



Material admission letter

APPROVAL SHEET

project name:	NABE5				
Material number code:	QK1027200305				
Name of supplier:	Shenzhen Shangyuan Technology Co., LTD				
name of material:	NABE5 G PS Antenna (SZ22711I A54)				
Material description:	L1 + L5 ceramic sheet 25X25X4 + 18X18X4 with backing single needle ceramic sheet 2518-SY0002				
Date of sample delivery:	2023/4/10				
main performance ☐	blueprint ☐	Measurement report ☐	Key material ☐	reliability report ☐	Packaging information ☐
examine and verify	Research and development department	project department	purchase department	quality department	

Shenzhen Shangyuan Technology Co., LTD

Antenna admission book

Customer name: Transfer		Project name: NABE 5	
Working frequency band: GNSS L1 + L5			
Hardware version:			
Shangyuan material specifications			
specifications and models	Shang Yuan material number	Customer material number	
Laminated single ceramic sheet	SZ227111A54	QK1027200305	

Change the resume				
Preparation / change date	Change the content		Change the person	edition
20230317	A new release		Chen Min	A
20230410	Add packaging drawings		Xu Wei	B
Shang Yuan will sign the column				
research and development	structure:	examine and verify:	Quality Engineer:	ratify:
	radio frequency:	examine and verify:		
The customer will sign the column				
electronic engineer	project manager		construction engineer	Quality engineer

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一、 item information

.11 Schematic diagram



二、 Antenna matching circuit

The GNSS antenna has not changed the matching circuit

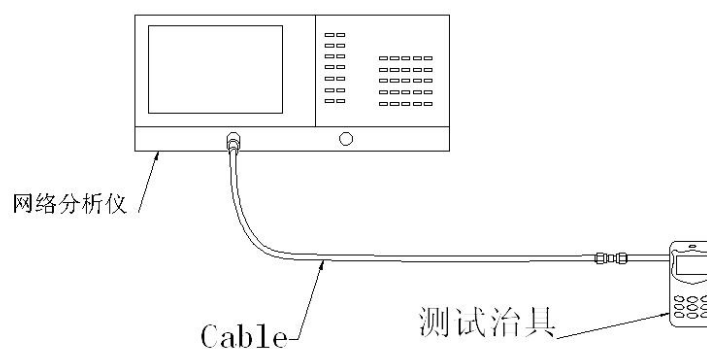
三、 Complete machine test data

3.1 S11 Description of the test method

Test Equipment: Network Analyzer (Agilent E5071C)

Test method: Export a 50 Ohm CABLE cable from the instrument test port, connect the SMA connector of the test device after the calibrator, and record the echo loss and standing wave ratio corresponding to the relevant frequency point.

The test schematic diagram is as follows:



Schematic diagram of the test

3.2 Test environment

Test System: MPS 6450 Multi-probe OTA Measurement System (XH-IoT)

Test environment: temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

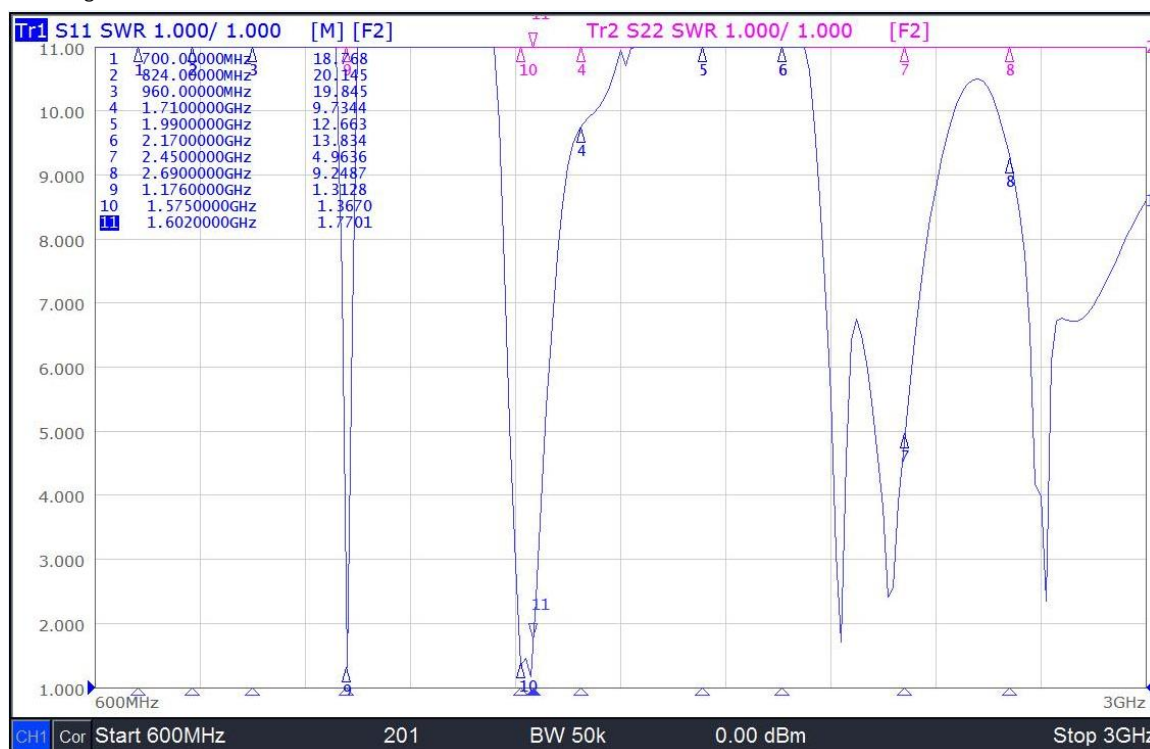
Test equipment: Use the network analyzer R & S ZND / Agilent E5071C when testing the passive data

When testing active data, use the comprehensive meter Agilent 8960 / CMW500 / S P9500E / SP 8315



3.3 S 11 test parameters

standing-wave ratio VSWR



3.4 The passive test data

The GNSS antenna has a passive efficiency

Frequency	Efficiency/%	MaxGain/dBi	Frequency	Efficiency/%	MaxGain/dBi	Frequency	Efficiency/%	MaxGain/dBi
1170	45.35	2.03	1600	46.35	1.99	1560	42.65	1.68
1171	45.38	2.12	1601	47.88	2.04	1561	42.16	1.77
1172	46.15	2.18	1602	48.62	2.06	1562	43.72	1.87
1173	49.54	2.19	1603	49.16	2.05	1563	45.17	1.96
1174	50.38	2.13	1604	48.71	2.01	1564	45.65	2.07
1175	51.65	2.01	1605	47.65	1.94	1565	45.68	2.17
1176	52.4	1.88	1606	47.2	1.91	1566	46.28	2.33
1177	49.37	1.67	1607	46.82	1.83	1567	46.2	2.44
1178	46.75	1.41	1608	45.71	1.76	1568	46.82	2.48
1179	44.78	1.07	1609	44.94	1.68	1569	46.2	2.45
1180	40.19	0.71	1610	43.19	1.59	1570	45.88	2.36
						1571	45.25	2.24
						1572	44.37	2.12
						1573	44.78	2.01
						1574	44.05	1.94
						1575	43.3	1.92
						1576	41.62	1.77
						1577	40.76	1.63
						1578	40.27	1.46

四、 The model environment processing mode

No added environmental treatment

五、 Antenna loading position

The antenna is directly welded on the small board, and the small plate is welded to the main board through the same axis

六、 Mass production antenna index

When the antenna is in mass production, the standing wave ratio is used as the test standard for mass production.

Based on the differences of the project itself, the following criteria are given:

Frequency (MHz)	Mass production standards
1575-1561	VSWR (mass production performance)
1175-1176	<VSWR (recognized performance) + 0.5

七、Structural drawings

