

APPROVAL SHEET

Customer Name Tonly

Product Model HUB

Customer P/N

Specifications BLE Antenna

ZTX P/N

Production date 2026. 03. 11

Revision Rev. 1. 0

ZTX		
FICTION	DQE	R&D
Customer		
PUR	QC	R&D

Manufacturer: Shenzhen ZhongTianXun Communication Technology Co., Ltd.

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APPROVAL SHEET REVISION HISTORY

Version	Date	Change Description	Note
Rev. 1.0	2026.03.11	First edition approval sheet	

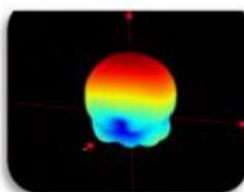
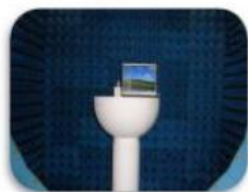
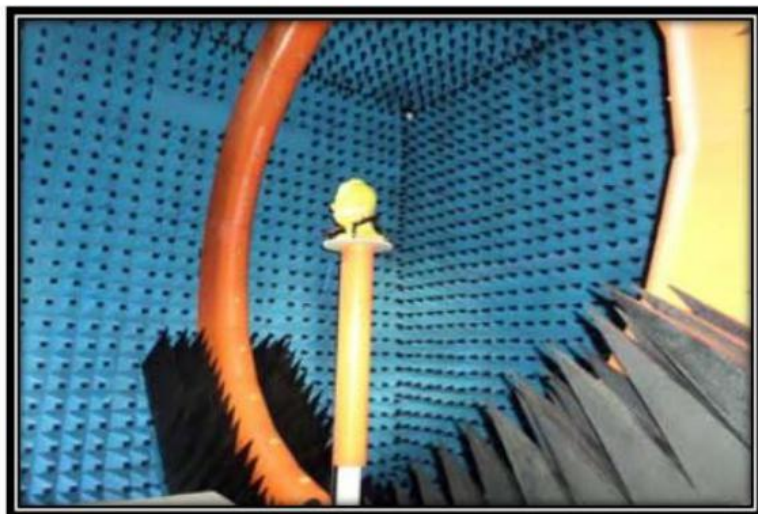
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The basic parameters

Electrical Characteristics	
Frequency	2400MHz~2500MHz
VSWR	< 3
Efficiency	>10%
Impedance	50 Ohm
Polarization	Linear
Peak Gain	<3.5dBi
Antenna type	On-board
B. Material & Mechanical Characteristics	
Material of Radiator	PCB
C. Environmental	

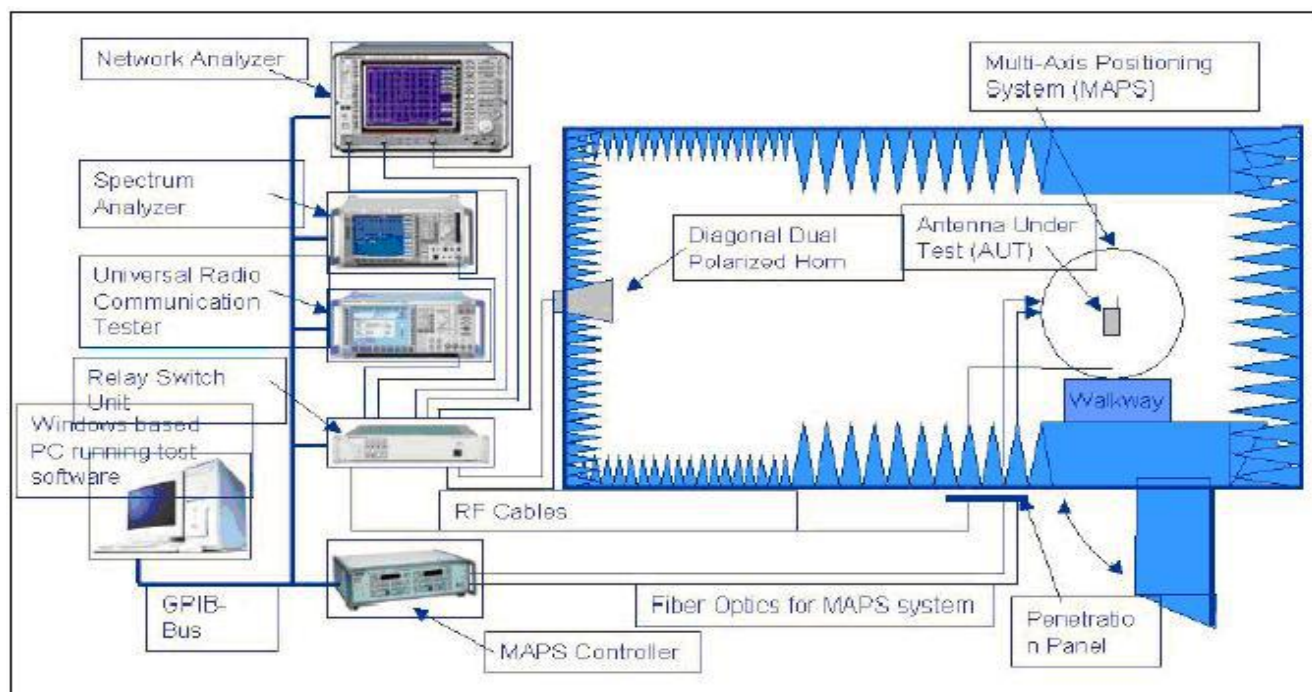
Test Equipment & Conditions



Owned 6 microwave dark room, equipped 2 sets world leading France Satimo SG24 OTA certification test systems (one in SHENZHEN, another one in Shanghai), ETS OTA Standard test system, Blue test reverberation test system which is High repeatability, high accuracy and high resolution. It can quickly provide accurate test reports, fully meet the CTIA standards.

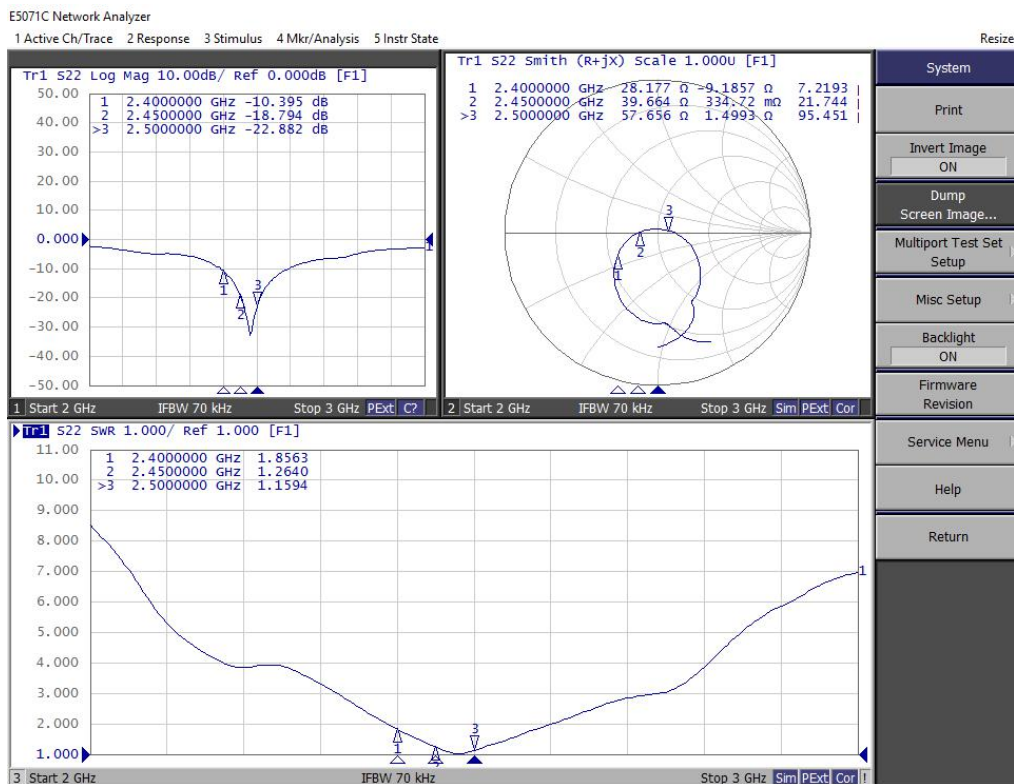
Testing range:

Support active, passive testing of
GSM/CDMA/WCDMA/TD-SCDMA/LTE/WIFI/WLAN/WiMax/BT/GPS/MIMO/UWB within 0.4-6G.



Antenna Impedance: S22

HUB:



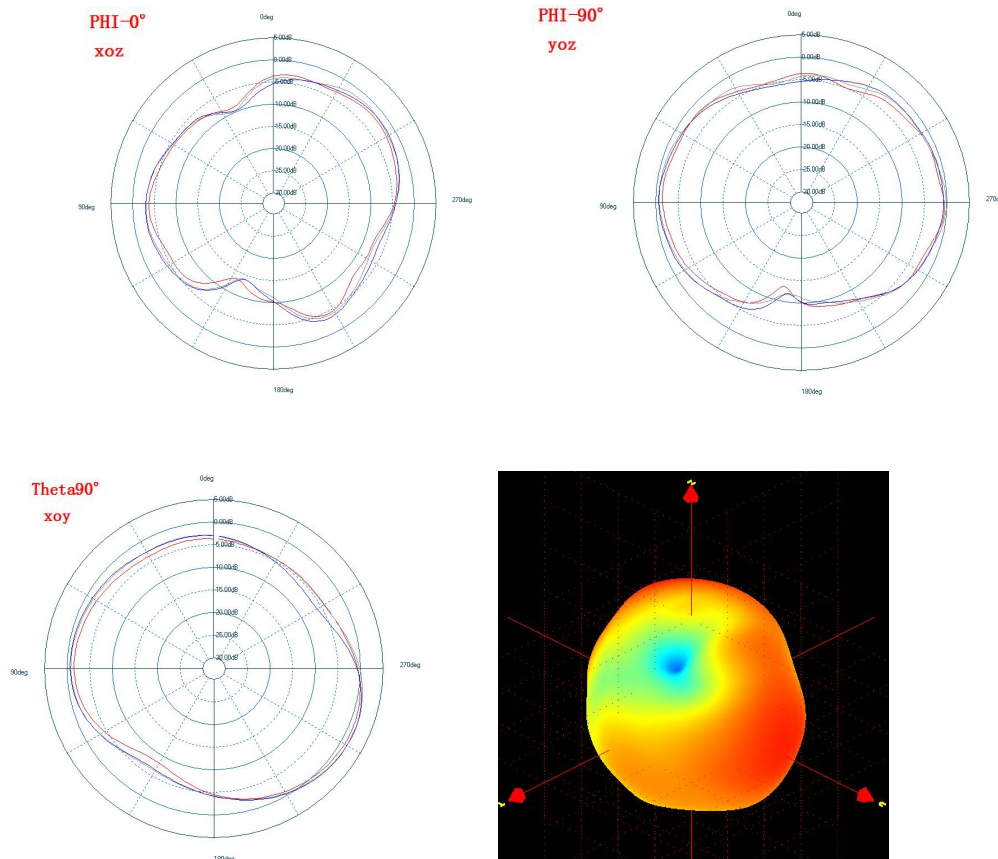
Efficiency & Gain:

HUB:

Frequency. MHz	Efficiency. %	Efficiency. dB	Gain. dB
2402	40%	-3.95	1.10
2406	40%	-3.93	0.90
2410	41%	-3.89	1.01
2414	41%	-3.83	1.07
2418	43%	-3.71	1.28
2422	44%	-3.55	1.47
2426	44%	-3.52	1.40
2430	45%	-3.49	1.41
2434	46%	-3.40	1.45
2438	47%	-3.32	1.60
2442	47%	-3.30	1.69
2446	46%	-3.34	1.68
2450	47%	-3.32	1.74
2454	47%	-3.28	1.90
2458	48%	-3.20	2.04
2462	47%	-3.24	2.00
2466	46%	-3.35	1.49
2470	46%	-3.36	1.43
2474	46%	-3.33	1.51
2480	47%	-3.28	1.66
Avg:	45%		1.50

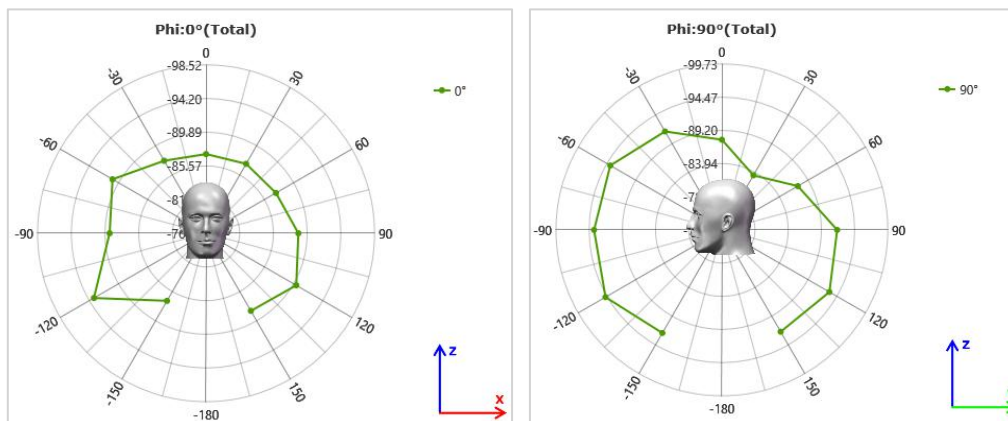
3D & 2D Passive Antenna Patterns:

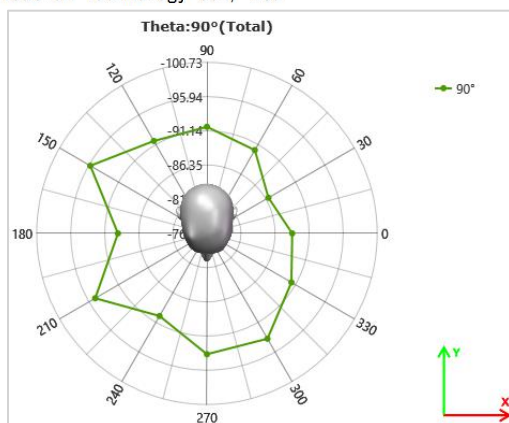
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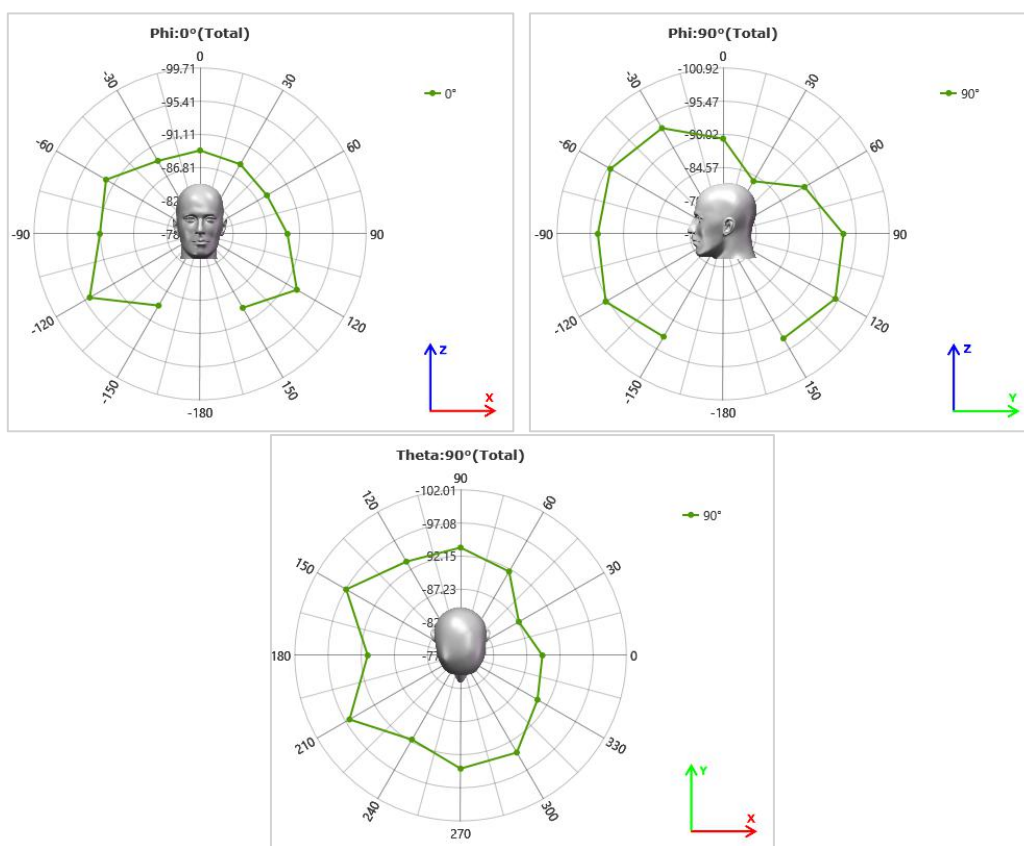
2D TIS Radiation Pattern:

HUB 0 Channel

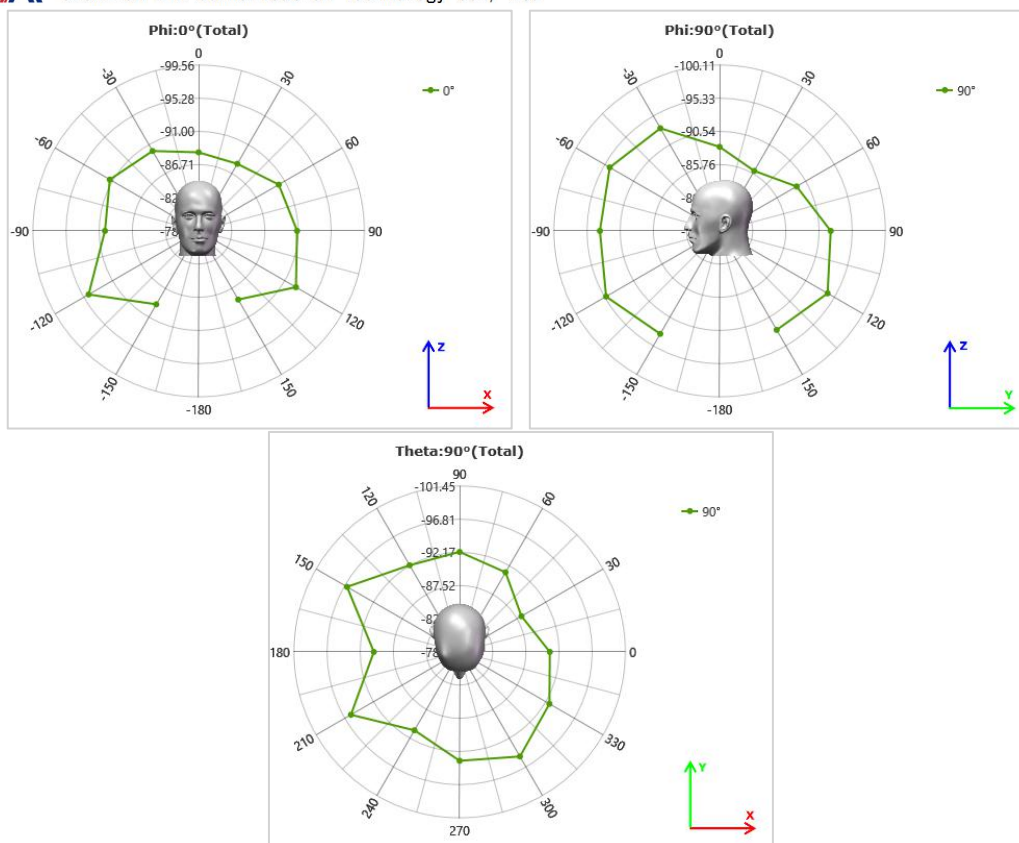




HUB 20 Channel I



HUB 39 Channel I



OTA:

HUB		
Channel	TRP (dBm)	TIS (dBm)
0	3.88	-91.51
20	3.17	-92.86
39	2.53	-92.55

Antenna 3dB Beamwidth Labeling:

HUB:

