

ANTENNA PRODUCTS

DATA SHEET

GPS Active Antenna (13*13*7 mm)

2008, June Rev.2

| | | | | | | | | | | | |
|------------------------------------|---------------|-----------------|----------------------------|-------------------|------------|------------|---|--------|-----------|---|--|
| GPS active antenna (13*13*7 mm) | | | CAN 431343486158 1B | | | | - | 1 | March, 07 | | |
| | | | | | | | ▶ | 2 | June, 08 | | |
| | | | | | | | - | 3 | | | |
| BY / 製定者 | Sunwiun Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 1 | SH nr. | - | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | - | 5 | | | |

**GPS ACTIVE ANTENNA
FOR GLOBAL POSITIONING SYSTEMS (1.575G Hz)**

Product Specification

Ceramic Patch Antenna

| | |
|--------------------|----------------------------------|
| Outline Dimension: | 12*12*4 mm (Ceramic Patch) |
| Ground Plane | 12*12*0.15 mm |
| Central Frequency | 1575 +/- 3MHz |
| Impedance | 50 Ohm |
| Gain | 0 dBi (Elevation 90 degree) |
| VSWR | 2.0 max |
| Polarization | Right Hand Circular Polarization |
| Axis Ratio | 3 dB max. (Elevation 90 degree) |

LNA

| | |
|--------------------------------|--|
| Central Frequency | 1575 +/- 3 MHz |
| Gain | 17 +/- 1 dB (at f _c , without SAW filter) |
| Noise Figure | 1.5 dB typ. (at f _c , 1.8dB Max) |
| Output VSWR | 2.0 (at f _c) |
| Supply Voltage | 3.3 + /- 5% V |
| Current Consumption | 6 mA |
| Output Impedance | 50 Ohm |
| Operating Temperature/Humidity | -30 - +85 °C ; < 95% |
| Storage Temperature | -40 - +125 °C |

| | | | | | | | | | | | |
|------------------------------------|--------------|--------------------|---------|---------------------|------------|------------|---|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製 定 者 | Sunwui Hu | SUPER / 原 圖 編 號 | C.T.Lee | TLL. SH/ 共 頁 | 12 | PAGE/ 頁 | 2 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | ▶ | 5 | | |

Description:

Yageo provides an ideal active GPS antenna for your embedded system applications. With 13 x 13 x 7.5 mm in size, it best fit into your GPS system with maximum performance.

Key Features:

- Small form factor: 13 x 13 x 7.5 mm
- Lead-Free – RoHS/WEEE compliant
- High gain up to 17 dB
- Low power consumption
- I-Pex, Herose, MMCX connector are available.

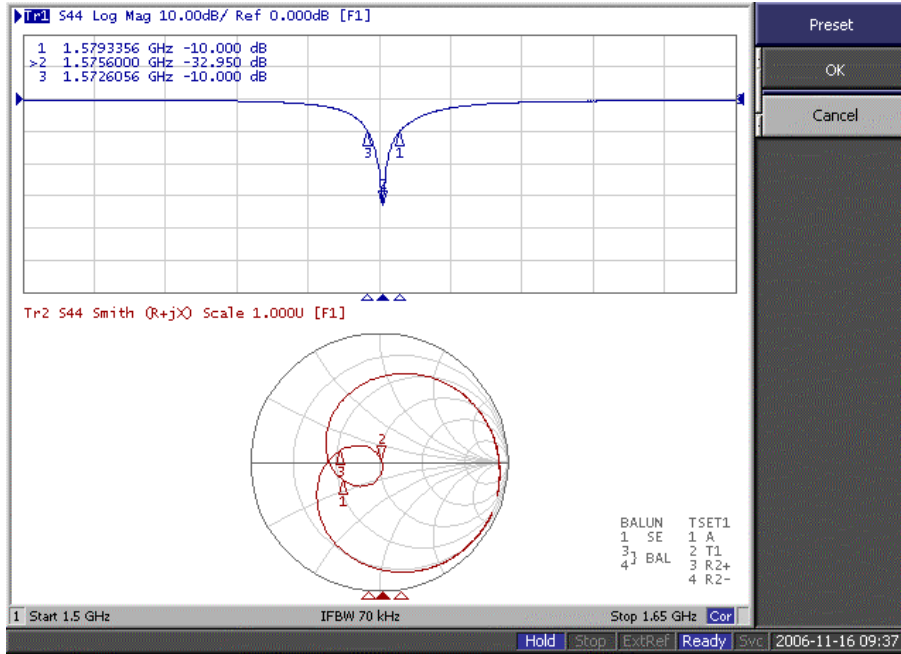
Applications:

- Handheld devices
- Automotive and Marine Navigation
- Automotive Navigator Tracking
- Emergency Locator
- Geographic Surveying
- Personal Positioning
- Sporting and Recreation
- Embedded applications: PDA, DSC, Smart phone, UMPC, PND, MP4



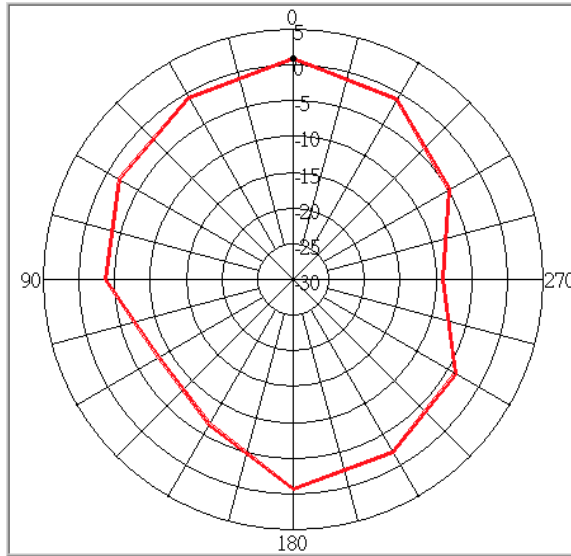
| | | | | | | | | | | | |
|------------------------------------|---------------|--------------------|---------|---------------------|------------|------------|---|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製 定 者 | Sunwium Hu | SUPER / 原 圖 編 號 | C.T.Lee | TLL. SH/ 共 頁 | 12 | PAGE/ 頁 | 3 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | 5 | | | |

Antenna Return Loss and Impedence (with 30 * 30 mm square Ground Plane)

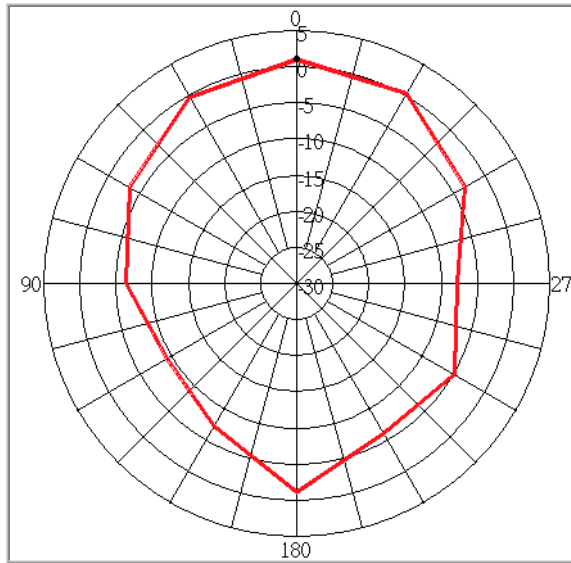


| | | | | | | | | | |
|------------------------------------|------------|--------------|---------|---------------------|------------|---------|---|--------|-----------|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | 1 | March, 07 |
| | | | | | | | | 2 | June, 08 |
| | | | | | | | | 3 | |
| BY / 製定者 | Sunwiun Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 4 | SH nr. | 4 |
| CHECK | | | | DATE / 日期 | June.,2008 | | 5 | | |

2D Circular gain measurement (with 30 *30 mm square Ground Plane)



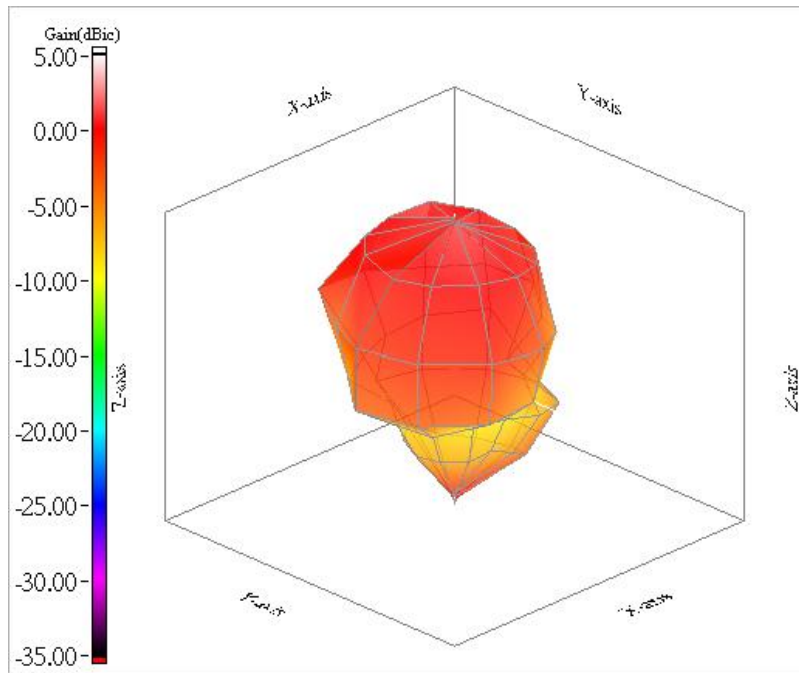
Circular gain 2D x-z plane pattern



Circular gain 2D y-z plane pattern

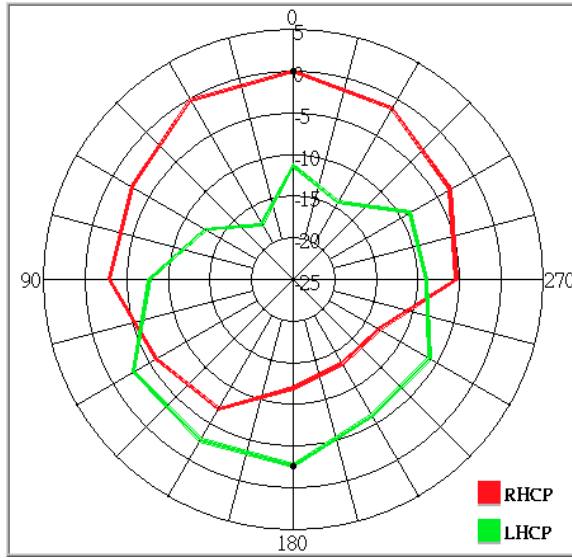
| | | | | | | | | | | | |
|------------------------------------|---------------|--------------------|---------|---------------------|------------|------------|---|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製 定 者 | Sunwium Hu | SUPER / 原 圖 編 號 | C.T.Lee | TLL. SH/ 共 頁 | 12 | PAGE/ 頁 | 5 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | ▶ | 5 | | |

3D Circular gain measurement

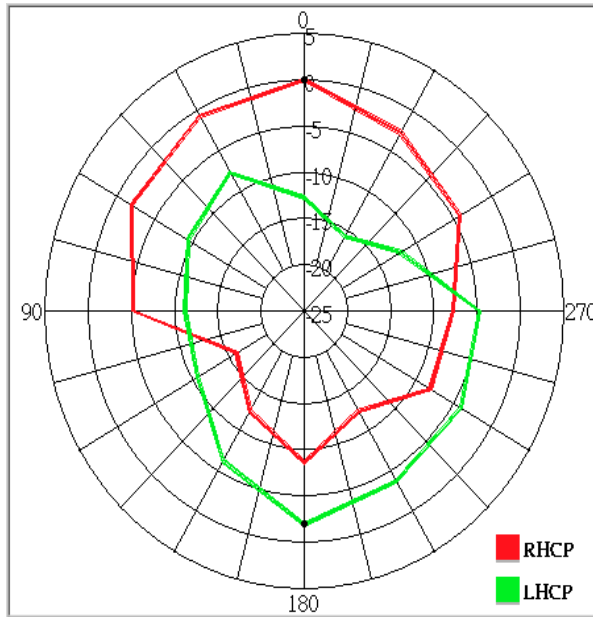


| | | | | | | | | | | | |
|------------------------------------|---------------|-----------------|---------|---------------------|------------|------------|---|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製定者 | Sunwium Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 6 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | 5 | | | |

Circular gain 2D pattern for AR measurement



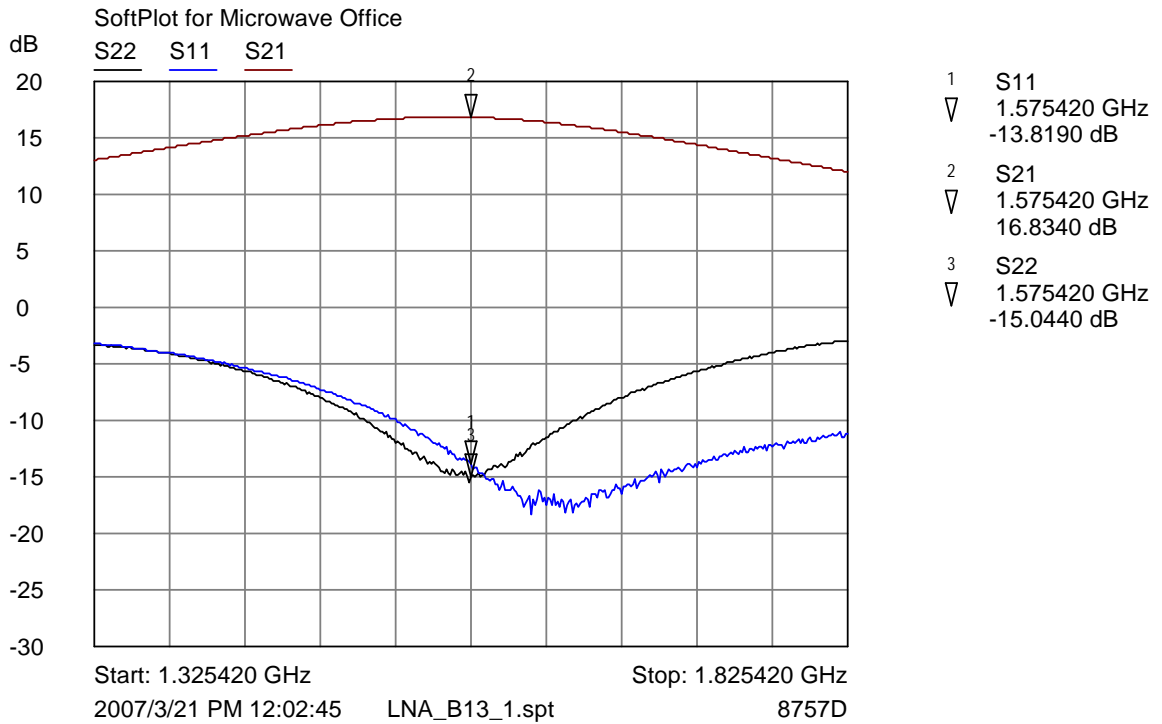
Circular gain 2D x-z plane pattern



Circular gain 2D y-z plane pattern

| | | | | | | | | | | | |
|------------------------------------|---------------|--------------------|---------|---------------------|------------|------------|---|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製 定 者 | Sunwiun Hu | SUPER / 原 圖 編 號 | C.T.Lee | TLL. SH/ 共 頁 | 12 | PAGE/ 頁 | 7 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | 5 | | | |

The Characteristics of LNA

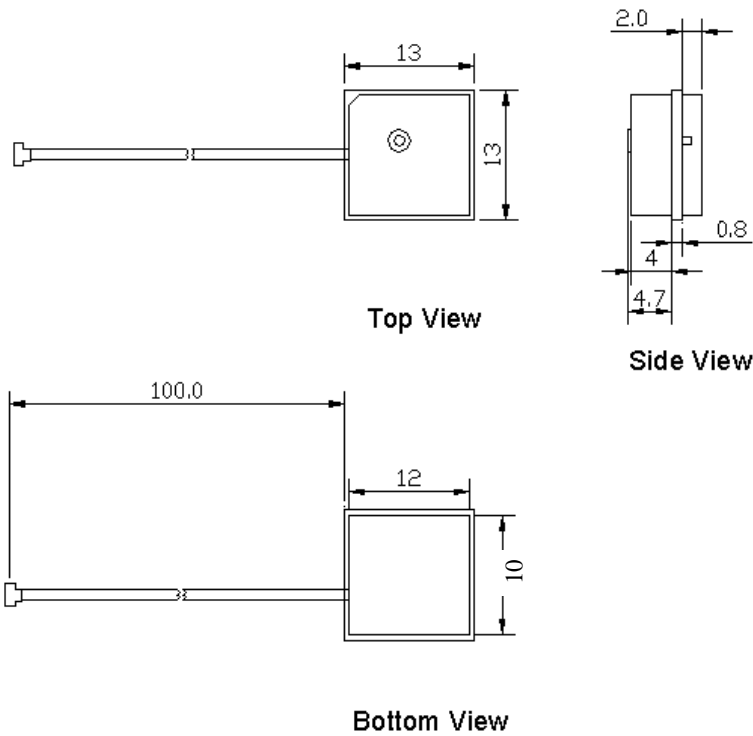


| | | | | | | | | | |
|------------------------------------|------------|--------------|---------|---------------------|------------|---------|---|--------|-----------|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | 1 | March, 07 |
| | | | | | | | | 2 | June, 08 |
| | | | | | | | | 3 | |
| BY / 製定者 | Sunwiun Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 8 | SH nr. | 4 |
| CHECK | | | | DATE / 日期 | June.,2008 | | | 5 | |

Outlines and Dimension

Dimension

| | |
|----------------|---|
| Length | 13.0 +/- 0.5 mm |
| Width | 13.0 +/- 0.5 mm |
| Thickness | 7.5 +/- 0.5 mm |
| Cable | Diameter D = 1.13 mm; Length L = 100 mm |
| Connector | I-pex |
| Shielding Case | 12*10*2 mm |



| | | | | | | | | | | | |
|------------------------------------|---------------|--------------------|---------|---------------------|------------|------------|---|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | — | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製 定 者 | Sunwium Hu | SUPER / 原 圖 編 號 | C.T.Lee | TLL. SH/ 共 頁 | 12 | PAGE/ 頁 | 9 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | 5 | | | |

ORDERING INFORMATION:

The active antennas may be ordered by using the Yageo ordering code. These code numbers can be determined by the following rules:

CAN43 13 4 34 86 158 1B
 F C M S T A P

F. Family Code

CAN 43 = Antenna

C. Packing Type Code

13 = bulk packaging

M. Materials Code

4 = Microwave Ceramic Material

S. Size code

34 = 13*13 mm

T. Type

86 = GPS active antenna, type 86 (1 stage LNA)

A. Working Frequency

158 = 1.575 GHz, GPS application

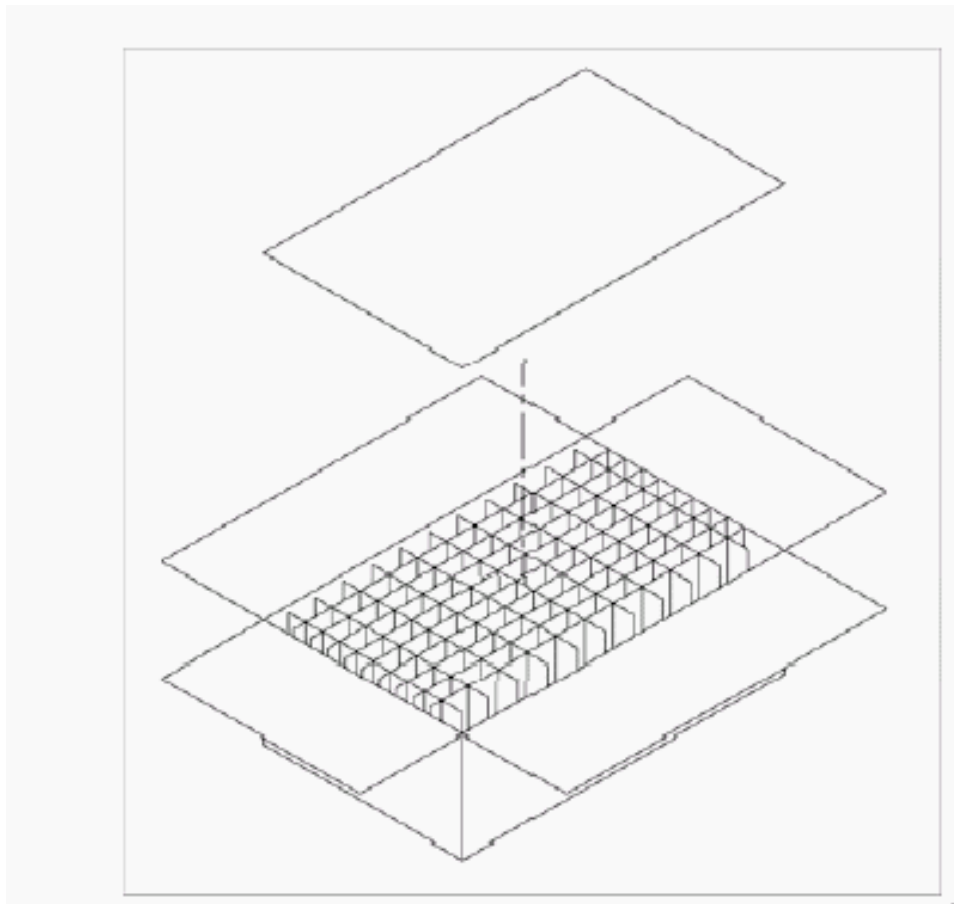
P. Packing Type Code

1B = bulk packaging

| | | | | | | | | | | | |
|------------------------------------|---------------|-----------------|---------|---------------------|------------|------------|----|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製定者 | Sunwium Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 10 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | 5 | | | |

Packing information

1. Each unit into individual compartment. Two layers of compartment.
2. 100 units per compartment layer. 200 units into one carton.
3. Cartoon dimension: 493*257*167 mm
4. Cover upper and lower sides of the box with a cardboard.



| | | | | | | | | | | | |
|------------------------------------|---------------|-----------------|---------|---------------------|------------|------------|----|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製定者 | Sunwium Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 11 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | 5 | | | |

Revision Control:

| Revision | Date | Content | Remark |
|----------|-------------|---------------------------------|--------|
| 1 | March, 2007 | New Issued | |
| 2 | June, 2008 | Modify shielding case dimension | |
| | | | |

| | | | | | | | | | | | |
|------------------------------------|---------------|-----------------|---------|---------------------|------------|------------|----|--------|---|-----------|--|
| GPS active antenna (13*13*7 mm) | | | | CAN 431343486158 1B | | | | — | 1 | March, 07 | |
| | | | | | | | | ▶ | 2 | June, 08 | |
| | | | | | | | | — | 3 | | |
| BY / 製定者 | Sunwiun Hu | SUPER / 原圖編號 | C.T.Lee | TLL. SH/ 共頁 | 12 | PAGE/ 頁 | 12 | SH nr. | — | 4 | |
| CHECK | | | | DATE / 日期 | June.,2008 | | — | ▶ | 5 | | |