



上海增信电子有限公司
Signal Plus Technology Co., Ltd.

规格承认书
SPECIFICATION FOR APPROVAL

日期
DATE: 2022.10.25

版本
REV.: A

客 户
CUSTOMER: Shot Scope Technologies Ltd

客 户 料 号
CUSTOMER P/N:

品 名
PART NAME: LDS Antenna for X5 GPS&BT

供 方 料 号
SUPPLIER P/N: 60010F00111

送样日期Date: 送样数量Q'TY: Pcs

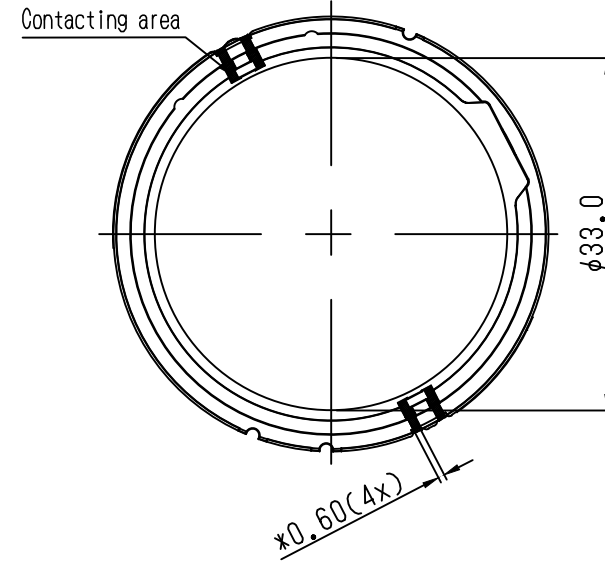
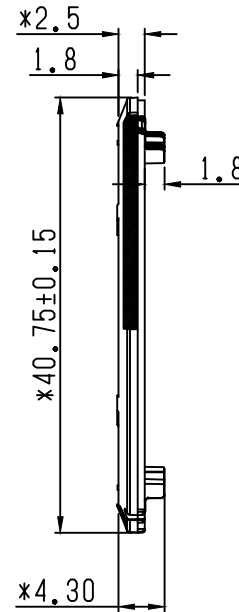
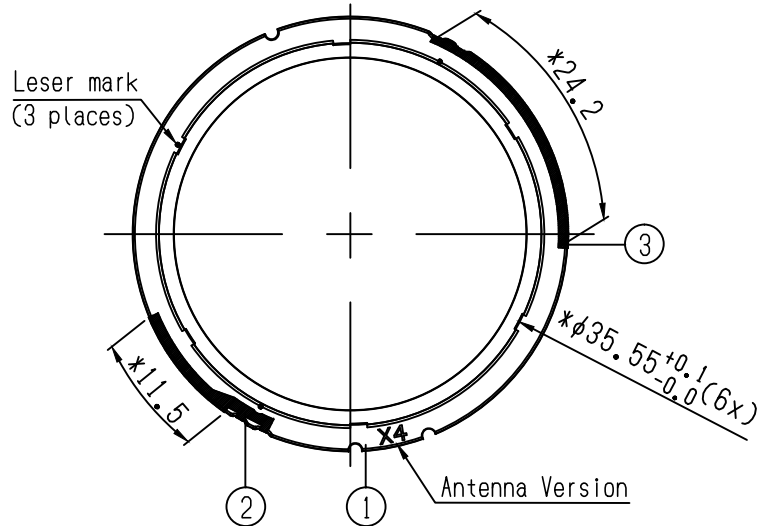
客户确认CUSTOMER APPROVED BY		
核准 Approved by	审核 Checked by	拟制 Prepared by

供方确认SUPPLIER SIGNATURE		
核准 Approved by	审核 Checked by	拟制 Prepared by
Jack		andy

ZX-QT-RD-0011-A1

Add:上海市徐汇区桂箐路69号30栋603室 Tel:021-54266190 Fax:021-54266191

REV	DATE	DESCRIPTION
X1	10/26-2022	New Issue



1. ELECTRICAL PROPERTIES:

- 1.1 Frequency Range....2400~2500MHz&1575.42MHz
- 1.2 Impedance.....50 Ohm Nominal
- 1.3 VSWR..... ≤ 2.5 2400~2500MHz
 ≤ 2.0 1575.42MHz(testing in machine)

2. The Plating thickness requirements:

- Copper Plating: $8 \sim 12 \mu\text{m}$;
- Nickel Plating: $2 \sim 5 \mu\text{m}$;

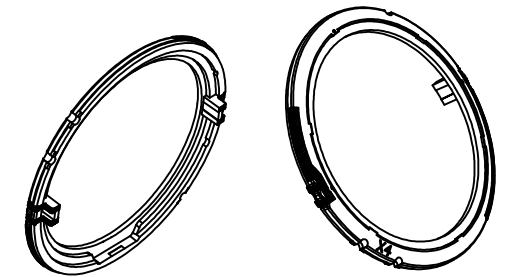
3. Tolerance requirements:

- The Positioning Dimension Tolerance: ± 0.15 ;
- The Shaping Dimension Tolerance: ± 0.10 ;

4. It can't be allowed if scratches or dirt on the appearance of antenna.

5. The Plating complied with the 48-hour salt spray test.

6. The Product is in conformity with ROHS2.0



3	GPS-Antenna	Copper coating, Nickel-Plated	1	ANT Version: X4
2	BT-Antenna	Copper coating, Nickel-Plated	1	
1	Bracket	PC, SABIC DX11355, Black	1	302-1-0073-X7
NO	DESCRIPTION		QTY	REMARK

CUSTOMER'S SINGATURE

XXX.	± 2.0	APPROVED
XX.	± 1.0	
X.	± 0.50	CHECKED
.X	± 0.25	
.XX	± 0.10	DRAWING

CUSTOMER:		
PART NO:		
PART NAME: GPS&BT Antenna For X5		
Z&X P/N0: 6000F00111		
REV	UNIT	FILE:
X1	mm	SHEET: 1/1

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Antenna Test Report

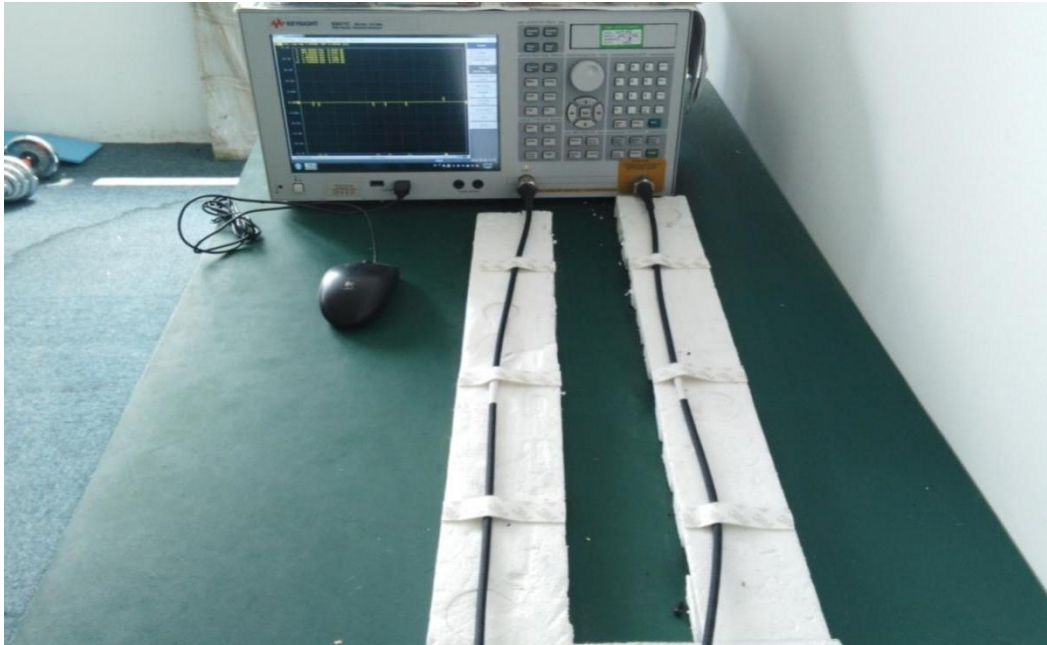
(X5-GPS&BT)

1. RF Fixture Experiment

1.1 Test Setup

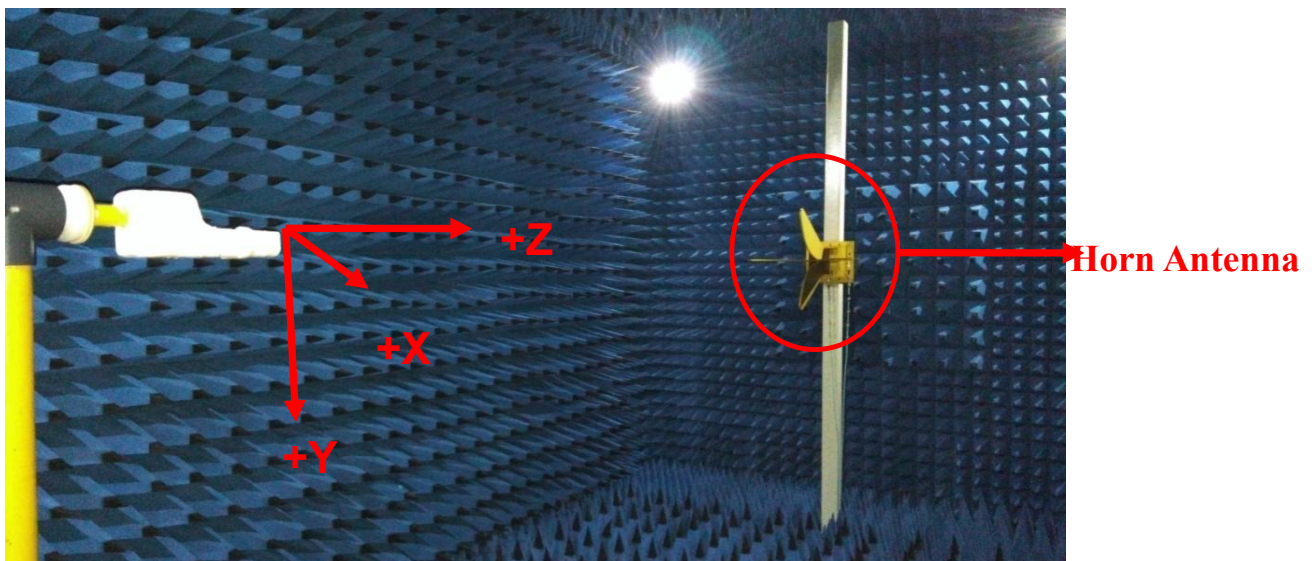
1.1.1 VNA Test Setup

VSWR and Return Loss measurements (S_{11}) were performed using an Keysight E5071C Network Analyzer. The isolation between antennas is also tested. The testing was performed with apparatus in free space.



1.1.2 Anechoic Chamber Test Setup

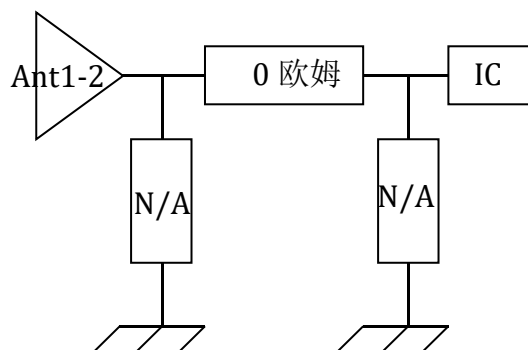
The gain of the antenna was measured in the anechoic chamber. The chamber provides less than -30 dB reflectivity from 400 MHz through 6 GHz. The chamber size is: 7m*4m*3m. The measurement results are calibrated using a leaky wave horn standard. We can measure the antenna gain and efficiency accurately.



2. Antenna Solution



3. RF matching circuit for different antennas



Data Preview

ANT01-GPS

Freq (MHz)	Gain (dBi)	Effi (%)
1555	-3.07	23%
1575	-3.19	23%
1600	-3.30	23%

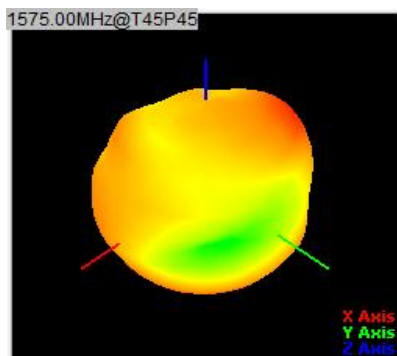
ANT02-WIFI

Freq (MHz)	Gain (dBi)	Effi (%)
2400	-1.85	33%
2410	-1.64	34%
2420	-1.57	28%
2430	-1.67	27%
2440	-1.53	28%
2450	-1.18	28%
2460	-0.69	29%
2470	-0.32	30%
2480	-0.05	31%
2490	0.28	27%
2500	0.32	26%

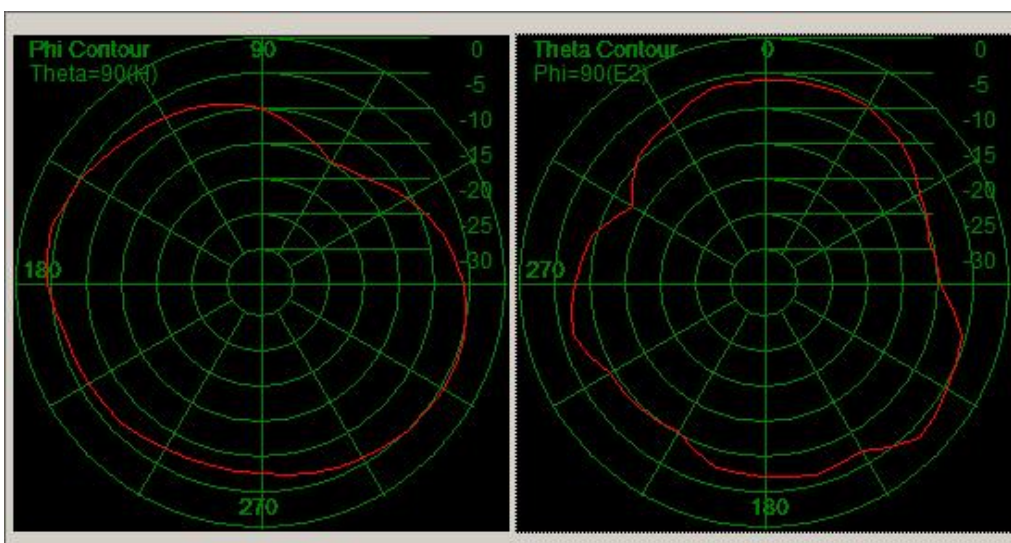
S11(GPS-Ant1)



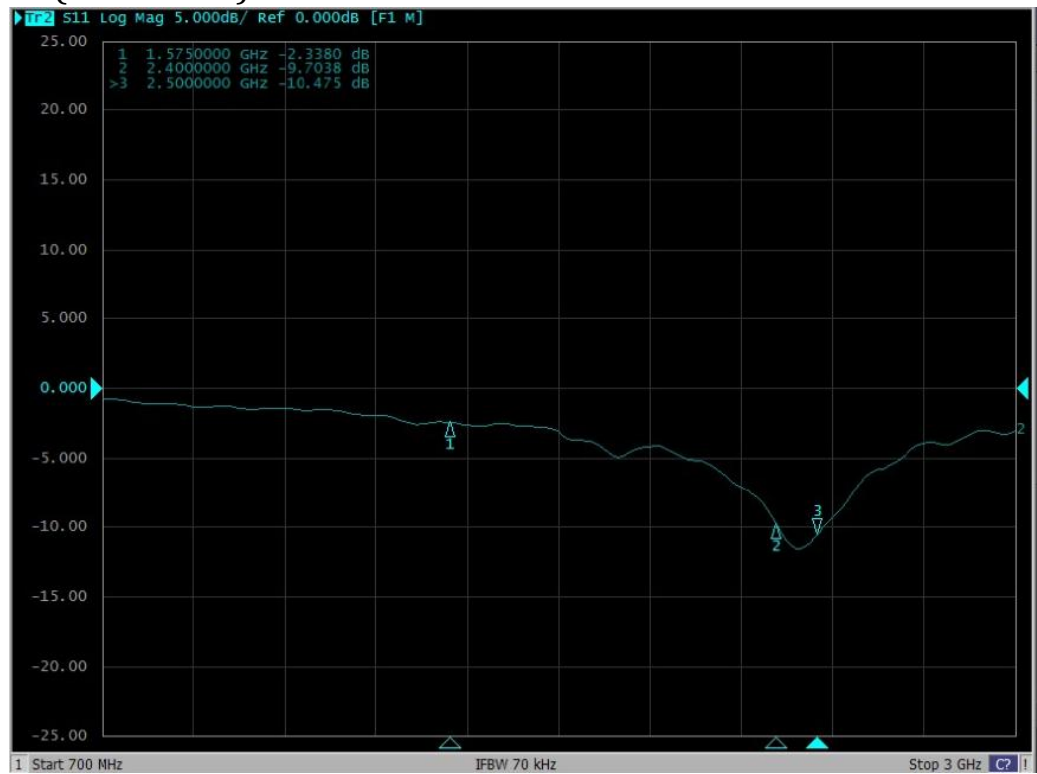
Radiation patterns:3D



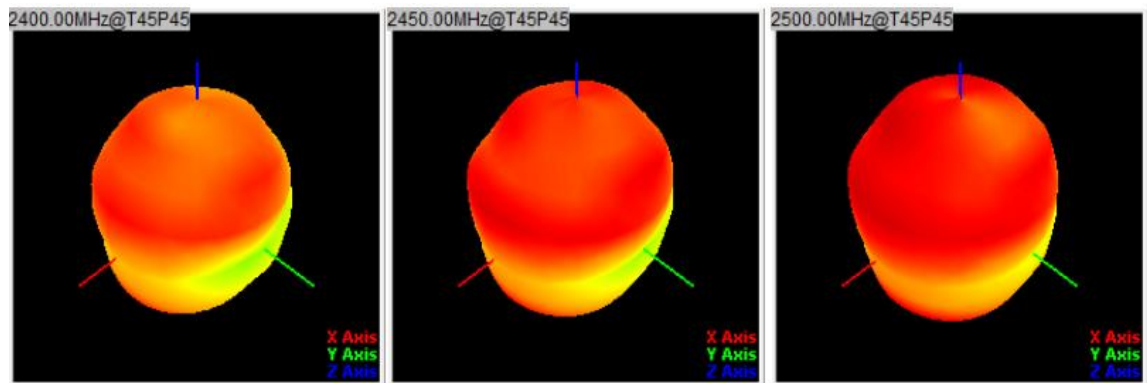
Radiation patterns:2D



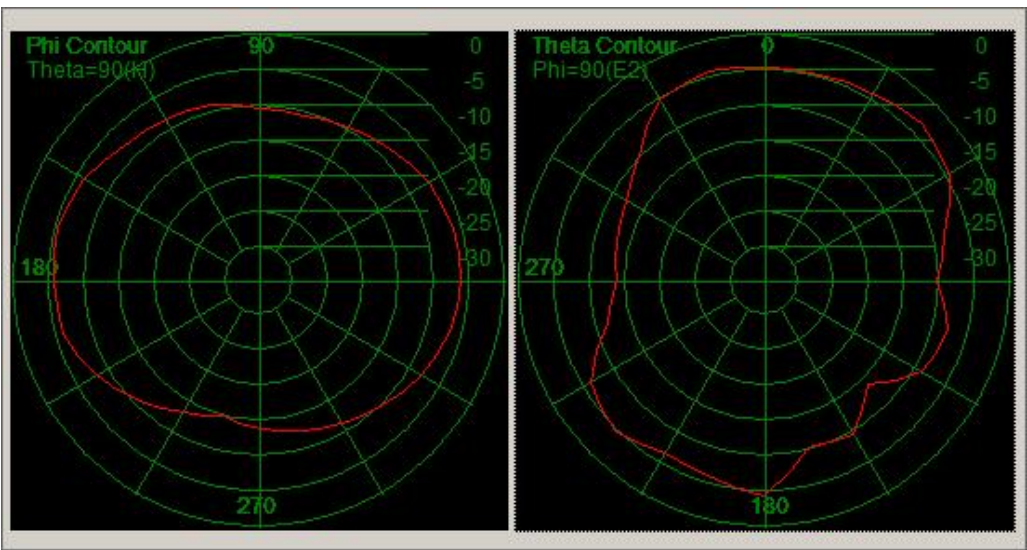
S11(WIFI-Ant2)



Radiation patterns:3D



Radiation patterns:2D



S21(Ant1,2)

