GPS

- Receive ..... 1575.42 MHz
- Channels 50
- Sensitivity ..... -138 dBm (cold start)
- Time to First Fix (typical)
  - Cold Start ..... 36 sec
  - Warm Start ..... 36 sec
  - Aided Start ..... 4 sec
- Accuracy (SA Off)
  - Position (CEP, 2D) ..... <5.0 m (unobstructed)

Power (Internal Battery Only)

- Average Current @3.5V 160uA
- Battery Type ..... Lithium-thionyl Chloride
  LS-17500 or equivalent
- Battery Quantity ..... 4 ea
- Battery Life ..... 4yr @ slow mesh

Sensors

- Magnetic door ..... 2 in (standard magnet)
- Accelerometer, 3-axis ..... 0-16 G
- Shock, 3-axis ..... 0-16 G threshold
- Motion ..... 0.12 – 16 G threshold
- Light ..... 350 nm to 970 nm
- Temperature, on-chip ..... -40 C - +85 C ±10
- Temperature, on PCA ..... -40 C - +85 C ±3 C
- Temperature, ambient air ..... -40 C - +85 C ±2.5 C
- Humidity, ambient air ..... 0 – 100 %RH ±5 %RH

Indicators

- LED ..... Red/Green/Orange
- Buzzer ..... 2.3 KHz

Functional

- Cubic GTS Mesh Network Full routing node
  4 network speeds
- Encryption AES-128/CCM
- Data Storage ..... 1 Mbyte
- Reporting ..... Timed, events, network
  join, motion start/stop
- Position ..... Timed or event driven
- Upgrade ..... Over the air updates

Certifications

- FCC Part 15B and 15C ID: YVDRSU3
- IC: 9336A-RSU3
- CE
- - ETSI EN 300 328 (Emissions)
- - ETSI EN 301 489-1 (Immunity)
- SAE J1455 2006
- IP-67/NEMA-4
- HERO (In Process)
- HERF (In Process)
- HERP (In Process)

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