

BSAP6020(V3) Antenna design proposal

V1.0
Tim Chao
2022/09/21

Agenda

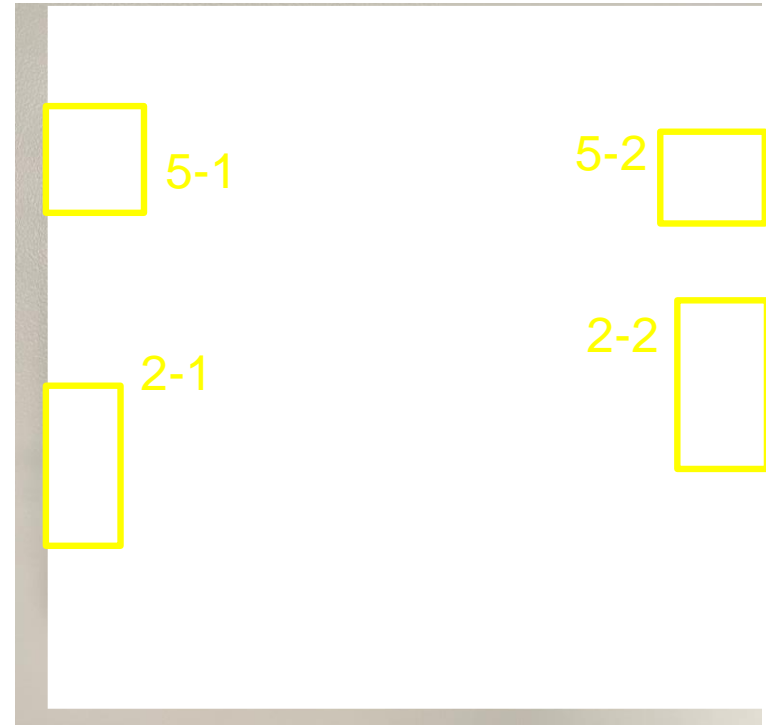
- History
- Antenna Placement
- Return loss & Isolation
- Gain table
- 2D Radiation Pattern

History

| Date | Description | Version |
|------------|-----------------------|---------|
| 2022/09/21 | Drift (From BSAP6020) | V1.0 |
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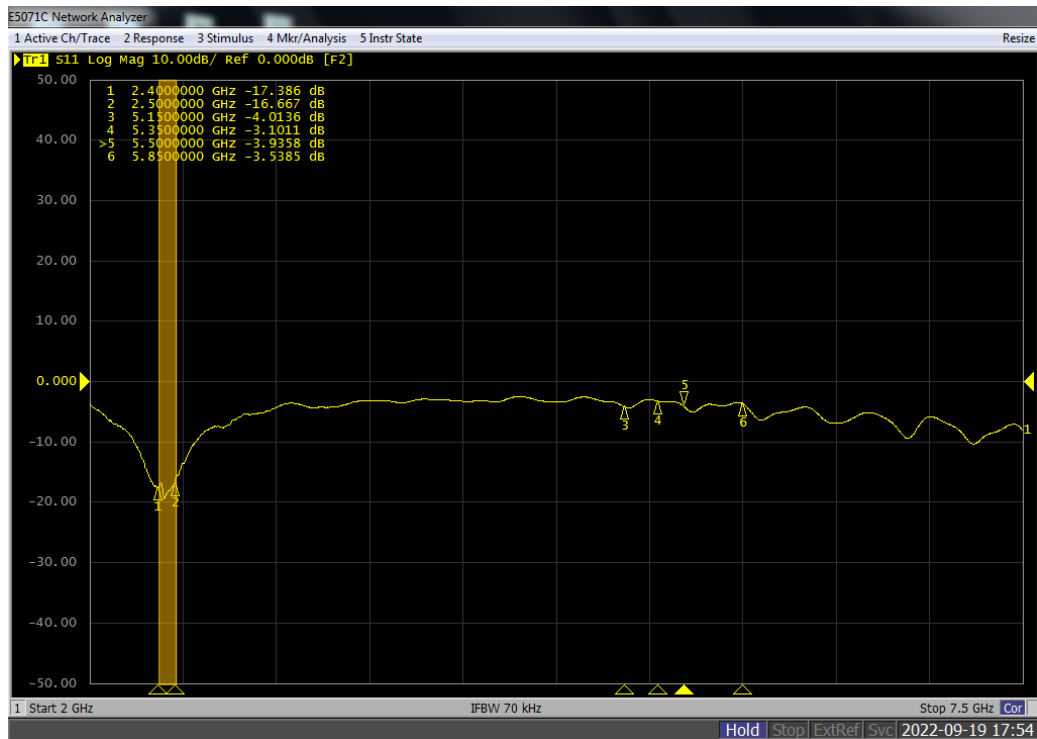
Antenna Placement

- BSAP6020(V3) have total four antennas as figure :
- 2.45GHz * 2
- 5GHz * 2



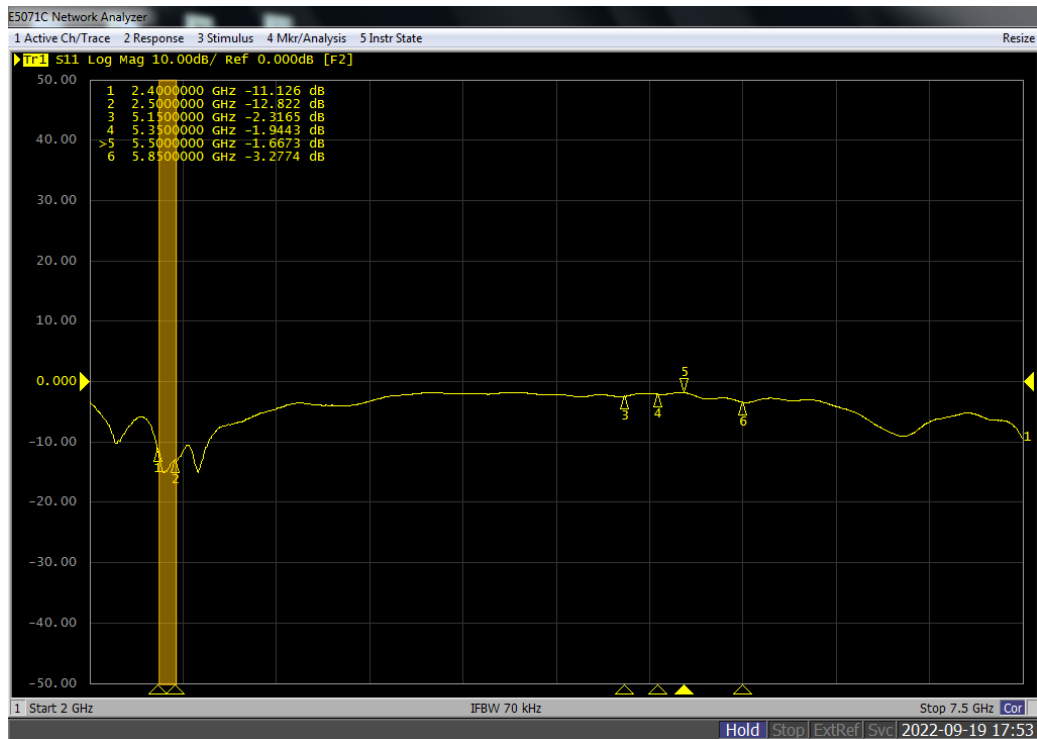
Emplus Technologies, Inc.
Add.:Bldg. B, 10F., No.209, Sec. 1, Nangang Rd.,
Nangang Dist., Taipei City 11568, Taiwan

Return Loss : 2-1



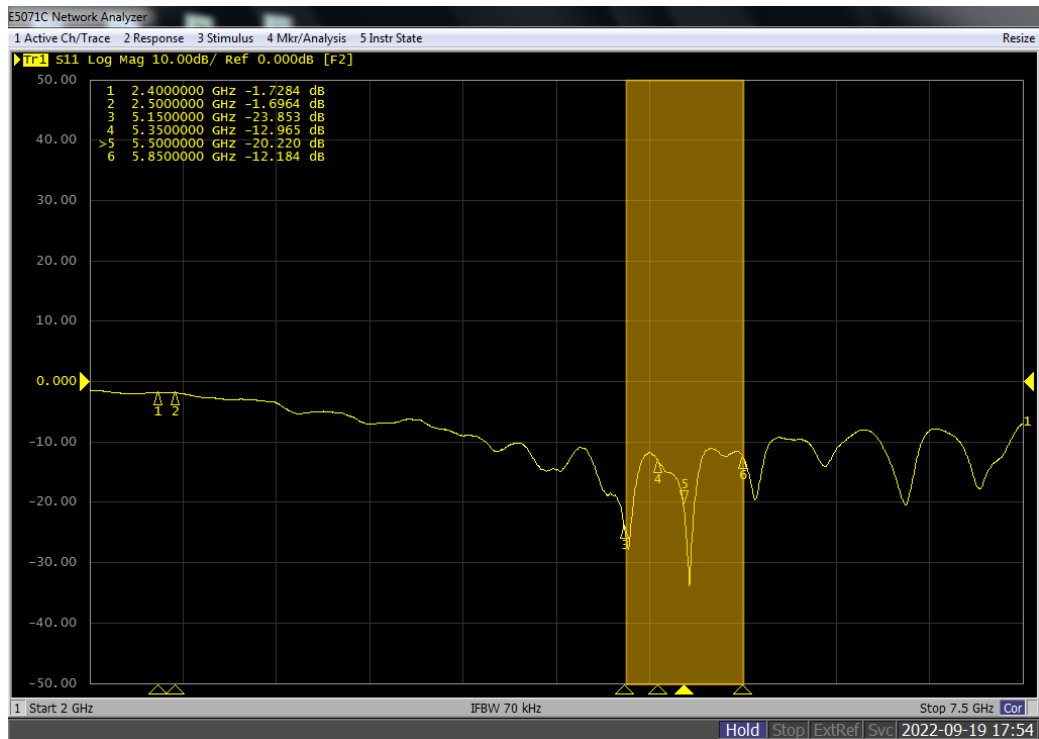
Criteria : $\leq -10\text{dB}$

Return Loss : 2-2



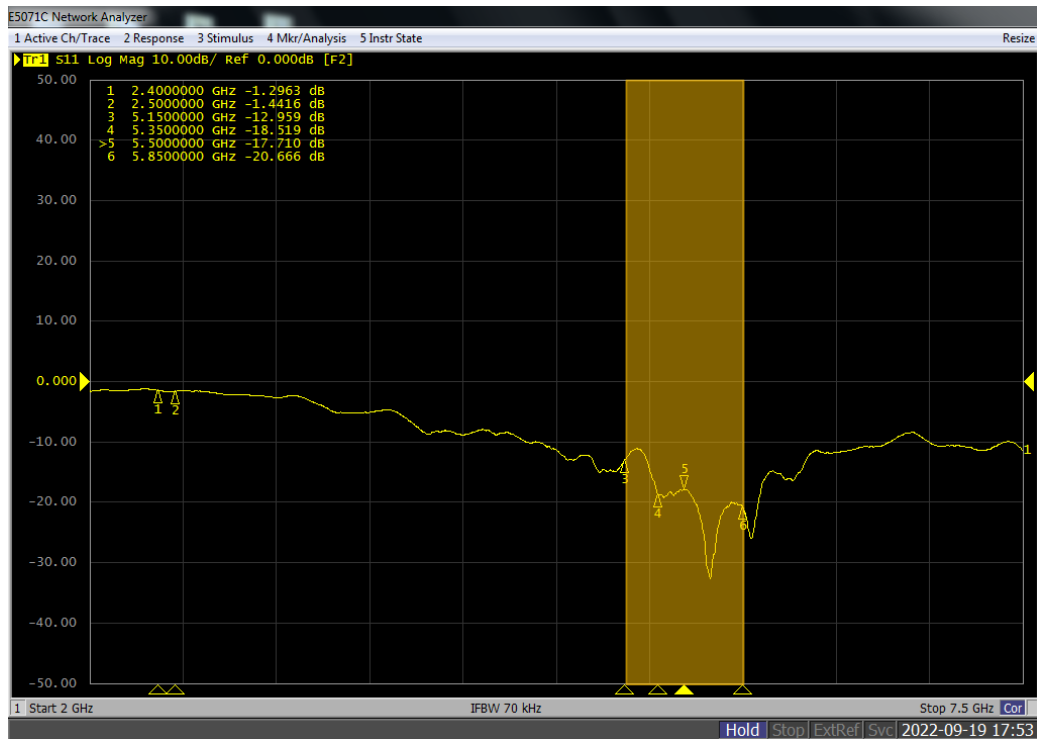
Criteria : $\leq -10\text{dB}$

Return Loss : 5-1



Criteria : $\leq -10\text{dB}$

Return Loss : 5-2



Criteria : $\leq -10\text{dB}$

Return loss table

| S11(dB) | 2.4GHz | 2.5GHz | 5.15GHz | 5.35GHz | 5.5GHz | 5.85GHz |
|---------|--------|--------|---------|---------|--------|---------|
| 2-1 | -17 | -16 | | | | |
| 2-2 | -11 | -12 | | | | |
| 5-1 | | | -23 | -12 | -20 | -12 |
| 5-2 | | | -12 | -17 | -18 | -20 |

Criteria :
S11 < -10dB
Result : PASS

Isolation

| | 2.4GHz | 2.5GHz |
|------------|--------|--------|
| 2-1 to 2-2 | -26 | -30 |

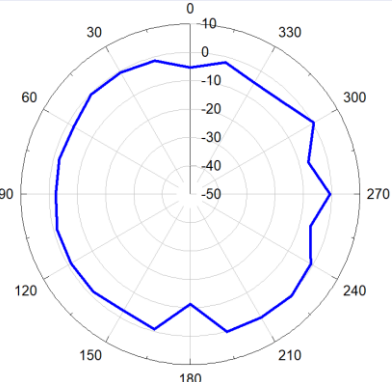
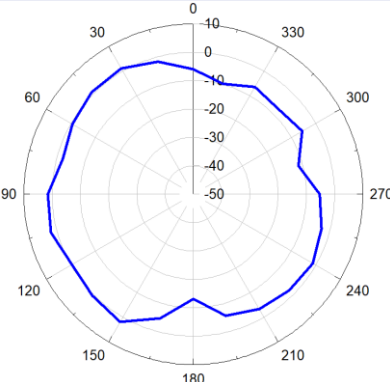
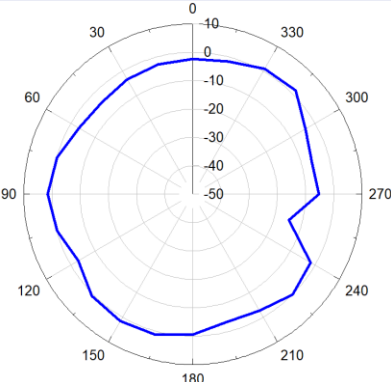
| | 5.15GHz | 5.85GHz |
|------------|---------|---------|
| 5-1 to 5-2 | -28 | -31 |

Criteria : < -20dB

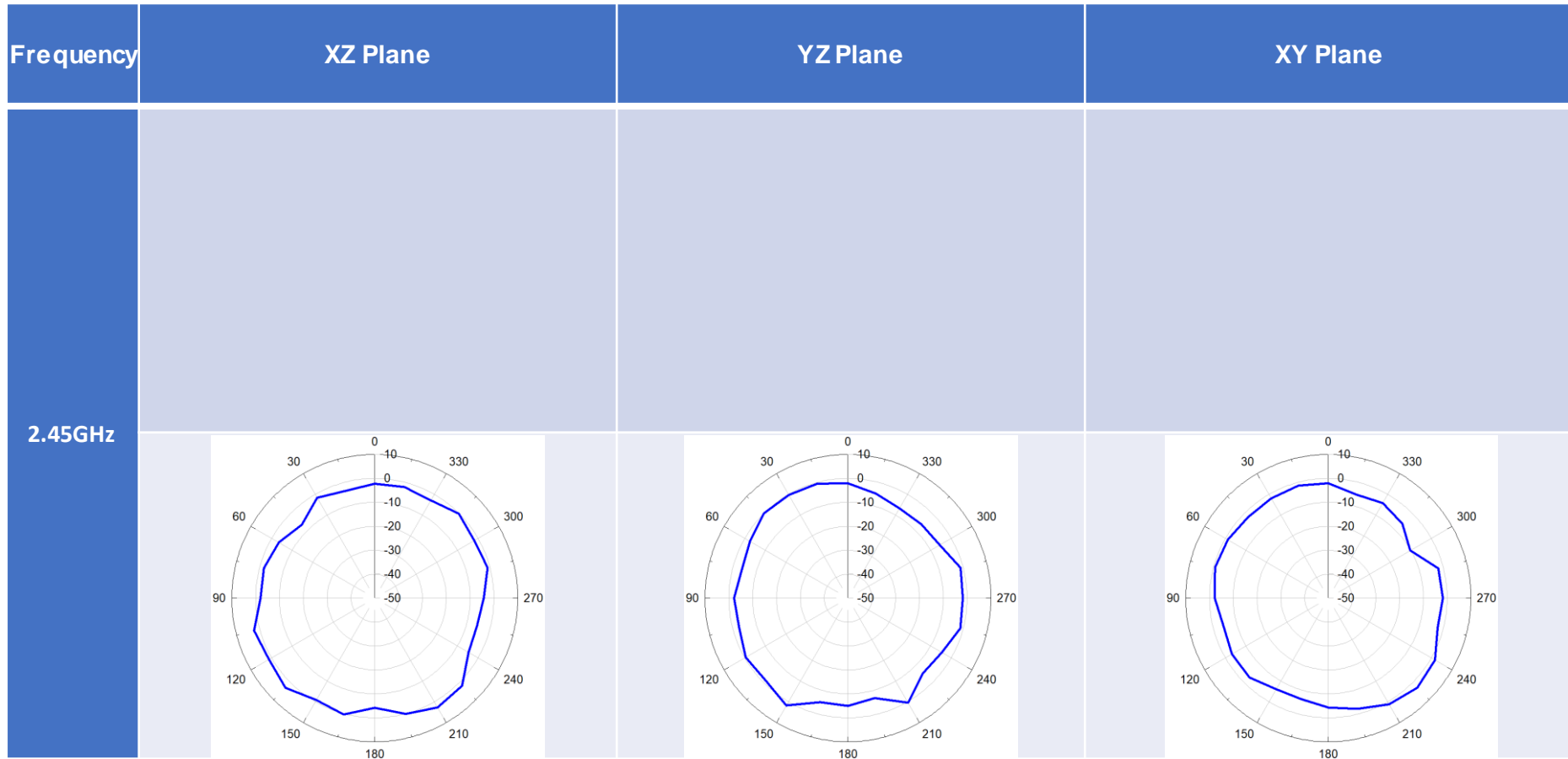
Gain table

| Antenna | Frequency (GHz) | Peak gain (dBi) | Efficiency (%) |
|---------|-----------------|-----------------|----------------|
| 2-1 | 2.4 | 3.8 | 70 |
| | 2.45 | 3.7 | 69 |
| | 2.5 | 3.4 | 71 |
| 2-2 | 2.4 | 3.0 | 66 |
| | 2.45 | 3.3 | 72 |
| | 2.5 | 3.8 | 72 |
| 5-1 | 5.15 | 4.3 | 65 |
| | 5.5 | 3.4 | 64 |
| | 5.85 | 5.1 | 61 |
| 5-2 | 5.15 | 4.7 | 76 |
| | 5.5 | 5.2 | 75 |
| | 5.85 | 4.8 | 73 |

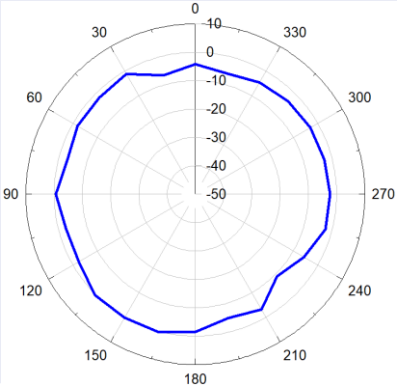
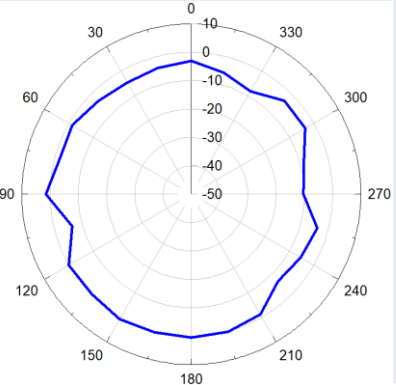
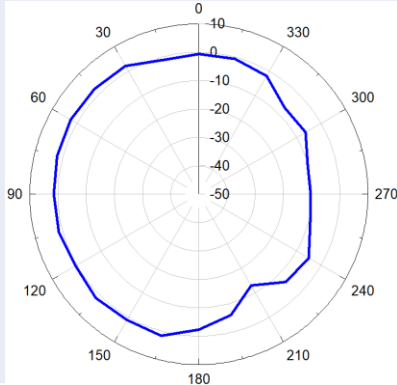
2D pattern : 2-1

| Frequency | XZ Plane | YZ Plane | XY Plane |
|-----------|--|---|--|
| 2.45GHz |  |  |  |

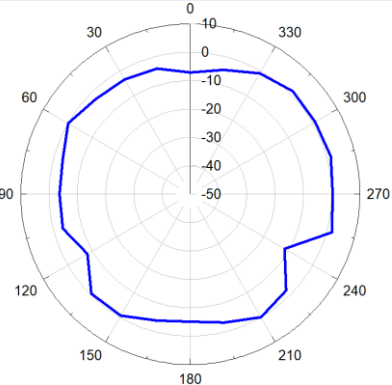
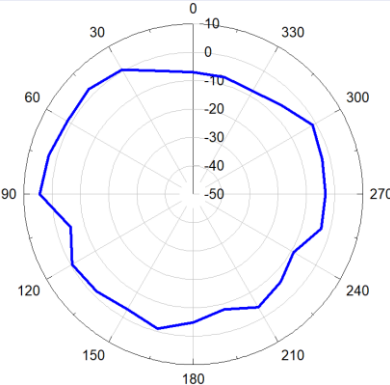
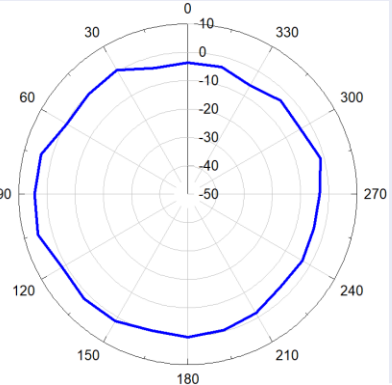
2D pattern : 2-2



2D pattern : 5-1

| Frequency | XZ Plane | YZ Plane | XY Plane |
|-----------|--|---|--|
| 5.5GHz |  |  |  |

2D pattern : 5-2

| Frequency | XZ Plane | YZ Plane | XY Plane |
|-----------|--|---|--|
| 5.5GHz |  |  |  |



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