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ACA-1903-P1-GF-S

Specification

Product Name	INPAQ RF Chip Antenna
Series/PN	ACA-1903-P1-GF-S
Size	EIAJ 1903

PN : ACA-1903-P1-GF-S

1.Explanation of part number :

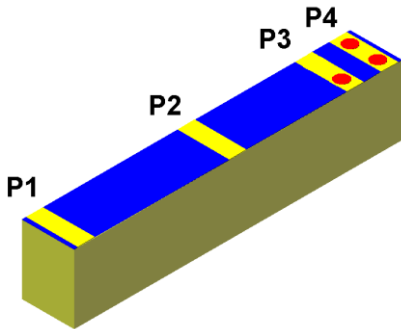
AC	A	-	1903	-	P1	-	GF	-	S
Product Type	Center Frequency/Band Code		Product Code (Unit: mm)		Design Revision Code		Antenna Type		Special Code
Chip Antenna	A: 2.4GHz E: Cellular G:868MHz H:915MHz L:5GHz M3:2G+5GHz N:NFC		Per 2 digits of length, width e.g.: 1903 19*3 (Length * Width)		P1:Rev.1		CC: Coupling 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)
Return Loss	-10 dB max.
VSWR	2 max.
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Impedance	50Ω
Rated Power (max.)	1 W
Operation Temperature	-40°C ~ +85°C

3. Antenna Drawing :

CONSTRUCTION



PIN	Definition
P1	Soldering
P2	Soldering
P3	Feed
P4	Gronud

Fig 1. Outline of Free Antenna – RGFRA1403041A1T

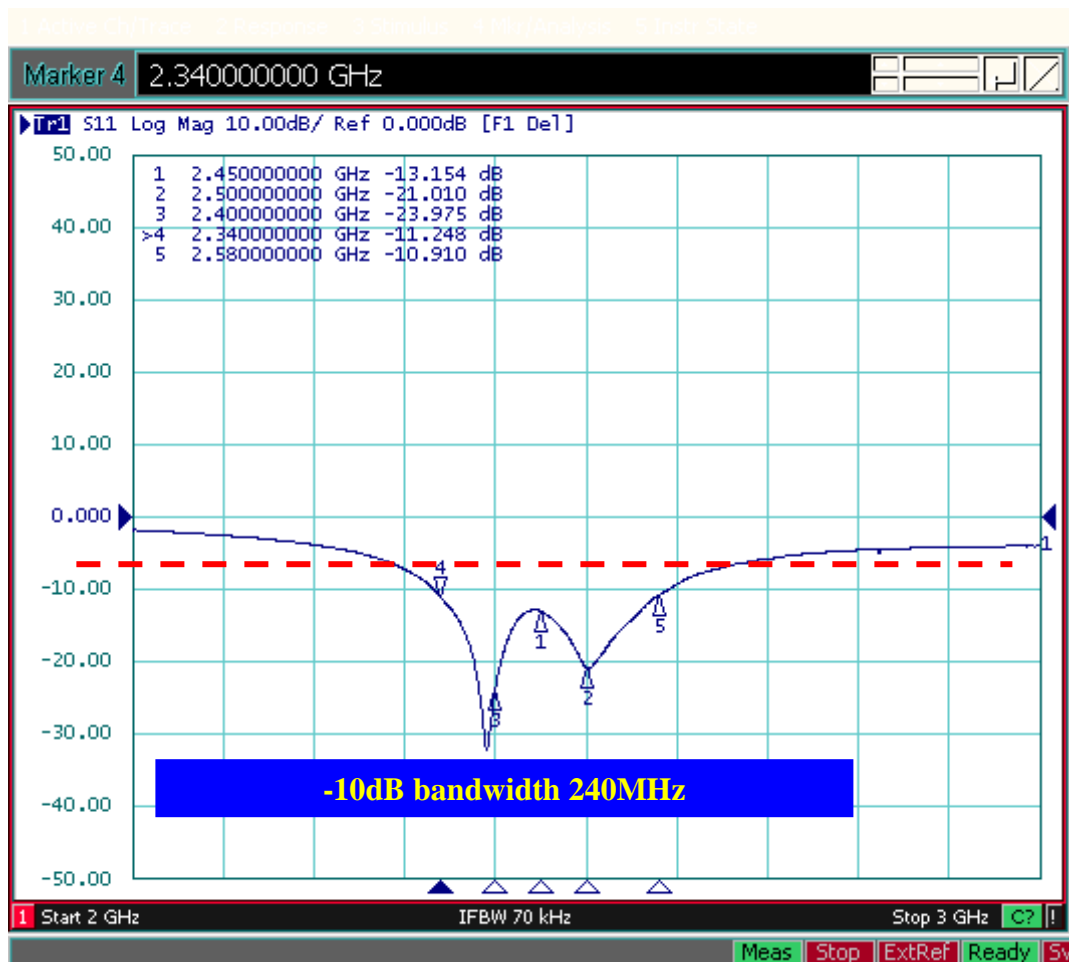
DIMENSIONS

Figure	Dimension (mm)	Port definition	
<p>The figure shows several dimensional drawings of the antenna component. It includes a top view with length L and a cross-section with thickness T and width W. A blue rectangular area is labeled 'Walsin 1903A1'. A yellow rectangular area is labeled 'Pw'. A side view shows the four ports P1, P2, P3, and P4 with their respective widths. P1 and P2 are soldering terminals, P3 is a feed terminal, and P4 is a ground terminal.</p>	L	19.0 ± 0.15	-
	W	3.0 ± 0.15	-
	T	4.0 ± 0.20	-
	P _w	3.0 ± 0.10	Pad width
	P ₁	1.0 ± 0.10	Soldering terminal
	P ₂	1.0 ± 0.10	Soldering terminal
	P ₃	1.0 ± 0.10	Feed terminal
	P ₄	1.0 ± 0.10	Ground terminal

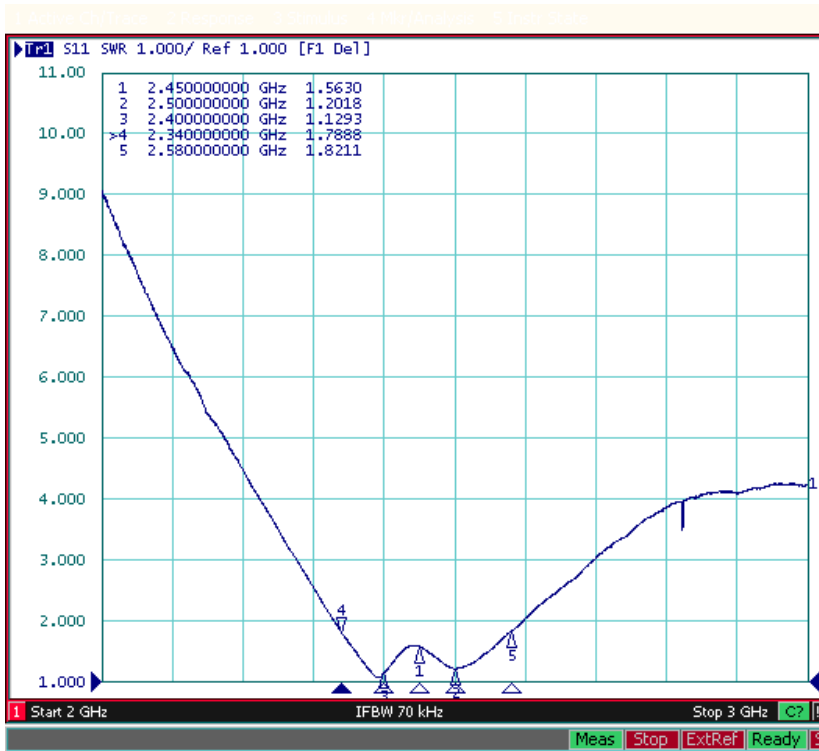
4. Performance Report :

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Antenna S11 on Test Board



VSWR:



SOLDER LAND PATTERN DESIGN

Figure	Symbol	Dimension
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RADIATION PATTERN

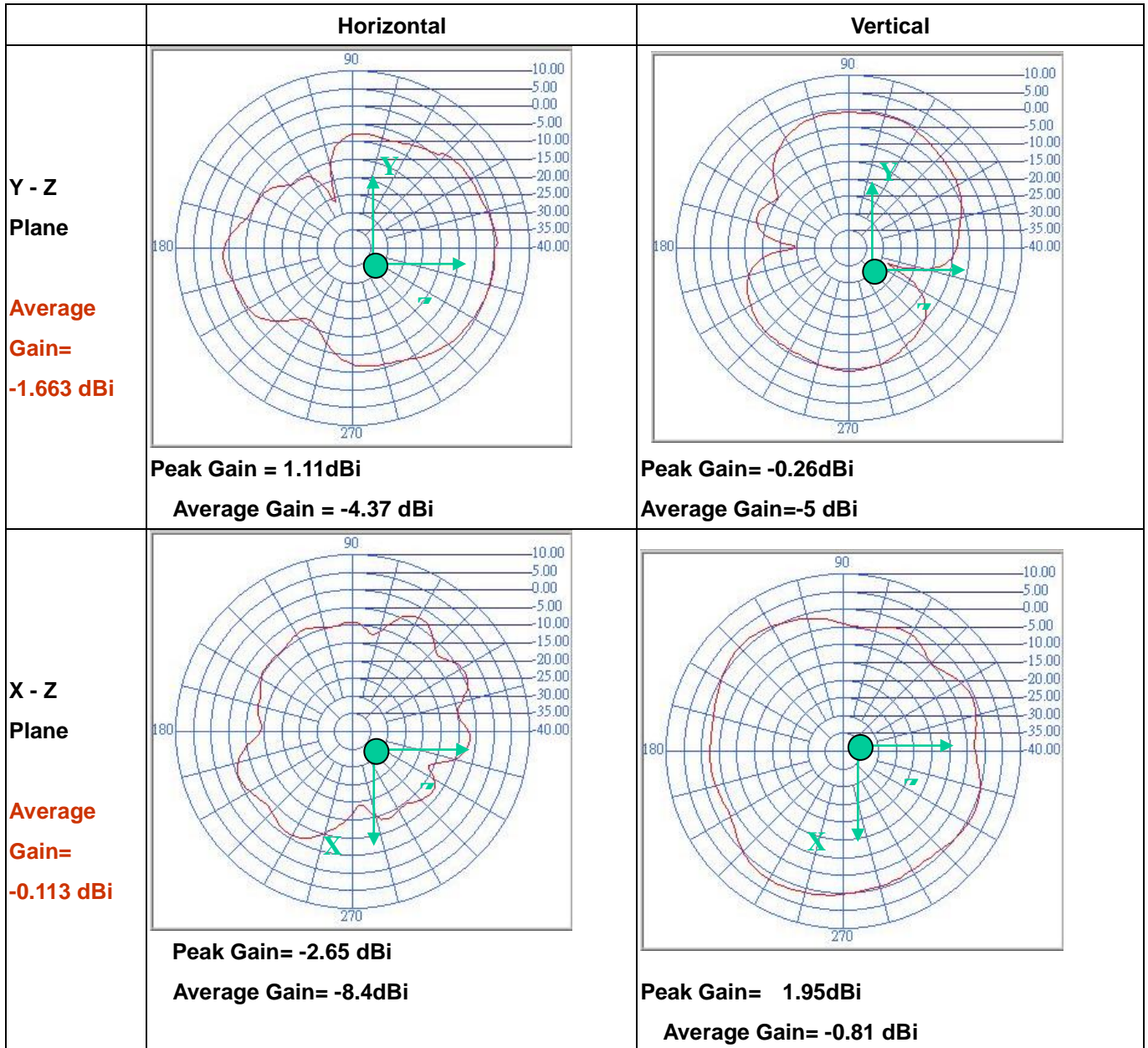
Radiation Pattern and Gain were dependent on measurement board design. The specification of ACA-1903-P1-GF-S antenna was measured based on the test board size and the antenna installation position as shown in the below:

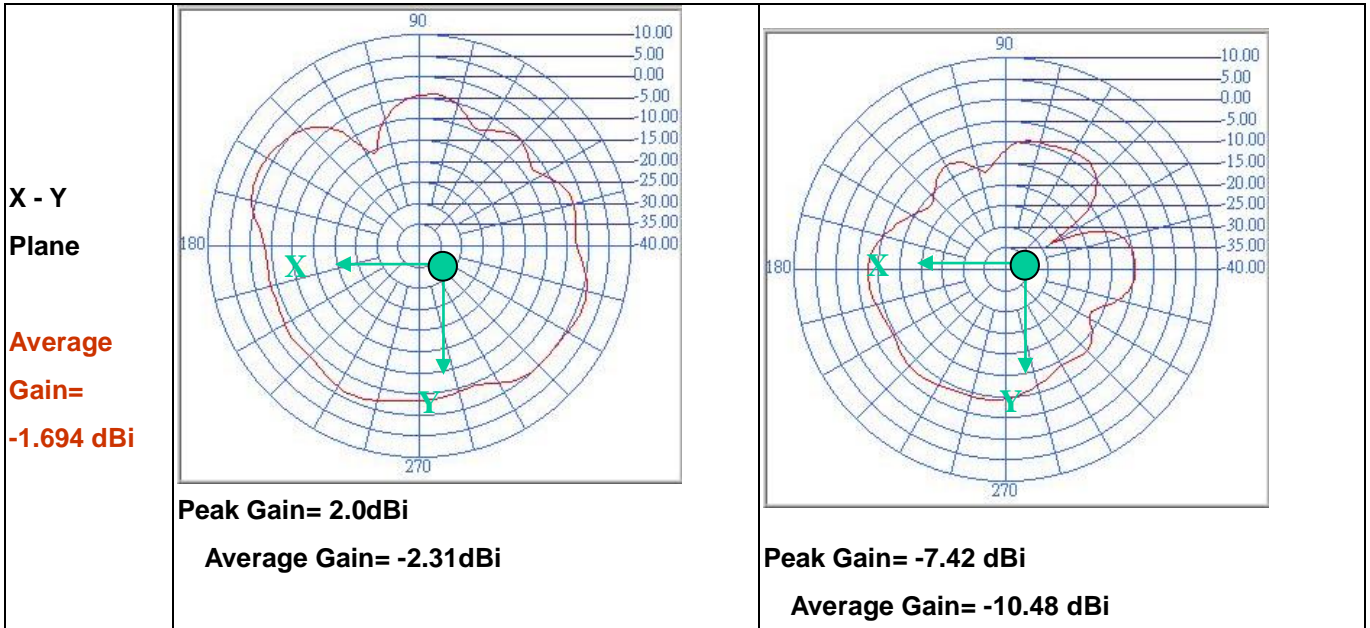
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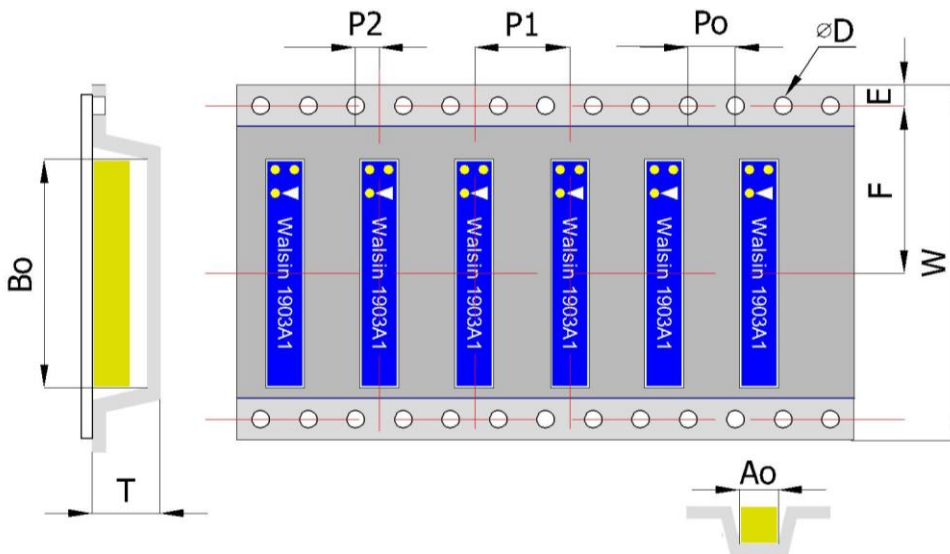
5. RELIABILITY TEST

Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : $235 \pm 5^{\circ}\text{C}$ *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 (Resistance to dissolution of metallization) IEC 60068-2-58	*Solder bath temperature : $260 \pm 5^{\circ}\text{C}$ *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 : $120\sim 150^{\circ}\text{C}$, 1 minute. *Solder temperature : $270\pm 5^{\circ}\text{C}$ *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. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within $-40 \sim 85^{\circ}\text{C}$. Loss of metallization on the edges of each electrode shall not exceed 25%.

<p>Drop Test</p> <p>JIS C 0044</p> <p>Customer's specification.</p>	<p>*Height : 75 cm</p> <p>*Test Surface : Rigid surface of concrete or steel.</p> <p>*Times : 6 surfaces for each units ; 2 times for each side.</p>	<p>No mechanical damage.</p> <p>Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>
<p>Vibration</p> <p>JIS C 0040</p>	<p>*Frequency : 10Hz~55Hz~10Hz(1min)</p> <p>*Total amplitude : 1.5mm</p> <p>*Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)</p>	<p>No mechanical damage.</p> <p>Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>
<p>Adhesive Strength of Termination</p> <p>JIS C 0051- 7.4.3</p>	<p>*Pressurizing force : 5N(\leq0603) ; 10N(>0603)</p> <p>*Test time : 10\pm1 sec</p>	<p>No remarkable damage or removal of the termination.</p>
<p>Bending test</p> <p>JIS C 0051- 7.4.1</p>	<p>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\pm1 sec. Measurement to be made after keeping at room temperature for 24\pm2 hours</p>	<p>No mechanical damage.</p> <p>Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>
<p>Temperature cycle</p> <p>JIS C 0025</p>	<p>1. 30\pm3 minutes at -40°C\pm3°C, 2. 10~15 minutes at room temperature, 3. 30\pm3 minutes at +85°C\pm3°C, 4. 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24\pm2 hrs</p>	<p>No mechanical damage.</p> <p>Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>

<p>High temperature JIS C 0021</p>	<p>*Temperature : 85°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs</p>	<p>No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>
<p>Humidity (steady conditions) JIS C 0022</p>	<p>*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</p>	<p>No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>
<p>Low temperature JIS C 0020</p>	<p>*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs</p>	<p>No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.</p>

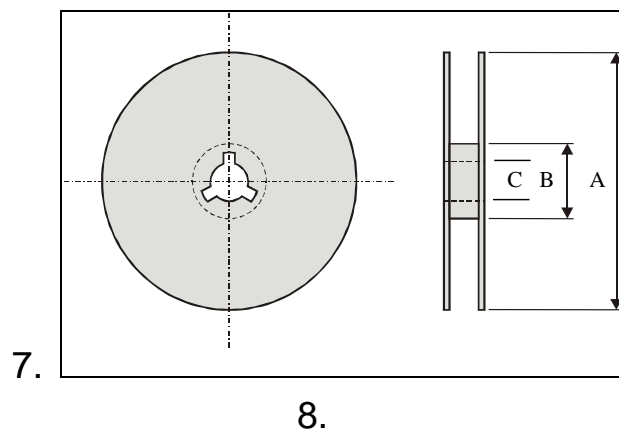
6. Package



Plastic Tape specifications (unit :mm)

Index	Ao	Bo	ϕD	T	W
Dimension (mm)	3.25 ± 0.1	19.35 ± 0.1	1.50 ± 0.10	4.05 ± 0.1	32 ± 0.3
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.1	14.25 ± 0.1	4.0 ± 0.1	8.0 ± 0.1	2.0 ± 0.1

Reel dimensions



Index	A	B	C
Dimension (mm)	$\Phi 330 \pm 1$	$\Phi 99 \pm 1$	$\Phi 17.4 \pm 0.5$

Typing Quantity: 1000 pieces per 13" reel