

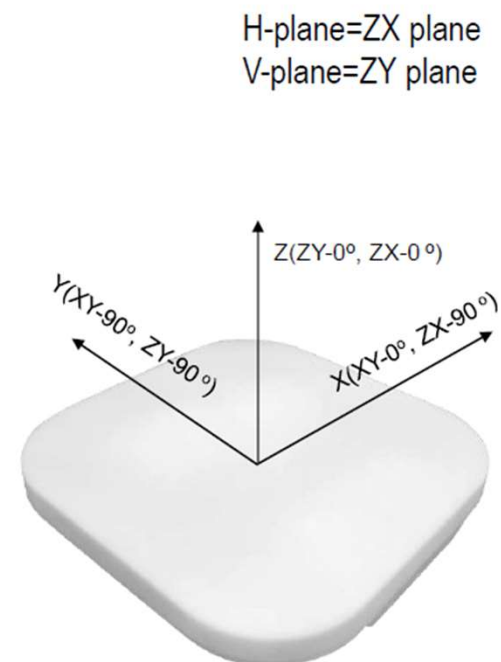
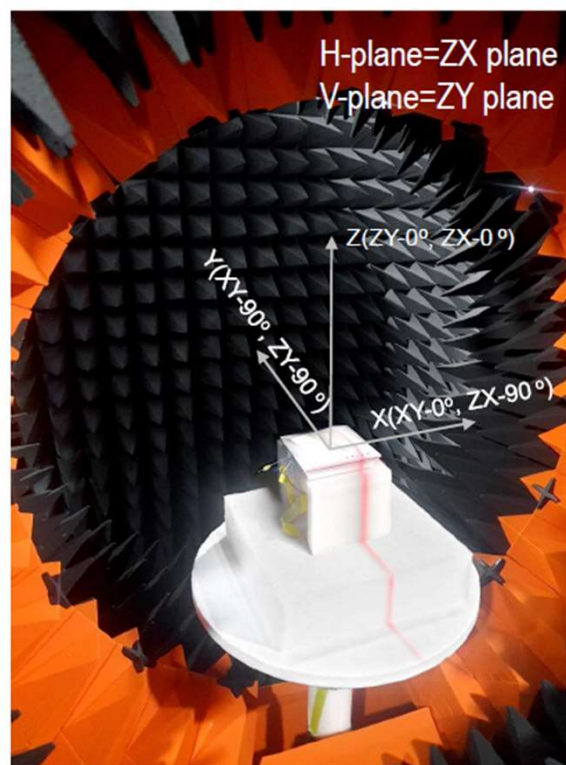
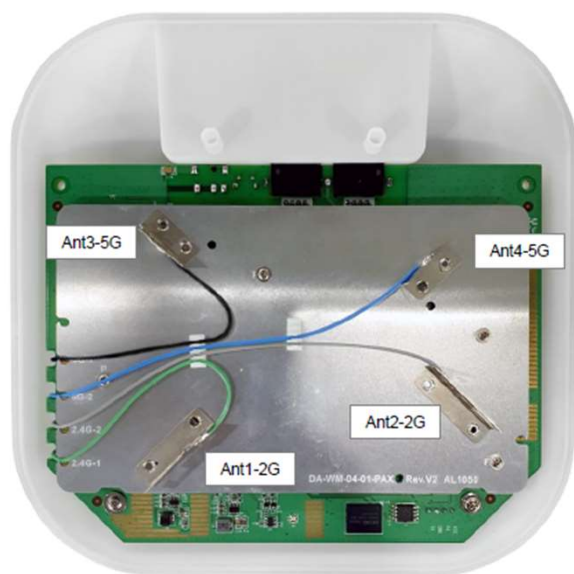


PAX1800 Antenna 2.4G*2 / 5G*2 Test Report

1. Antenna Picture	P.2
2. Antenna Specification	P.3
3. Antenna VSWR	P.4
4. Antenna Isolation	P.5
5. Antenna Gain table/ Pattern / 3D Pattern	P.6~P.14
6. Test Instruments and information	P.15

All rights reserved by GTT under NDA agreements

Antenna Picture



All rights reserved by GTT under NDA agreements

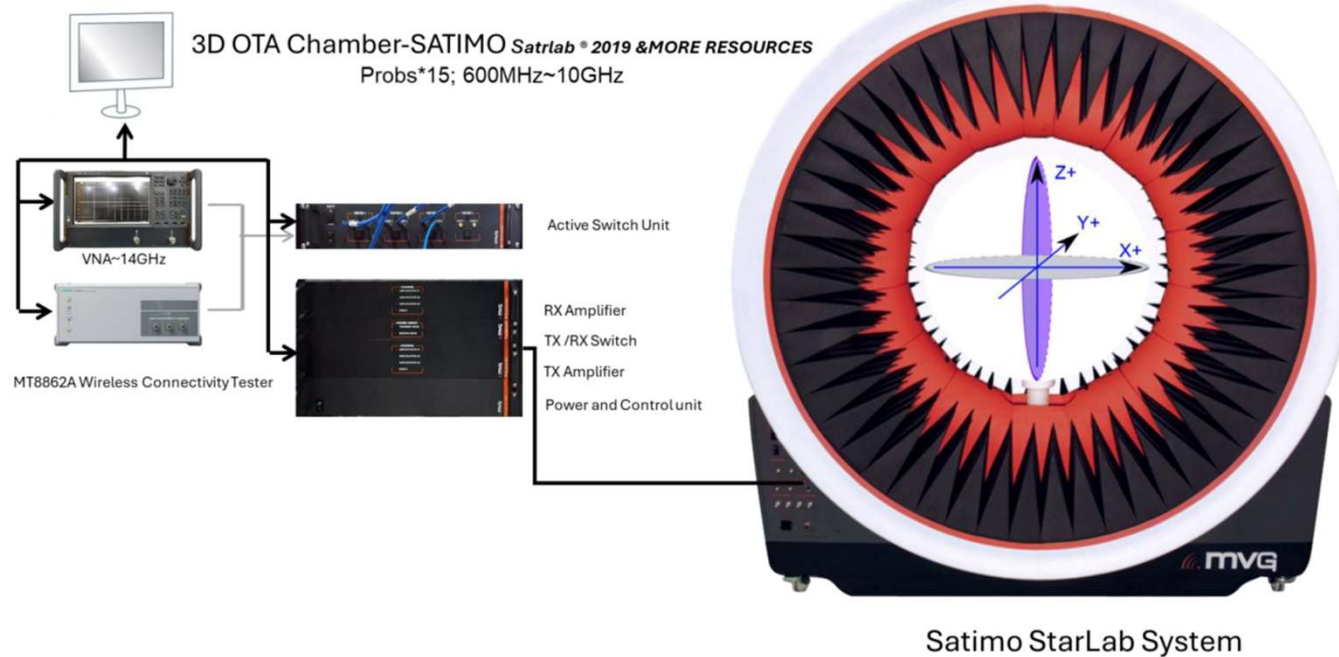
Antenna Specification



Specification				
Frequency	2G		5G	
Item	ANT1	ANT2	ANT3	ANT4
Efficiency	67~75%	69~77%	71~73%	71~76%
Peak Gain	2.9~3.9 dB	2.4~3.0 dB	4.0~4.7 dB	4.3~5.6 dB
VSWR	2.0 max.:1			
Connector	MHF Plug For 1.13 CBL. Gold Plate			
Cable	OD1.13 Low Loss CBL			
CBL. Color	Green	Gray	Blue	Black
Impedance	50 Ohms			

All rights reserved by GTT under NDA agreements

Antenna Testing Setup and Orientation



Frequency bands

- StarLab 6 GHz: 650 MHz to 6 GHz

Max. size of DUT

- 45 cm for spherical set-up
- 2.7 m x 45 cm for cylindrical set-up
- Specific lengths available upon request

Max. weight of DUT

- 10 kg with styrofoam mast

Typical dynamic range

- 650 MHz - 6 GHz: 70 dB

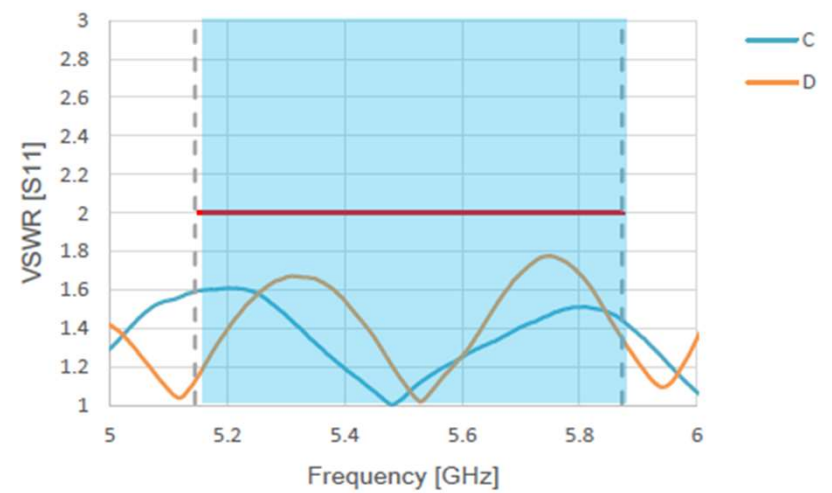
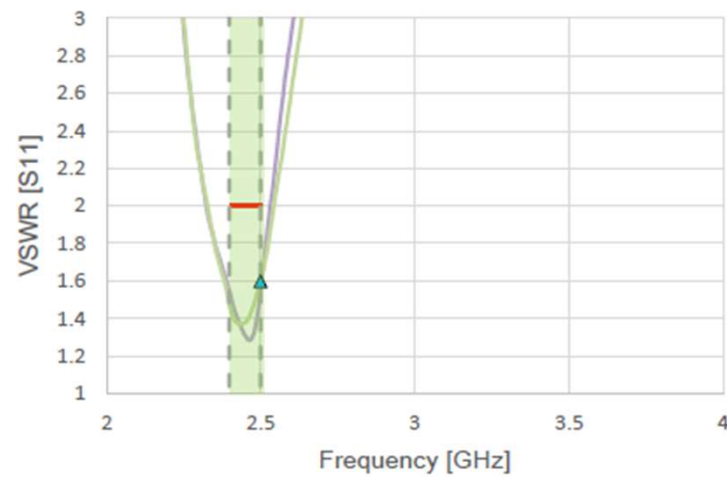
Oversampling

- Arch rotation

All rights reserved by GTT under NDA agreements

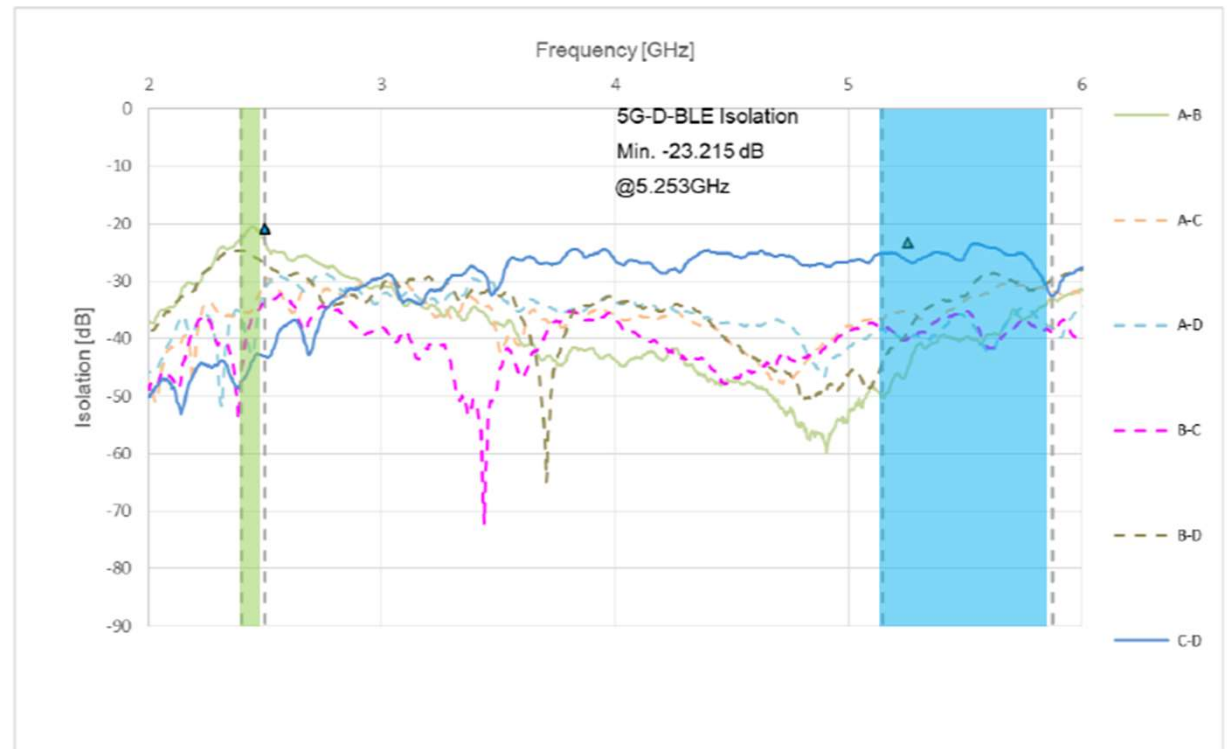
Antenna VSWR

VSWR 2.0max:1



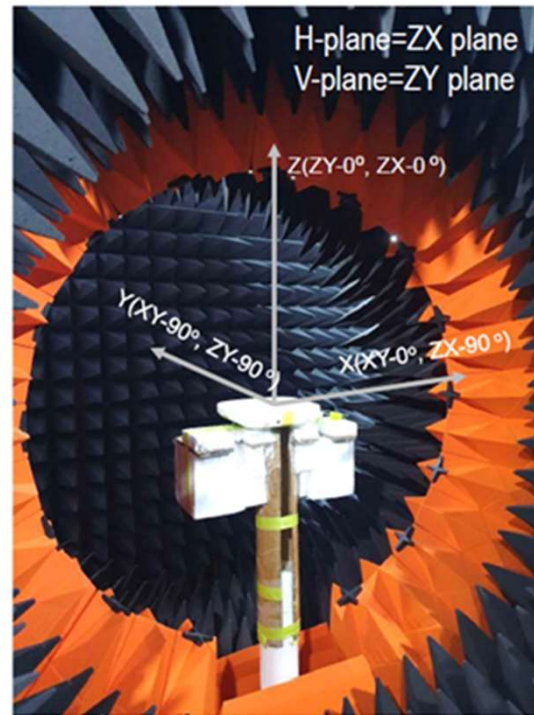
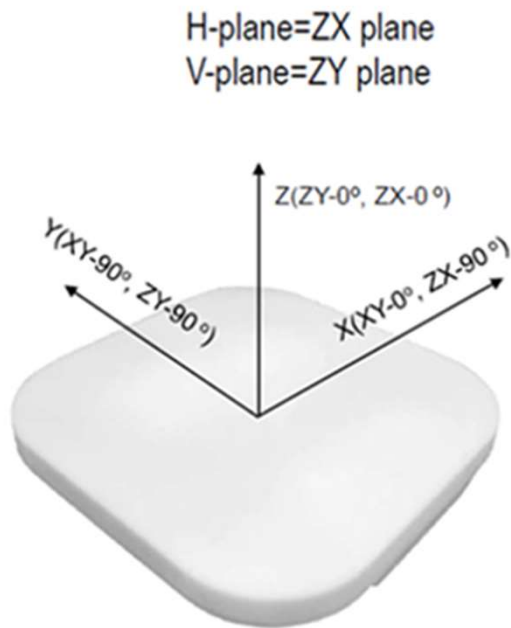
All rights reserved by GTT under NDA agreements

ISOLATION



All rights reserved by GTT under NDA agreements

Test Setup and Procedure



Total Antenna Quantity: 4

Test Setup:

A. Connect testing cable to 1 antenna port.

B. Connect terminator on the other ports

Follow sequence for the other ports.

- Run Satimo test SW (Satimo Passive Measurement, **v1.9.3**)

- Get 3D data in 2.8125 degree step from phi $0^\circ \sim 360^\circ$ and theta $-90^\circ \sim +90^\circ$, including efficiency, peak gain, 2D & 3D radiation pattern.

- This is far field test for EW-7489PAX antenna verification.

- This is passive measurement, which means the device is off and not in any operating mode.



All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN

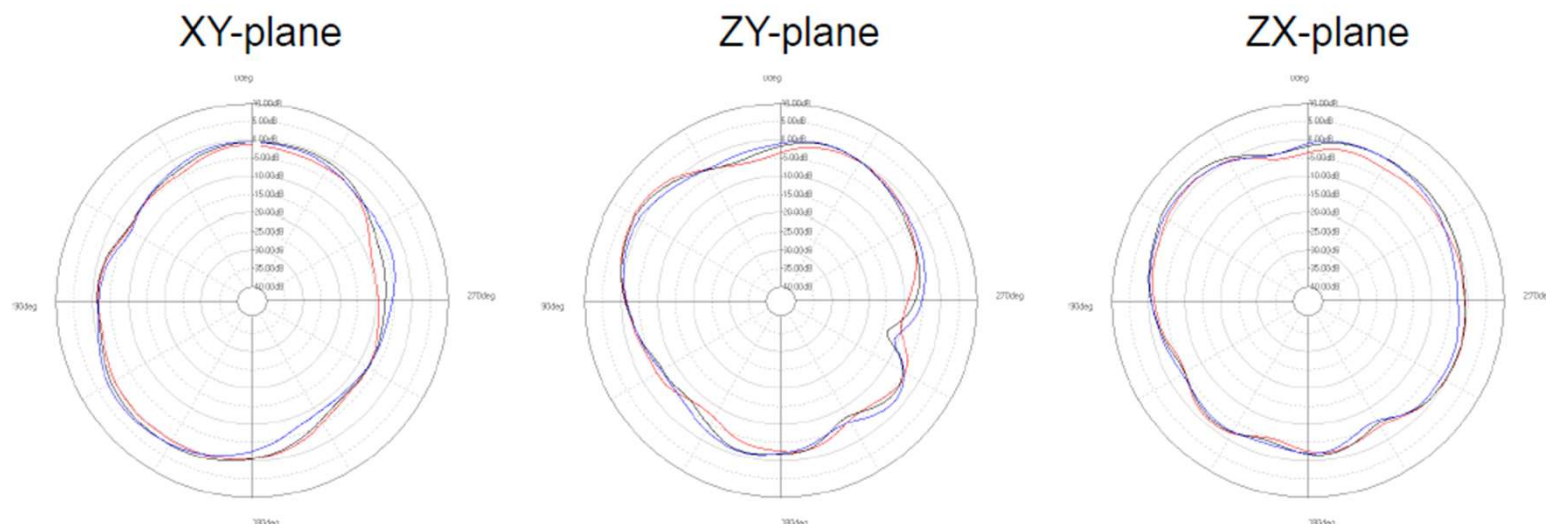
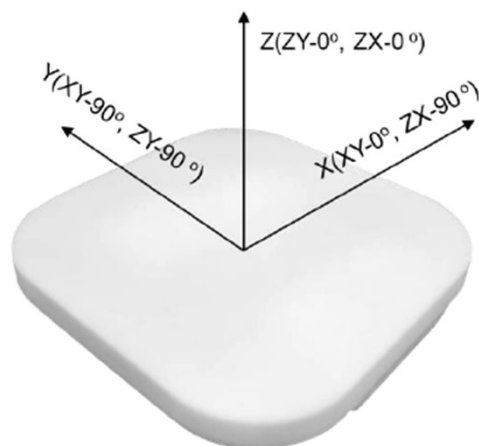


A ANT1-2.4G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	67%	-1.7	3.2	-2.8	-2.6	-1.7	0.3	2.5	1.1
2450	75%	-1.2	3.9	-2.0	-2.5	-0.8	1.5	2.1	2.7
2500	71%	-1.5	2.9	-2.1	-2.4	-1.5	2.1	1.1	1.6

H-plane=ZX plane
 V-plane=ZY plane

Legend
 — 2400(MHz)
 — 2450(MHz)
 — 2500(MHz)



All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN

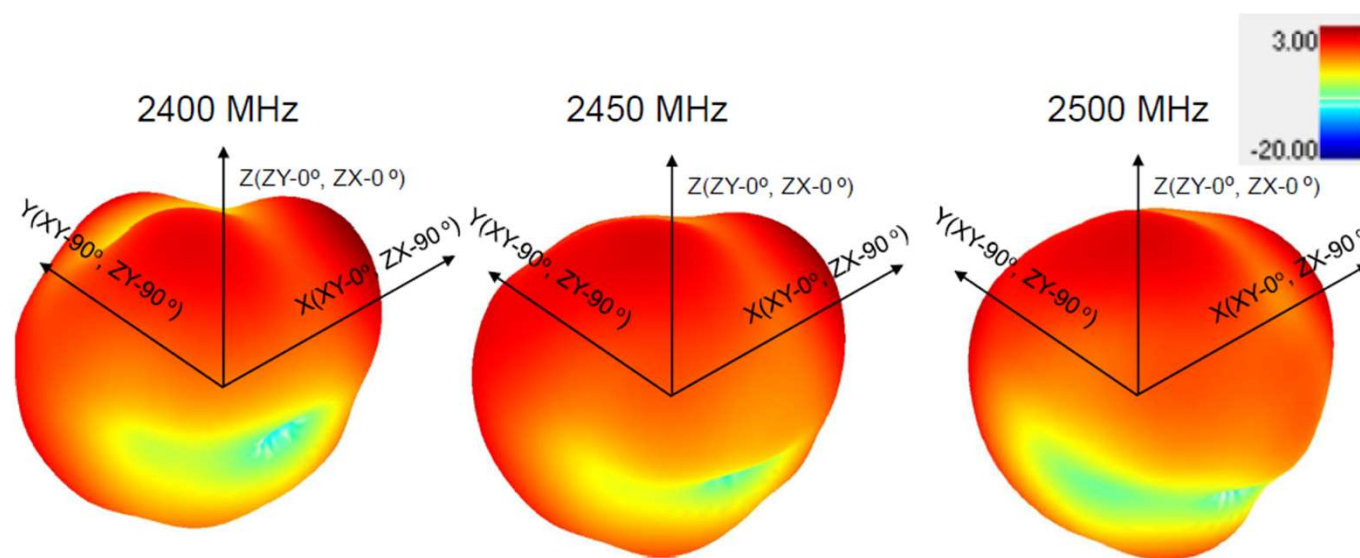
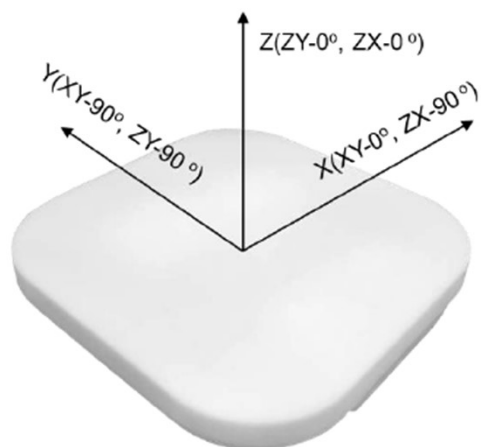


A ANT1-2.4G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	67%	-1.7	3.2	-2.8	-2.6	-1.7	0.3	2.5	1.1
2450	75%	-1.2	3.9	-2.0	-2.5	-0.8	1.5	2.1	2.7
2500	71%	-1.5	2.9	-2.1	-2.4	-1.5	2.1	1.1	1.6

H-plane=ZX plane
 V-plane=ZY plane

Legend
 — 2400(MHz)
 — 2450(MHz)
 — 2500(MHz)



All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN

B ANT1-2.4G (Type : PIFA)



Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	71%	-1.5	2.4	-2.9	-1.5	-2.5	-1.0	1.8	0.1
2450	77%	-1.1	3.0	-2.6	-1.7	-2.1	-0.2	2.4	1.2
2500	69%	-1.6	2.9	-3.4	-2.3	-2.9	-1.1	2.0	0.7

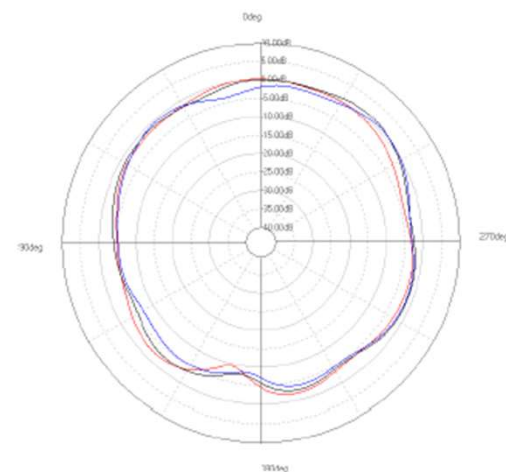
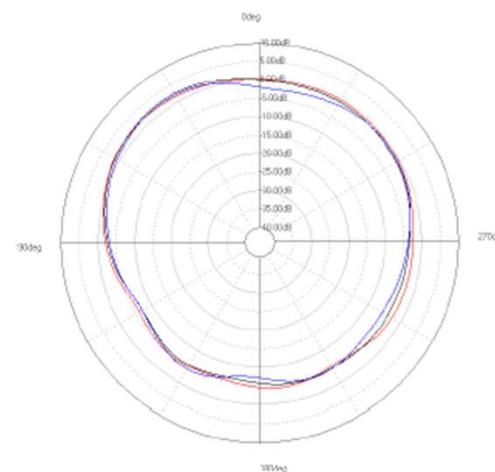
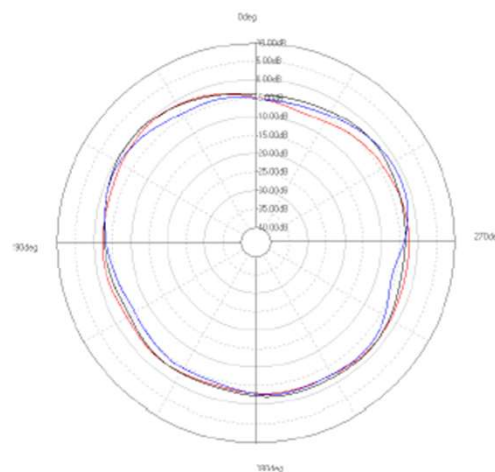
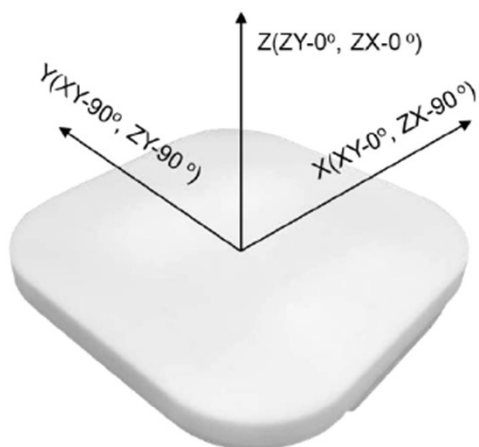
XY-plane

ZY-plane

ZX-plane

H-plane=ZX plane
 V-plane=ZY plane

Legend
 — 2400(MHz)
 — 2450(MHz)
 — 2500(MHz)



All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN

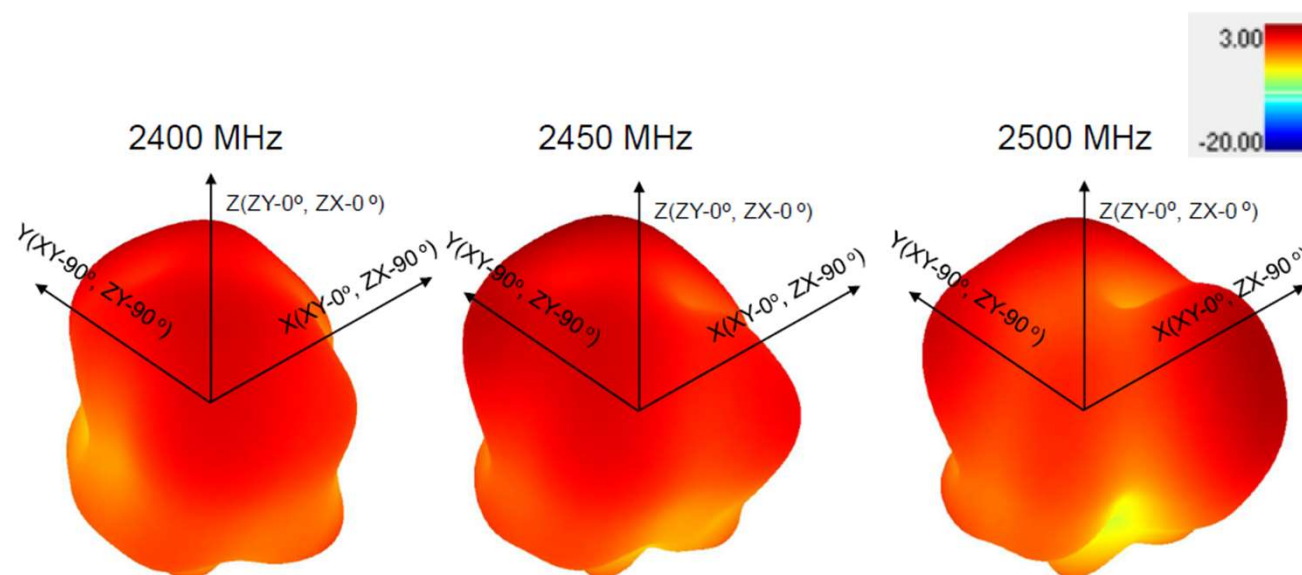
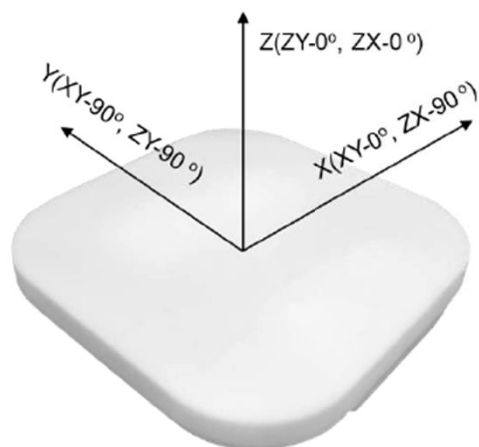


B ANT1-2.4G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
2400	71%	-1.5	2.4	-2.9	-1.5	-2.5	-1.0	1.8	0.1
2450	77%	-1.1	3.0	-2.6	-1.7	-2.1	-0.2	2.4	1.2
2500	69%	-1.6	2.9	-3.4	-2.3	-2.9	-1.1	2.0	0.7

H-plane=ZX plane
 V-plane=ZY plane

Legend
 — 2400(MHz)
 — 2450(MHz)
 — 2500(MHz)



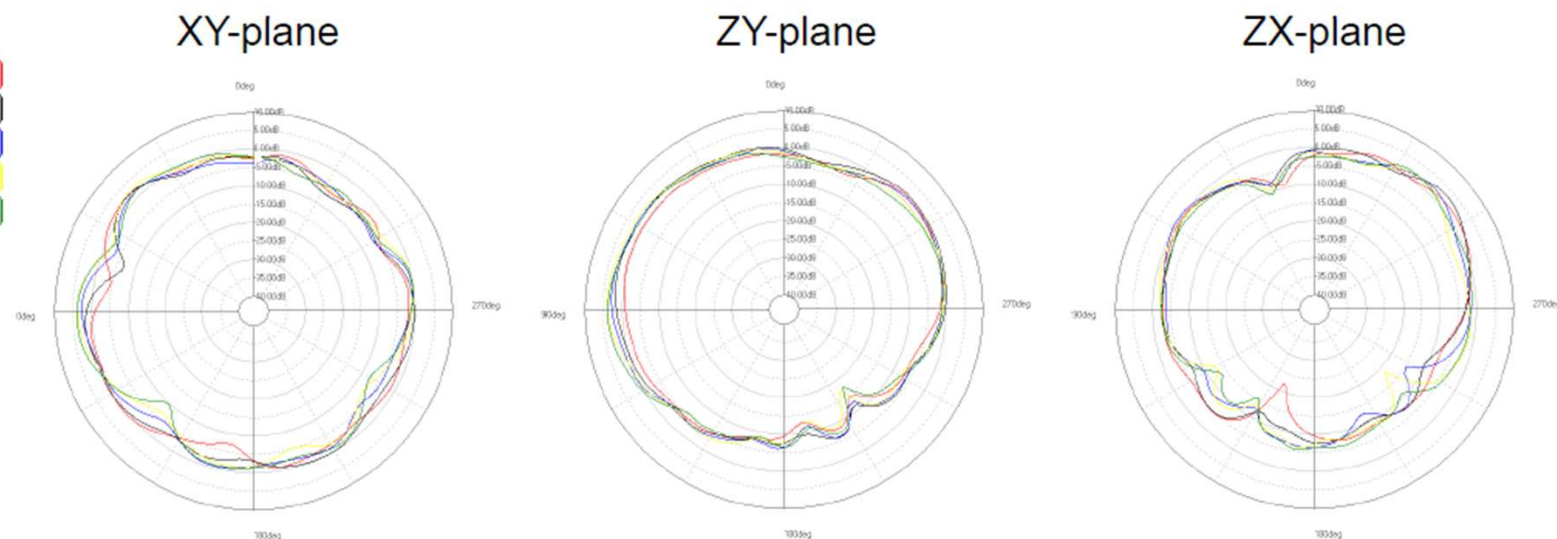
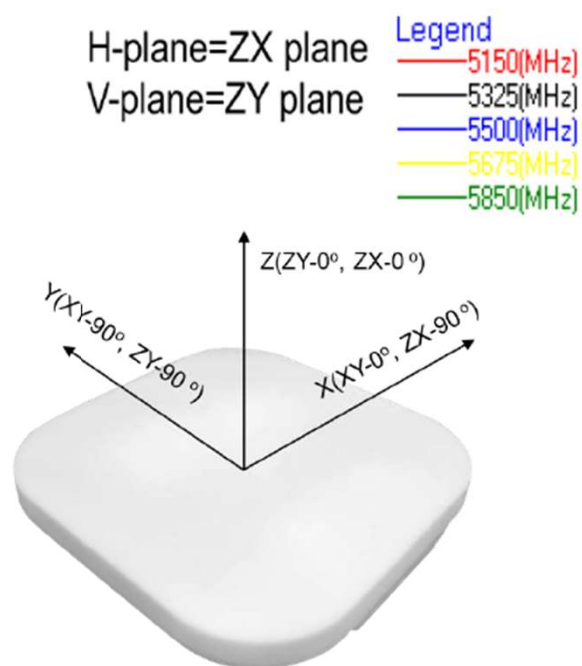
All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN



C ANT3-5G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
5150	71%	-1.5	4.1	-1.7	-2.4	-3.0	2.1	1.3	1.8
5325	73%	-1.4	4.0	-1.5	-1.0	-2.9	2.2	2.2	3.2
5500	71%	-1.5	4.0	-1.7	-1.1	-3.2	2.5	2.9	2.1
5675	73%	-1.4	4.7	-1.3	-0.8	-3.3	3.8	4.0	1.8
5850	72%	-1.4	4.6	-1.2	-1.2	-3.3	3.9	3.8	1.8



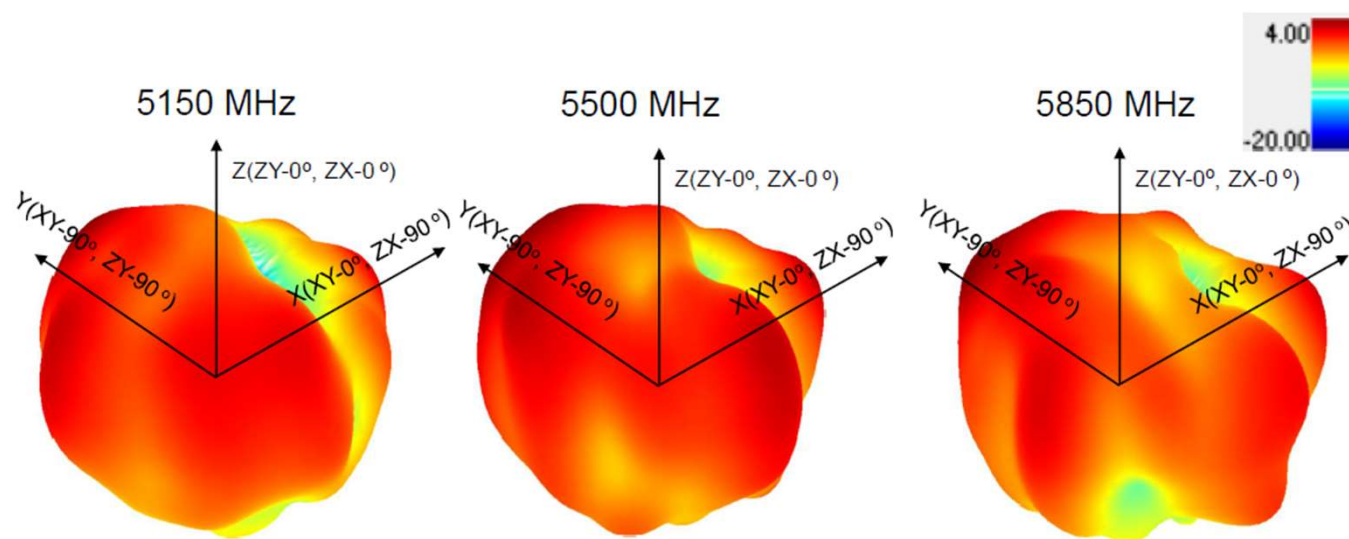
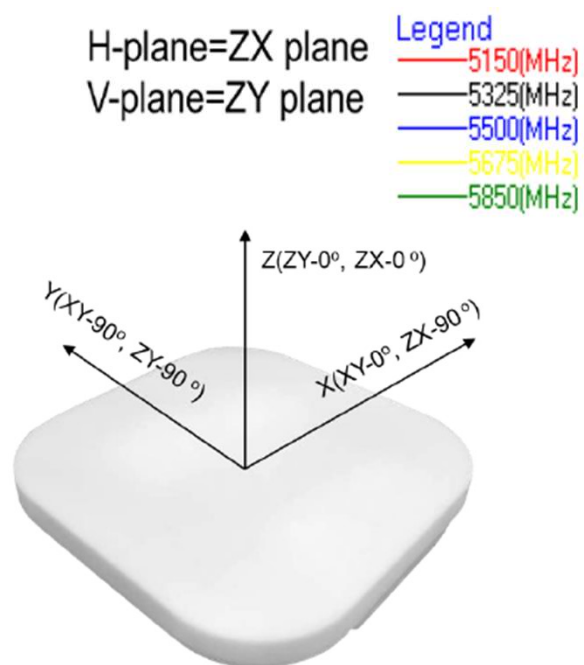
All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN



C ANT3-5G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
5150	71%	-1.5	4.1	-1.7	-2.4	-3.0	2.1	1.3	1.8
5325	73%	-1.4	4.0	-1.5	-1.0	-2.9	2.2	2.2	3.2
5500	71%	-1.5	4.0	-1.7	-1.1	-3.2	2.5	2.9	2.1
5675	73%	-1.4	4.7	-1.3	-0.8	-3.3	3.8	4.0	1.8
5850	72%	-1.4	4.6	-1.2	-1.2	-3.3	3.9	3.8	1.8



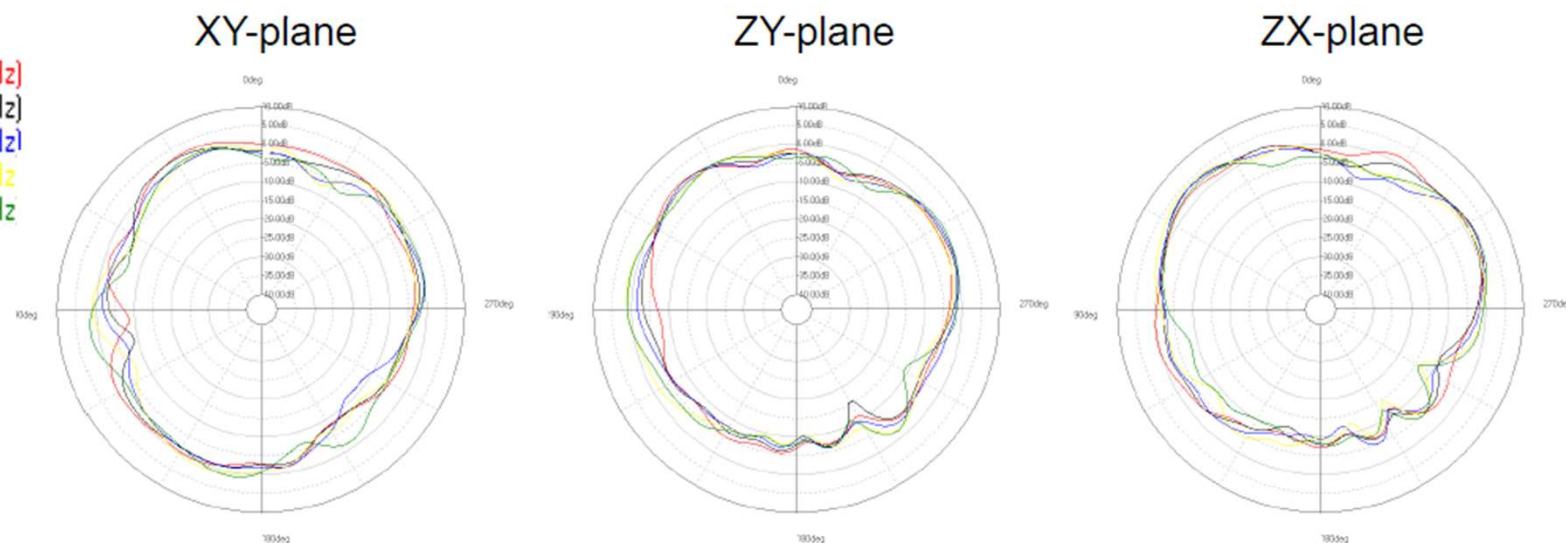
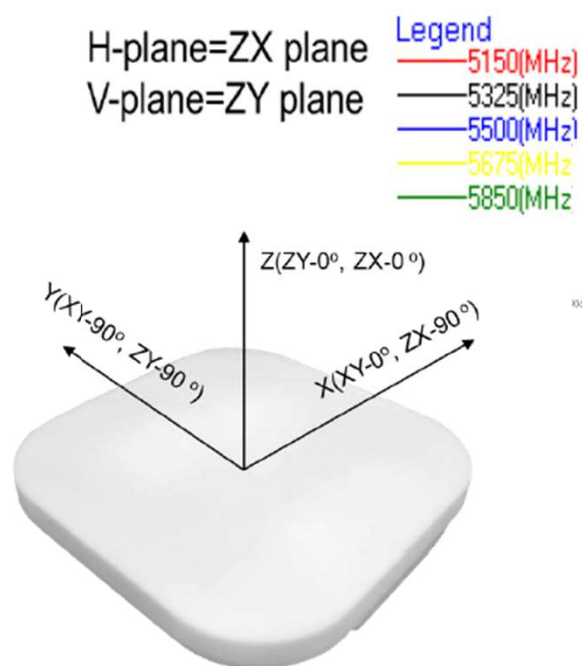
All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN



D ANT4-5G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
5150	76%	-1.2	4.3	-1.7	-3.6	-1.4	2.4	1.5	2.1
5325	72%	-1.4	4.8	-2.2	-3.4	-1.7	1.9	1.1	3.5
5500	71%	-1.5	5.3	-2.7	-3.2	-1.9	0.2	0.5	3.6
5675	73%	-1.3	5.6	-2.2	-2.7	-1.6	1.0	1.3	4.3
5850	73%	-1.4	5.2	-1.9	-2.4	-2.4	1.9	1.1	2.6



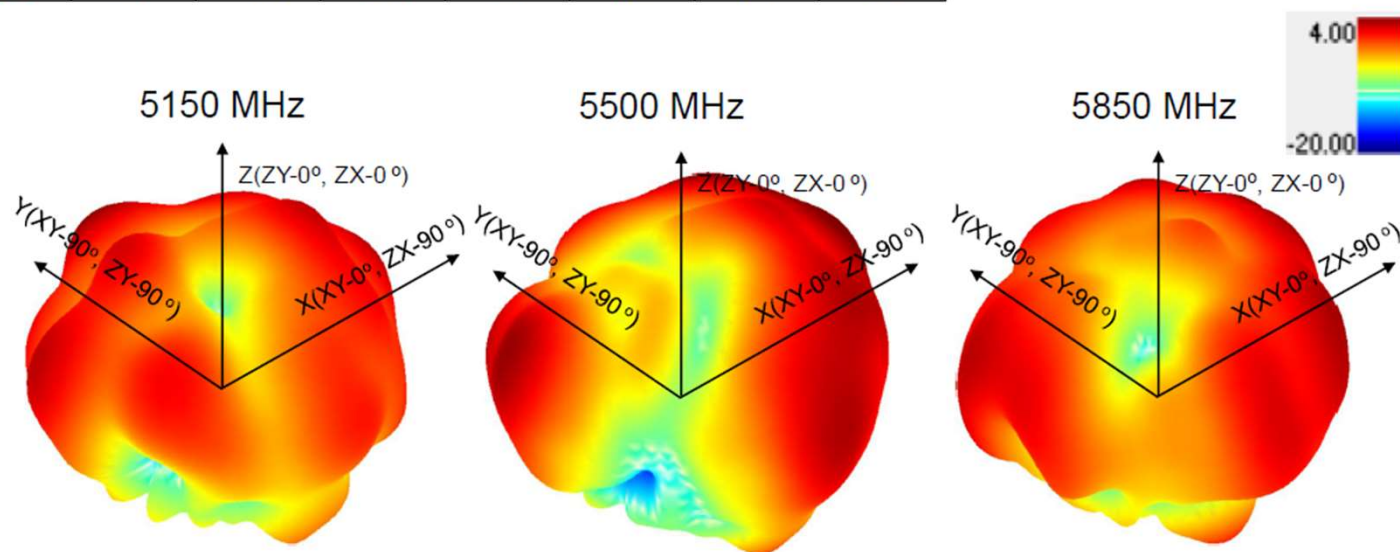
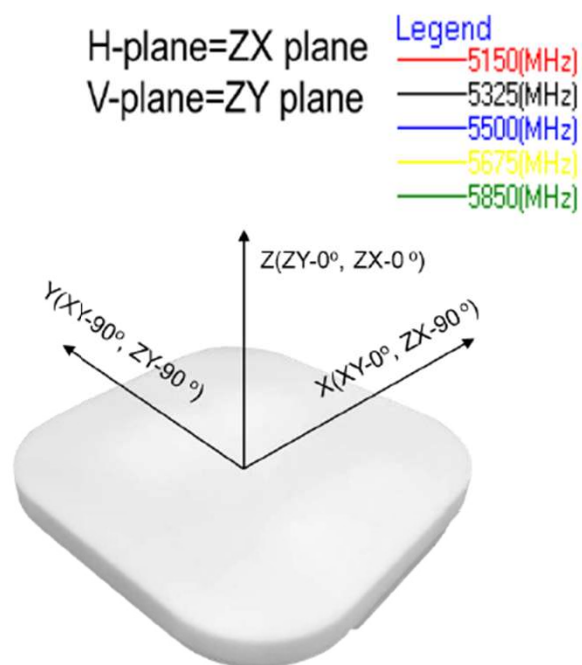
All rights reserved by GTT under NDA agreements

GAIN TABLE / PATTERN



D ANT4-5G (Type : PIFA)

Frequency (MHz)	3D			Avg. Gain			Peak Gain		
	Efficiency	Avg. Gain	Peak Gain	XY-plane	YZ-plane	ZX-plane	XY-plane	YZ-plane	ZX-plane
5150	76%	-1.2	4.3	-1.7	-3.6	-1.4	2.4	1.5	2.1
5325	72%	-1.4	4.8	-2.2	-3.4	-1.7	1.9	1.1	3.5
5500	71%	-1.5	5.3	-2.7	-3.2	-1.9	0.2	0.5	3.6
5675	73%	-1.3	5.6	-2.2	-2.7	-1.6	1.0	1.3	4.3
5850	73%	-1.4	5.2	-1.9	-2.4	-2.4	1.9	1.1	2.6



All rights reserved by GTT under NDA agreements



Test Instruments and information

ITEM	DESCRIPTION	BRAND / Part number	CALIBRATION DATE
1	StarLab System	MVG	1/Apr/2020
2	Vector Network Analyzer	Keysight 5080B	10/Mar/2020
3	Wireless Connectivity Tester	MT8862A	06/Dec/2020

names of test personnel → Jason Hsu

test dates → 2021/02/17

All rights reserved by GTT under NDA agreements