




# 品名 : ACA-9520-P1-MC-S

## 1.Explanation of part number :

<b>AC</b>	<b>A</b>	<b>9520</b>	<b>P1</b>	<b>MC</b>	<b>S</b>
<b>Product Type</b>	<b>Center Frequency/Band Code</b>	<b>Product Code (Unit: mm)</b>	<b>Design Revision Code</b>	<b>Antenna Type</b>	<b>Special Code</b>
Chip Antenna	A: 2.4GHz E: Cellular G:868MHz H:915MHz L:5GHz M3:2G+5GHz N:NFC	Per 2 digits of length, width  e.g.: 9520 8.5*2.1(Length * Width)	P1:Rev.1	CC: Coupling Ceramic GF: On Ground, FR4 LC: Loop ceramic MC: Monopole Ceramic MF: Monopole FR4 PF: PIFA FR4	S: RoHS Compliant

## 2.Electrical Specification :

	Specification
Working Frequency Range	2.4 GHz ~ 2.5GHz
Gain	2 dBi (Typical)
VSWR	2 max.
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Impedance	50Ω
Rated Power (max.)	3 Watts
Maximum Input Power	5 Watts for 5 minutes
Operation Temperature	-40° C ~ +125° C

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A			<b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm		
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DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : ACA-9520-P1-MC-S		DOCUMENT NO.	ENS070001750-000824000148
			SPEC REV. A0

### 3. Antenna Drawing :

CONSTRUCTION

Top view



PIN	Connection
1	Feeding
2	Soldering terminal

DIMENSIONS

Figure	Symbol	Dimension (mm)
<p>Top view    Side view</p>	L	9.50 ± 0.20
	W	2.10 ± 0.20
	T	1.15 ± 0.20
	A	0.50 ± 0.30

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 X=N/A            X.X=N/A            X.XX=N/A  
 ANGLES=N/A            HOLEDIA=N/A



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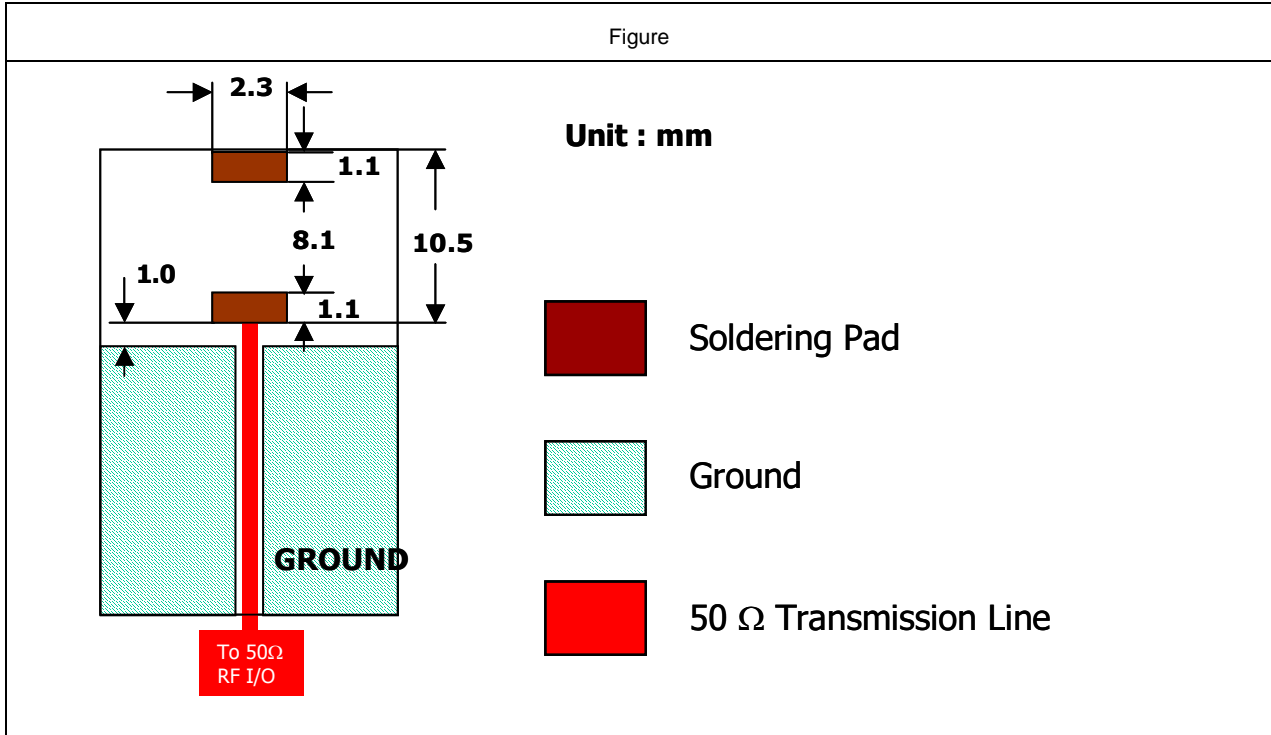
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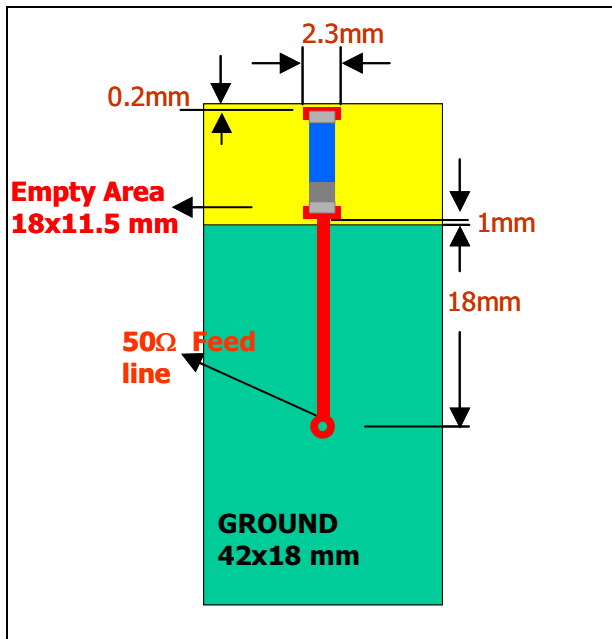
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### 4. Performance Report :

#### SOLDER LAND PATTERN DESIGN

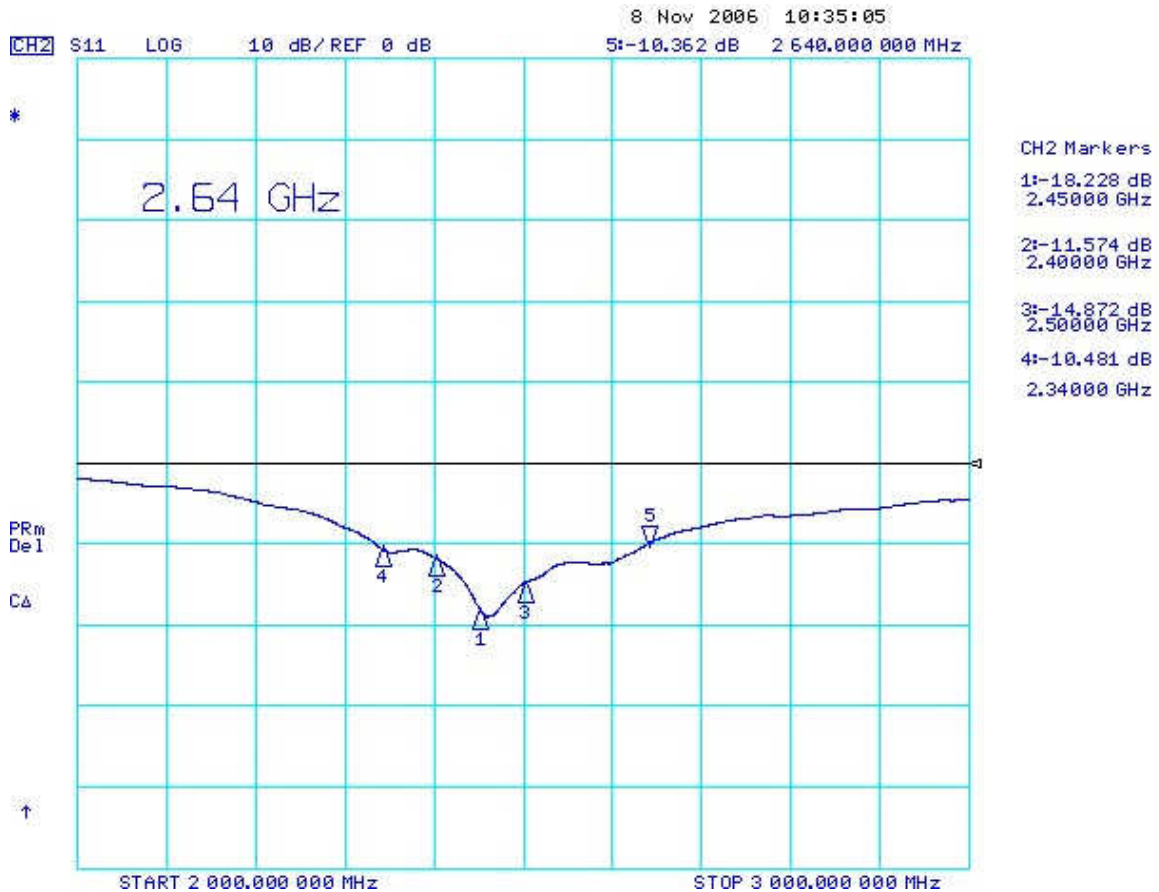



Antenna on Test Board ( FR4 Thickness 0.8mm)



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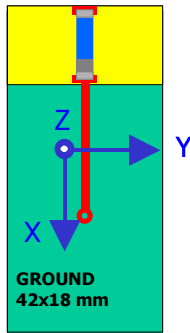
Antenna S11 on Test Board



UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
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RADIATION PATTERN

Radiation Pattern and Gain were dependent on measurement board design. The specification of ACA-9520-P1-MC-S antenna was measured based on the PCB size and installation position as shown in the



below figure Test Board

	Vertical	Horizontal
<b>Y - Z Plane</b>  Average Gain= 1.685 dBi	<p>Peak Gain = 2.71 dBi Average Gain = 0.87 dBi</p>	<p>Peak Gain= -0.30 dBi Average Gain=-5.98 dBi</p>
<b>X - Z Plane</b>  Average Gain= -0.844 dBi	<p>Peak Gain= -2.69 dBi Average Gain= -7.65dBi</p>	<p>Peak Gain= 2.97 dBi Average Gain= -1.86 dBi</p>
<b>X - Y Plane</b>  Average Gain= -1.801 dBi	<p>Peak Gain= -2.66 dBi Average Gain= -6.40dBi</p>	<p>Peak Gain= 1.82 dBi Average Gain= -3.65 dBi</p>

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A



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### 5. RELIABILITY TEST

Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : 235 ± 5°C  *Immersion time : 2 ± 0.5 sec  *Solder : Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Leaching <b>(Resistance to dissolution of metallization)</b> IEC 60068-2-58	*Solder bath temperature : 260 ± 5°C  *Leaching immersion time : 30 ± 0.5 sec  *Solder : SN63A	Loss of metallization on the edges of each electrode shall not exceed 25%.
Resistance to soldering heat JIS C 0050-5.4	*Preheating temperature : 120~150°C , 1 minute.  *Solder temperature : 270±5°C  *Immersion time : 10±1 sec  *Solder : Sn3Ag0.5Cu for lead-free  Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage.  Samples shall satisfy electrical specification after test.  Loss of metallization on the edges of each electrode shall not exceed 25%.
Drop Test JIS C 0044	*Height : 75 cm  *Test Surface : Rigid surface of concrete or steel.  *Times : 6 surfaces for each units ; 2 times for each side.	No mechanical damage.  Samples shall satisfy electrical specification after test.
Adhesive Strength of Termination JIS C 0051- 7.4.3	*Pressurizing force : 5N(≤0603) ; 10N(>0603) <b>*Test time : 10±1 sec</b>	No remarkable damage or removal of the termination.
Bending test JIS C 0051- 7.4.1	The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 1mm/s and then pressure shall be maintained for 5±1 sec.  Measurement to be made after keeping at room temperature for 24±2 hours	No mechanical damage.  Samples shall satisfy electrical specification after test.

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X = N/A      X.X = N/A      X.XX = N/A  
 ANGLES = N/A      HOLEDIA = N/A



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SCALE : N/A

UNIT : mm

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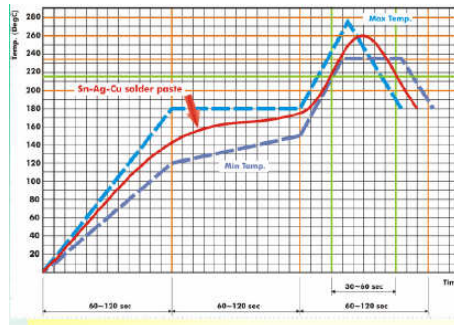
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Temperature cycle JIS C 0025	<ol style="list-style-type: none"> <li>30±3 minutes at -40°C±3°C,</li> <li>10~15 minutes at room temperature,</li> <li>30±3 minutes at +85°C±3°C,</li> <li>10~15 minutes at room temperature,</li> </ol> Total 100 continuous cycles  Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage.  Samples shall satisfy electrical specification after test.
Vibration JIS C 0040	*Frequency : 10Hz~55Hz~10Hz(1min) *Total amplitude : 1.5mm *Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)	No mechanical damage.  Samples shall satisfy electrical specification after test.
High temperature JIS C 0021	*Temperature : 85°C±2°C *Test duration : 1000+24/-0 hours  Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage.  Samples shall satisfy electrical specification after test.
Humidity (steady conditions) JIS C 0022	*Humidity : 90% to 95% R.H. *Temperature : 40±2°C *Time : 1000+24/-0 hrs.  Measurement to be made after keeping at room temperature for 24±2 hrs ※ 500hrs measuring the first data then 1000hrs data	No mechanical damage.  Samples shall satisfy electrical specification after test.
Low temperature JIS C 0020	*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours  Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage.  Samples shall satisfy electrical specification after test.

**SOLDERING CONDITION**

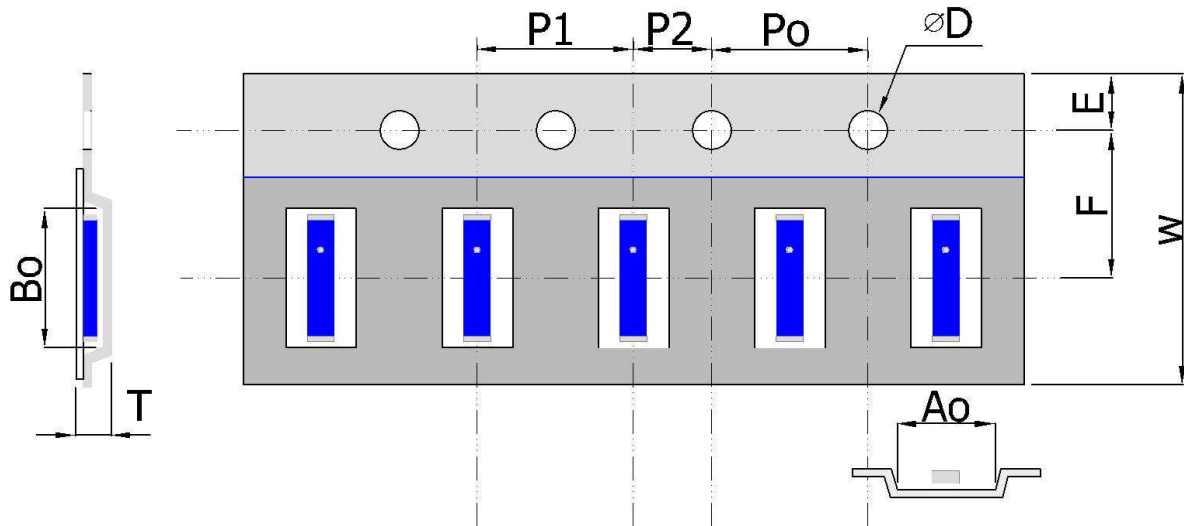
Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2



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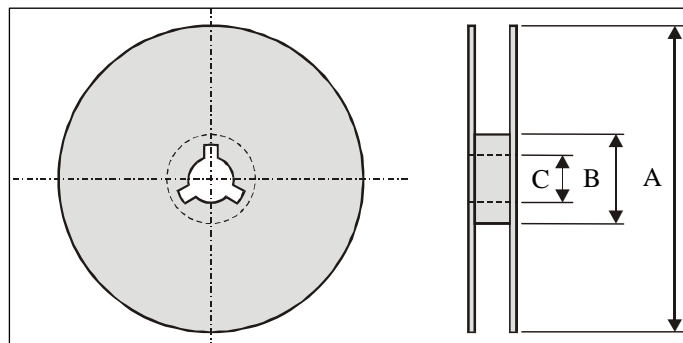
### 6. Package



Plastic Tape specifications (unit :mm)


Index	Ao	Bo	$\phi D$	T	W
Dimension (mm)	$2.30 \pm 0.10$	$9.90 \pm 0.10$	$1.50 \pm 0.05$	$1.45 \pm 0.10$	$16.0 \pm 0.10$
Index	E	F	Po	P1	P2
Dimension(mm)	$1.75 \pm 0.10$	$7.50 \pm 0.05$	$4.00 \pm 0.05$	$4.00 \pm 0.10$	$2.00 \pm 0.05$

### 7. Reel dimensions



Index	A	B	C
Dimension (mm)	$\phi 178$	$\phi 60.0$	$\phi 13.0$

Typing Quantity: 2000 pieces per 7" reel

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