

# 1.575 GHz GPS Ceramic Chip Antenna

Ground cleared under antenna, clearance area 4.00 x 4.25 mm / 6.25 mm. Pulse Part Number: W3011 / W3011A



## Features

- Omni directional radiation
- Low profile
- Compact size W x L x H (3.2 x 1.6 x 1.1 mm)
- Low weight (33 mg)
- Lead free materials
- Fully SMD compatible
- Lead free soldering compatible
- Tape-and-reel packing
- RoHS Compliant Product

## Applications

- GPS L1 band
- 1.575 GHz

## Electrical specifications @ +25 °C

*Note: Electrical characteristics depend on test board (GP) size and antenna positioning on GP and the size of the ground clearance area.*

### 1.575 GHz GPS W3011

Typical performance (Test board size 80 x 37 mm, PWB ground clearance area 4.00 x 4.25 mm)

Frequency Range [MHz]	RHCP Gain [dBic]	Max Gain [dBi]	Efficiency [%] / [dB]	Return loss min. [dB]	Impedance [ $\Omega$ ]	Operating Temperature [°C]
1575.42 +/-10	0.85 (Peak) 0.5 (Band edges)	3.4 (Peak) 3.0 (Band edges)	85 / -0.7 (Peak) 80 / -1.0 (Band edges)	-12	50	-40 to +85

### 1.575 GHz GPS W3011A

Typical performance (Test board size 80 x 37 mm, PWB ground clearance area 4.00 x 6.25 mm)

Frequency Range [MHz]	RHCP Gain [dBic]	Max Gain [dBi]	Efficiency [%] / [dB]	Return loss min. [dB]	Impedance [ $\Omega$ ]	Operating Temperature [°C]
1575.42 +/-10	1.0 (Peak) 0.7 (Band edges)	3.7 (Peak) 3.4 (Band edges)	85 / -0.7 (Peak) 85 / -1.0 (Band edges)	-16	50	-40 to +85

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Takatie 6  
90440 Kempele, Finland  
Tel: +358 207 935 500  
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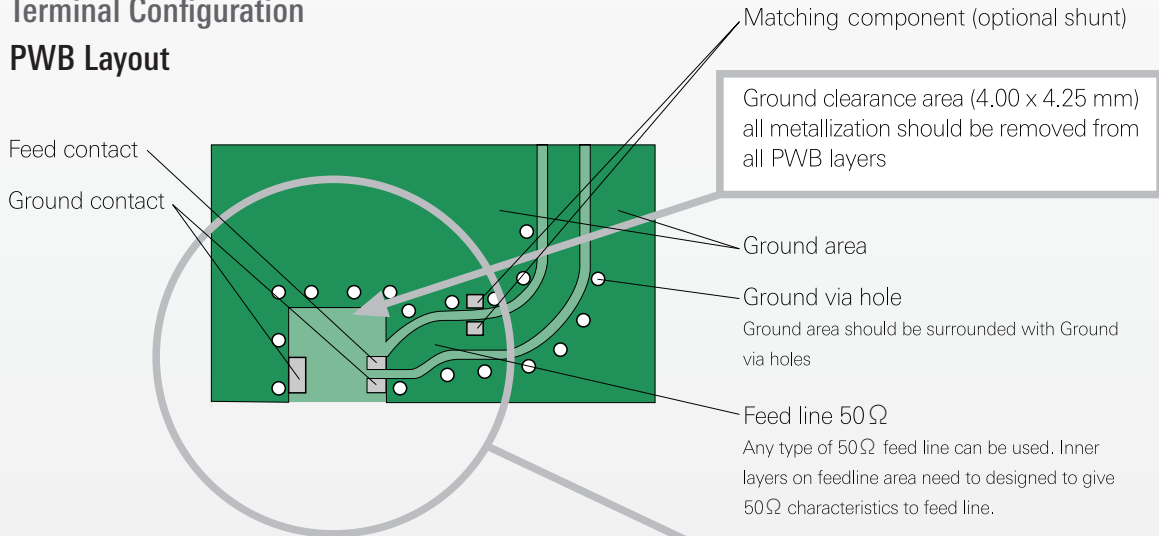


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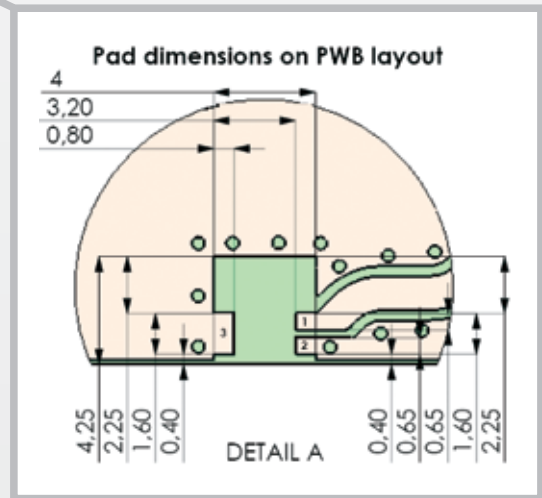
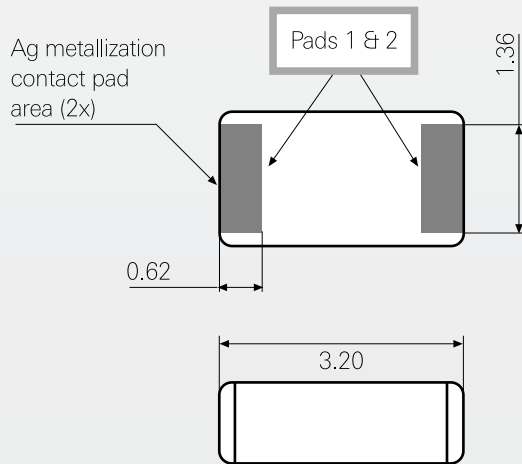
Ground cleared under antenna, clearance area 4.00 x 4.25 mm. Pulse Part Number: W3011

## Terminal Configuration

### PWB Layout



## Antenna



## Antenna features

No.	Terminal name	Terminal Dimensions
1	Feed / GND	0.62 x 1.36 mm
2	Feed / GND	0.62 x 1.36 mm

Antenna is symmetrical.  
Either of terminals 1 or 2 can be feed / GND

## PWB features

No.	Terminal name	Terminal Dimensions
1	Feed	0.8 x 0.65 mm
2	GND	0.8 x 0.65 mm
3	GND	0.8 x 1.60 mm

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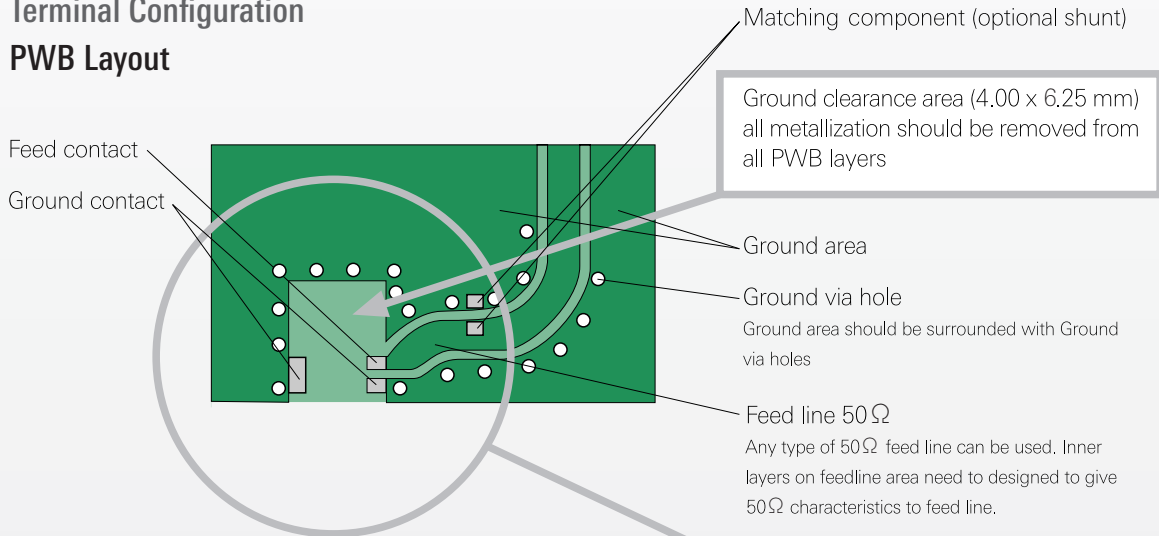


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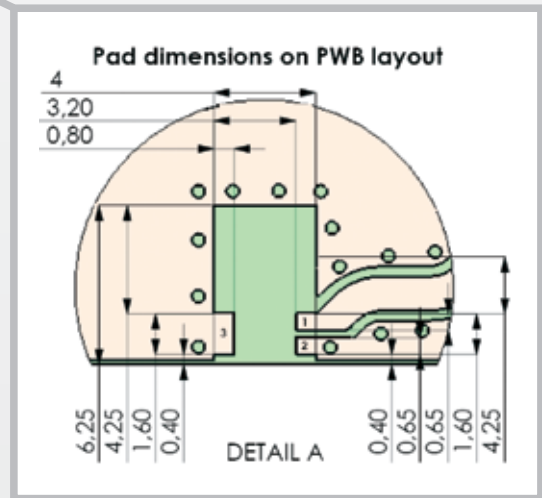
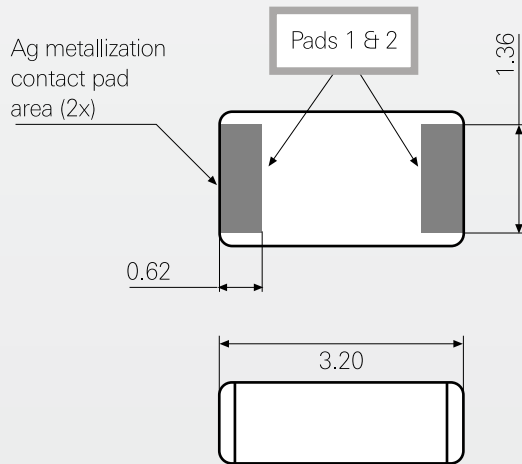
Ground cleared under antenna, clearance area 4.00 x 6.25 mm. Pulse Part Number: W3011a

## Terminal Configuration

### PWB Layout



## Antenna



## Antenna features

No.	Terminal name	Terminal Dimensions
1	Feed / GND	0.62 x 1.36 mm
2	Feed / GND	0.62 x 1.36 mm

Antenna is symmetrical.

Either of terminals 1 or 2 can be feed / GND

## PWB features

No.	Terminal name	Terminal Dimensions
1	Feed	0.8 x 0.65 mm
2	GND	0.8 x 0.65 mm
3	GND	0.8 x 1.60 mm

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Takatie 6  
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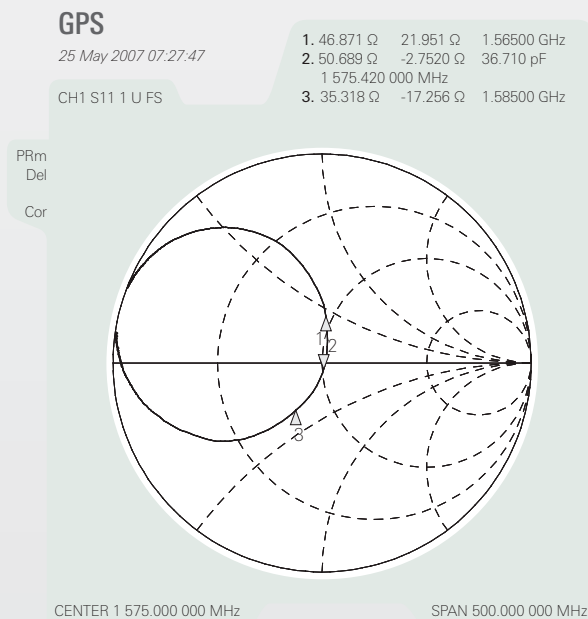
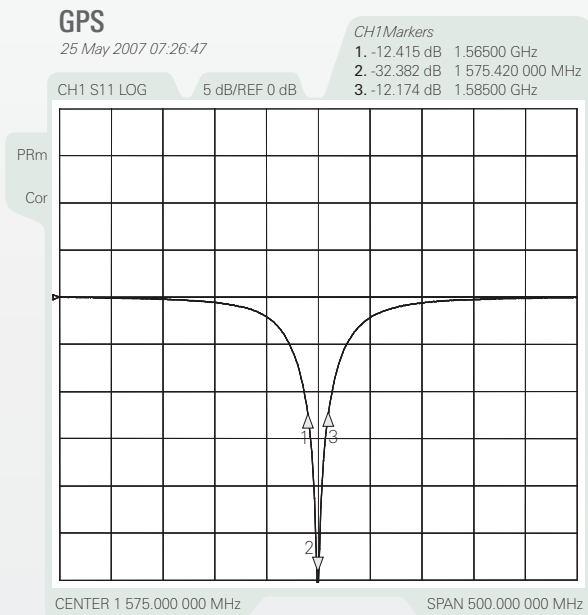
## W3011 GPS Antenna Test Set Up and Measured Performance

Ground cleared under antenna, clearance area 4.00 x 4.25 mm.

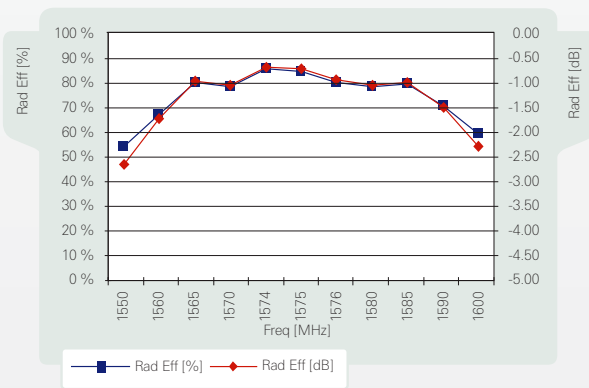
### Typical Electrical Characteristics (T=25°C)

Measured on the 80 x 37mm test board without matching circuit and in antenna position 1 on PWB layout.

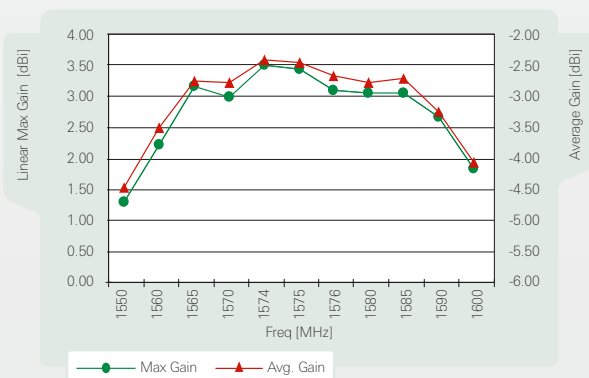
Typical Return Loss S11/ impedance, free space efficiency and gain.



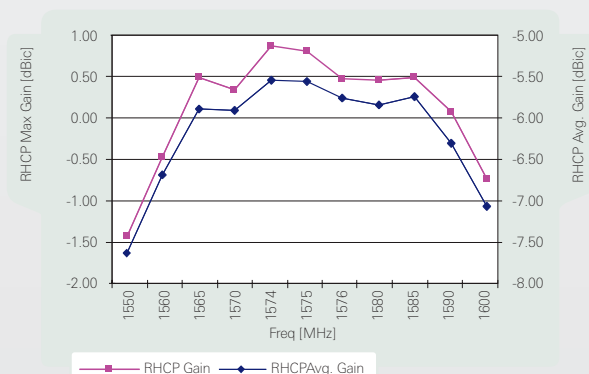
GPS mini 3.2 x 1.6 x 1.1 mm



GPS mini 3.2 x 1.6 x 1.1 mm



GPS mini 3.2 x 1.6 x 1.1 mm



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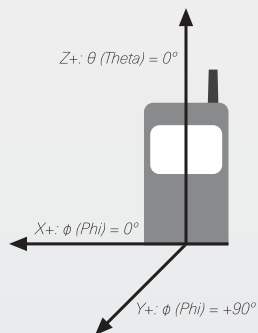
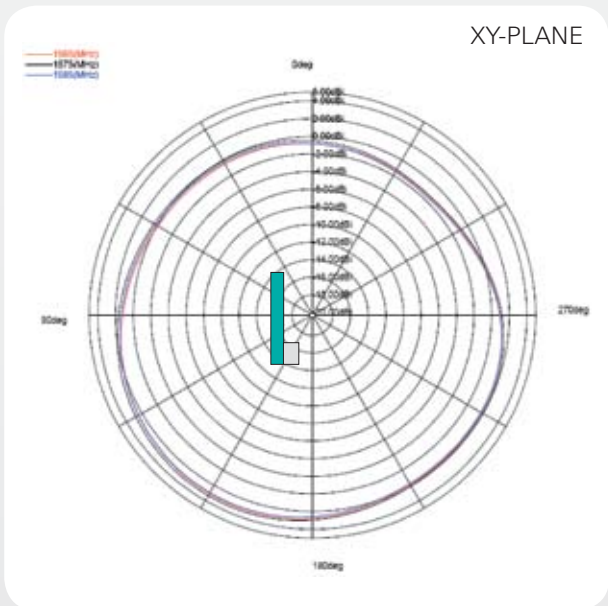
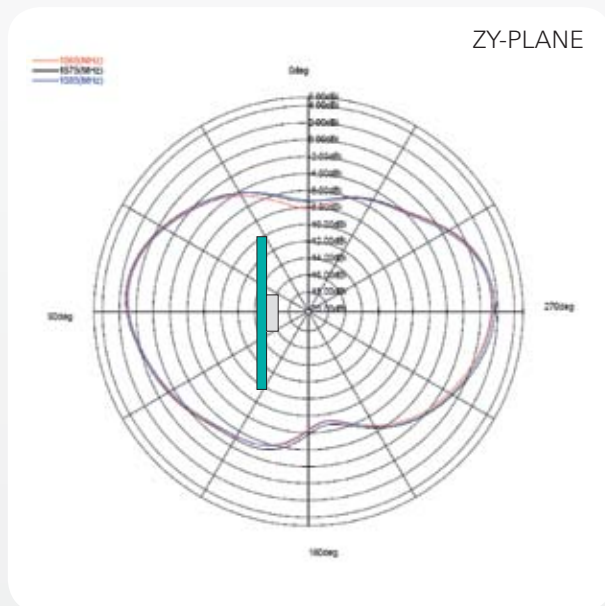
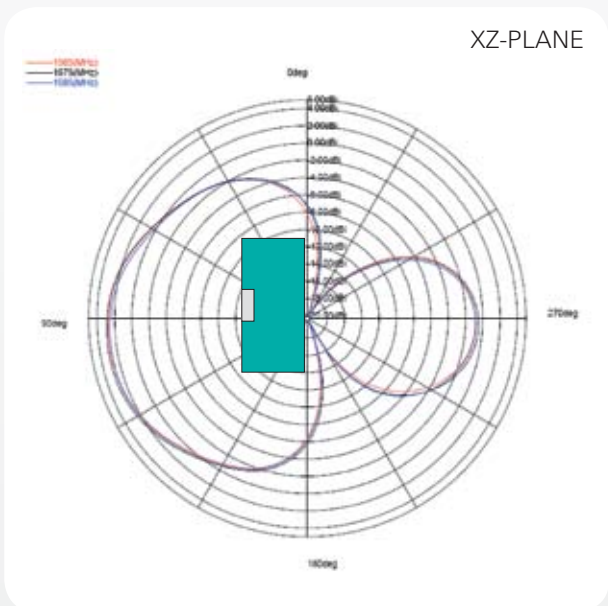
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## 1.575 GHz Typical Radiation Patterns



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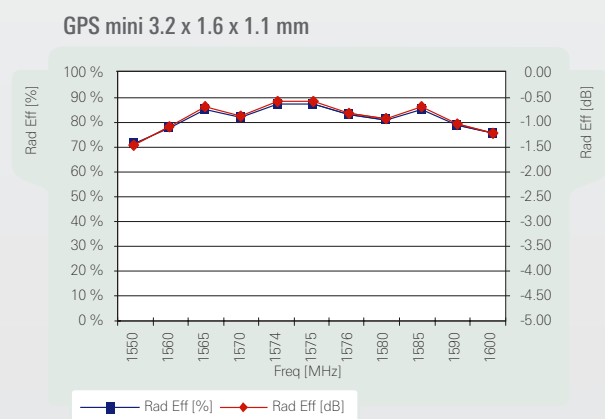
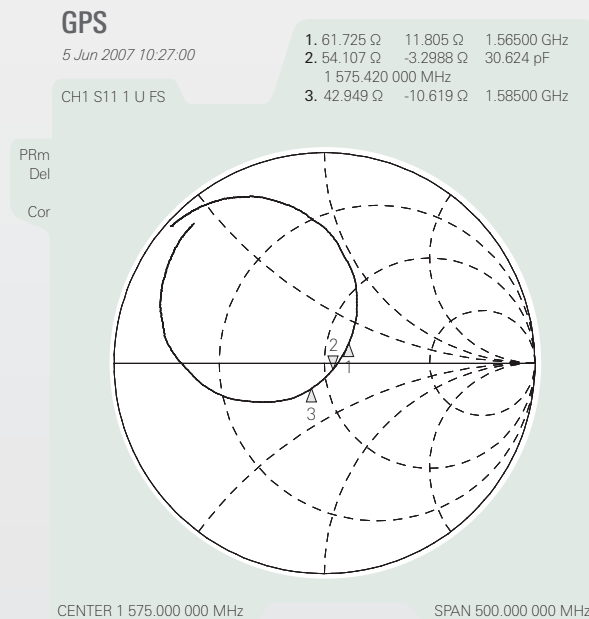
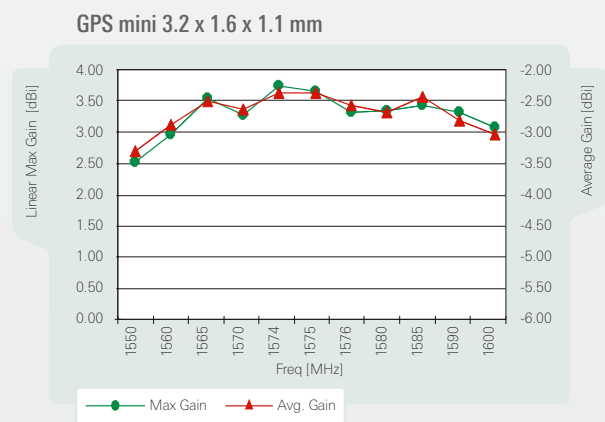
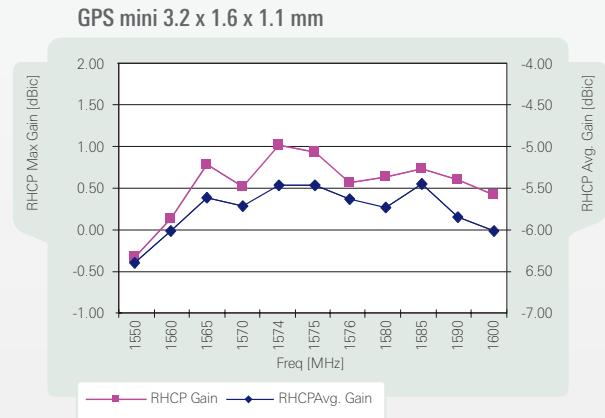
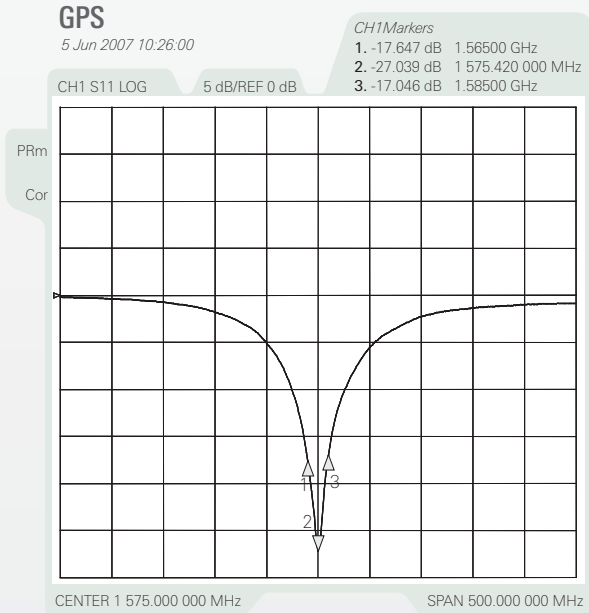
## W3011a GPS 1.575GHz Test Set Up and Measured Performance

Ground cleared under antenna, clearance area 4.00 x 6.25 mm

### Typical Electrical Characteristics (T=25°C)

Measured on the 80 x 37mm test board with matching circuit (shunt 1.8 pF) and in antenna position 1 on PWB layout.

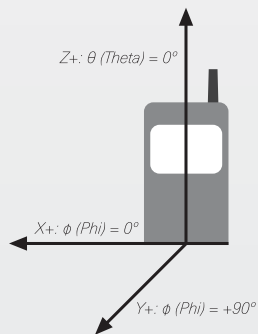
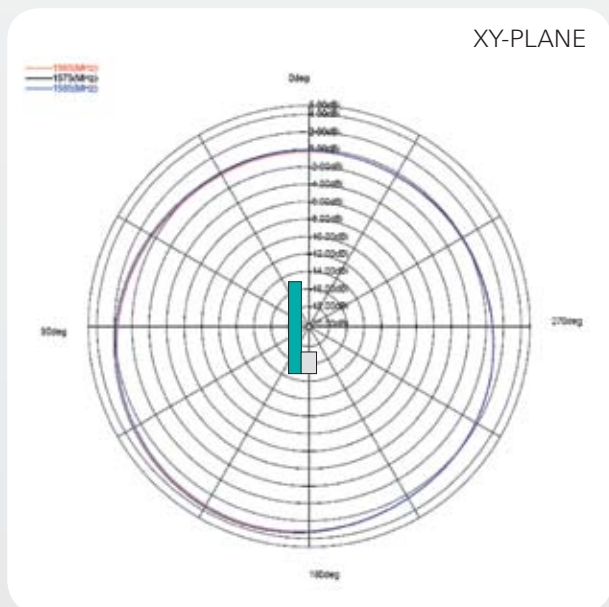
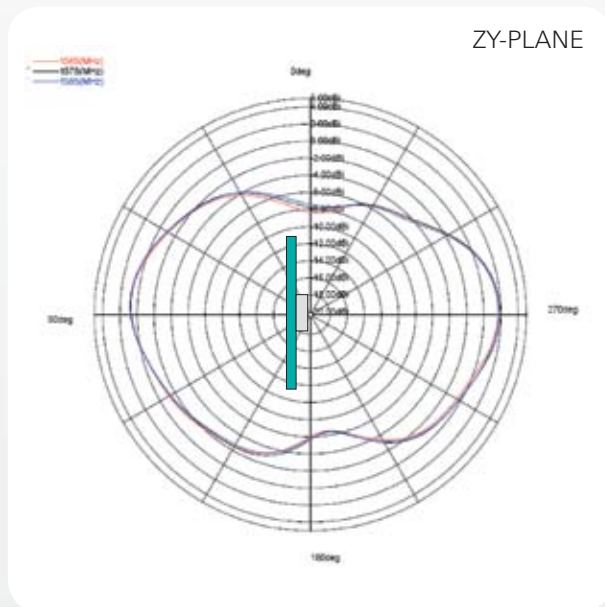
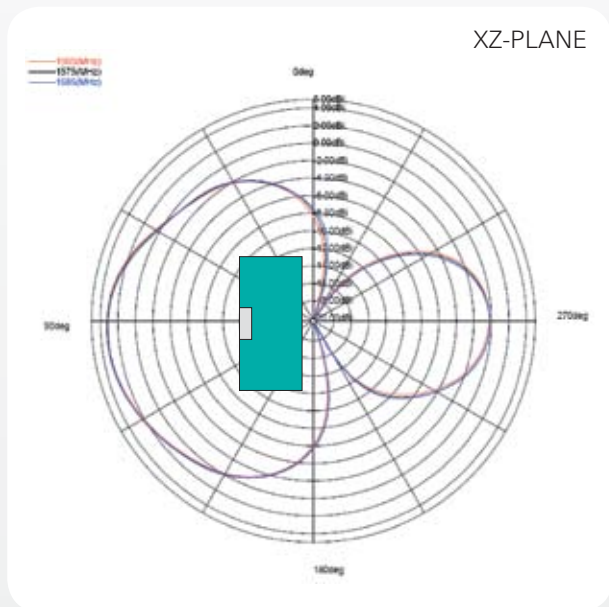
Typical Return Loss S11/ impedance, free space efficiency and gain



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## 1.575 GHz Typical Radiation Patterns



### Pulse Finland Oy

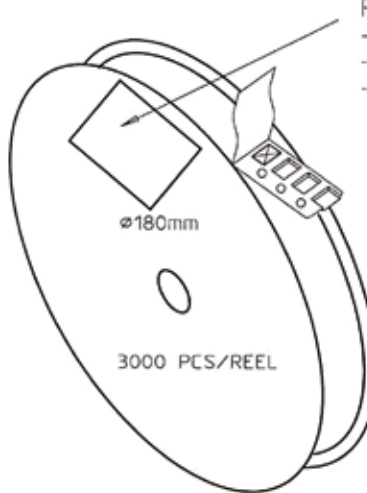
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## Packing Form



**REEL LABEL INFORMATION:**

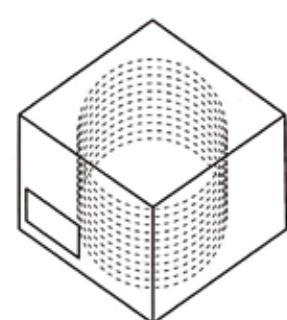
- TRACEABILITY
- QUANTITY
- PRODUCT CODE

**CARRIER TAPE H85-00125**  
width=8,00 depth=1,22  
**COVER TAPE H85-00126**  
width=5,60

**LENGTH OF TAPE:**

- Leader section: 50 empty cavities before component section
- Trailer section: 25 empty cavities after component section.

Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.

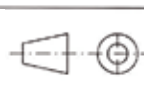


**BOX H85-00128**                      1 pcs  
(182x182x132)

- LABEL                                      1 pcs/BOX

**REEL H85-00127**                      10 pcs  
(D180, W12)

- REEL LABEL                              1 pcs/REEL

<b>MATERIAL</b>					
<b>HANDLINGS</b>					
	RATIO	DRWN	010305	PeHa	H
		DGNER			G
		CHKD			F
		APPRD			E
		APPRD BY			D
<b>PRODUCT</b>					
H90-OY116-F01P01					
<b>DENOMINATION</b>					
PACKING FORM					
		<b>VERSION</b>		<b>MOD/DATE/NAME</b>	

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