

**AN-520-AP-I**  
**Antenna test report**

V1.1  
Tim Chao  
2022/03/15

# Agenda

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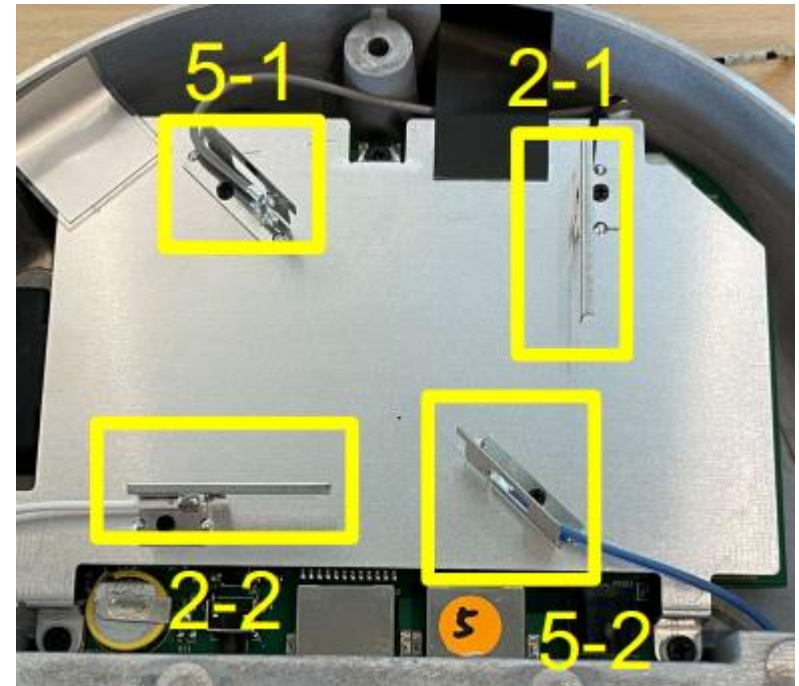
- History
- Antenna Placement
- Return Loss & Isolation
- Gain table
- 2D Radiation Pattern
- Combine Pattern

# History

Date	Description	Version
2022/02/18	Drift Emplus ver. (Two absorbers on antenna plate)	V1.0
2022/03/15	Update gain table	V1.1

# Antenna placement

- AN-520-AP-I have total four antennas as figure :
- 2.4GHz \* 2
- 5GHz \* 2



# Return loss : 2-1



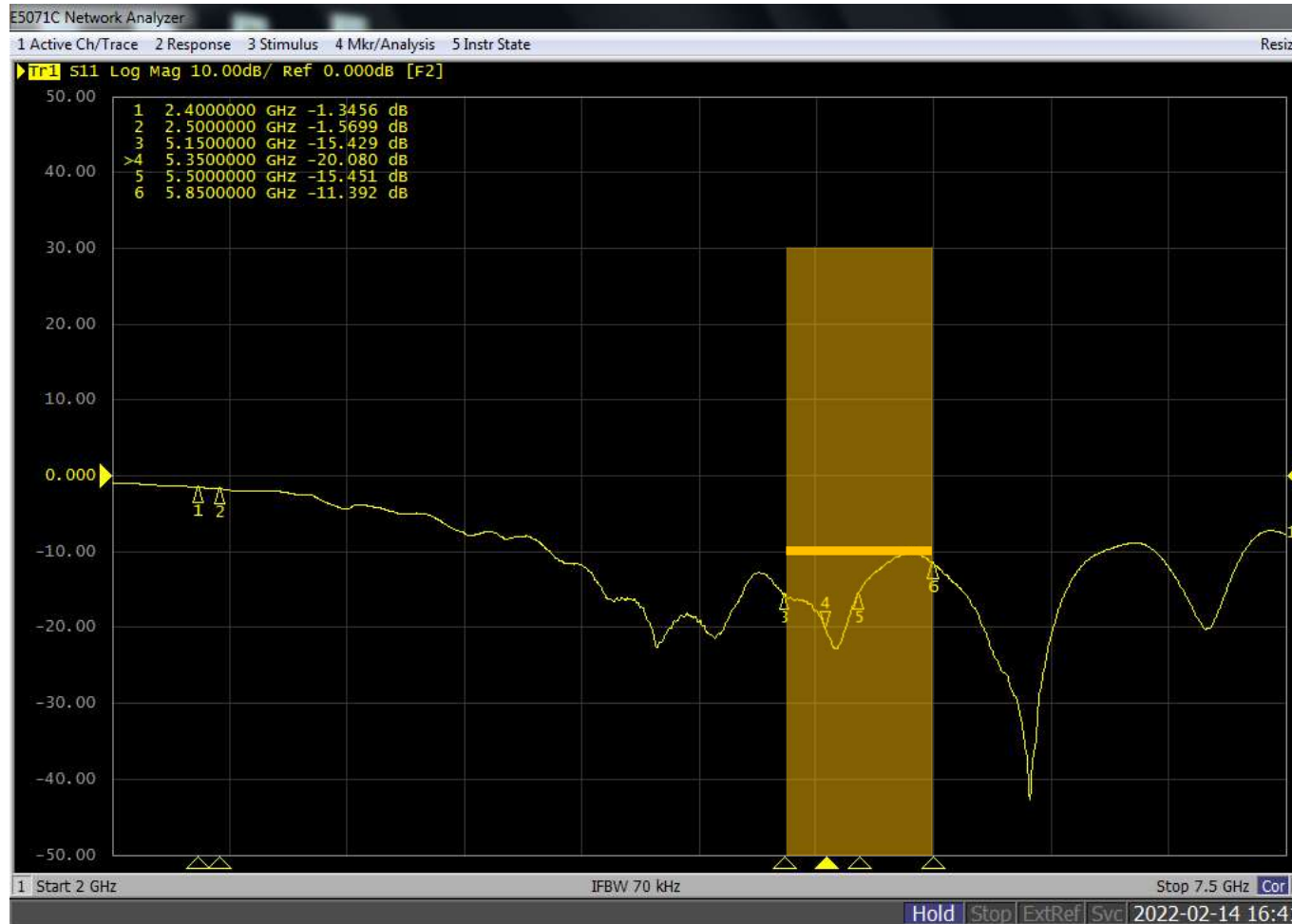
Criteria :  
S11 < -10dB  
Result : PASS

# Return loss : 2-2



Criteria :  
S11 < -10dB  
Result : PASS

# Return loss : 5-1



Criteria :  
S11 < -10dB  
Result : PASS

# Return loss : 5-2



Criteria :  
S11 < -10dB  
Result : PASS

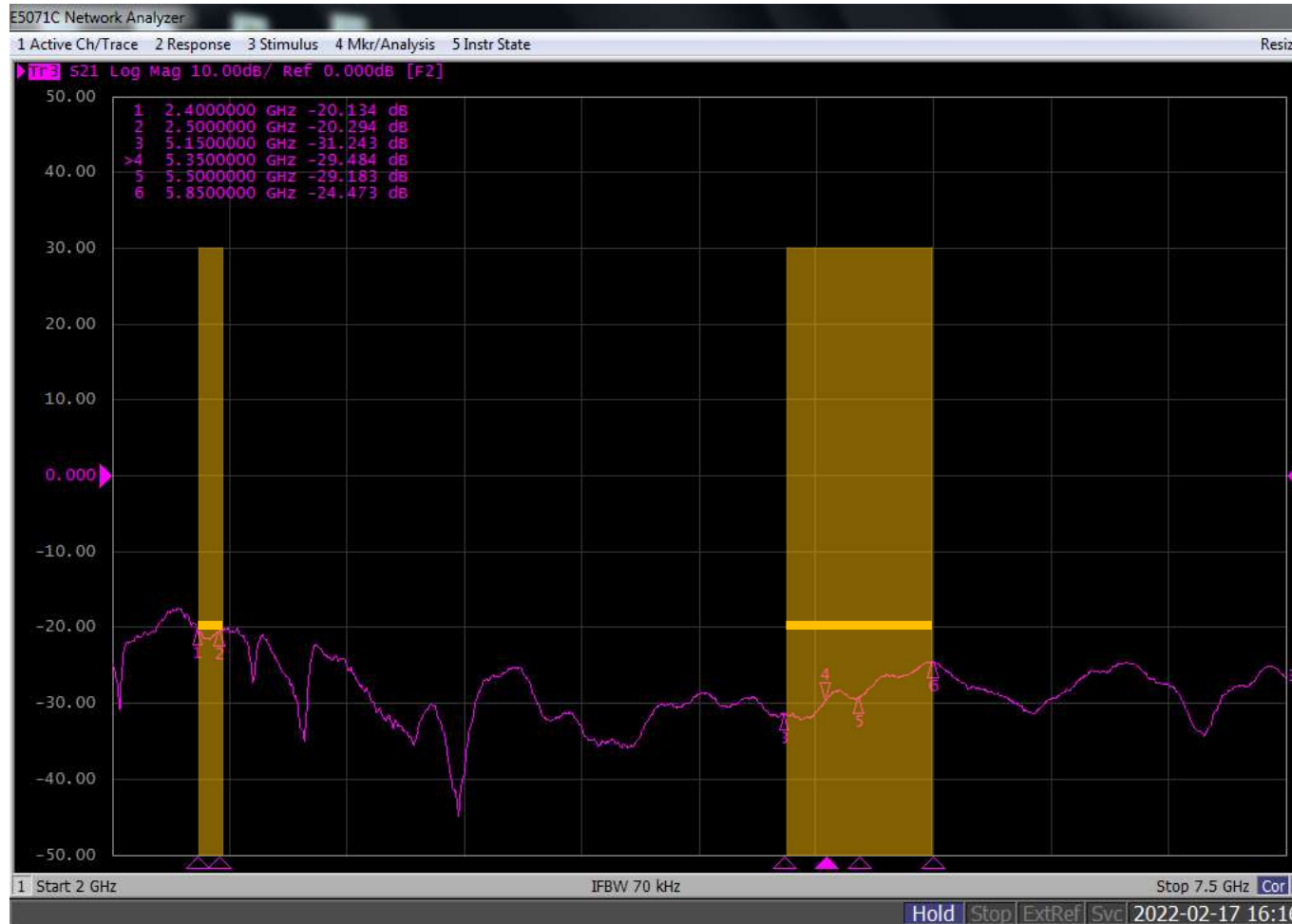


## Return loss table

S11(dB)	2.4GHz	2.5GHz	5.15GHz	5.35GHz	5.5GHz	5.85GHz
2-1	-14.8	-10.9				
2-2	-10.9	-19.8				
5-1			-15.4	-20	-15.4	-11.3
5-2			-17.8	-11.7	-11.7	-21

Criteria :  
S11 < -10dB  
Result : PASS

# Isolation : 2-1 to 2-2



Criteria :  
Isolation < -20dB

Result : PASS

# Isolation : 5-1 to 5-2



Criteria :  
Isolation < -20dB

Result : PASS

## Isolation table

Isolation (dB)	2.4GHz	2.5GHz	5.15GHz	5.35GHz	5.5GHz	5.85GHz
2-1 to 2-2	-20.1	-20.2	-31.2	-29.4	-29.1	-24.4
5-1 to 5-2	-39.8	-38.8	-20.4	-22.7	-20.6	-24.7

Criteria :  
Isolation < -20dB

Result : PASS

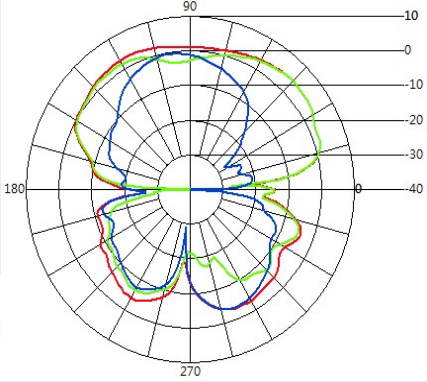
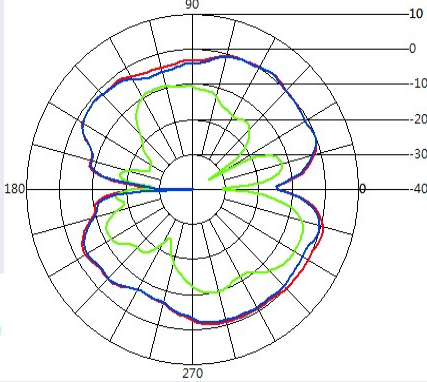
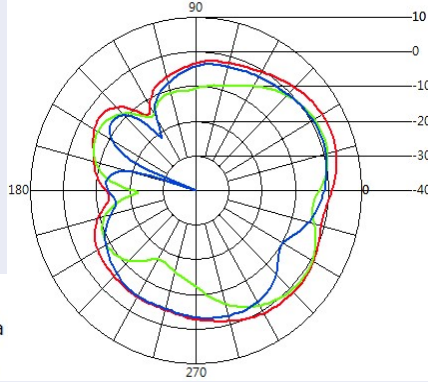
## Gain table

Antenna		2400~2483.5MHz	5150~5250MHz	5250~5350MHz	5470~5725MHz	5725~5850MHz
2-1	Peak Gain (dBi)	5.66				
	Effi.(%)	85.6				
2-2	Peak Gain (dBi)	6.75				
	Effi.(%)	81.6				
5-1	Peak Gain (dBi)		4.9	5.1	5.8	5.5
	Effi.(%)		61	64.5	63	67
5-2	Peak Gain (dBi)		5.1	5.0	5.25	5.13
	Effi.(%)		65.1	64.6	67.2	66.3

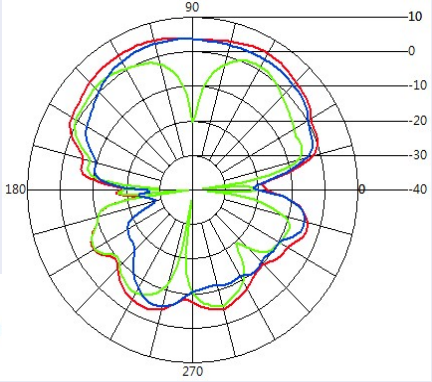
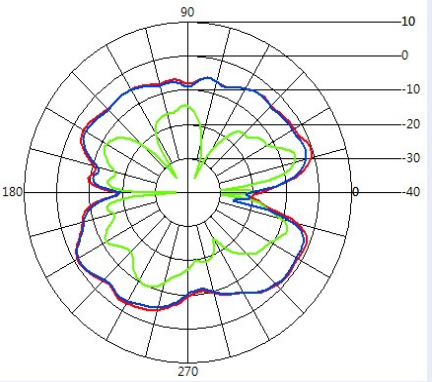
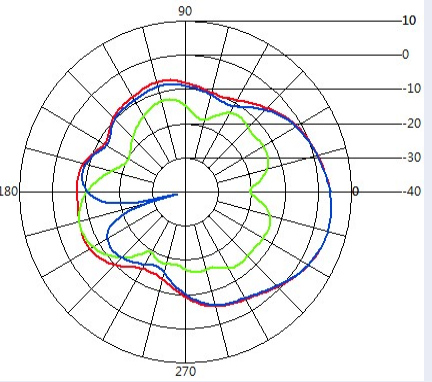
Criteria :  
 2.45GHz > 3.5dBi  
 5.5GHz > 4dBi  
 Efficiency > 60%  
 Result : PASS

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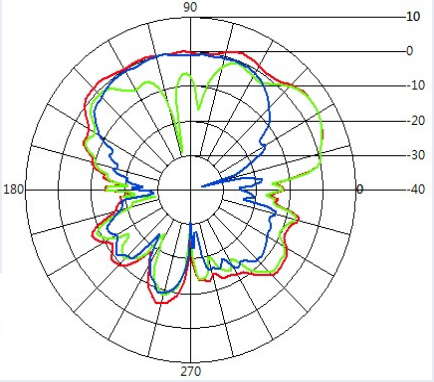
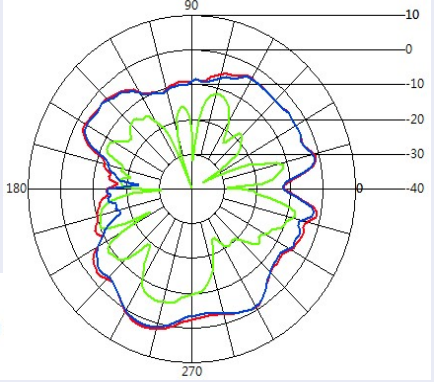
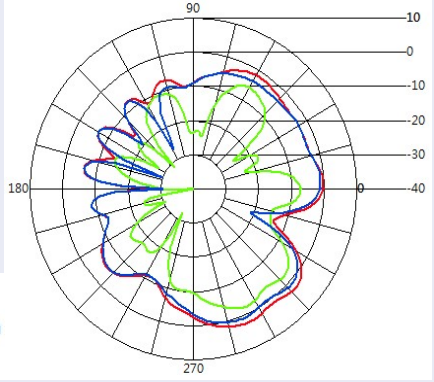
# 2D pattern : 2-1

Frequency	XZ Plane	YZ Plane	XY Plane
2.45GHz			

# 2D pattern : 2-2

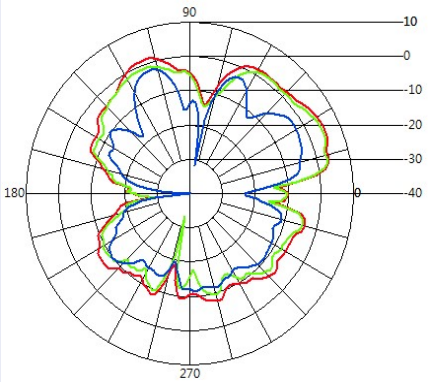
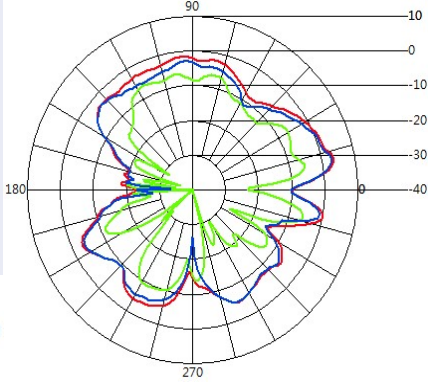
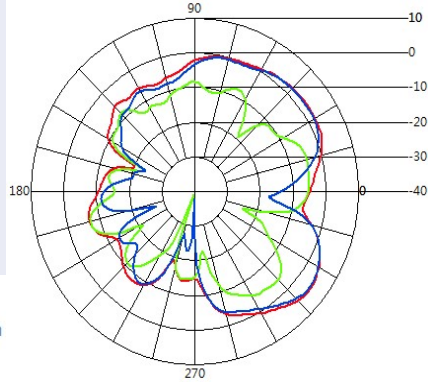
Frequency	XZ Plane	YZ Plane	XY Plane
2.45GHz			

# 2D pattern : 5-1

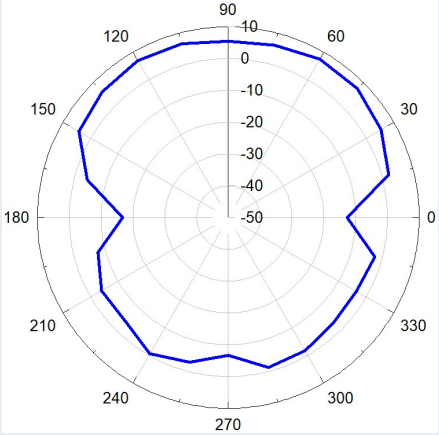
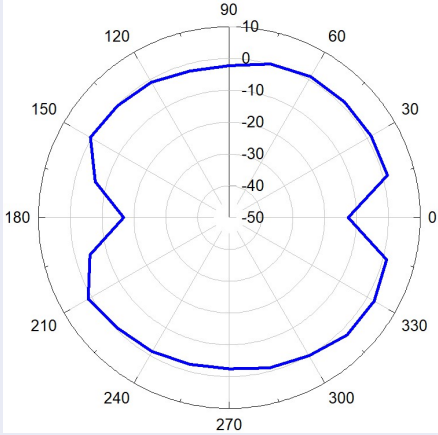
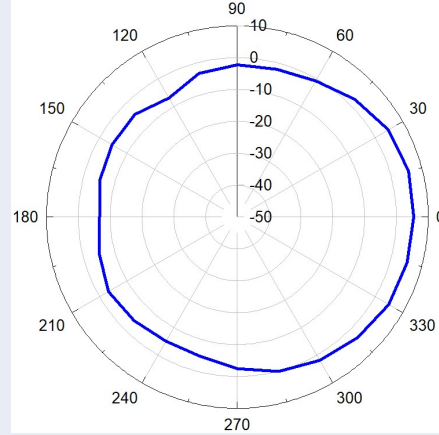
Frequency	XZ Plane	YZ Plane	XY Plane
5.5GHz			



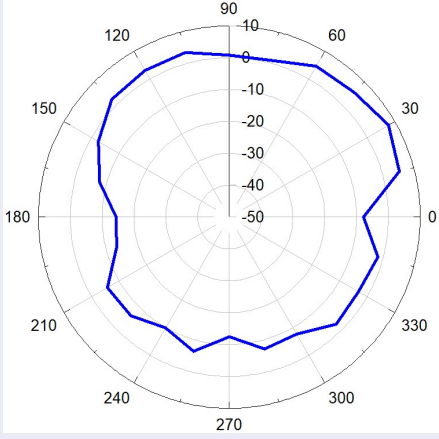
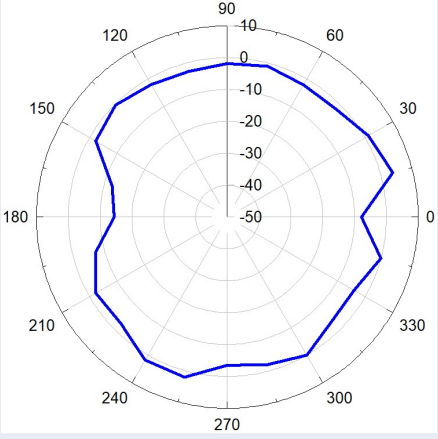
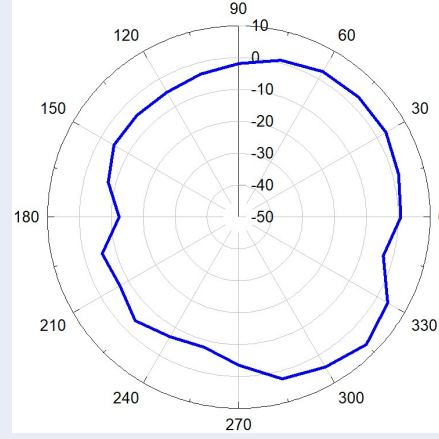
# 2D pattern : 5-2

Frequency	XZ Plane	YZ Plane	XY Plane
5.5GHz			

# Combine 2D pattern : 2.4GHz antennas

Frequency	XZ Plane	YZ Plane	XY Plane
2.45GHz			

# Combine 2D pattern : 5GHz antennas

Frequency	XZ Plane	YZ Plane	XY Plane
5.5GHz			



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