



|              |                                                             |
|--------------|-------------------------------------------------------------|
| Manufacturer | INPAQ Technology Co., Ltd.                                  |
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| FAX          | +886-37-585-511                                             |
| E-Mail       | info@inpaq.com.tw                                           |

[illegible]

# ACA-5020-A2-MC-S Specification

## 1. APPLIACTION:

WLAN 802.11b/g, Bluetooth, etc...

## 2. Explanation of part number:

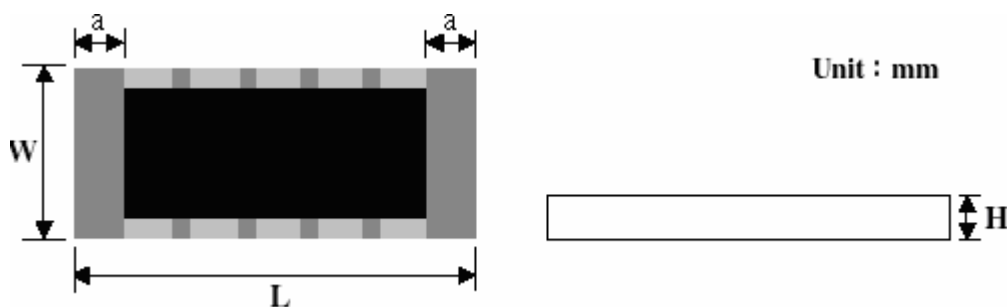
$\frac{AC}{(1)} \quad \frac{A}{(2)} - \frac{5020}{(3)} \quad \frac{A2}{(4)} - \frac{MC}{(5)} - \frac{S}{(6)} - \bar{(7)}$

- (1) Product Type : Chip Antenna
- (2) Center Frequency/Band Code : A--2.45G group
- (3) Size Code: 5.0mm(length) x 2.0mm(width)
- (4) Design Revision Code: A2= Rev. 2
- (5) MC= MONOPOLE Ceramics Type
- (6) Special Code: S=RoHS Compliant
- (7) Suffix For Special Requirements

## 3. ELECTRICAL SPECIFICATION:

| Electrical Specification |                    |
|--------------------------|--------------------|
| Frequency Range          | 2.4GHz~2.5GHz      |
| Polarization             | Linear             |
| Patten                   | Omni-Directional   |
| Reef Impedance           | 50 ohm             |
| Gain                     | 0 dBi (Peak)       |
| Size                     | 5.0mmX2.0mmX0.72mm |
| VSWR                     | $\leq 2.0$         |

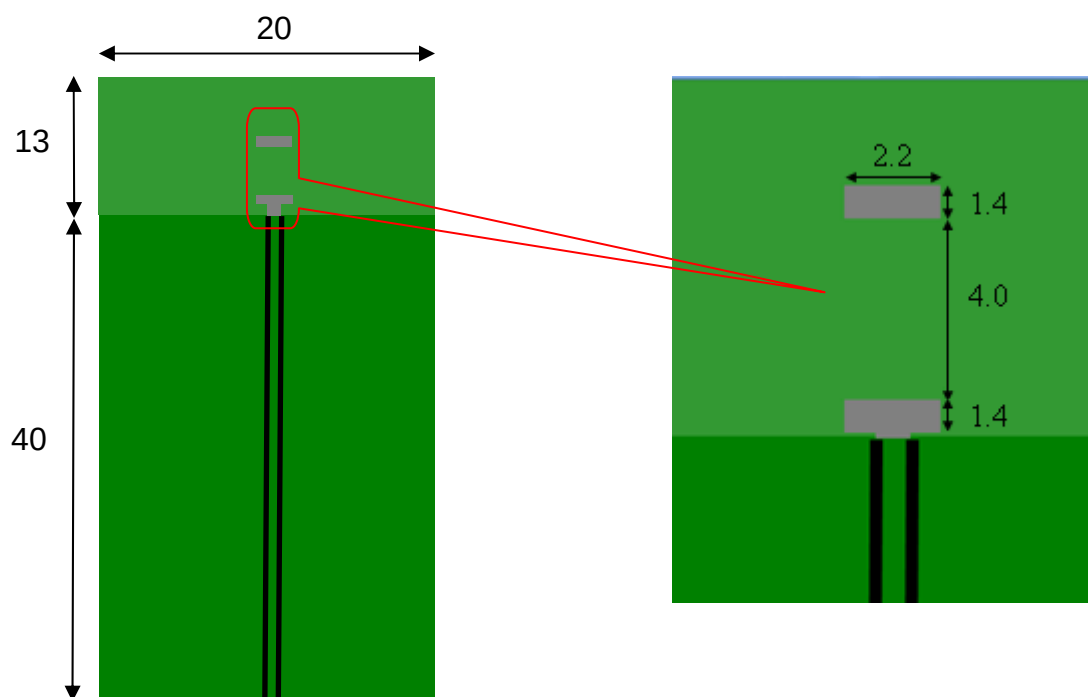
## 4. DIMENSIONS:



| Mark       | L       | W       | H        | a        |
|------------|---------|---------|----------|----------|
| Dimensions | 5.0±0.2 | 2.0±0.2 | 0.72±0.2 | 0.50±0.2 |

|                                                            |  |                                                                                     |                            |                                                                                                                                                                                                       |
|------------------------------------------------------------|--|-------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UNLESS OTHER SPECIFIED TOLERANCES ON :                     |  |  | INPAQ TECHNOLOGY CO., LTD. |                                                                                                                                                                                                       |
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| DRAWN BY : 趙彥年 <i>Okston</i>                               |  | CHECKED BY : 楊奇峰 <i>Yang</i>                                                        |                            |                                                                                                                                                                                                       |
| DESIGNED BY : 陳威仁 <i>Allen</i>                             |  | APPROVED BY : 謝立庭 <i>Li</i>                                                         |                            |                                                                                                                                                                                                       |
| TITLE : ACA-5020-A2-MC-S Specification                     |  | DOCUMENT NO.                                                                        | ENS000015390               | SPEC REV.<br>A2                                                                                                                                                                                       |

## 5. RECOMMENDED PCB LAYOUT: (unit: mm)



## 6. APPEARANCE CONFIGURATION :

Top Layer:



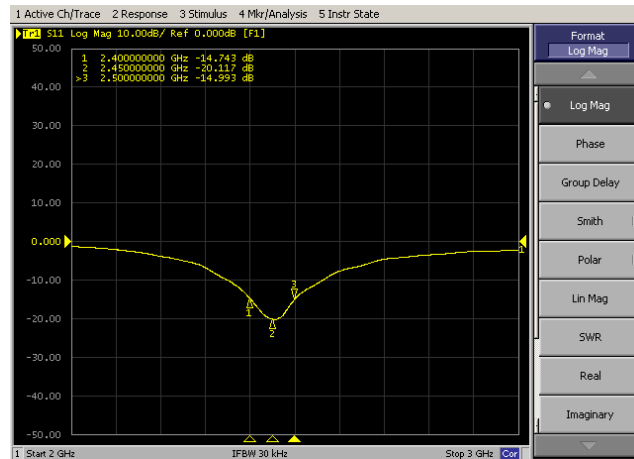
Bottom Layer:



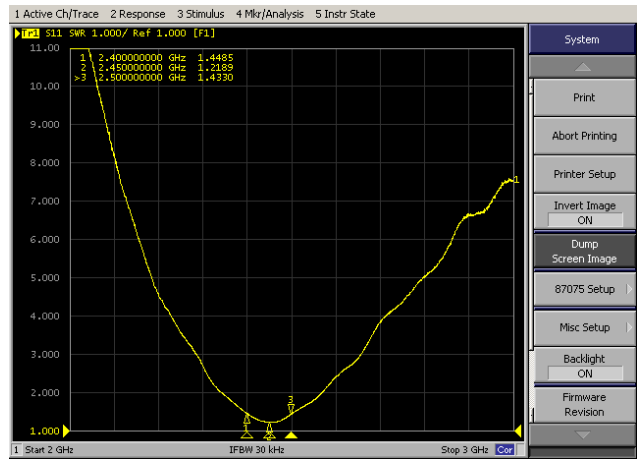
|                                                                |                              |                                                                                                                                                                                                       |                            |                 |
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| DRAWN BY : 趙彥年 <i>Okston</i>                                   | CHECKED BY : 楊奇峰 <i>Yang</i> |                                                                                                                                                                                                       |                            |                 |
| DESIGNED BY : 陳威仁 <i>Allen</i>                                 | APPROVED BY : 謝立庭 <i>Li</i>  |                                                                                                                                                                                                       |                            |                 |
| TITLE : ACA-5020-A2-MC-S Specification                         |                              | DOCUMENT NO.                                                                                                                                                                                          | ENS000015390               | SPEC REV.<br>A2 |

## 7. ELECTRICAL CHARACTERISTICS

### Return Loss



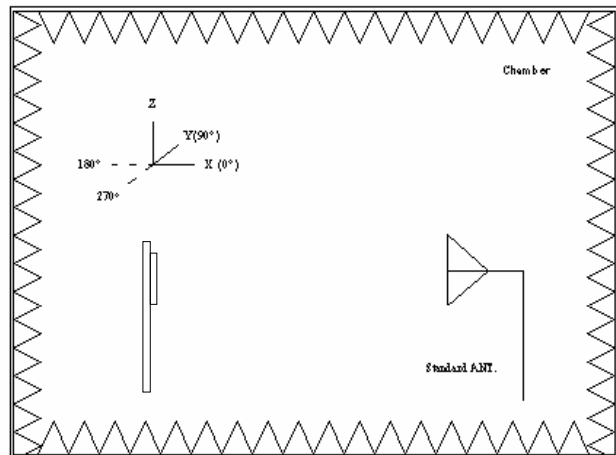
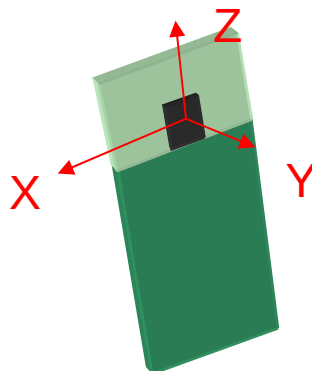
### VSWR



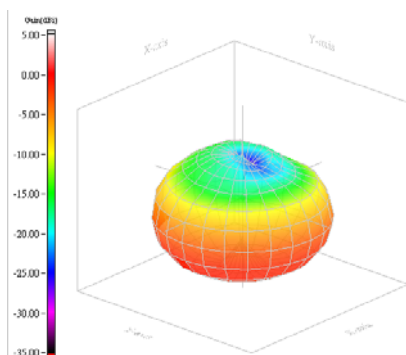
## 8. RADIATION PATTERN

The Gain pattern was measuring in INPAQ's FAR-field chamber. DUT will be placed on the table of rotator, a standard horn antenna and Vector Network Analyzer was using to collected data. (Please contact to INPAQ for more detail)

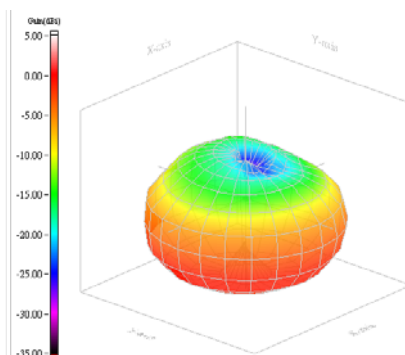
### ● Measuring factors definition



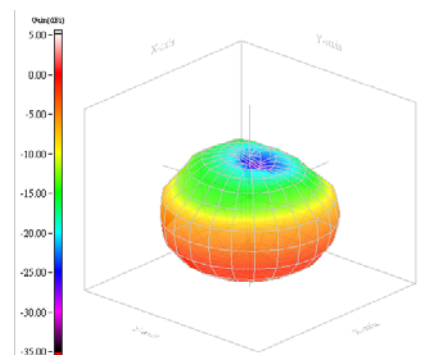
2400MHZ



2450MHZ



2500MHZ



UNLESS OTHER SPECIFIED TOLERANCES ON :

X = ± X.X = ± X.XX =

ANGLES = ± HOLE DIA = ±

SCALE : UNIT : mm

DRAWN BY : 趙彥年 *Okazun* CHECKED BY : 楊奇峰 *Yang Qifeng*

DESIGNED BY : 陳威仁 *Allen* APPROVED BY : 謝立庭 *Li Ting*



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TITLE : ACA-5020-A2-MC-S Specification

DOCUMENT NO.

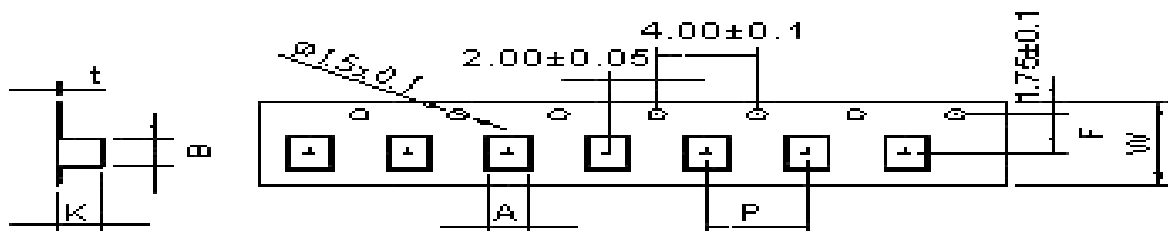
ENS000015390

SPEC REV.  
A2

## 9. Taping Package And Label Marking:

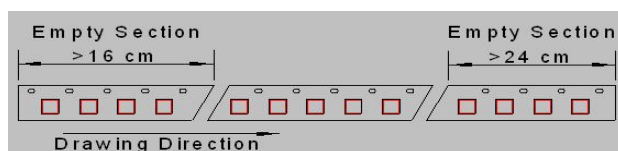
(1) Quantity/Reel: 3000pcs/Reel

(2) Plastic Tape: (unit: mm)



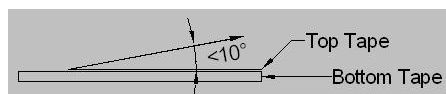
| Type | W      | A       | B       | K        | t       | F        | P        |
|------|--------|---------|---------|----------|---------|----------|----------|
| 5020 | 12±0.3 | 2.3±0.2 | 5.3±0.2 | Max. 1.0 | 0.3±0.1 | 5.50±0.2 | 4.00±0.2 |

(3) Tape Packing



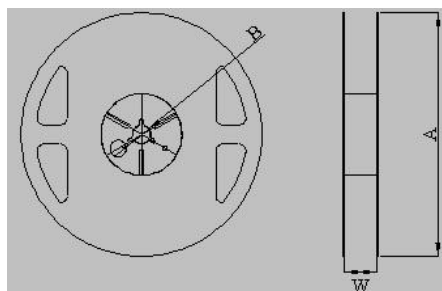
(4) Cover Tape Reel Off Force:

$$5g \cdot f \leq \text{Peel-Off Force} \leq 70g \cdot f$$



(5) Reel Dimensions: (unit: mm)

Reel Material: Polystyrene



| W      | A       | B      |
|--------|---------|--------|
| 12±0.5 | 178±1.0 | 13±0.5 |

|                                                                |  |                                                                                     |                            |                                                                                                                                                                                                       |
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| DRAWN BY : 趙彥年 <i>Okazaki</i>                                  |  | CHECKED BY : 楊奇峰 <i>Yang</i>                                                        |                            |                                                                                                                                                                                                       |
| DESIGNED BY : 陳威仁 <i>Allen</i>                                 |  | APPROVED BY : 謝立庭 <i>Li</i>                                                         |                            |                                                                                                                                                                                                       |
| TITLE : ACA-5020-A2-MC-S Specification                         |  | DOCUMENT NO.                                                                        | ENS000015390               | SPEC REV.<br>A2                                                                                                                                                                                       |

## 10. Environmental Performance

### (1) Reliability Test

| Item                        | Condition                                                                                                                                                               | Specification                                                  |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Thermal shock               | 1. 30±3 minutes at -40°C±5°C,<br>2. Convert to +105°C (5 minutes)<br>3. 30±3 minutes at +105°C±5°C,<br>4. Convert to -40°C (5 minutes)<br>5. Total 24 continuous cycles | No apparent damage<br>Fulfill the electrical spec. after test. |
| Humidity resistance         | 1. Humidity: 85% R.H.<br>2. Temperature: 85±5°C<br>3. Time: 500 hours.                                                                                                  | No apparent damage<br>Fulfill the electrical spec. after test. |
| High temperature resistance | 1. Temperature: 150°C±5°C<br>2. Time: 1000 hours.                                                                                                                       | No apparent damage<br>Fulfill the electrical spec. after test. |
| Low temperature resistance  | 1. Temperature: -40°C±5°C<br>2. Time: 1000 hours.                                                                                                                       | No apparent damage<br>Fulfill the electrical spec. after test. |
| Soldering heat resistance   | 1. Solder bath temperature : 260±5°C<br>2. Bathing time: 10±1 seconds                                                                                                   | No apparent damage                                             |
| Solderability               | The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of 245±5°C for 3±1 seconds.                                    | No apparent damage                                             |

### (2) Storage condition

#### (a) At warehouse:

The temperature should be within 0 ~ 30°C and humidity should be less than 75% RH.

The product should be used within 1 year from the time of delivery.

#### (b) On board:

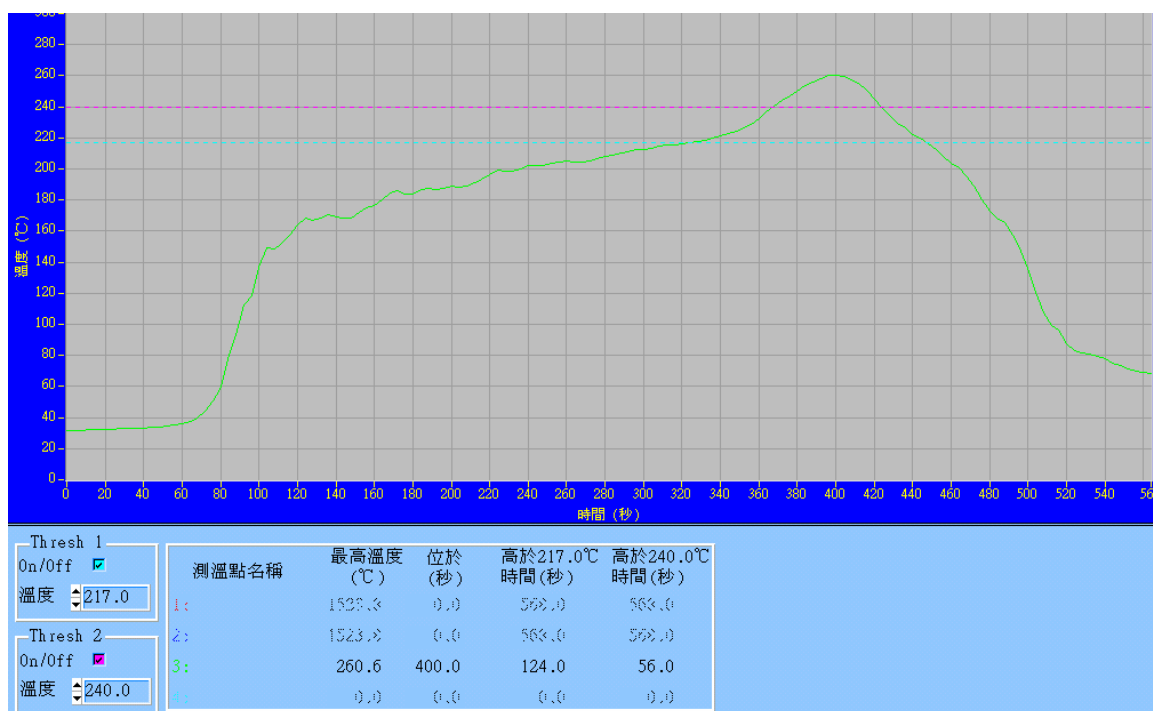
The temperature should be within -40~85°C and humidity should be less than 85% RH.

### (3) Operating temperature range

Operating temperature range : -40°C to +105°C.

|                                                                |  |                                                                                     |                            |                                                                                                                                                                                                       |
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| DRAWN BY : 趙彥年 <i>Okston</i>                                   |  | CHECKED BY : 楊奇峰 <i>Kevin</i>                                                       |                            |                                                                                                                                                                                                       |
| DESIGNED BY : 陳威仁 <i>Allen</i>                                 |  | APPROVED BY : 謝立庭 <i>LT</i>                                                         |                            |                                                                                                                                                                                                       |
| TITLE : ACA-5020-A2-MC-S Specification                         |  | DOCUMENT NO.                                                                        | ENS000015390               | SPEC REV.<br>A2                                                                                                                                                                                       |

## 11. Recommendable reflow soldering



### (1) Soldering gun procedure

Note the follows, in case of using solder gun for replacement.

- (a) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.
- (b) The soldering gun tip shall not touch this product directly.

### (2) Soldering volume

Note that excess of soldering volume will easily get crack the body of this Product.

|                                                                |                             |                                                                                                                                                                                                       |                            |                 |
|----------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------|
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| DRAWN BY : 趙彥年 <i>Okston</i>                                   | CHECKED BY : 楊奇峰 <i>Ken</i> |                                                                                                                                                                                                       |                            |                 |
| DESIGNED BY : 陳威仁 <i>Allen</i>                                 | APPROVED BY : 謝立庭 <i>LT</i> |                                                                                                                                                                                                       |                            |                 |
| TITLE : ACA-5020-A2-MC-S Specification                         |                             | DOCUMENT NO.                                                                                                                                                                                          | ENS000015390               | SPEC REV.<br>A2 |