



Antenna Test Report for ATKK _RANQ-AK18-6E (EVT Stage)

May. 08. 2024

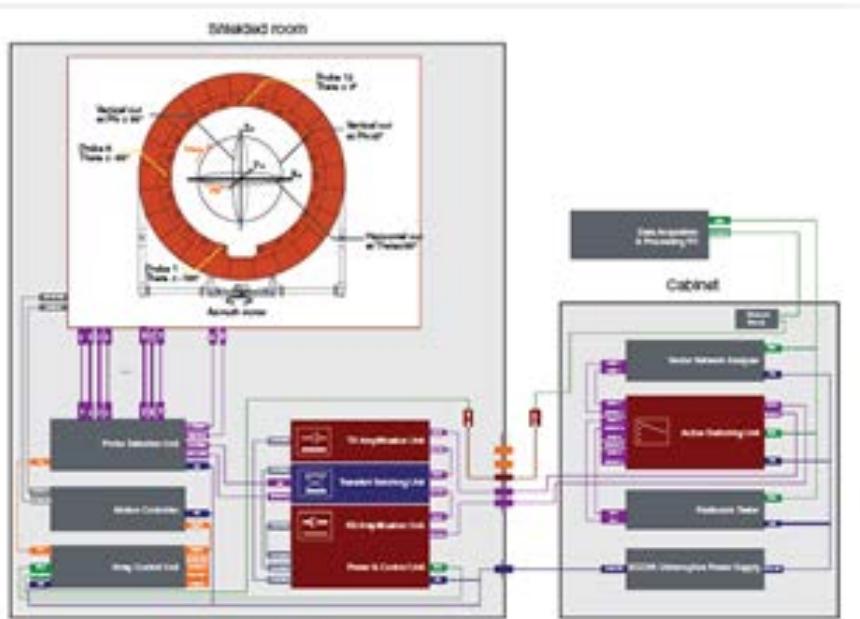
Rev.01

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- Name and address of the antenna manufacture
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- Radiation Pattern

Chamber Info.

- Antenna Vendor : WNC
- Test Date : 20240503
- Test Engineer : Eason
- Measurement System : SATIMO SG24L
- Software Name : Wave Studio
- Software Version : 22.5.6



1. This ant. test chamber is located in WNC which address is :
Add: 20 Park Avenue II (or Yuanchiu 2nd Rd.), Hsinchu Science Park, Hsinchu 300, Taiwan
Tel: +886-3-666-7799

Chamber Info.

- Measurement System: SATIMO SG24 Chamber

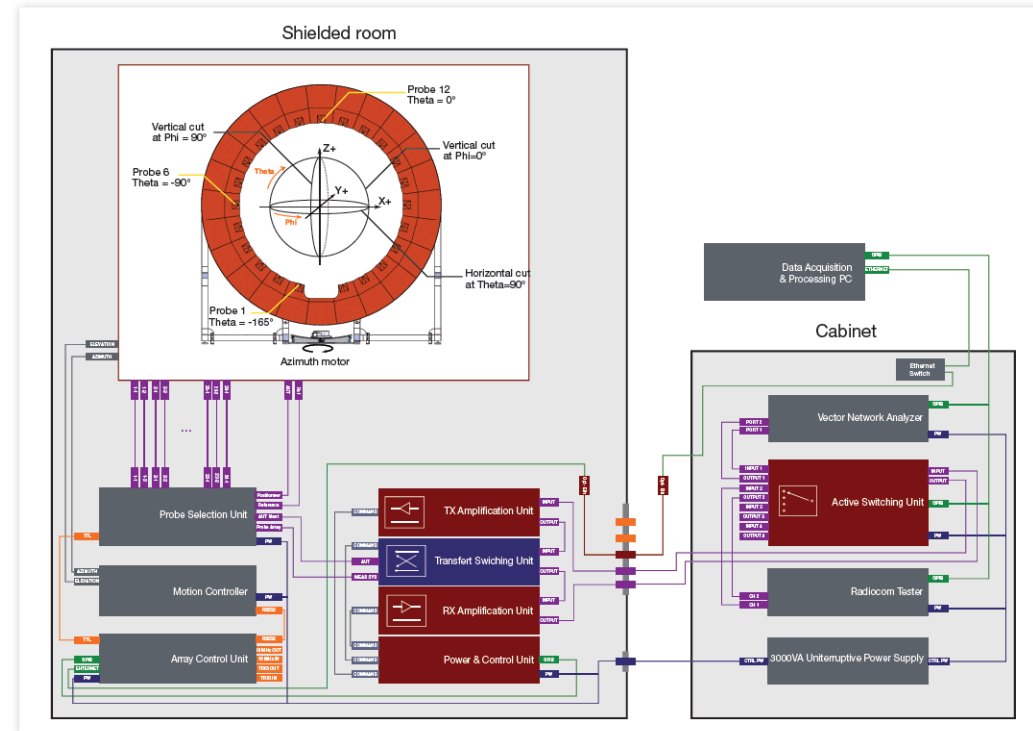
Measurement setup:

- pattern & gain measurement

- 1.satimo chamber (SG24L)
- 2.satimo program (wave studio)
- 3.system overview :

- test item

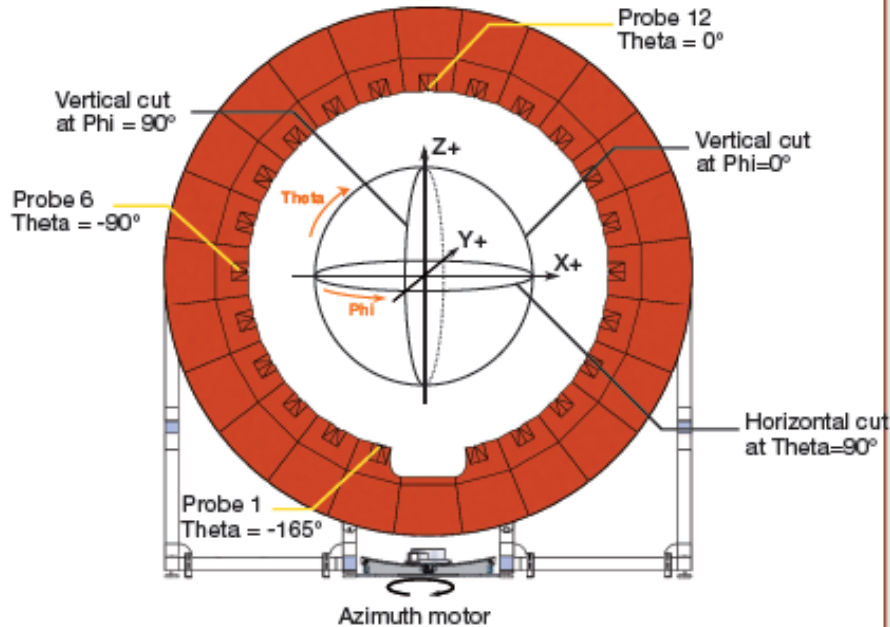
- 1.antenna passive test 400MHz~9GHz



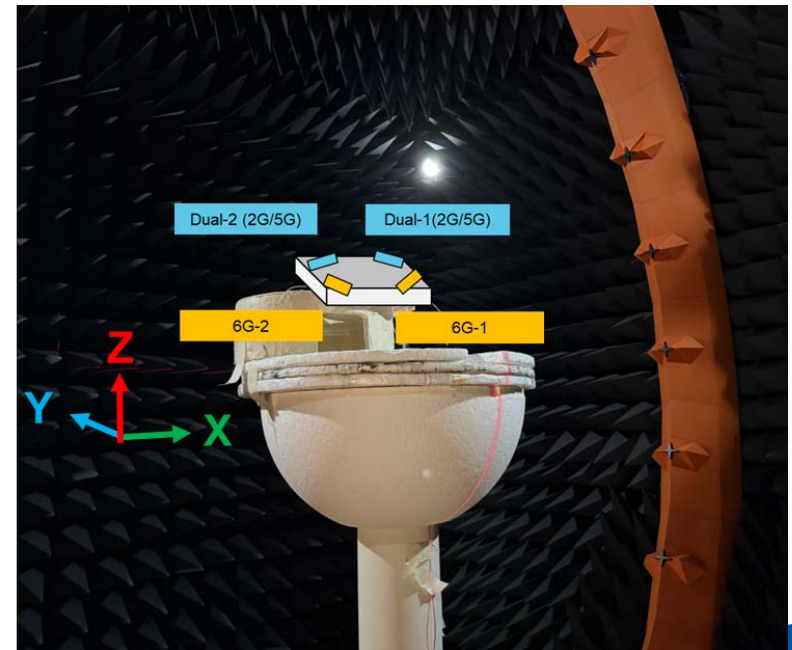
- Calibration Information

Device	Type / Model	Serial #	Manufacture	Cal. Date
Antenna Measurement System	SG24-L	HKG1669S	MVG-SATIMO	2023-12-18
Network Analyzer	Keysight E5080B	MY59203136	Keysight	2023-12-27

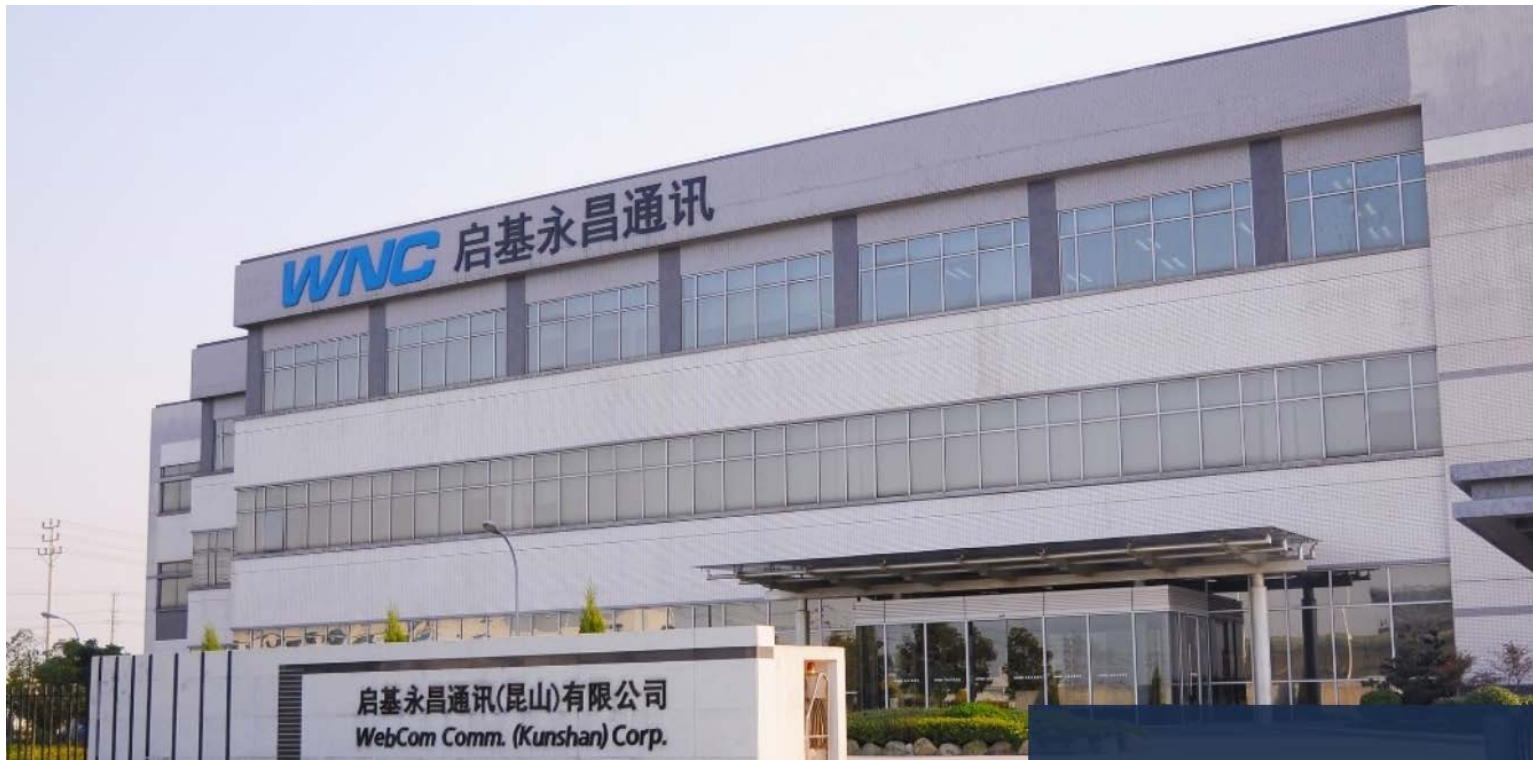
Chamber Info.



1. Place the device to be tested on the fixture and align it with the center of the chamber.
2. Connect the antenna cable to the RF connector of the chamber.
3. Use the SW to configure parameters (antenna name, frequency points, measurement angles, antenna dimension), and then run the test SW (wave studio).
4. By phi from 0° to 360° and theta from 0° to 180° with a step size of 2 degrees, get the 3D data, including efficiency, peak gain, 2D and 3D radiation patterns.
5. This is far field test for antenna verification.
6. This is passive measurement, which means the device is off and not in any operating mode.



Name and address of the antenna manufacture



WebCom Communication (Kunshan) Corporation - Kunshan Plant

- 121 Dujuan Rd., Precision Machinery Industrial Park, Kunshan City, Jiangsu Province, P.R.C
- [+86-512-5761-0668](tel:+86-512-5761-0668)
- +86-512-5761-0666

– VSWR

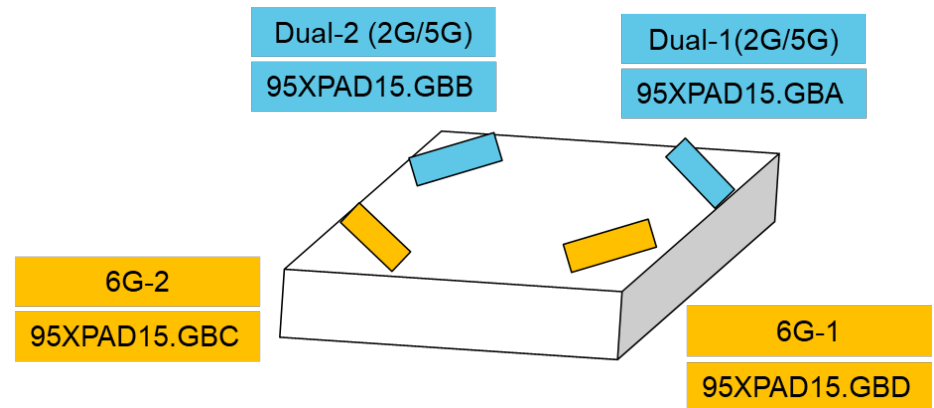
- Under 2.0 for Dual_ 2G radio
- Under 2.0 for Dual_ 5G radio
- Under 2.0 for 6G radio

– Isolation

- > 20dB for Dual_ 2G radio
- > 25dB for Dual_ 5G radio
- > 25dB for 6G radio
- > 25dB for Dual_ 5G to 6G radios

– Average Radiation efficiency

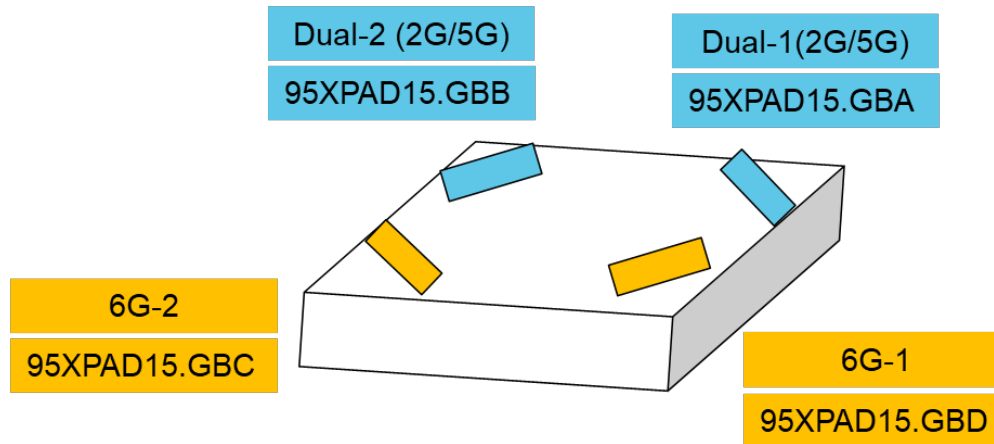
- 64% ~ 69% for Dual_ 2G radio
- 62% ~ 71% for Dual_ 5G radio
- 62% ~ 71% for 6G radio



- ✓ The 6G-2 antenna uses low loss cable.

Antenna Configuration

Test date: 2024/05/03
Test personnel : Eason Chen

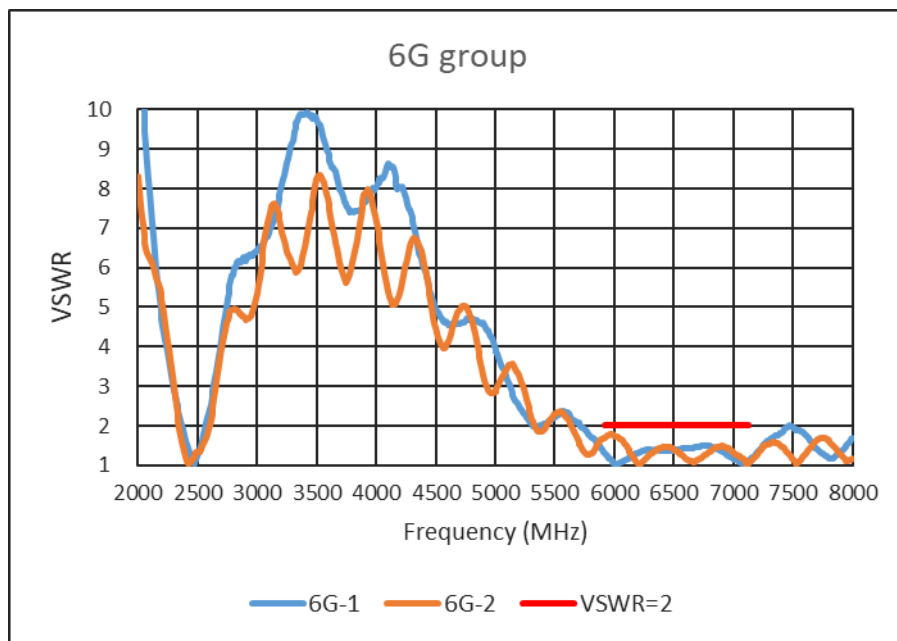
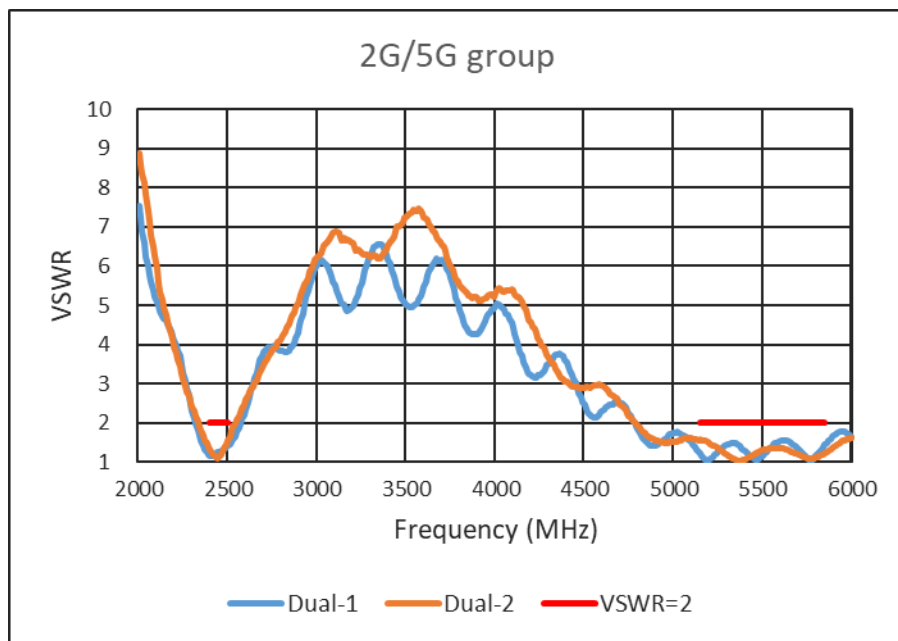
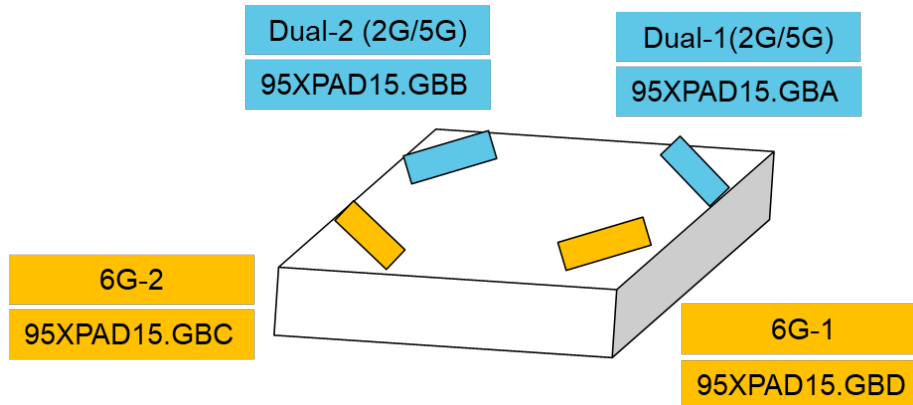


Antenna Spec. 2G only x 2 + 5G only x 2 + 6G only x 2

- 2 x metal antennas for Dual_2G/5G radio
- 2 x metal antennas for 6G radio

 Dual_2G/5G Antenna Size: 32.5mm x 13.5mm x 8.5mm

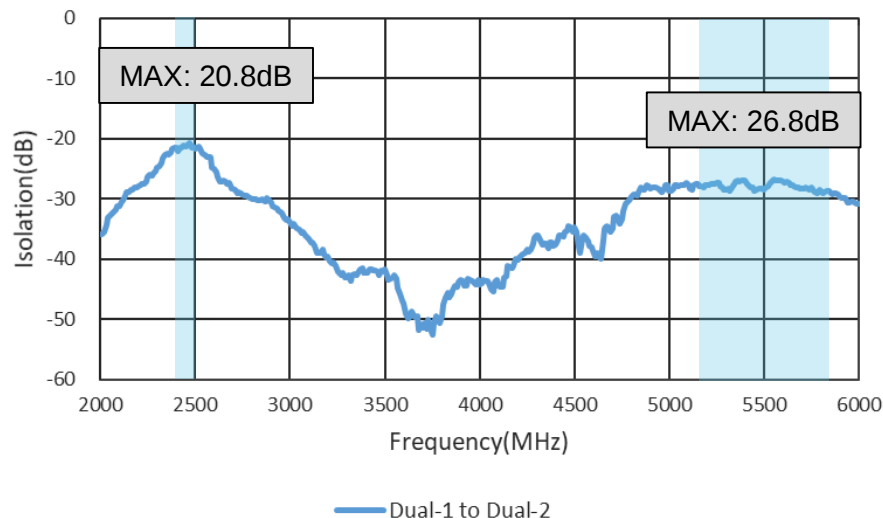
 6G Antenna Size: 30mm x 13.5mm x 8.5mm



Isolation

Test date: 2024/05/03
Test personnel : Eason Chen

2G/5G group



Dual-2 (2G/5G)

95XPAD15.GBB

Dual-1(2G/5G)

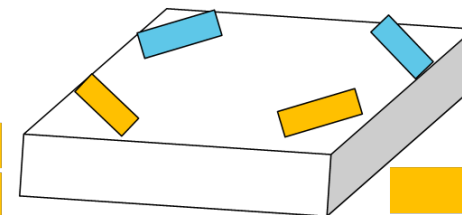
95XPAD15.GBA

6G-2

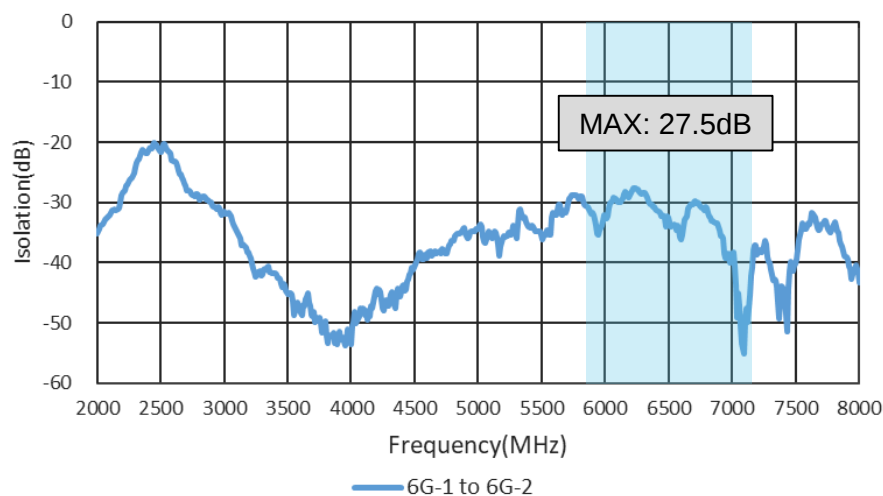
95XPAD15.GBC

6G-1

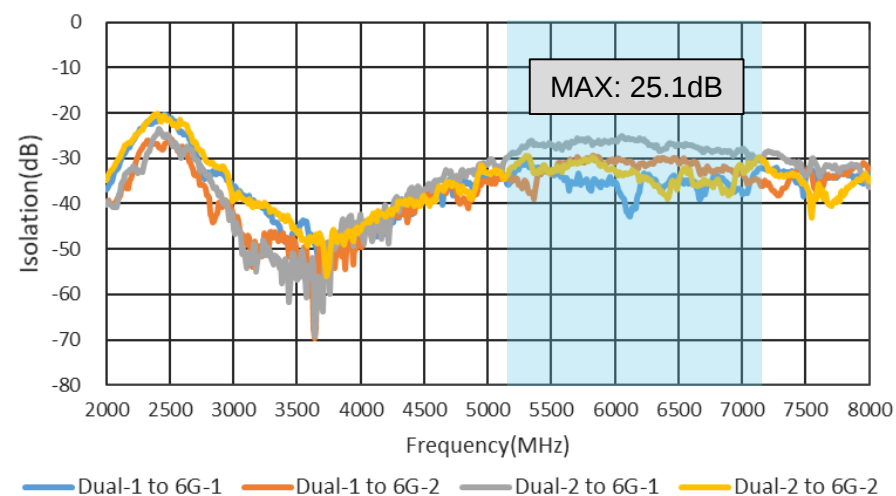
95XPAD15.GBD



6G group

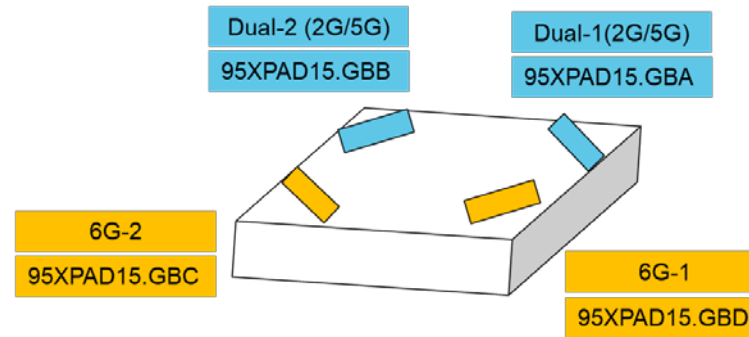


Dual_5G to 6G group



Peak Gain

Test date: 2024/05/03
Test personnel : Eason Chen



Dual-1	2400	2450	2500	5150	5350	5550	5750	5850
Peak Gain	3.37	3.46	3.14	4.98	5.56	5.38	5.84	5.94
Peak Gain(dBi) @	$\theta=54$; $\phi=177$	$\theta=0$; $\phi=-57$	$\theta=6$; $\phi=-57$	$\theta=60$; $\phi=-63$	$\theta=63$; $\phi=-63$	$\theta=60$; $\phi=-66$	$\theta=60$; $\phi=-69$	$\theta=60$; $\phi=-69$

Dual-2	2400	2450	2500	5150	5350	5550	5750	5850
Peak Gain	2.95	3.34	3.31	5.21	5.68	5.63	5.71	5.69
Peak Gain(dBi) @	$\theta=117$; $\phi=75$	$\theta=156$; $\phi=-51$	$\theta=72$; $\phi=-48$	$\theta=144$; $\phi=-63$	$\theta=150$; $\phi=-39$	$\theta=150$; $\phi=-66$	$\theta=150$; $\phi=-69$	$\theta=153$; $\phi=-69$

6G-1	5925	6225	6525	6875	7125
Peak Gain	5.48	5.95	5.62	6.38	6.50
Peak Gain(dBi) @	$\theta=141$; $\phi=69$	$\theta=141$; $\phi=69$	$\theta=144$; $\phi=72$	$\theta=147$; $\phi=72$	$\theta=147$; $\phi=72$

6G-2	5925	6225	6525	6875	7125
Peak Gain	5.25	6.04	5.81	5.99	6.34
Peak Gain(dBi) @	$\theta=60$; $\phi=69$	$\theta=60$; $\phi=69$	$\theta=60$; $\phi=75$	$\theta=60$; $\phi=75$	$\theta=60$; $\phi=78$

- ✓ Above Peak Gain= on board antenna peak gain-path loss+ Chamber's receiving RX peak gain.
- ✓ The 6G-2 antenna uses low loss cable.

Radiation Pattern

Test date: 2024/05/03
Test personnel : Eason Chen

Dual-2 (2G/5G)

95XPAD15.GBB

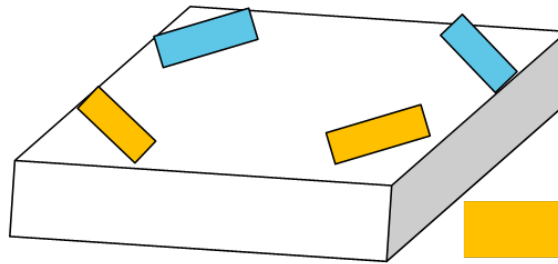
Dual-1(2G/5G)

95XPAD15.GBA

Model

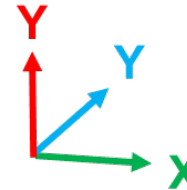
6G-2

95XPAD15.GBC



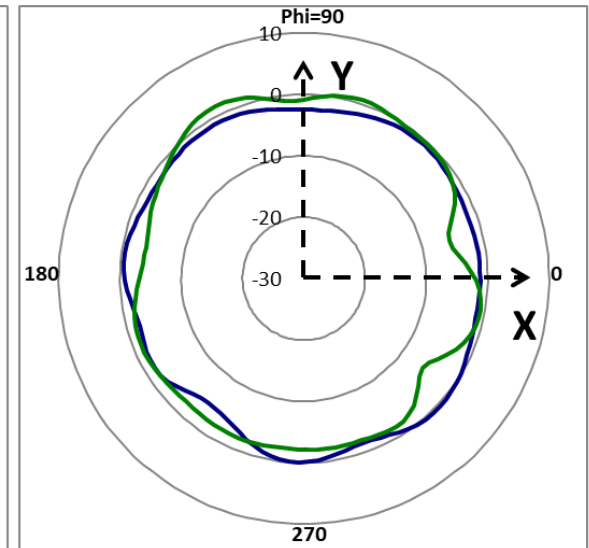
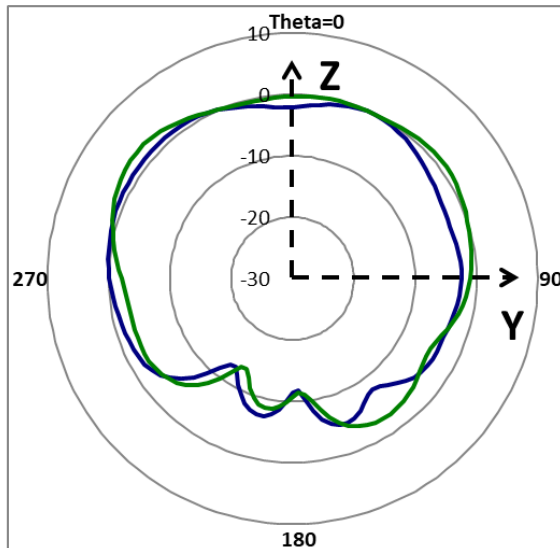
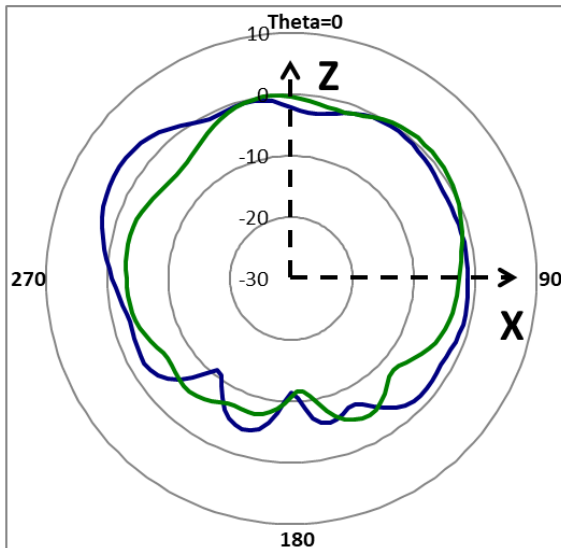
6G-1

95XPAD15.GBD



2GHz Radiation Pattern

— Dual-1_2G
— Dual-2_2G



Radiation Pattern

Test date: 2024/05/03
Test personnel : Eason Chen

Dual-2 (2G/5G)

95XPAD15.GBB

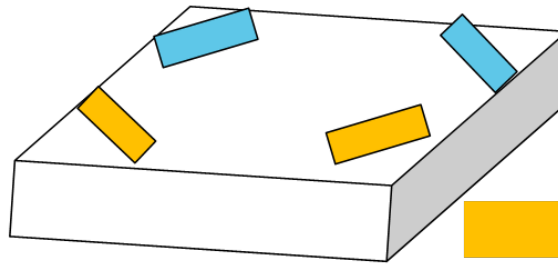
Dual-1(2G/5G)

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Model

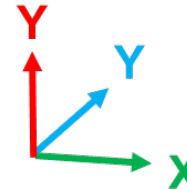
6G-2

95XPAD15.GBC



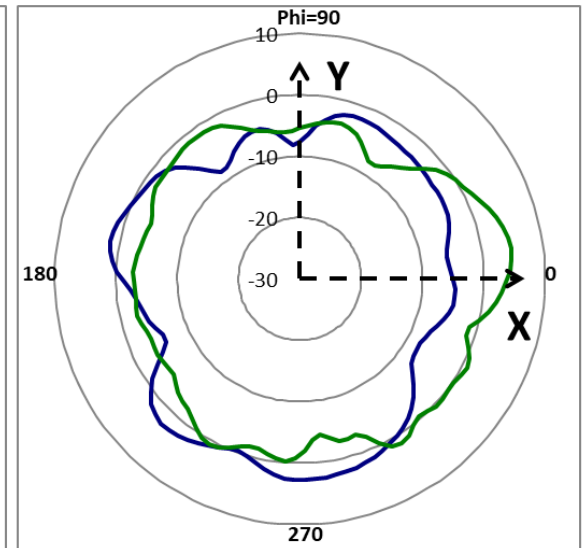
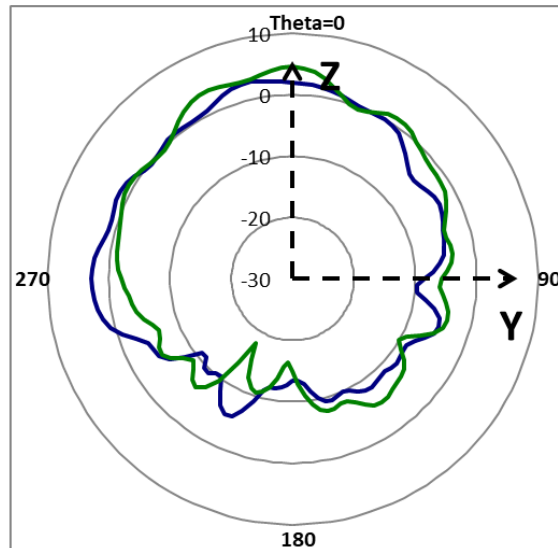
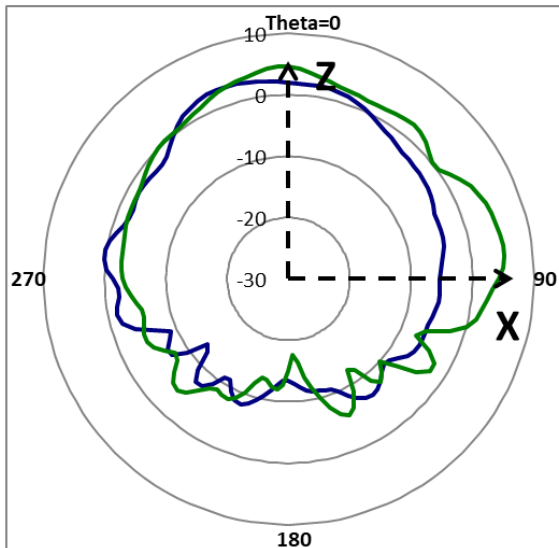
6G-1

95XPAD15.GBD



5GHz Radiation Pattern

— Dual-1_5G
— Dual-2_5G



Radiation Pattern

Test date: 2024/05/03
Test personnel : Eason Chen

Dual-2 (2G/5G)

95XPAD15.GBB

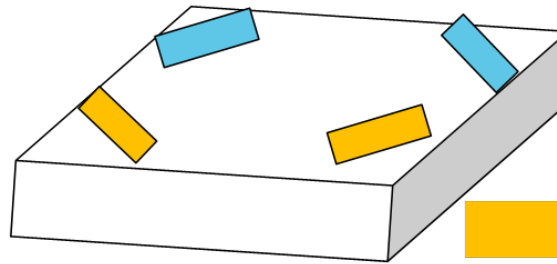
Dual-1(2G/5G)

95XPAD15.GBA

Model

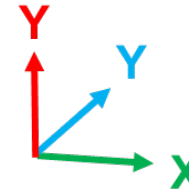
6G-2

95XPAD15.GBC



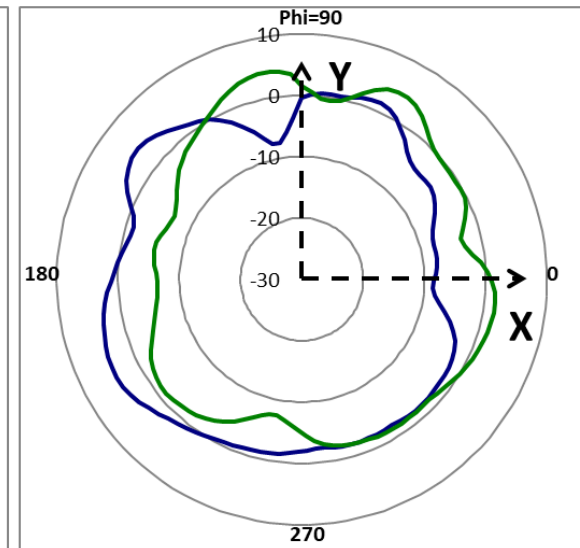
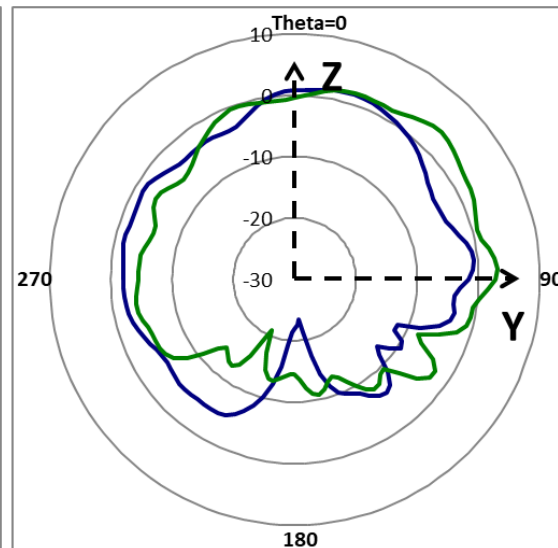
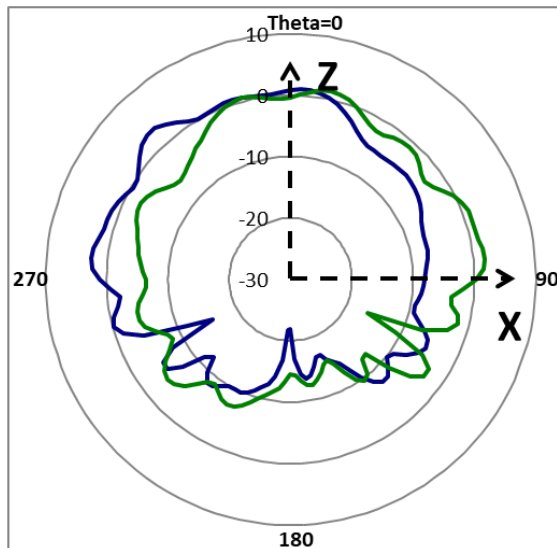
6G-1

95XPAD15.GBD



6GHz Radiation Pattern

— 6G-1
— 6G-2



The logo consists of the letters 'WNC' in a bold, blue, italicized sans-serif font. The 'W' and 'N' are connected, and the 'C' is a simple curve.

WNC

Wistron NeWeb Corp.

