

PYRAS Technology Inc.

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# AC13U Antenna Project Report

-Date: 2024.08.16-

## CONFIDENTIAL CONDITIONS

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## Test Environment& Equipment

- SATIMO SG 24 Multi-Probe Antenna Measurement System
- Angle between probes: 15°
- Frequency range: 400 MHz – 8.5 GHz
- Chamber Room Size: 4.0 m L x 4.0 m W x 4.0 m H



- Agilent and Keysight Vector Network Analyzer
- Frequency range: 100KHz – 8.5GHz
- Ports numbers: 2 ports

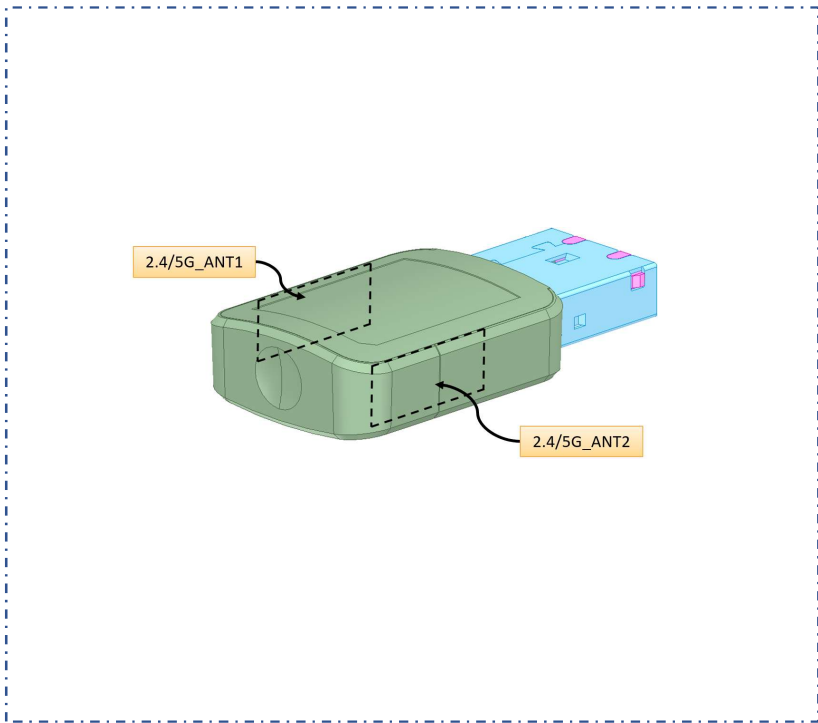
- ETS-Lindgren AMS-8500 Antenna Measurement System
- EM Quest EMQ-100 Software
- Model 3164-04 Diagonal Dual Polarized Horn antenna
- Frequency range: 700 MHz - 6 GHz
- Positioning Systems
- Chamber Room Size: 7.32 m L x 3.66 m W x 3.66 m H



# Antenna Placement and Information

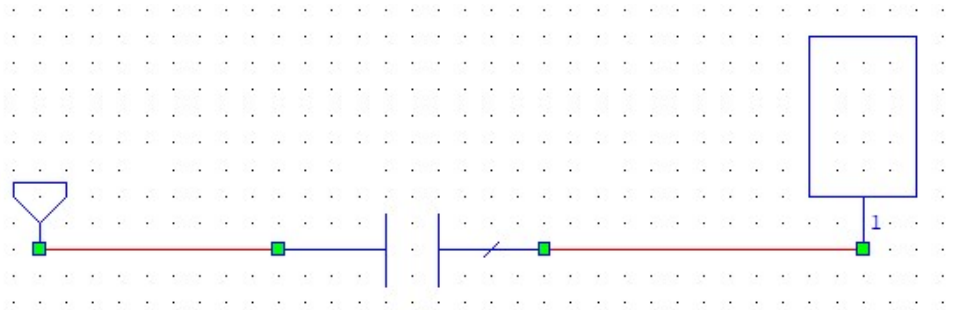
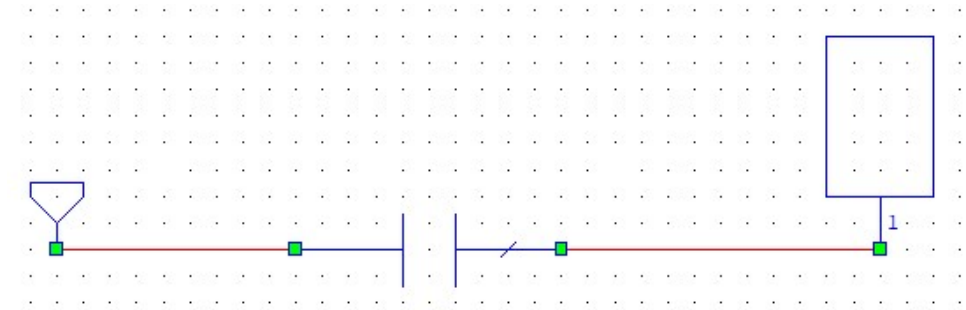


## Default Configuration of HW



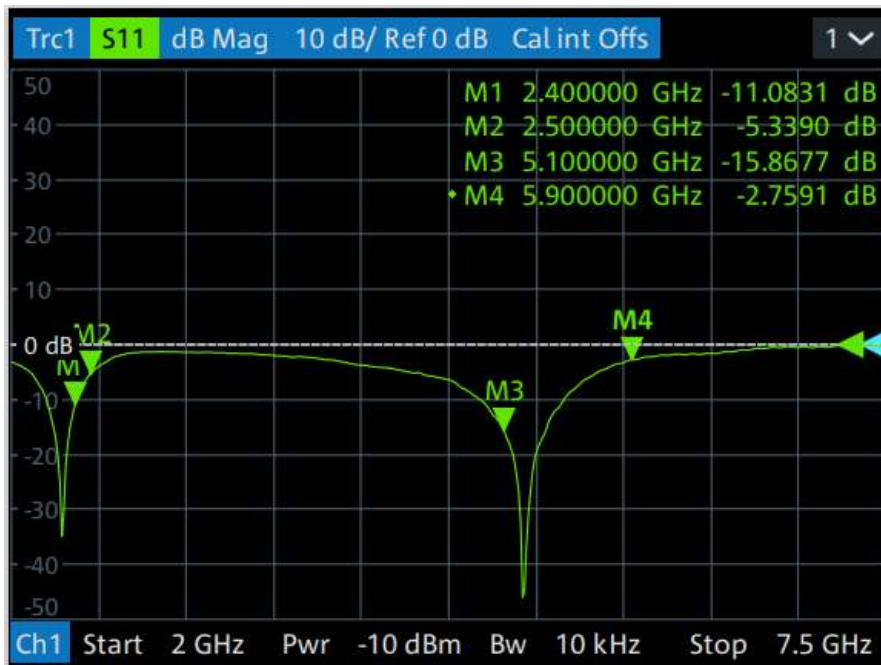
Antenna	PYRAS PN	Frequency Range (MHz)	Antenna Type	Cable Length (mm)
2.4G	/A	2400- 2500	metal	N/A
5G	N/A	5100-5900	metal	N/A

# Antenna Overview

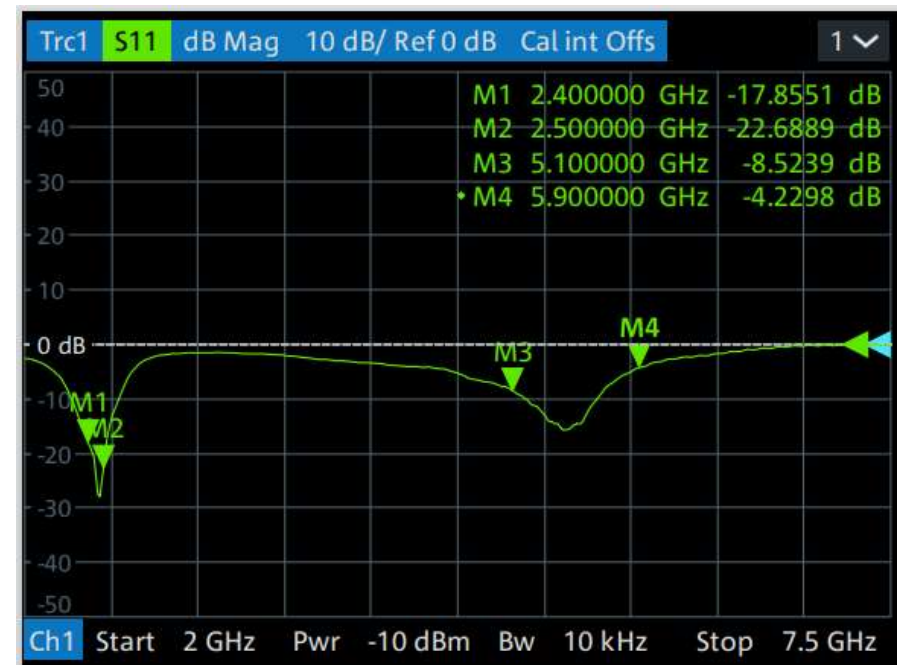


# Antenna Return Loss (W/O matching)

2.4/5G\_ANT1



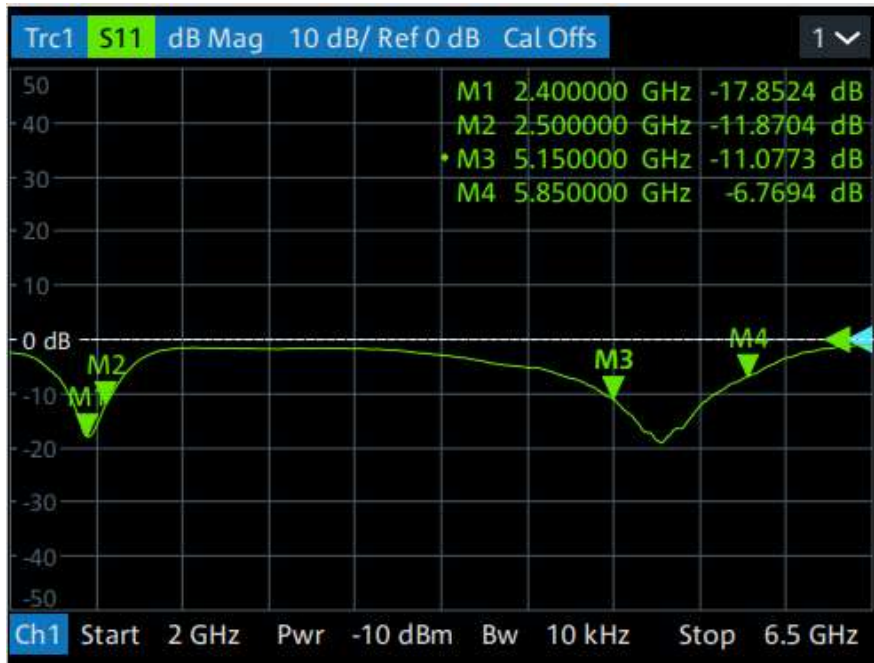
2.4/5G\_ANT2





# Antenna Return Loss (With matching)

2.4/5G\_ANT1



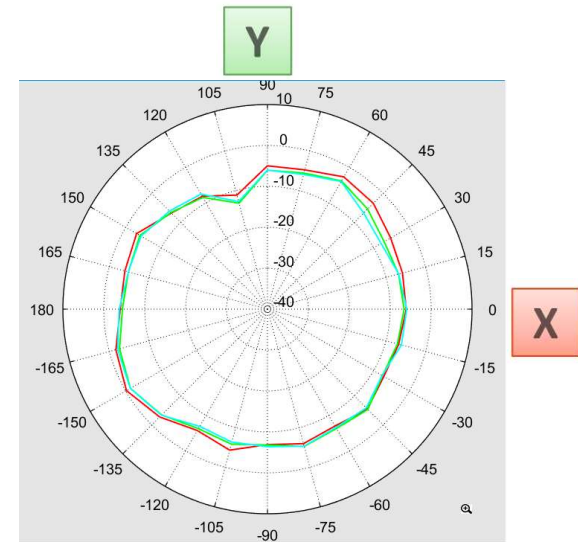
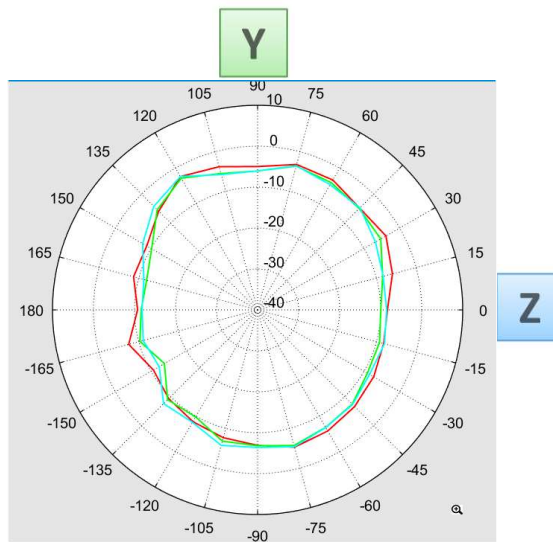
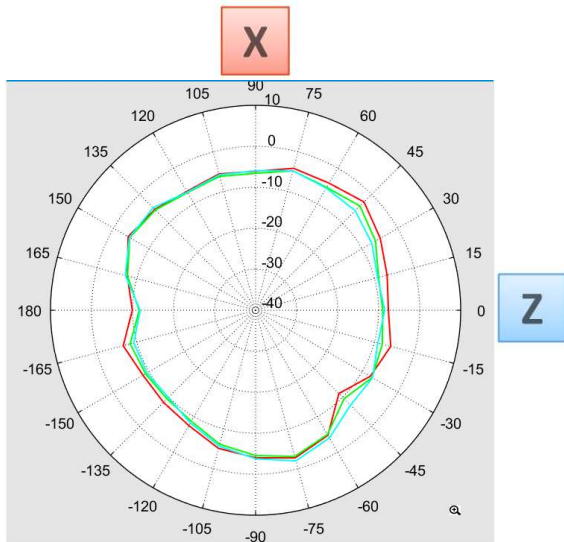
2.4/5G\_ANT2



# 2.4/5G\_ANT1 GainTotal (dBi) Pattern @ 2.4G



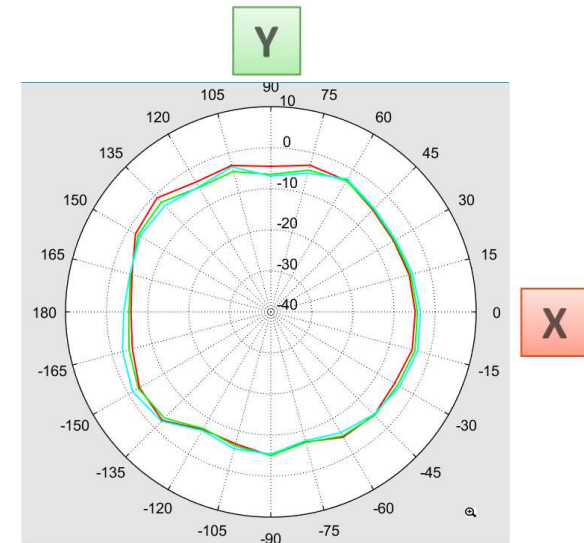
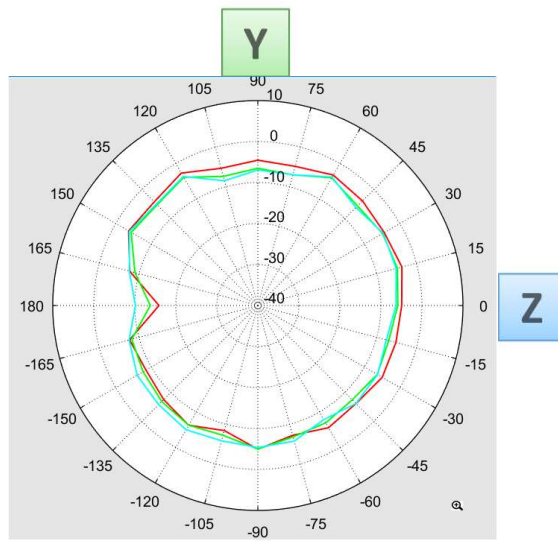
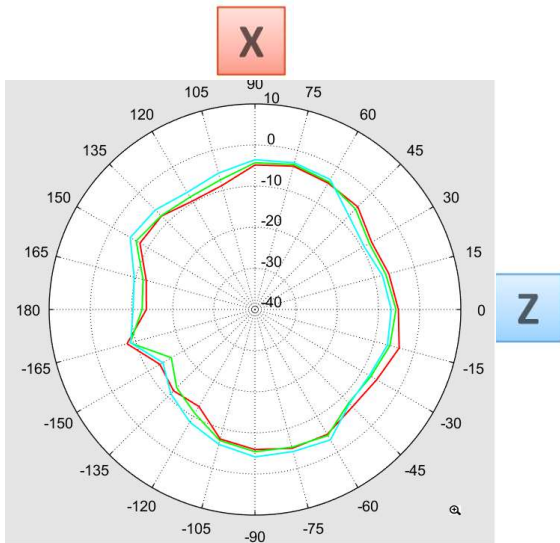
2400 MHz ————  
2450 MHz ————  
2500 MHz ————



# 2.4/5G\_ANT2 GainTotal (dBi) Pattern @ 2.4G



2400 MHz ——— (Red line)  
2450 MHz ——— (Blue line)  
2500 MHz ——— (Green line)

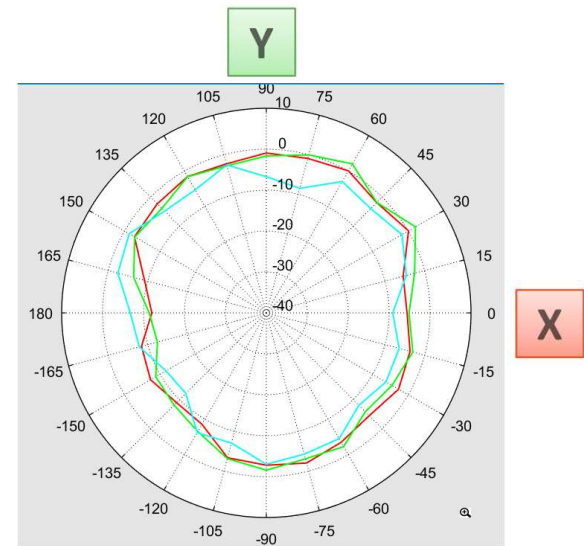
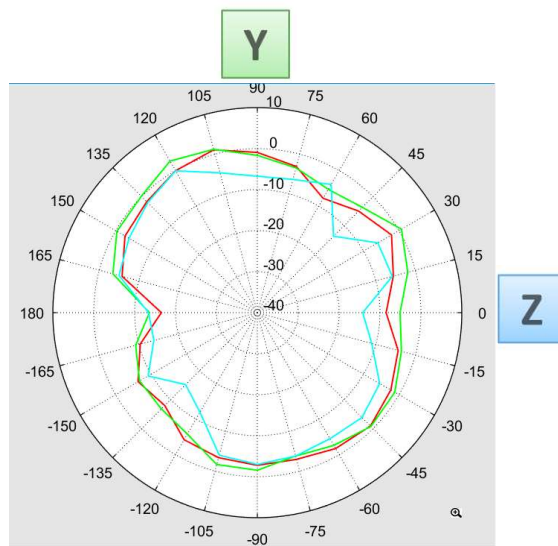
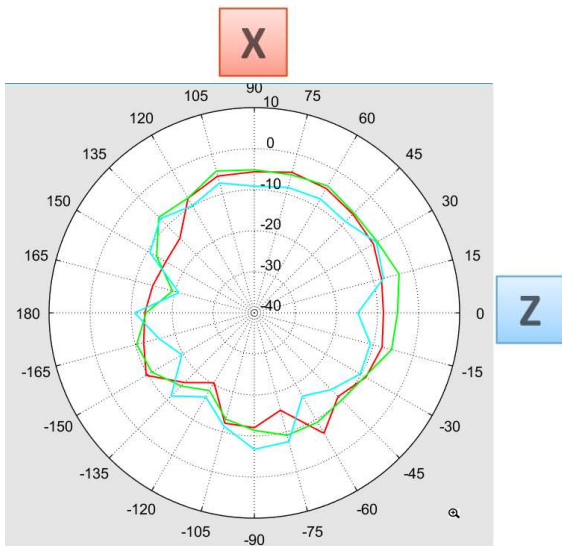




# 2.4/5G\_ANT1 GainTotal (dBi) Pattern @ 5G



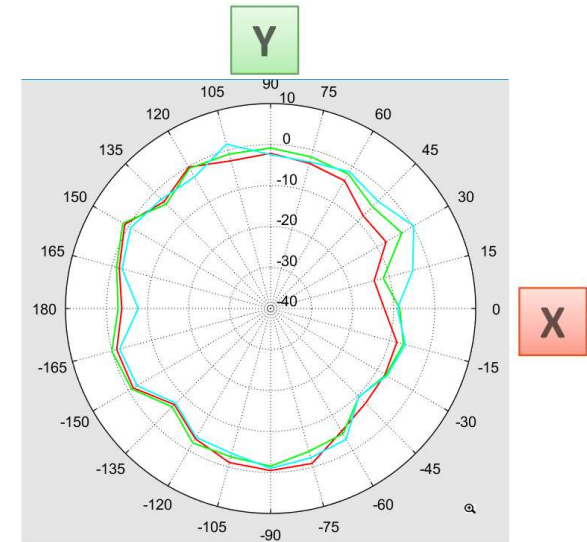
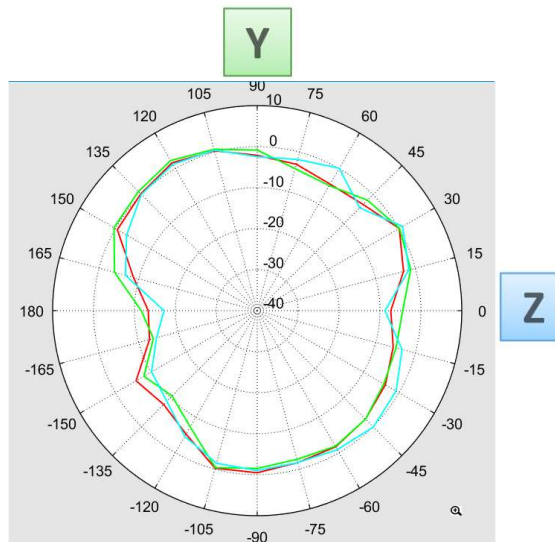
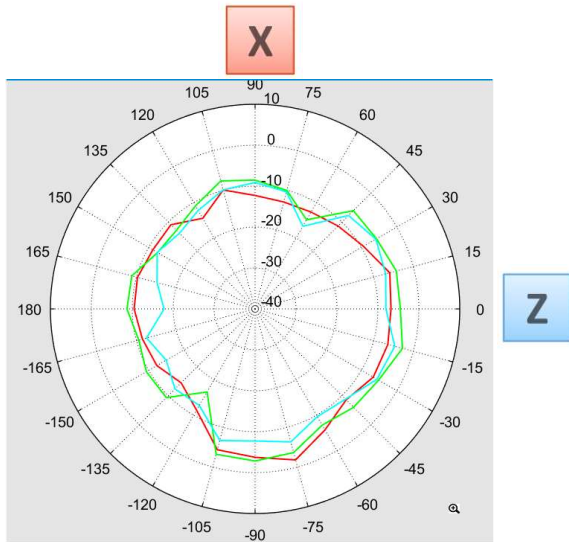
- 5100 MHz — (red line)
- 5500 MHz — (blue line)
- 5900 MHz — (green line)





# 2.4/5G\_ANT2 GainTotal (dBi) Pattern @ 5G

- 5100 MHz — (red line)
- 5500 MHz — (blue line)
- 5900 MHz — (green line)





# Antenna Efficiency

2.4/5G Antenna Efficiency (%) @ 2.4G			
Frequency (MHz)	2400	2450	2500
2.4/5G_ANT1	40.2	41.8	41.2
2.4/5G_ANT2	42.2	43.4	43.3

2.4/5G Antenna Efficiency (%) @ 5G			
Frequency (MHz)	5100	5500	5900
2.4/5G_ANT1	61.8	59.4	56.2
2.4/5G_ANT2	60.5	58.1	56.6



# Antenna Peak Gain

2.4/5G Antenna Peak Gain (dBi) @ 2.4G			
Frequency (MHz)	2400	2450	2500
2.4/5G_ANT1	1.3	1.4	1.5
2.4/5G_ANT2	1.4	1.6	1.6

2.4/5G Antenna Peak Gain (dBi) @ 5G			
Frequency (MHz)	5100	5500	5900
2.4/5G_ANT1	3.6	3.2	2.8
2.4/5G_ANT2	3.5	3.2	2.9



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