## Product Description

MIcable SA-07-4B020070 is a high performance 4x4 butler matrix, covering the frequency of 2-7GHz. It can transfer the signal reciprocally from any of 4 ports to any of other 4 ports, with super phase accuracy, amplitude balance, very small insertion loss and high port to port isolation. The system comes housed in a compact, 101.6x122x16.5mm cavity. Because the high performance passive components and cables are used inside, the system has very stable, repeatable performance.

## Key Features

| Feature | Advantage |
|---|---|
| Super phase accuracy | The system has typical 7° phase accuracy over optimized frequency range, it can be used as accurate phase feed network to realize ideal beamforming performance of phase array. |
| Excellent amplitude balance | The system has typical 0.7dB amplitude balance over optimized frequency range, it can help realize the ideal vector combination of the signal and beamforming. |
| Low insertion loss | The system has very low 8dB max insertion loss (including theoretical 6dB loss), it can help test system increase the dynamic range. |
| High port to port isolation | This can reduce the interference between the adjacent channel signals. |
| Low VSWR | Can better match the 50Ω system, reduce the reflection of the signal and energy loss. |
| High Power | Every port can accept the input signal with CW power of 5W,it is good for big signal measurement. |
| Excellent performance stability and repeatability | Maintain the consistent system performance, reduce the need of calibration. |

## Specifications

| Specifications | Unit | Limits |
|---|---|---|
| Frequency Range | GHz | 2-7 |
| VSWR for all RF ports | :1/(Max.) | 1.6 |
| Insertion Loss* | dB/(Max.) | 8 |
| Amplitude Balance | dB/(Max.) | ±1 |
| Amplitude Flatness per path | dB/(Max.) | ±0.9 |
| Phase Accuracy | Deg./(Max.) | ±10 |
| Isolation | dB/(Min.) | 14 |

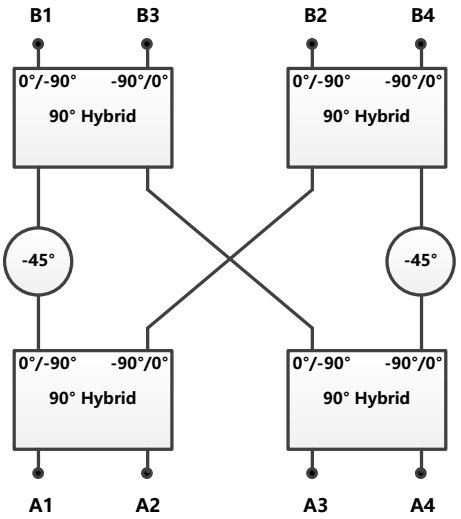
*** Theoretical 6dB included**

- **Power(max.):** CW: 5(single Input-Port), Peak: 500;
- **Connector:** SMA[F];
- **Dimension:** 101.6x122x16.5mm;
- **Weight(max.):** 450g;
- **Finishing:** Nickel plating;
- **Temperature:** Operating: -40~+70°C; Storage: -55~+85°C;
- **Environmental:** Per MIL-STD-202F, Method 204D,213B(optional, contact supplier for detail info.)

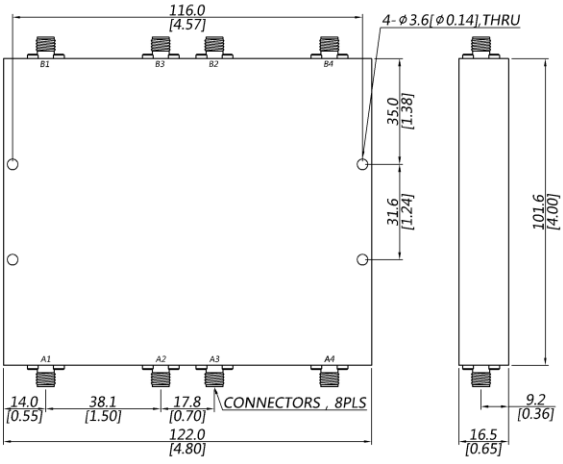
## Phase Table

| Input / Output | A1 | A2 | A3 | A4 |
|---|---|---|---|---|
| B1 | -45 | -135 | -90 | -180 |
| B2 | -90 | 0 | -225 | -135 |
| B3 | -135 | -225 | 0 | -90 |
| B4 | -180 | -90 | -135 | -45 |

## Schematic Diagram

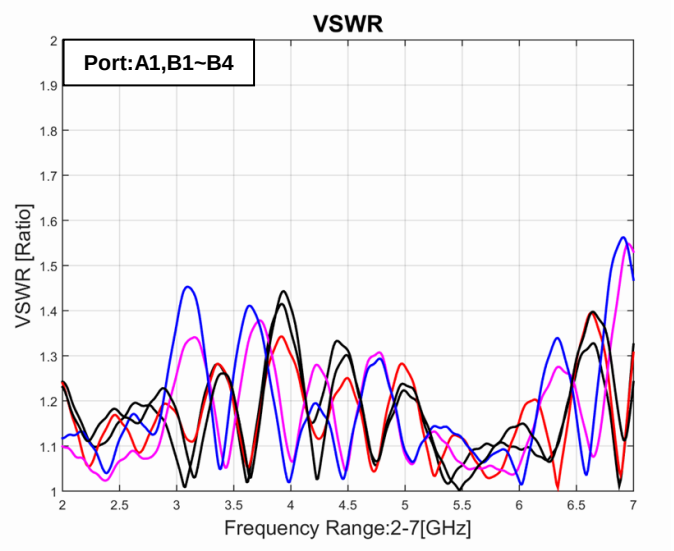


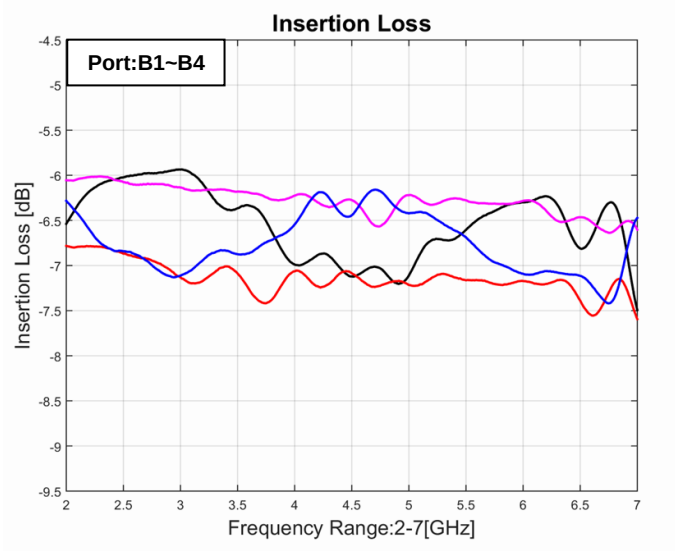

## Outline Drawing

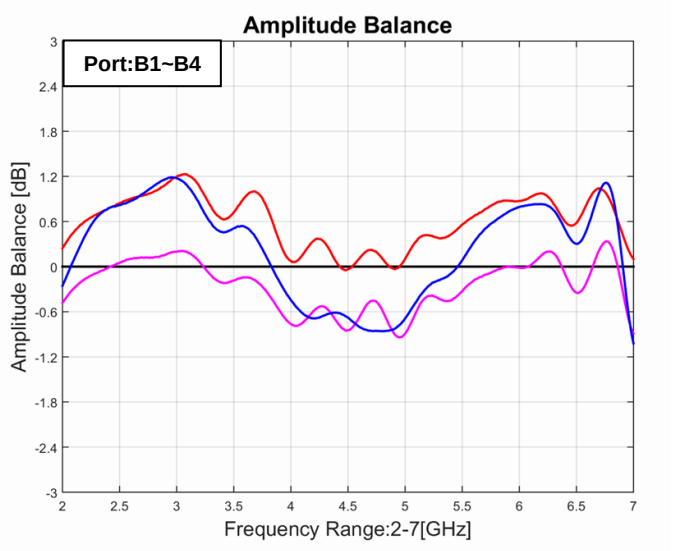


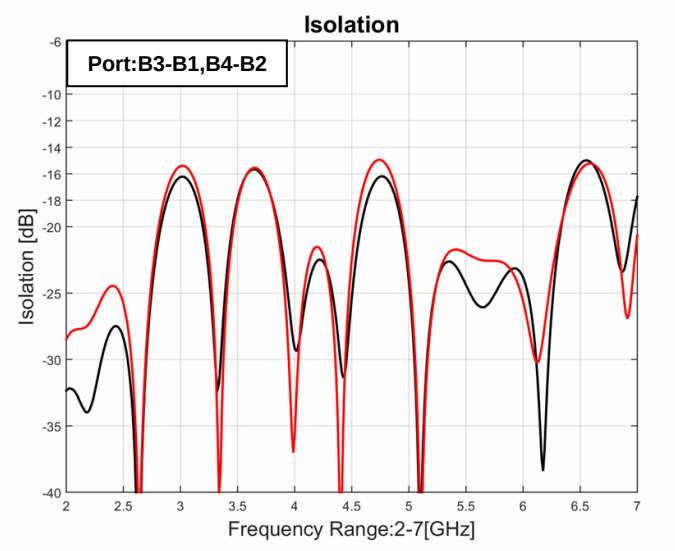
## Typical Tested Graph

### Take A1 As The Input Port

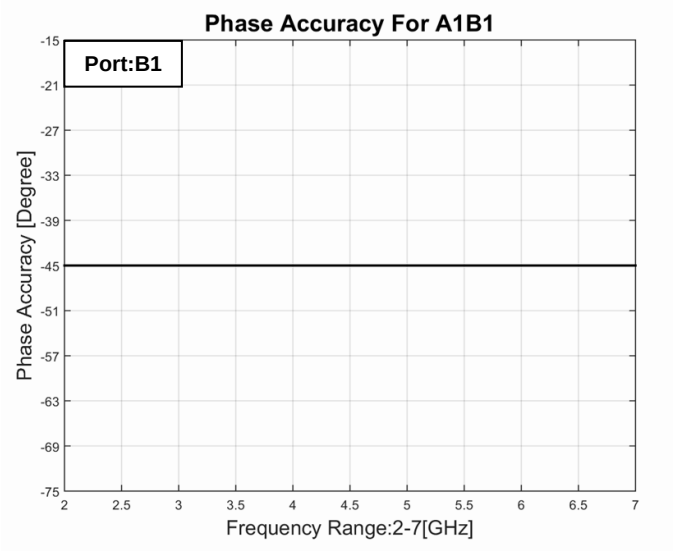


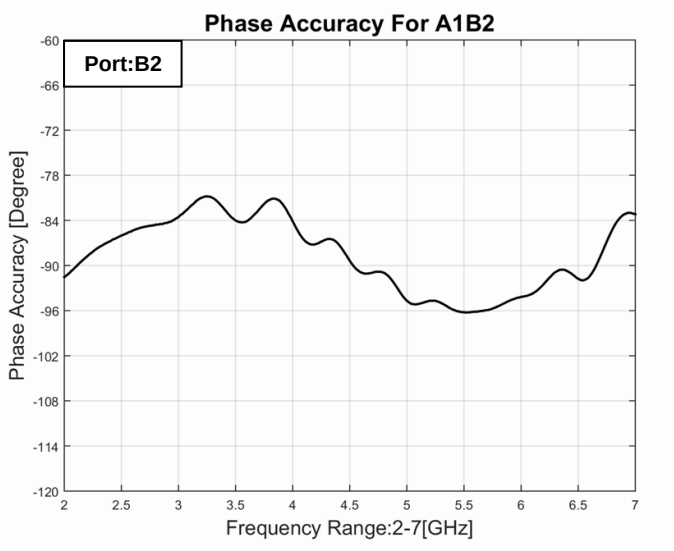



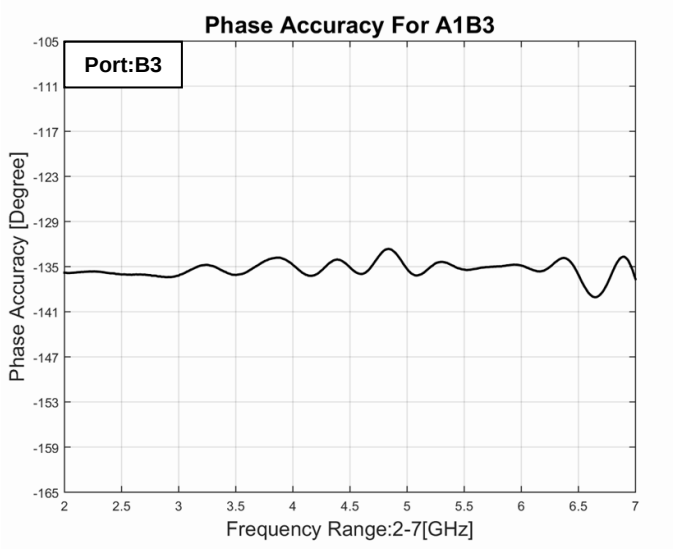



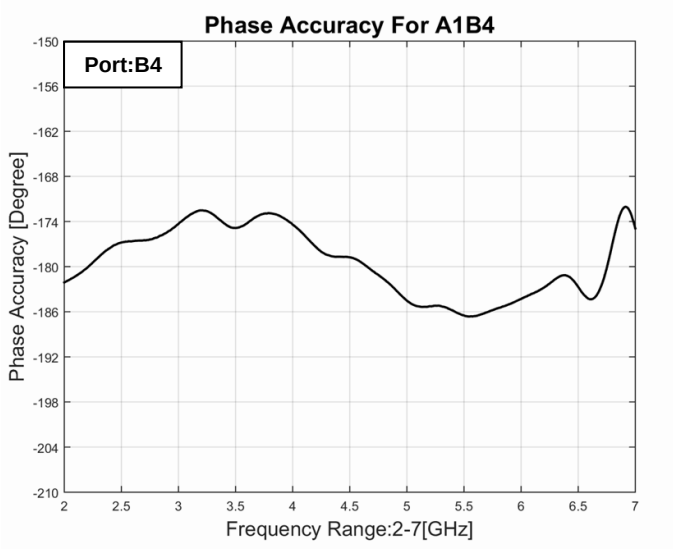



## Take A1 As The Input Port

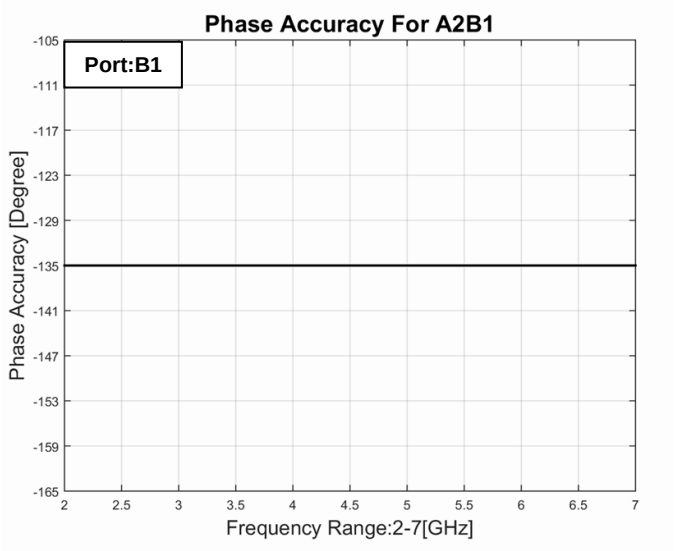


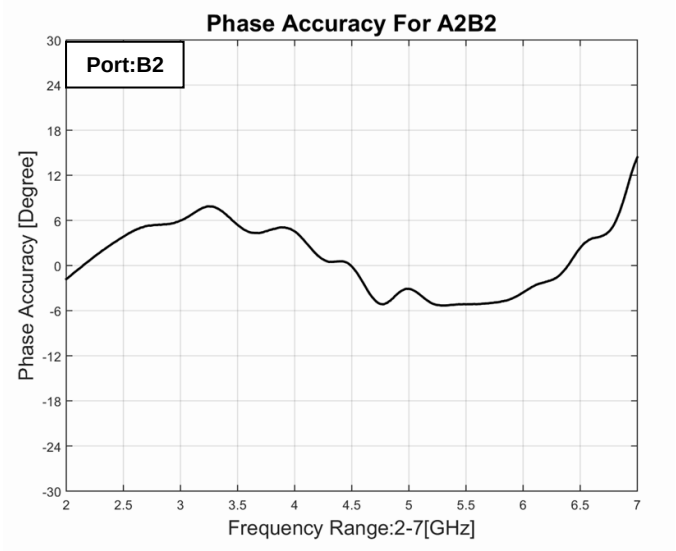



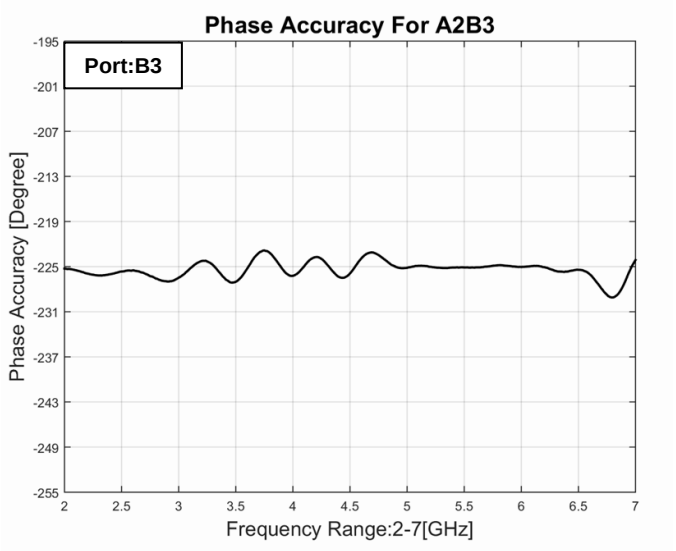



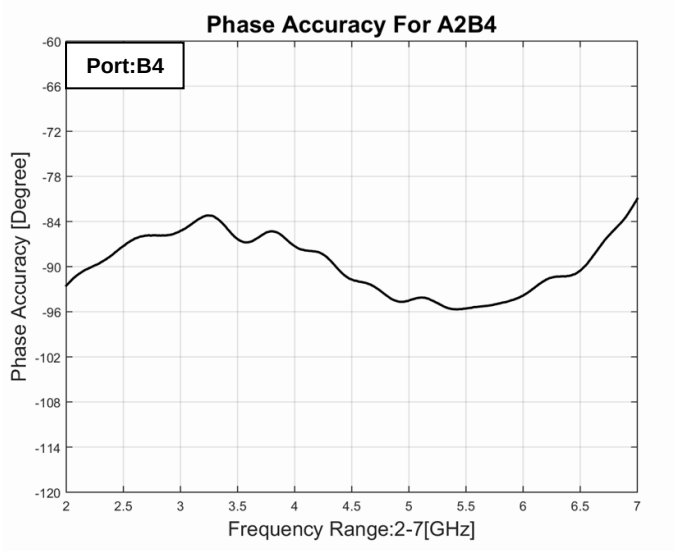



## Take A2 As The Input Port

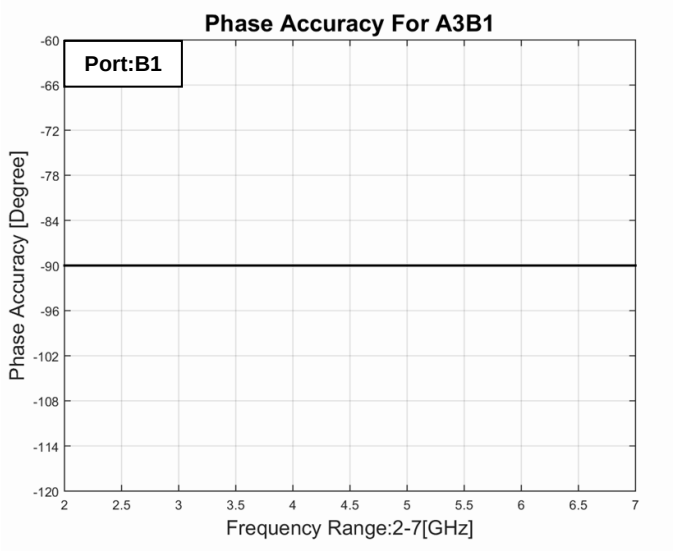


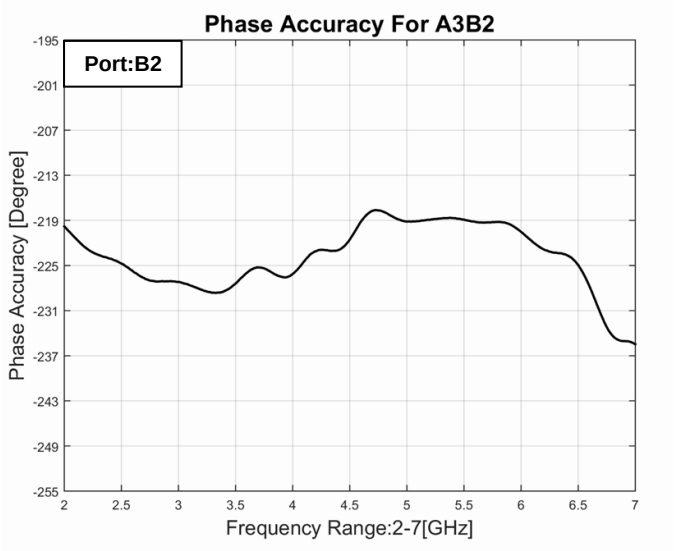



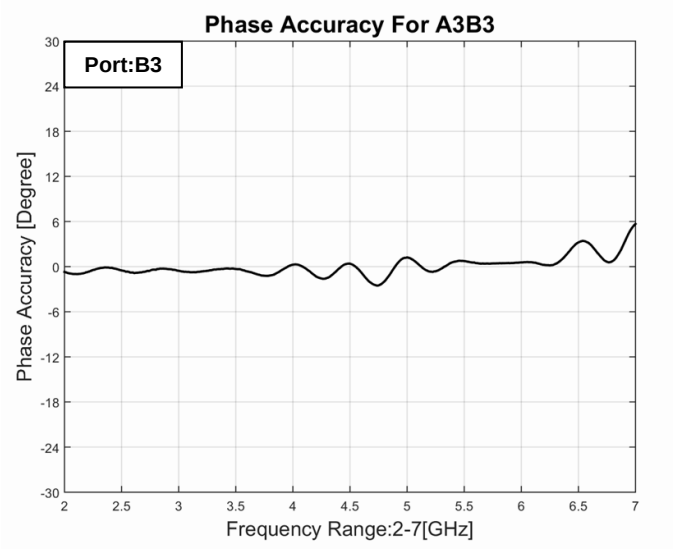



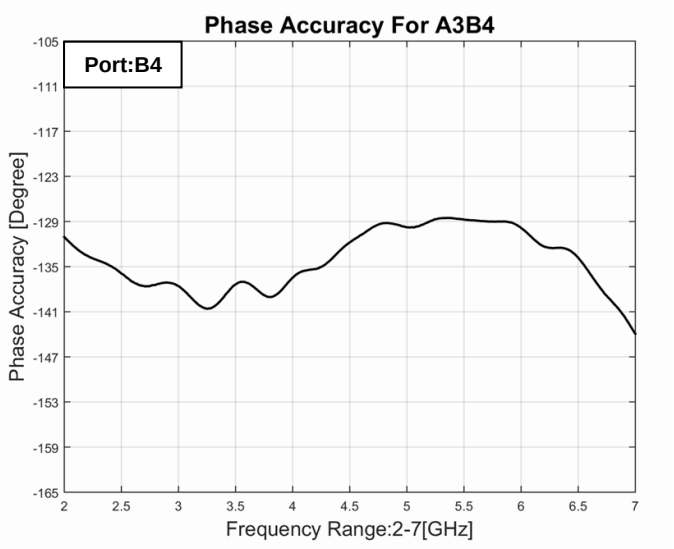



## Take A3 As The Input Port



## Take A4 As The Input Port