

# SX3 Antenna Report

Item	Description
FCC ID	APYHRO00327
Manufacturer	Shenzhen ZTX Communication Technology Co., LTD.
Manufacturer Address	NO.34 Shilong Road, Bao'an District, Shenzhen, Guangdong Province, China
Test Environment	ETS-Lindgren AMS-8500 Antenna Measurement System
Test Equipment	Keysight E5071C
Test Software	ETS-Lindgren EMQuest Data Acquisition and Analysis Software V1.12 build 1470
Calibration date	Feb. 09 2023
Test date	Mar. 13 2023 ~ Mar. 17 2023

## Outline

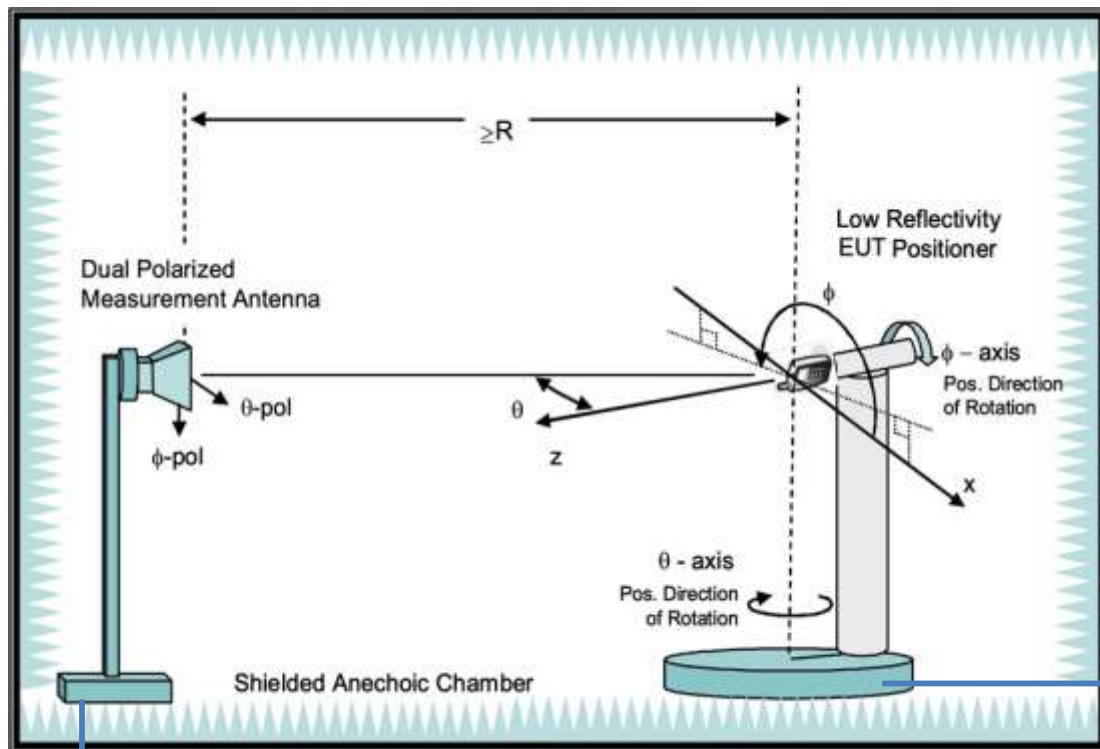
- 1. Test Method**
- 2. Test Setup**
- 3. Antenna Gain**
- 4. Radiation pattern**

# 1. Test Method

The antenna gains are obtained through measurements in a fully anechoic OTA chamber with a 3D positioner.

Measurements are taken in discreet steps in theta and phi direction, data is being recorded using the spectrum analyzer (active) or network analyzer (passive) for both theta and phi polarizations at each position resulting in a 3D gain pattern. Step size is <30deg along both axes.

Gain is either derived directly through spatial averaging of VNA S21 measurements (passive measurement) or by the ratio of spatial averaging of 3D EIRP/TRP measurements vs the conducted power (active measurement).



### 3. Antenna Gain

Main ANT 0					
Frequency (MHz)	peak gain (dBm)	peak gain (dBm)	peak gain (dBm)	peak gain (dBm)	
600					
620					
640					
660					
680					
703	-3.86				
710	-3.42				
720	-3.09				B12/B17
730	-3.43	-2.90			
740	-4.00	-1.95			
750	-4.92	-2.76			B28
760	-5.64	-2.49			
770	-5.09	-3.16			
780	-6.80	-4.11			
790	-7.30	-5.33			
804	-7.88	-6.64		-6.13	
810	-7.78	-6.90		-5.26	B18
820				-5.55	
830				-5.48	
840				-4.65	B6
850				-4.60	850/B19
860				-5.10	
870				-6.12	
880			-5.05	-7.15	
890			-4.88	-7.09	
900			-4.28		B8
910			-4.23		
920			-4.88		
930			-4.61		
940			-5.32		
950			-6.12		
960			-5.37		
980					
1000					

Main ANT 1		
Frequency (MHz)	peak gain (dBm)	
1690	-5.93	
1710	-6.00	
1725	-4.15	
1740	-3.80	
1755	-3.32	
1770	-3.29	
1785	-3.16	B3
1800	-3.56	
1815	-2.52	
1830	-1.97	
1845	-1.22	
1860	-1.00	B2
1875	-1.14	B39
1890	-1.83	
1905	-1.50	
1920	-2.13	B1
1935	-2.87	
1950	-2.82	
1965	-2.52	
1980	-2.64	
1990	-2.88	
2010	-3.82	
2030	-3.28	
2050	-3.03	
2070	-3.05	
2090	-2.96	
2110	-3.44	
2120	-3.95	
2130	-4.14	
2140	-4.69	
2150	-3.55	
2160	-4.62	
2170	-4.18	
2200	-3.17	
2240	-2.20	
2280	-2.31	
2300	-1.77	
2320	-2.65	
2340	-2.38	
2360	-1.10	
2380	-2.14	
2400	-2.08	
2420	-1.59	
2440	-2.59	
2460	-1.88	
2480	-3.69	
2500	-4.93	
2520	-3.34	
2540	-3.13	B7/B41
2560	-3.62	
2580	-3.56	
2600	-3.49	B38
2620	-3.74	
2640	-3.36	
2660	-4.43	
2680	-4.68	
2690	-1.14	
2720	-2.67	
2740	-1.30	
2760	-2.73	
2780	-2.78	
2800	-2.78	

## Main ANT 2

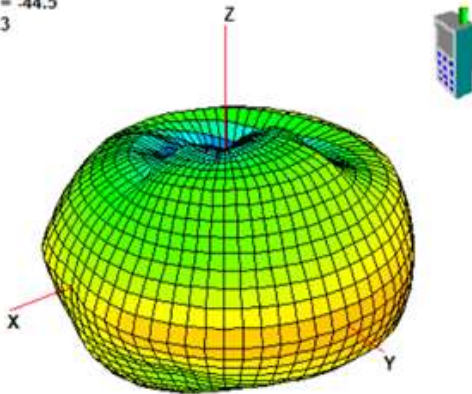
Frequency (MHz)	peak gain (dBm)	peak gain (dBm)	peak gain (dBm)
600			
620			
640			
660			
680			
703		-10.47	
710		-10.33	
720		-8.40	
730		-9.38	
740		-8.51	
750		-7.52	
760		-8.48	
770		-7.84	
780		-8.06	
790		-8.67	
804		-8.74	
810			-9.08
820			-8.93
830			-9.49
840			-8.98
850			-8.25
860			-7.37
870			-7.48
880	-8.80		-7.55
890	-7.96		-8.37
900	-7.88		
910	-7.78		
920	-7.43		
930	-7.10		
940	-7.41		
950	-7.56		
960	-8.04		
980			

Main ANT 4		
Frequency (MHz)	peak gain (dBm)	
2300		
2320		
2340		
2360		
2380		
2400	-1.88	
2410	-1.47	
2420	-1.36	2.4G/BT
2430	-1.45	
2440	-1.82	
2450	-1.71	
2460	-1.45	
2470	-1.63	
2480	-2.09	
2490	-2.10	
2500	-2.77	
2520		
2540		
2560		
2580		
2600		
2620		
2640		
2660		
2680		
2700		
5000		
5025		
5050		
5075		
5100		
5125		
5150	-2.19	
5175	-2.99	
5200	-1.89	
5225	-1.85	
5250	-0.19	
5275	-1.79	
5300	-1.26	
5325	-2.72	
5350	-1.59	
5375	-0.45	
5400	-1.86	
5425	-2.69	
5450	-1.33	
5475	-1.38	
5500	-1.88	
5525	-1.78	
5550	-0.55	
5575	-2.09	
5600	-0.65	
5625	0.49	
5650	-1.29	
5675	-1.85	
5700	-2.32	
5725	-0.81	
5750	-2.39	
5775	-1.37	
5800	0.65	
5825	-1.71	
5850	-2.28	
5875	-2.95	
5900	-0.10	
5925		
5950		
5975		
6000		

## 4. Radiation pattern

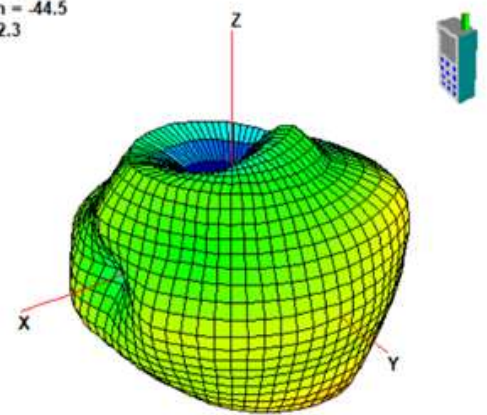
730MHz ANT0

Azimuth = 127.4  
Elevation = -44.5  
Roll = -42.3



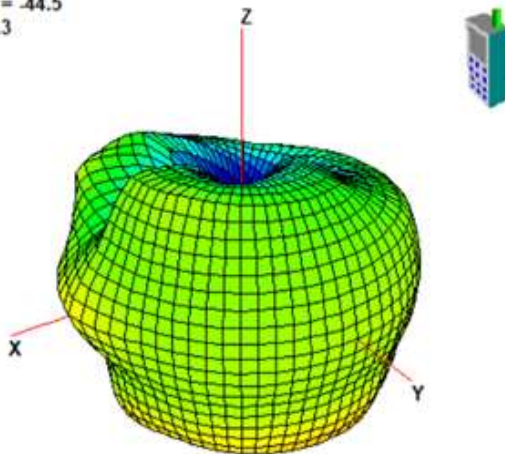
900MHz ANT0

Azimuth = 127.4  
Elevation = -44.5  
Roll = -42.3



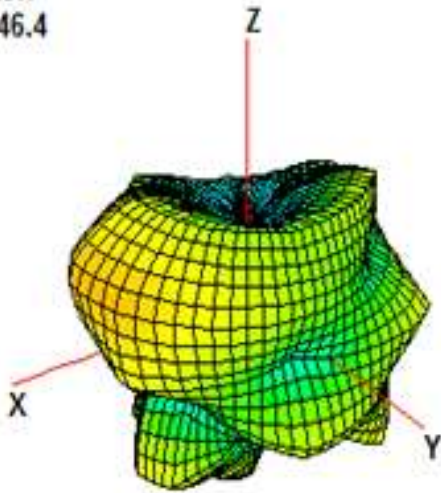
850MHz ANT0

Azimuth = 127.4  
Elevation = -44.5  
Roll = -42.3



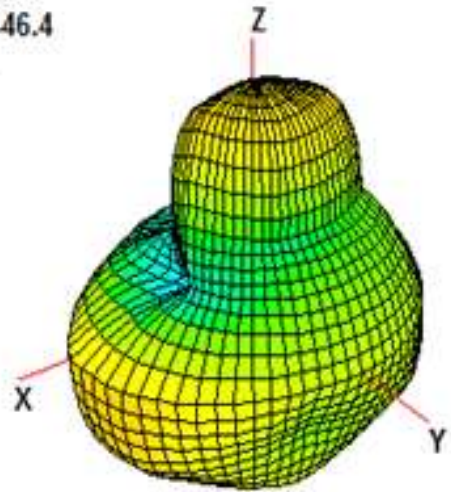
1755MHz ANT1

Azimuth = 123.7  
Elevation = -46.4  
Roll = -47.0



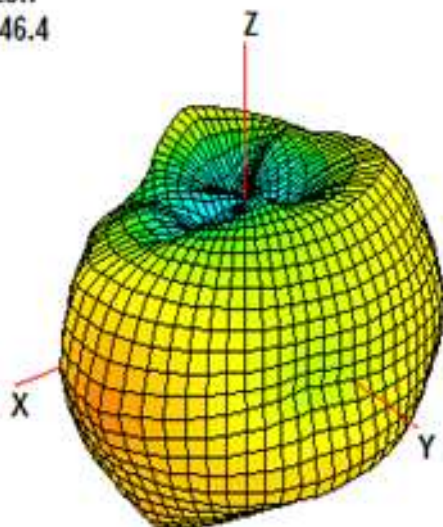
2350MHz ANT1

Azimuth = 123.7  
Elevation = -46.4  
Roll = -47.0



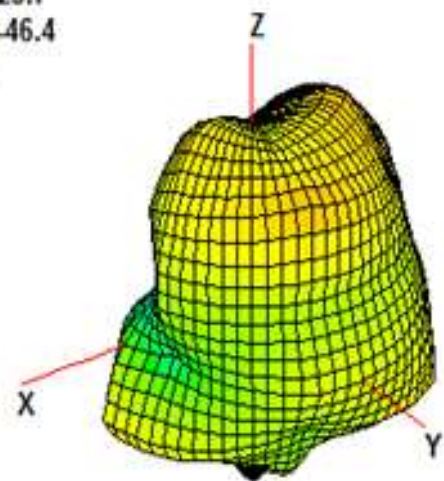
1950MHz ANT1

Azimuth = 123.7  
Elevation = -46.4  
Roll = -47.0



2600MHz ANT1

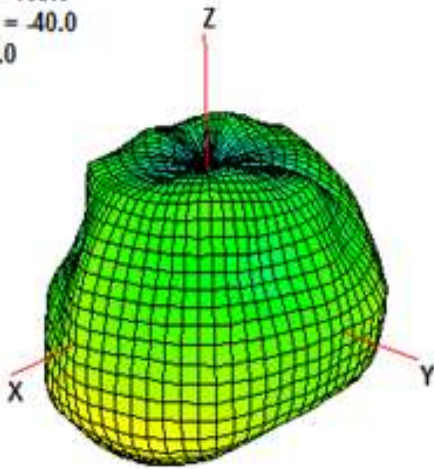
Azimuth = 123.7  
Elevation = -46.4  
Roll = -47.0





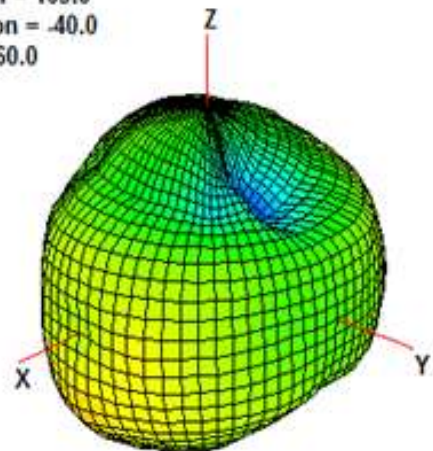
## 730MHz ANT2

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0



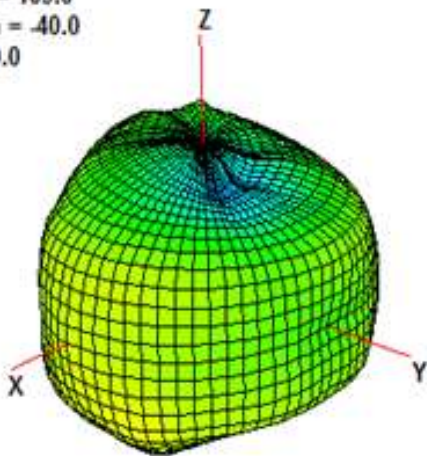
## 900MHz ANT2

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0



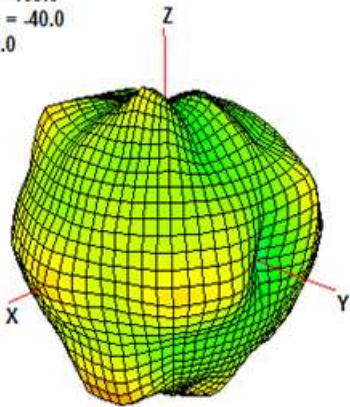
## 850MHz ANT2

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0



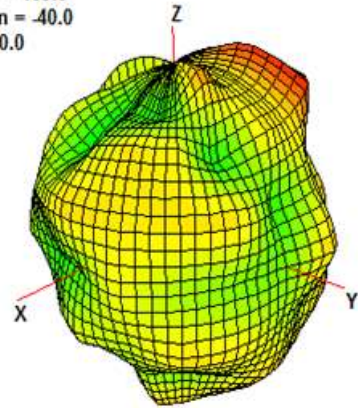
## 2450MHz ANT4

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0



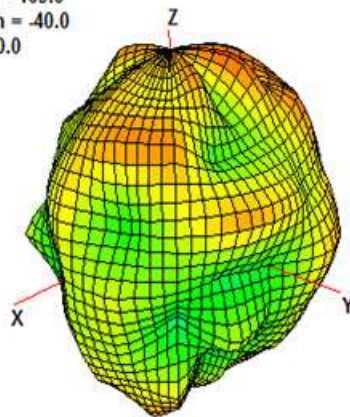
## 5500MHz ANT4

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0



## 5150MHz ANT4

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0



## 5850MHz ANT4

Azimuth = 109.0  
Elevation = -40.0  
Roll = -60.0

