



深圳市正大信维通讯设备有限公司

Shenzhen Zhengdaxinwei Communication Equipment Co., Ltd

产品承认书

APPROVAL

客 户
CUSTOMER

北谷电子股份有限公司

品 名 规 格
DESCRIPTION

北斗 GPS/4G 天线

型 号
MODEL NO

二合一功能/FAKRA-C-D 母头母针/O1 款圆形外壳/RG174/2M/GPS/BD+4G/11301

客 户 料 号
CUS PART NO

10520086

日 期
D A T E

2025.11.28

正大信维呈样签章

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	业 务 SALES DEPARTMENT
吴延开	麦城洪	丁永刚

客户承认签章

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	业 务 SALES DEPARTMENT

※ 客户确认样品附意栏:

公司名称: 深圳市正大信维通讯设备有限公司

公司地址: 深圳市龙岗区龙城街道嶂背社区嶂背路 486 号

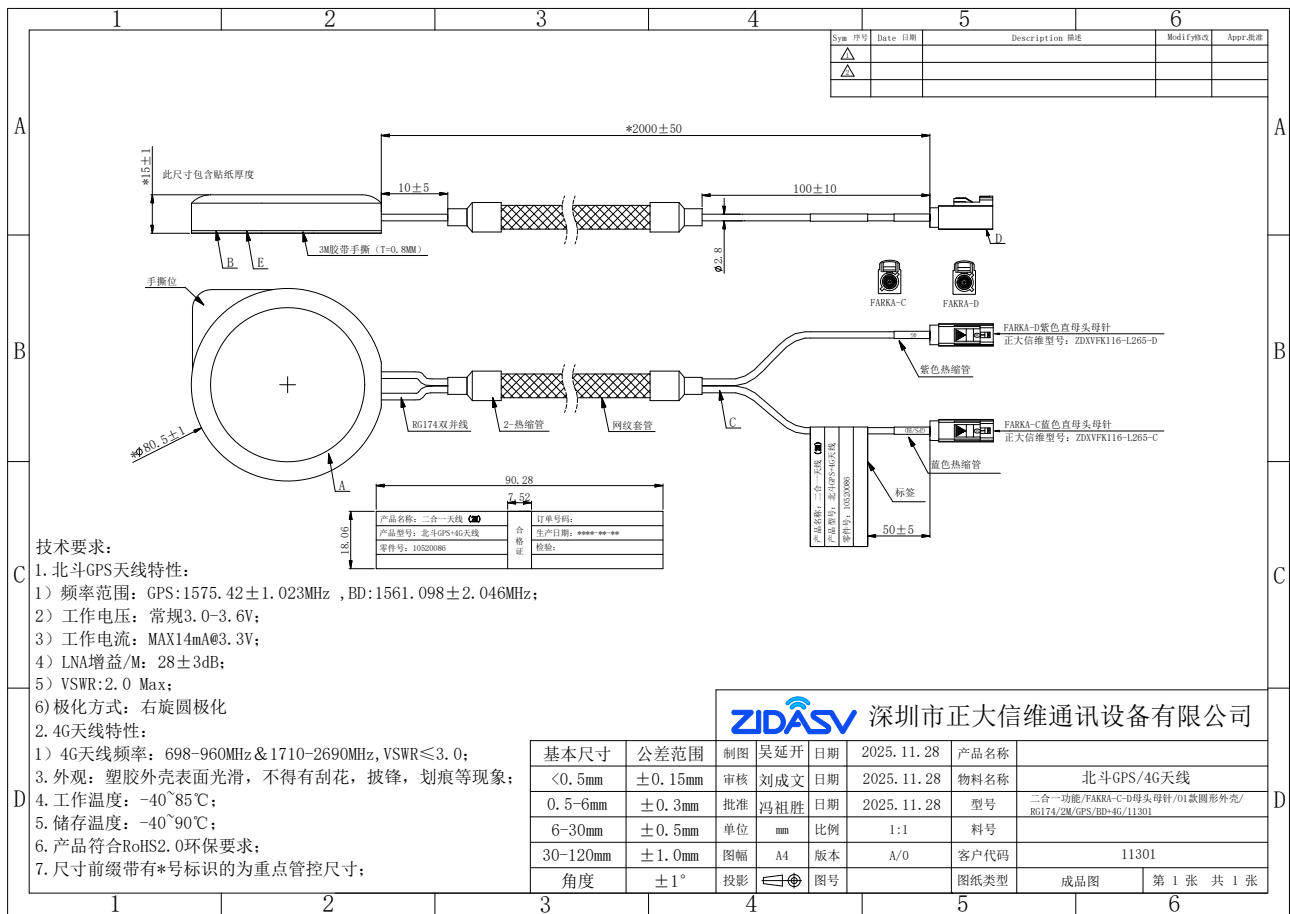
公司网址: www.zidasvtx.com 联系电话: 0755-28839286

公司传真: 0755-89909291 邮箱: yangwenjing@zidasv.net

Description Record

[illegible]

1.产品图尺寸



2. 主要特点

- 2.1 支持 GPS 1575.42±1.023MHz & 北斗 1561.098±2.046MHz;
- 支持 4G 天线 824-960MHz & 1710-2690MHz;
- 2.2 产品符合 RoHS 环保标准;
- # 3. 产品安装注意事项
- 3.1 GNSS 天线上方和旁边不能有影响 GNSS 信号接收的遮挡物, 如: 金属, 导电膜等。
- 3.2 GNSS 天线水平安装效果最佳。

4. 电性能特性

4.1GPS 天线特性

NO.	PARAMETER	SPECIFICATION
1	支持卫星信号 Supported positioning signal bands	GPS &BD
2	带宽 Band Width	5 MHz Min
3	阻抗 Impedence	50 ohm
4	增益 Gain	4.5dBic @ zenith mounted on 70mm×70mm ground plane
5	极化 Polarization	RHCP

4.2 LNA 特性

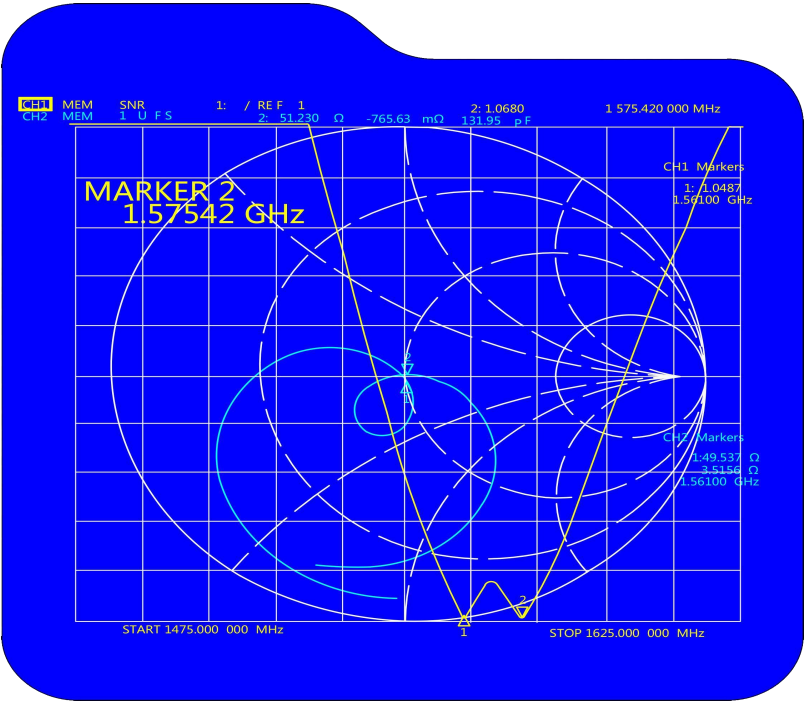
NO.	PARAMETER	SPECIFICATION
1	频率 Frequency	$1575.42 \pm 1.023\text{MHz}$ & $1561.098 \pm 2.046\text{MHz}$
2	放大器增益 Gain	$28 \pm 3 \text{ dB}$
3	输出电压驻波比 Output VSWR	2.0 Max
4	噪声系数 Noise Figure	$< 1.5\text{dB}$ ($+25^{\circ}\text{C} \pm 10^{\circ}\text{C}$)
5	直流电流 DC current	MAX 14mA @3.3V

4.3 成品天线特性

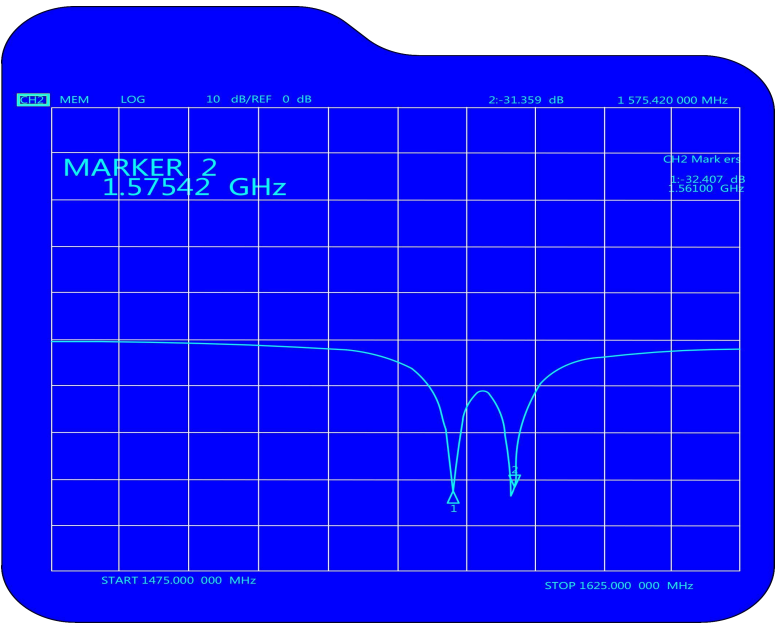
型号	ZDXV-GPS/BD	MODEL	ZDXV-GPS/BD
主要技术指标		Main technical specifications	
放大器增益 (dB)	28±3	Amplifiers Gain(dB)	28±3
输出电压驻 波比	≤2.0	S..W..R	≤2.0
工作温度 (℃)	-40~+85	Working Temp(℃)	-40~+85
储存温度 (℃)	-40~+90	Temperature of storage (℃)	-40~+90
振动	Sine sweep Lg(0~p)10~50~10Hz each Axis	Vibration	Sine sweep Lg(0~p)10~50~10Hz each Axis
噪声系数 (dB)	<1.5	Noise Figure	<1.5
电缆长度 (mm)	2000±50	Line Length	2000±50
接口形式	FAKRA	Connector Type	FAKRA

5. GPS Antenna Characteristics

5.1 Smith & VSWR

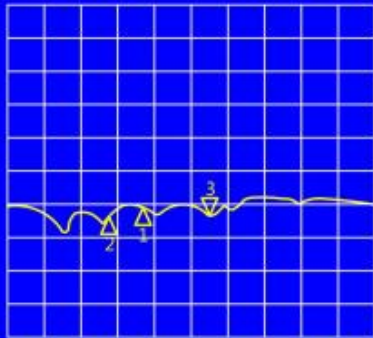


5.2 Return Loss



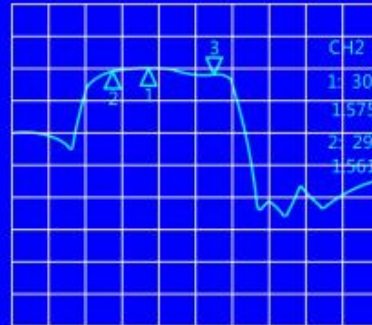
5.3 LNA Gain & S11、S22

CH1 LOG 10 dB/REF 0 dB
S11&M 3:-13.600 dB 1 602.000 000 MHz



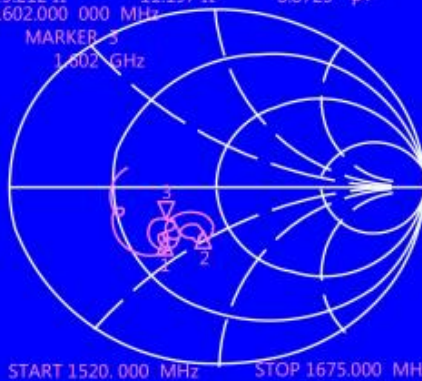
CH1 Markers
1: -11.2354 dB
1.57542 GHz
2: -13.032 dB
1.56100 GHz

CH2 LOG 10 dB/REF 0 dB
S21&M 3: 28.267 dB 1602.000 000 MHz



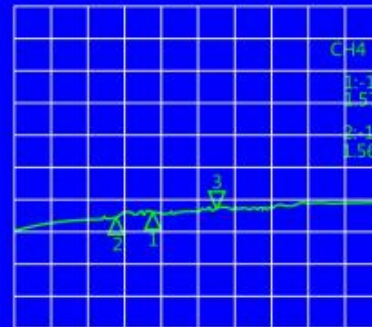
CH2 Markers
1: 30.050 dB
1.57542 GHz
2: 29.028 dB
1.56100 GHz

START 1520.000 MHz STOP 1 675.000 MHz
CH3 S11 1 U FS
3: 29.212 Ω -11.197 Ω 8.8725 pF
1602.000 000 MHz



CH3 Markers
1: 25.351 Ω
-16.987 Ω
1.57542 GHz
2: 38.389 Ω
-20.770 Ω
1.56100 GHz

CH4 LOG 10 dB/REF 0 dB
S22&M 3:-12.147 dB 1602.000 000 MHz



CH4 Markers
1: -12.931 dB
1.57542 GHz
2: -14.794 dB
1.56100 GHz

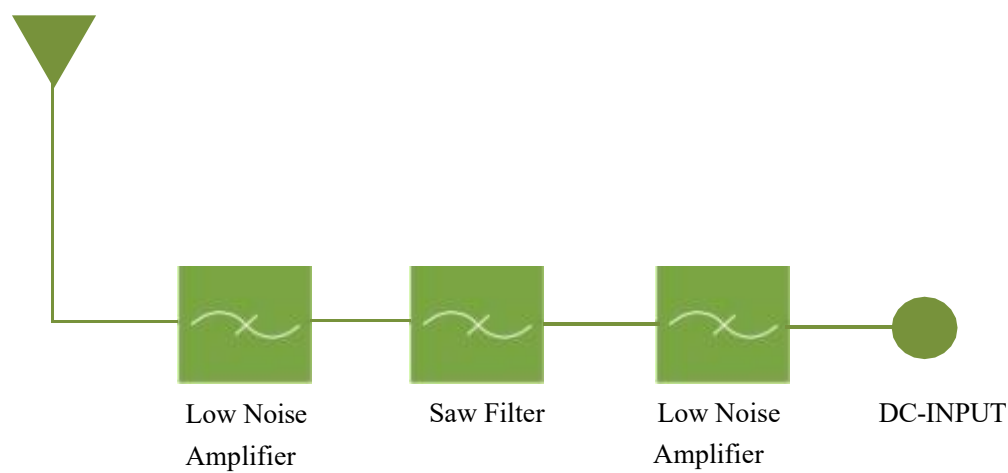
*all measurements were conducted with 0.5m RG174 cable

*Formula = Patch Antenna Average Gain + LNA typical gain-RG174 cable loss

@1.2dB per meter = Gain at connector

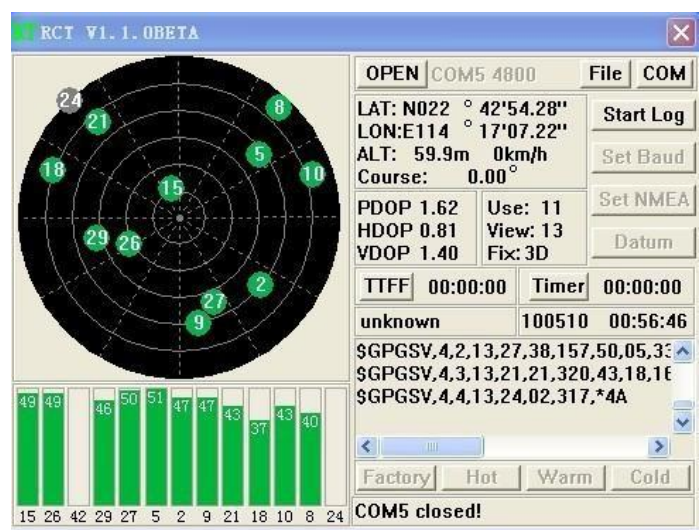
6. Circuit Diagram

GNSS Antenna



7. Antenna Field Trial Results

Antenna was connected to Development board under open sky conditions.



8. 4G 天线性能测试

8-1. Frequency Band:

Frequency Band	MHz
4G	824-960 & 1710-2690

8-2. Impedance

50 ohm nominal

8-3. VSWR

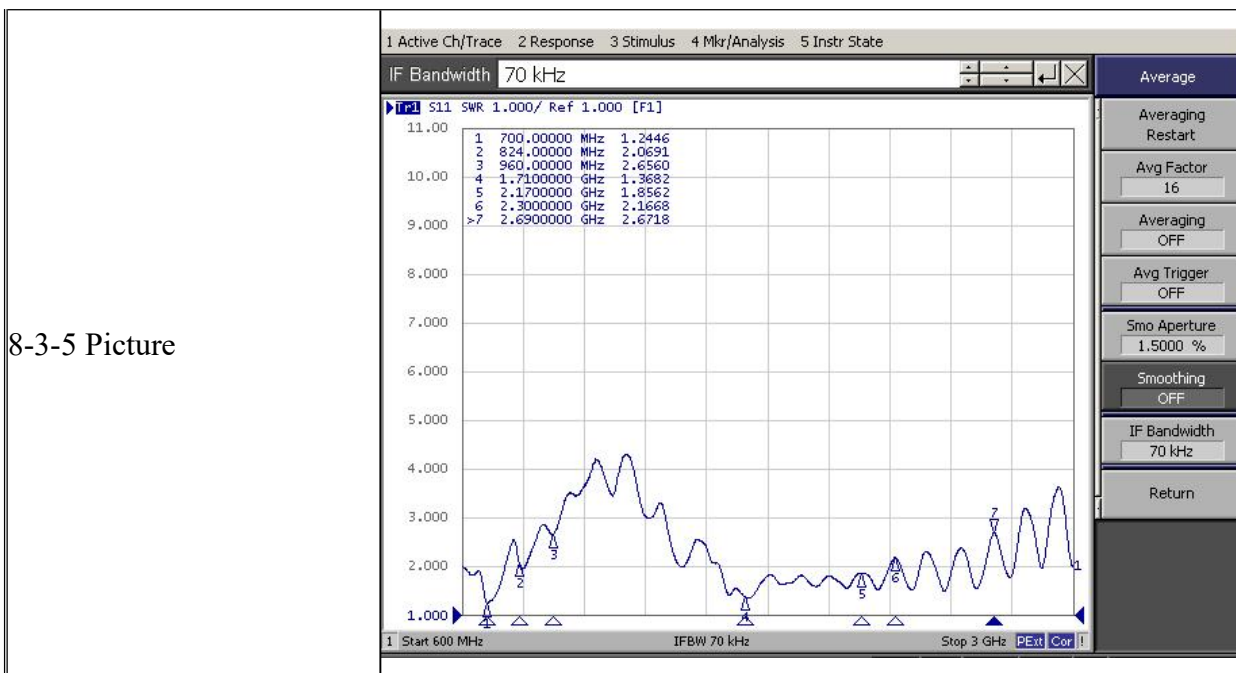
8-3-1.Measurement frequency points and VSWR value

Frequency (Unit MHz)	824	960	1710	2690
VSWR	2.06	2.65	1.36	2.67

8-3-2. VSWR

Frequency Band(MHz)	824	960	1710	2690
8-3-3. Typical Value:	≤3.0	≤3.0	≤3.0	≤3.0
8-3-4 Measuring Method	1. A 50 Ω coaxial cable is connected to the PCB. Then this cable is connected to a network analyzer to measure the VSWR. 2. Keeping this jig away from metal at least 20 cm			

8-3-5 Picture



8-4. Efficiency and Gain

- 量测仪器: 微波暗室, 网络分析仪, 标准天线.
- 微波暗室说明:

这是本公司设置在深圳的微波暗室, 本微波暗室是属于一套远场量测系统,暗室的大小为 7.0 米 x4.0 米 x3.0 米, 静区尺寸(Quiet zone)大小为 15 厘米 x15 厘米 x15 厘米。

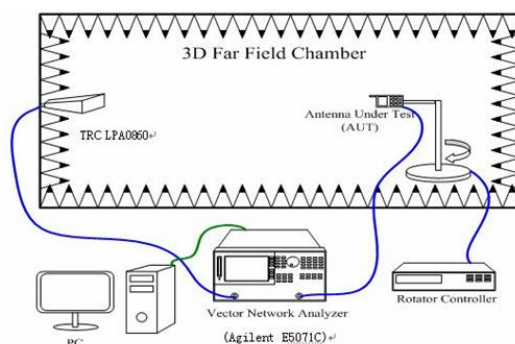


图. 1. 微波暗室内仪器设置图

图. 1 为微波暗室内的仪器设置及网络分析仪的联接图, 发射天线到待测天线(AUT)的距离为 3.3 米, 待测天线放置在旋转平台上,藉由控制转台旋转的角度可对待测天线做概略性及较为准确的量测。

将待测天线放置于旋转台上,并测得其各个平面(ZY 平面及 ZX 平面)的 360 度场强数据。再将待测天线换置成标准天线,将其 360 度的场强数据测出,以作换算增益标准值,经由式 1 的换算即可获得待测天线的增益值及方向图。

$$G_{AUT} = G_{stand} + P_{AUT} - P_{stand}$$

G_{AUT} : Gain of AUT

G_{stand} : Gain of standard Gain antenna

P_{AUT} : Measured Power of AUT

P_{stand} : Measured Power of standard Gain antenna

8-4-2 Efficiency and Gain

Frequency(MHz)	Efficiency (%)	Peak GAIN (dBi)
820	27.21	-0.45
960	42.34	0.88
1700	33.80	-1.04
2700	36.88	0.59