

A large, stylized circular graphic on the left side of the slide. It features concentric rings in shades of blue and grey, with a central white circle containing the word 'emplus' in orange. The graphic has a technical, circuit-like appearance with various segments and lines.

emplus

WAP385

Antenna design proposal

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V4.3
Tim Chao
2022/06/23

Agenda

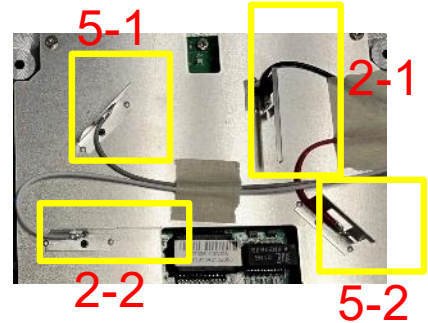
- History
- Antenna Placement
- Return loss & Isolation
- Gain table
- 2D Radiation Pattern
- Combine Pattern

History

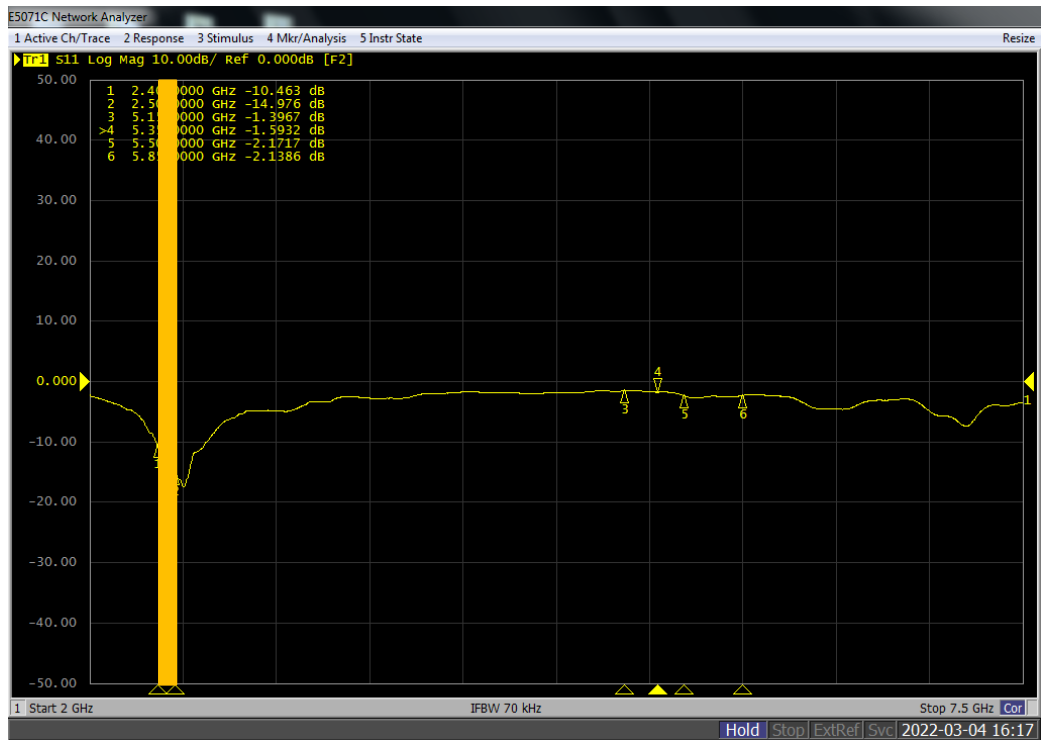
Date	Description	Version
2021/03/11	Drift	V0.1
2021/03/12	Modify antenna pattern to 3D pattern	V0.2
2021/03/23	Change BT to PCB type on BOT cover(Plastic)	V0.3
2021/04/15	Change the material of BOT cover to die-casting, New BT location on TOP cover	V1.0
2021/08/18	Change the material of BOT cover to Plastic, New BT location on BOT cover, Change PIFA antennas to Emplus design	V2.0
2021/12/27	Modify PIFA location for 1mm clearance, final ant plate (same as WAP388)	V3.0
2022/03/04	Mockup sample measurement	V4.0
2022/03/09	Re-drawing 2D pattern for clear view	V4.1
2022/06/23	HongBo test data for 2.4GHz antennas	V4.2

Antenna Placement

- WAP385 have total four antennas as figure :
- 2.45GHz * 2
- 5GHz * 2
- Design criteria :
- Installation: Indoor/Wall mount
- Peak Gain: 2.4G:4.93dBi, 5G:6.43dBi
- Return loss: $\leq -10\text{dB}$
- Isolation: $\leq -20\text{dB}$
- Efficiency: $\geq 60\%$

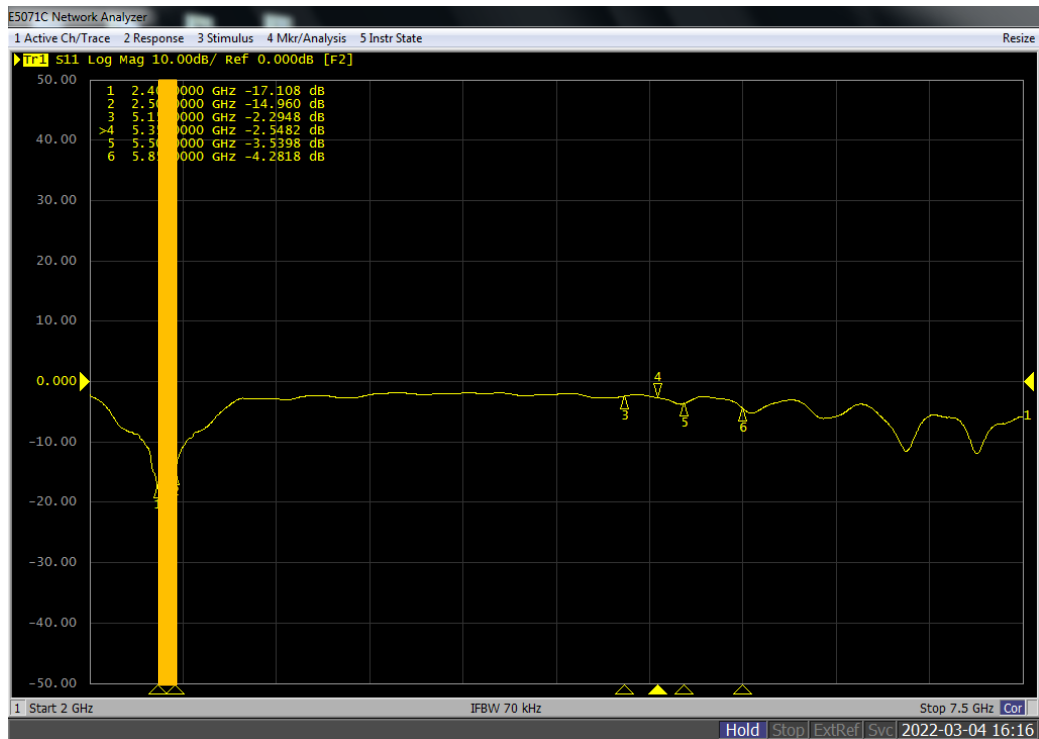


Return Loss : 2-1



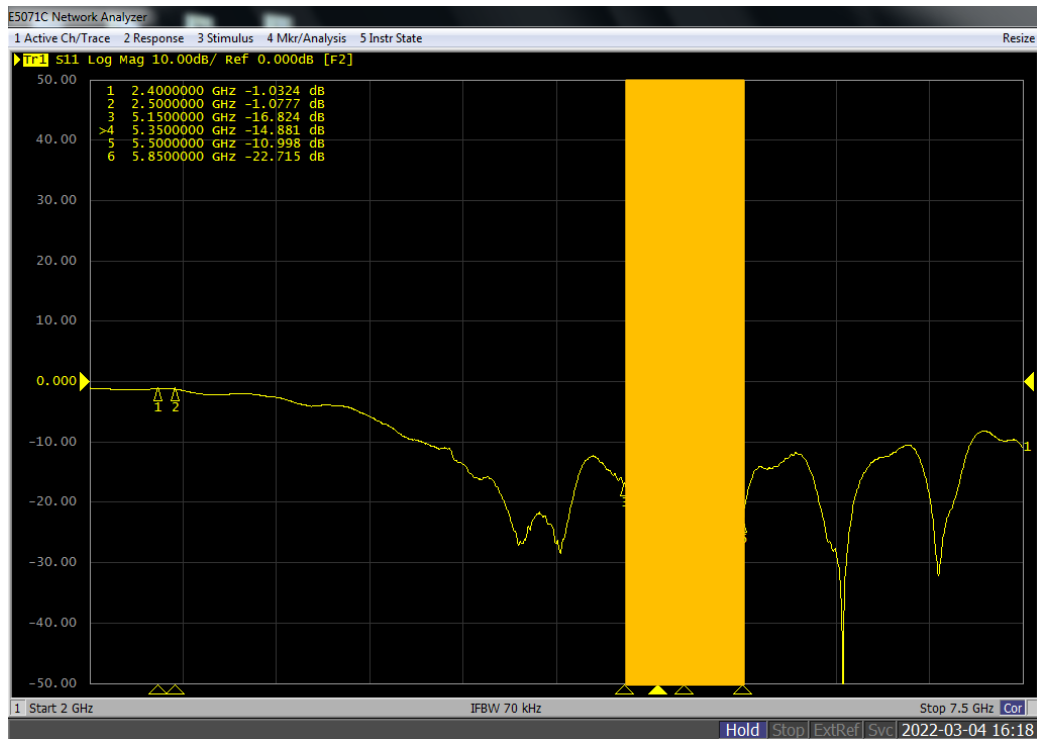
Criteria : $\leq -10\text{dB}$

Return Loss : 2-2



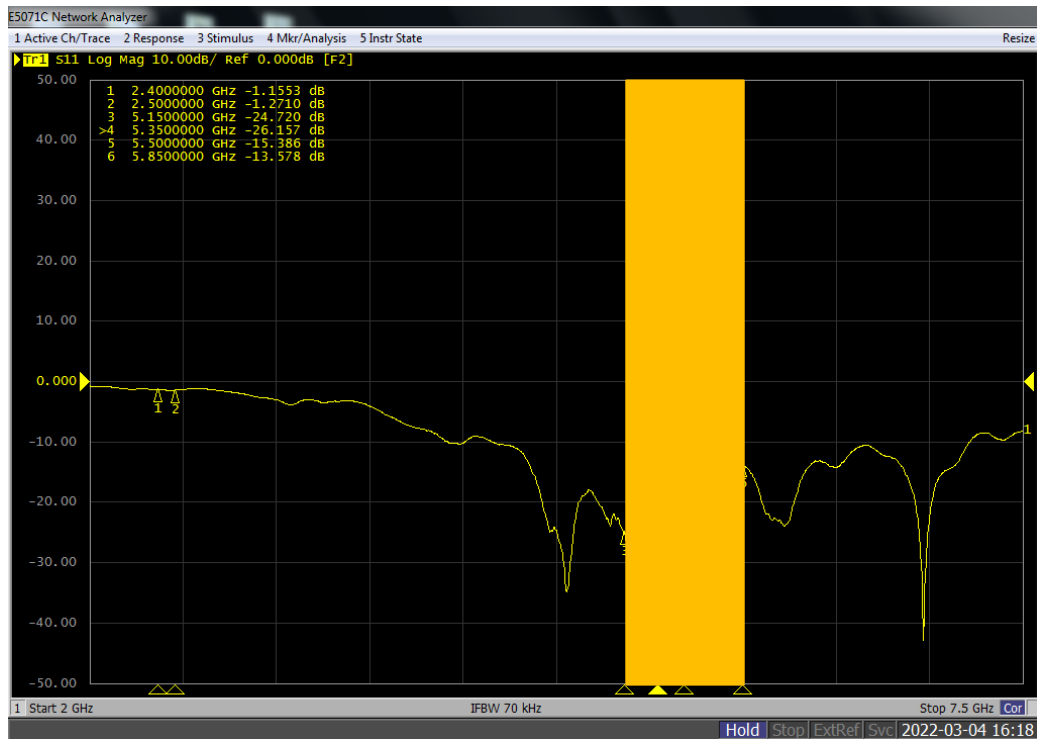
Criteria : $\leq -10\text{dB}$

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	-10.4	-14.9				
2-2	-17.1	-14.9				
5-1			-16.8	-14.8	-10.9	-22.7
5-2			-24.7	-26.1	-15.3	-13.5

Criteria :
S11 < -10dB
Result : PASS

Isolation at 2.45GHz

	2-1	2-2	5-1	5-2
2-1	NA	-20	-24.8	-21.2
2-2	NA	NA	-23	-30.5
5-1	NA	NA	NA	-39.2
5-2	NA	NA	NA	NA

Criteria : $\leq -20\text{dB}$

Isolation at 5.5GHz




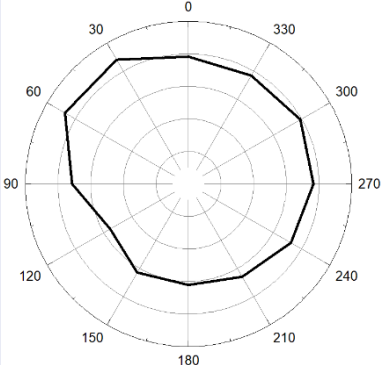
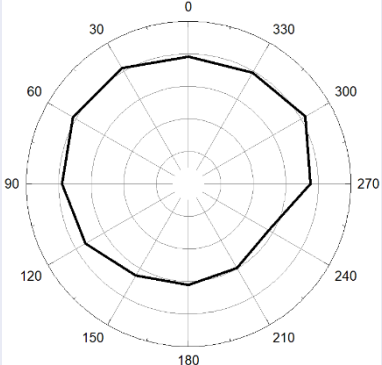
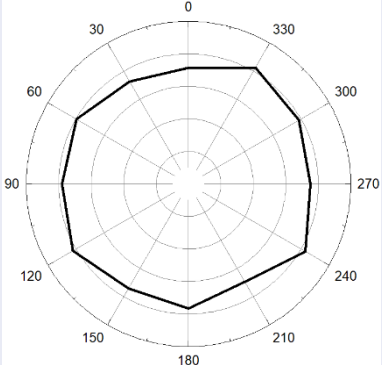
	2-1	2-2	5-1	5-2
2-1	NA	-29.4	-27	-22.9
2-2	NA	NA	-22.7	-24.9
5-1	NA	NA	NA	-21.5
5-2	NA	NA	NA	NA

Criteria : $\leq -20\text{dB}$




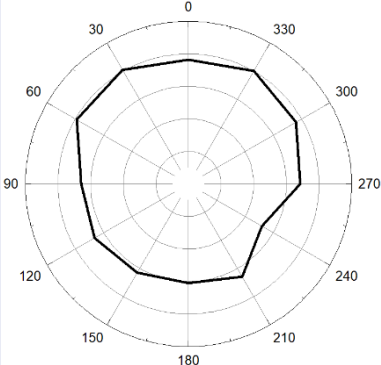
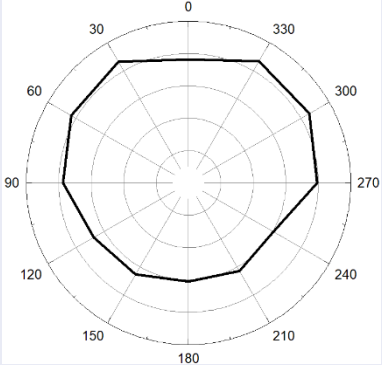
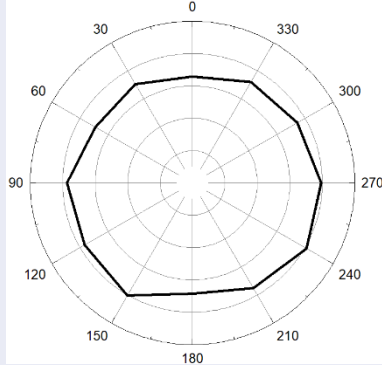
Gain table

	Antenna	Peak gain (dBi)	Efficiency (%)
2.45GHz	2-1	4.44	72
	2-2	4.93	72
5GHz	5-1	6.43	68
	5-2	5.78	68




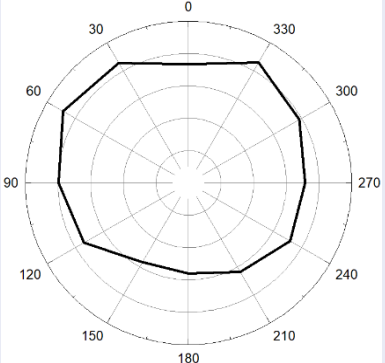
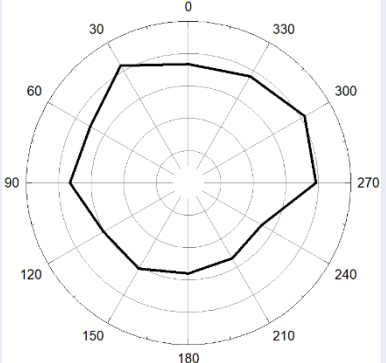
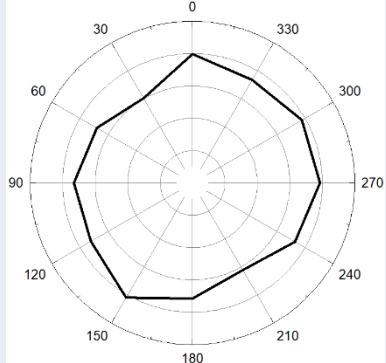
2D pattern : 2-1

Frequency	XZ Plane	YZ Plane	XY Plane (Azimuth)
2.45GHz			
			




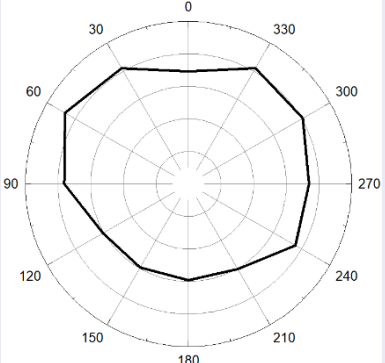
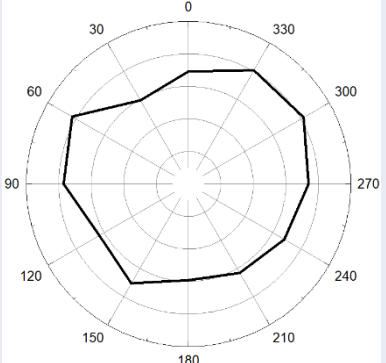
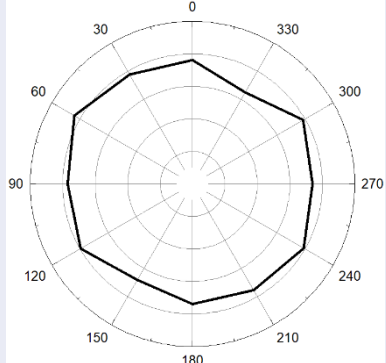
2D pattern : 2-2

Frequency	XZ Plane	YZ Plane	XY Plane (Azimuth)
2.45GHz			
			


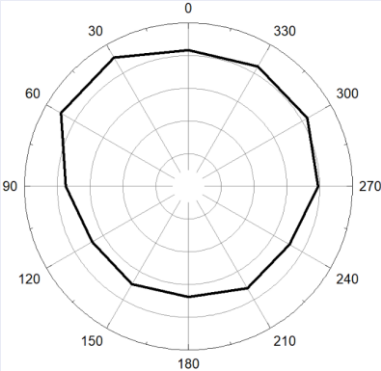

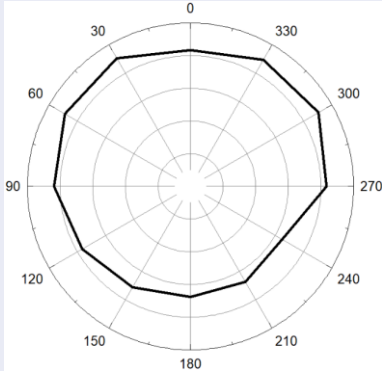

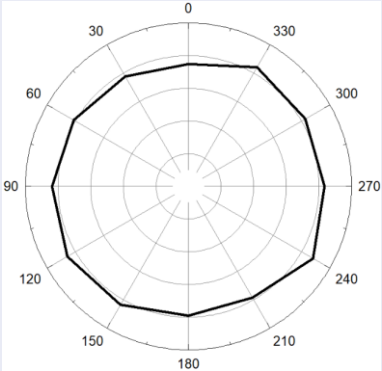
2D pattern : 5-1

Frequency	XZ Plane	YZ Plane	XY Plane (Azimuth)
5.49GHz			
			




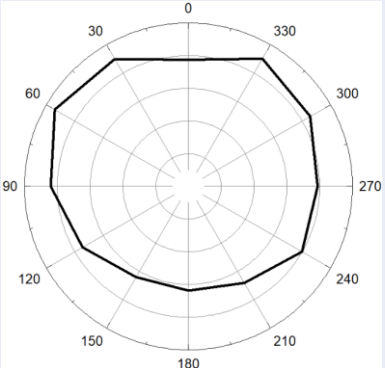
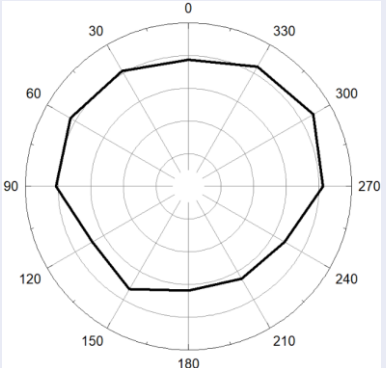
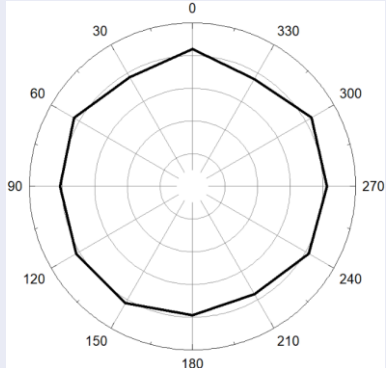
2D pattern : 5-2

Frequency	XZ Plane	YZ Plane	XY Plane (Azimuth)
5.49GHz			
			

Combine pattern : 2.45GHz

Frequency	XZ Plane	YZ Plane	XY Plane (Azimuth)
2.45GHz	 	 	 

Combine pattern : 5.49GHz

Frequency	XZ Plane	YZ Plane	XY Plane (Azimuth)
5.49GHz			
			

The logo for 'emplus' is centered in the image. The word 'emplus' is written in a lowercase, sans-serif font. The 'em' is in orange, and 'plus' is in blue. A vertical white bar separates the 'em' and 'plus' parts. The background features a large, stylized blue diamond shape composed of many smaller triangles, with a white brushstroke effect around its perimeter. The entire scene is set against a white background with scattered blue dots of varying sizes.

Dependable, Accountable, and always Available

We are your best partner!

