



ShenZhen Eastong Electronic technology Co., LTD

APPROVAL SHEET
FOR
SC6513-GPS/WIFI
(2G/3G/4G band internal antenna)

Issued by		Checked by	
Confirmed by		Date	2026-07-08
Customer Confirm			

Project: SC6513		AuthorXu Xiaorong	File Name: SC6513-APP-RA
Date: 2026-07-08			
Rev:	Language:	Check:	
A	ENG		
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Revision History

Date	Revision	Description of Changes
2026-07-08	R:A	Antenna performance approved by customer

1 SUMMARY

2 GENERAL DESCRIPTION

2.1 Definitions

3 MECHANICAL DESCRIPTION

4 ELECTRICAL PERFORMANCE

4.1 Set-up

- 4.1.1 VSWR and return loss
- 4.1.2 Efficiency, Gain and TRP/TIS
- 4.1.3 Matching Circuit Description

4.2 Measurement Data

- 4.2.1 VSWR
- 4.2.2 Active result

5 MECHANICAL DRAWING

6 CONCLUSION

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1 Summary

This report summarizes the electrical results of the proposed antenna to support the M6517 program. We test the antenna with the latest version handset .

2 General Description

2.1 Definitions

VSWR: Voltage Standing Wave Rate

3 Mechanical Description

4 Electrical Performance

4.1 Set-up

4.1.1 VSWR and return loss

VSWR measurements (S_{11}) were performed using an Agilent E5071B Network Analyzer and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

4.1.2 Efficiency, Gain and TRP/TIS

The gain of the antenna was measured in Dong Xin's 3D anechoic chamber in Shenzhen. The chamber is capable of doing tests from 380MHz to 6GHz. Coaxial chokes on the feed cable were used to mitigate surface currents. The measurement results are calibrated using dipole standards. For TRP and TIS the chamber uses a cmw500 to establish the connection with the mobile device. During TRP tests the cmw500 reads the power received through the chamber probes whilst during TIS tests the cmw500 transmits through the probe. All data is afterwards corrected by a calibration table.

4.1.3 Matching Circuit Description

GPS/WIFI/BT:

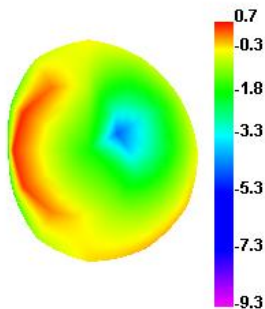
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Effi & Gain:

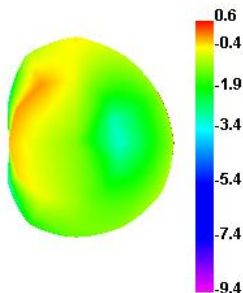
GPS:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1500	48.17	-3.17	0.69
1505	48.35	-3.16	0.85
1510	47.69	-3.22	0.85
1515	47.54	-3.23	0.86
1520	47.71	-3.21	0.93
1525	47.79	-3.21	0.95
1530	47.31	-3.25	0.91
1535	45.37	-3.43	0.7
1540	44.12	-3.55	0.54
1545	45.22	-3.45	0.59
1550	44.92	-3.48	0.6
1555	42.37	-3.73	0.39
1560	41.47	-3.82	0.21
1565	41.23	-3.85	0.09
1570	39.97	-3.98	-0.21
1575	39.7	-4.01	-0.48
1580	39.42	-4.04	-0.32
1585	39	-4.09	-0.09
1590	39.61	-4.02	0.24
1595	39.08	-4.08	0.47
1600	38.71	-4.12	0.66

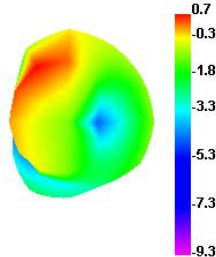
1500.000MHz



1550.000MHz



1600.000MHz



WIFI-2.4G:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	26.32	-5.8	-0.74
2410	24.51	-6.11	-1.22
2420	29.54	-5.3	-0.7
2430	29.67	-5.28	-1.02
2440	32.8	-4.84	-0.91
2450	34.41	-4.63	-0.75
2460	37.02	-4.32	-0.41
2470	35.44	-4.51	-0.58
2480	37.66	-4.24	-0.35
2490	38.1	-4.19	-0.39

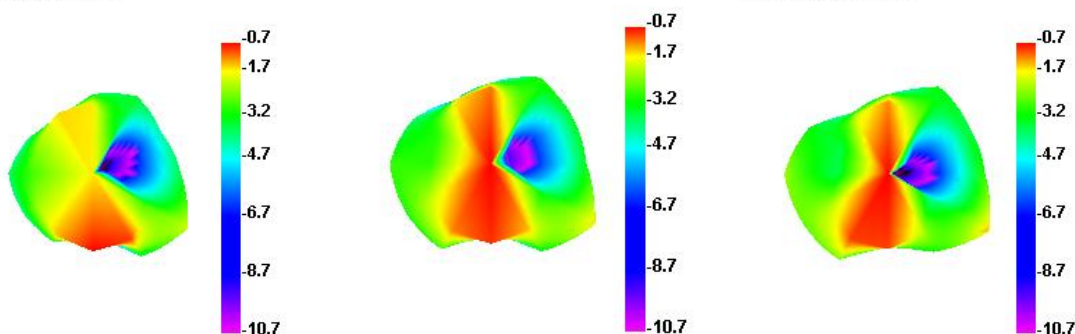
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2500	35.76	-4.47	-0.69
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2400.000MHz

2450.000MHz

2500.000MHz



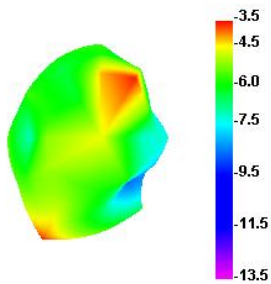
WIFI-5G:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	14.45	-8.4	-3.45
5160	13.11	-8.83	-3.88
5170	13.38	-8.74	-3.57
5180	12.7	-8.96	-3.59
5190	14.24	-8.46	-3.01
5200	12.25	-9.12	-3.57
5210	14.69	-8.33	-2.73
5220	11.88	-9.25	-3.75
5230	13.6	-8.67	-3.08
5240	12.37	-9.08	-3.37
5250	12.75	-8.94	-3.21
5260	12.16	-9.15	-3.38
5270	13.74	-8.62	-2.71
5280	12.39	-9.07	-3.05
5290	14.27	-8.45	-2.46
5300	12.35	-9.08	-3.02
5310	13.18	-8.8	-2.74
5320	14.51	-8.38	-2.25
5330	14.33	-8.44	-2.39
5340	14.46	-8.4	-2.28
5350	15.28	-8.16	-2.01
5360	14.87	-8.28	-1.94
5370	14.62	-8.35	-1.95
5380	16.89	-7.72	-1.27
5390	15.39	-8.13	-1.73
5400	19.54	-7.09	-0.64
5410	19.93	-7.01	-0.5
5420	18.25	-7.39	-0.97
5430	18.14	-7.41	-0.99
5440	20.27	-6.93	-0.47
5450	17.68	-7.52	-1.1
5460	20.73	-6.83	-0.5
5470	18.8	-7.26	-0.93

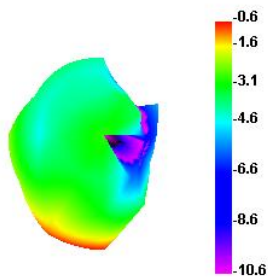
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5480	19.69	-7.06	-0.74
5490	19.04	-7.2	-0.81
5500	19.87	-7.02	-0.62
5510	19.37	-7.13	-0.77
5520	21.02	-6.77	-0.27
5530	19.78	-7.04	-0.45
5540	20.89	-6.8	-0.27
5550	20.36	-6.91	-0.36
5560	21.69	-6.64	-0.12
5570	20.38	-6.91	-0.43
5580	20.97	-6.78	-0.39
5590	20.44	-6.89	-0.51
5600	20.16	-6.95	-0.49
5610	20.05	-6.98	-0.4
5620	20.53	-6.88	-0.34
5630	19.46	-7.11	-0.56
5640	19.82	-7.03	-0.54
5650	18.9	-7.24	-0.76
5660	19.87	-7.02	-0.56
5670	17.91	-7.47	-1.05
5680	19.4	-7.12	-0.61
5690	17.9	-7.47	-0.89
5700	18.53	-7.32	-0.69
5710	17.29	-7.62	-1.1
5720	18.01	-7.45	-0.99
5730	16.49	-7.83	-1.41
5740	19.31	-7.14	-0.94
5750	16.57	-7.81	-1.55
5760	18.11	-7.42	-1.25
5770	15.67	-8.05	-1.91
5780	16.69	-7.78	-1.61
5790	14.71	-8.32	-2.21
5800	17.11	-7.67	-1.55
5810	15.05	-8.22	-2.15
5820	16.62	-7.79	-1.76
5830	14.42	-8.41	-2.47
5840	14.28	-8.45	-2.61
5850	13	-8.86	-3.14

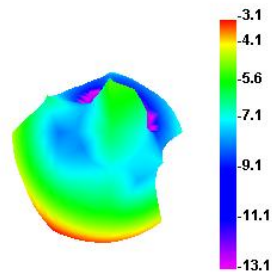
5150.000MHz



5500.000MHz



5850.000MHz



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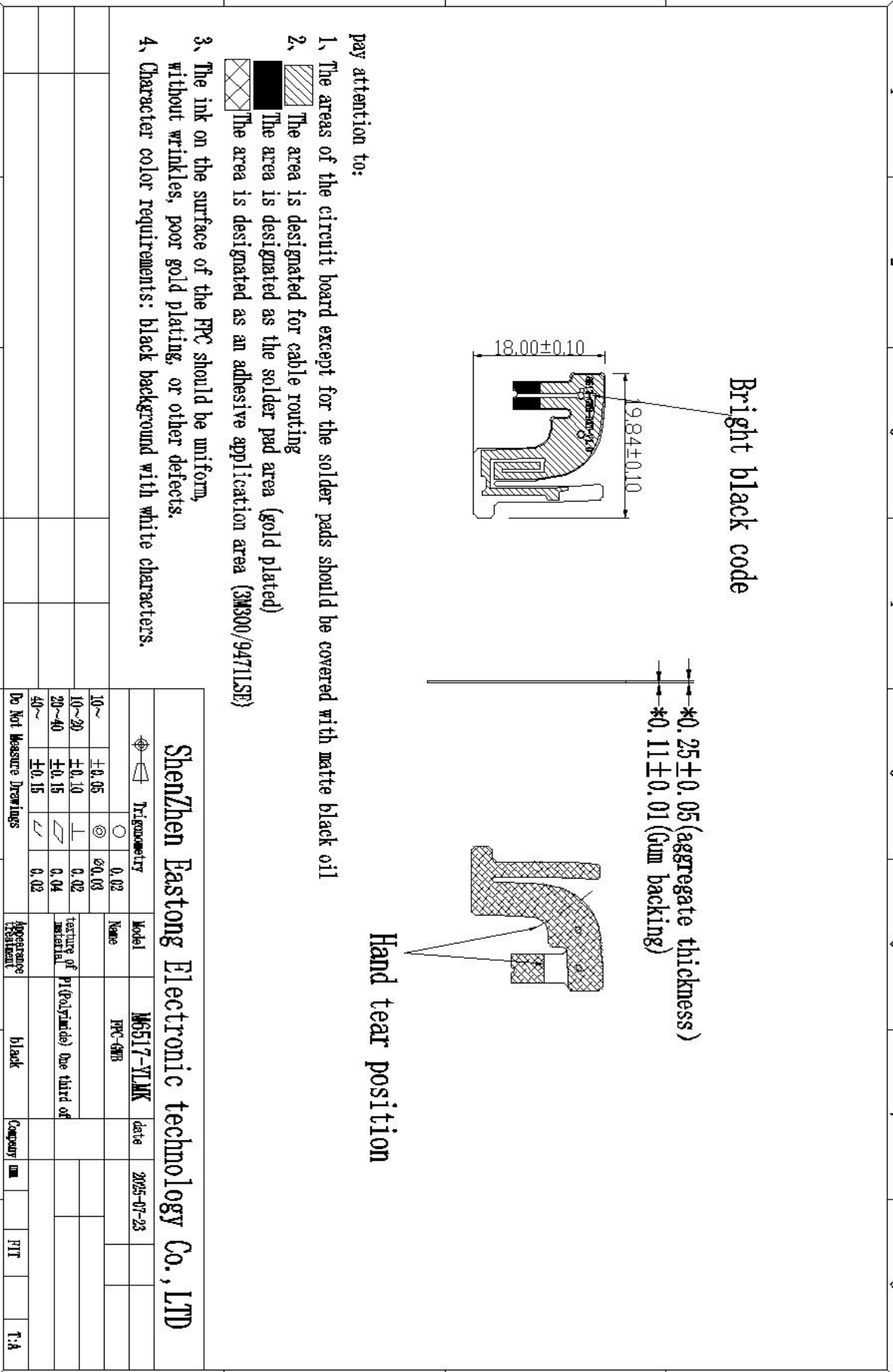
GPS:搜星

SVID	Fq	CNR	Elevation	Azimuth
 10 L1		28,3	0,00	0,00
 16 L1		42,3	44,00	228,00
 26 L1		43,3	76,00	302,00
 28 L1		24,2	41,00	37,00
 29 L1		23,5	20,00	62,00
 31 L1		26,3	49,00	354,00
 32 L1		43,2	47,00	120,00
 65 L1		24,4	0,00	0,00
 2 L1		29,7	0,00	0,00
 7 L1		29,5	37,00	176,00
 8 L1		26,0	0,00	0,00
 13 L1		32,7	45,00	219,00
 14 L1		20,1	17,00	153,00
 16 L1		0,0	52,00	350,00

SVID	Fq	CNR	Elevation	Azimuth
 32 L1		41,0	46,00	122,00
 65 L1		14,0	60,00	156,00
 76 L1		0,0	50,00	348,00
 4 L1		24,7	0,00	0,00
 7 L1		20,4	37,00	176,00
 8 L1		30,3	0,00	0,00
 9 L1		23,6	47,00	317,00
 13 L1		34,9	44,00	219,00
 14 L1		30,8	16,00	154,00
 16 L1		0,0	52,00	350,00
 23 L1		33,6	49,00	289,00
 25 L1		29,2	50,00	15,00
 33 L1		39,3	40,00	162,00
 4 L1		39,5	68,00	75,00
 2 L1		32,7	61,00	84,00
 3 L1		33,3	13,00	151,00

5.Mechanical drawing

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