

Antenna test report

customer name: 70mai

project name : DR2410

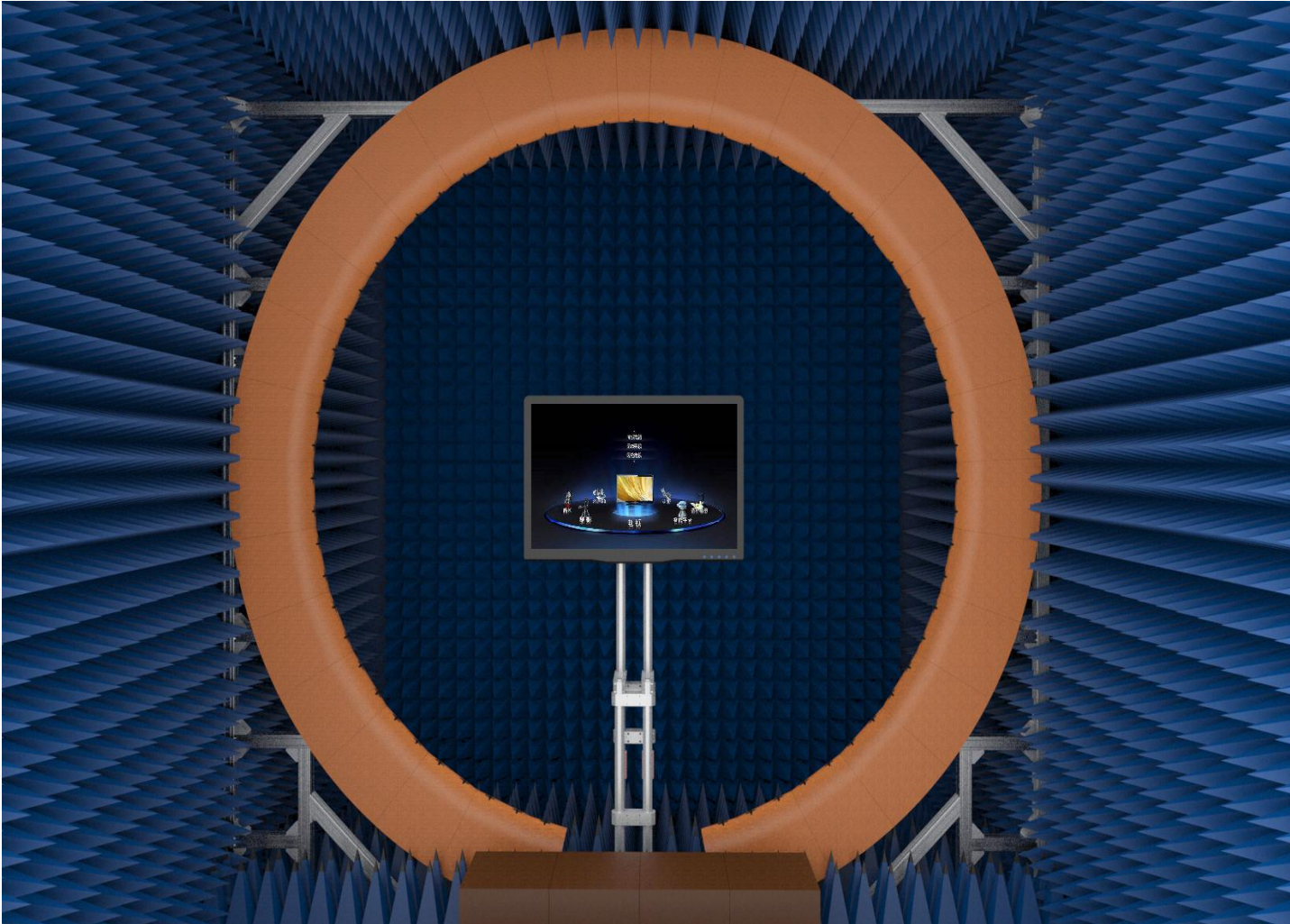
Report version: 2024.11.15 A0

research: zhencan chen

versions	time	Update description
A0	2024.11.15	Original antenna test data
A1		
A2		
A3		
A4		
A5		
A6		
A7		
A8		
A9		

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sample shape	debug machine
product type	Dash Cam
Number of antennas	3 (GPS antenna, WIFI antenna)
Antenna band	WiFi 2.4G GPS/GLONASS/BD
structural style	GPS:Ceramic antenna WIFI/BT:PCB antenna
Environmental treatment	No change
match circuit	No change

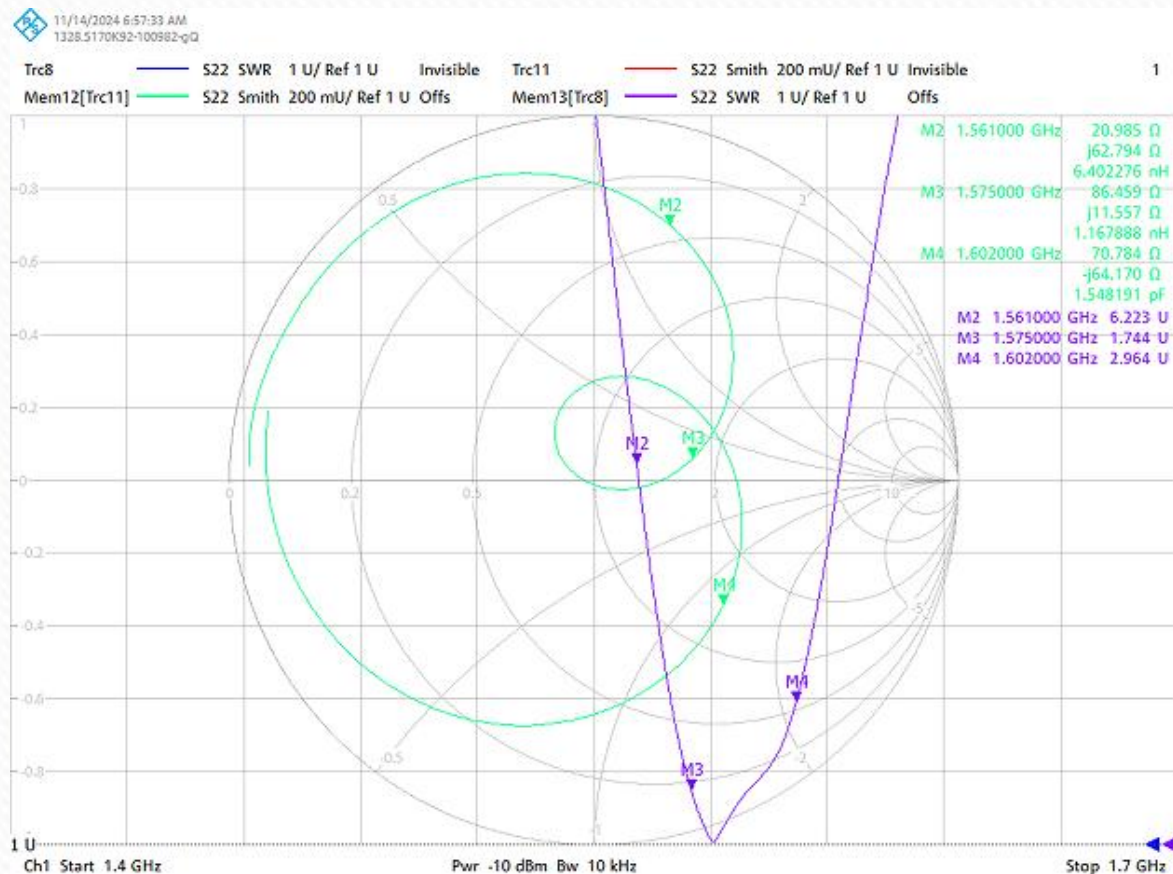


Industry top OTA darkroom:
64 probe; 6 meters in length/width/height; The size of the item to be tested can be up to 2 meters

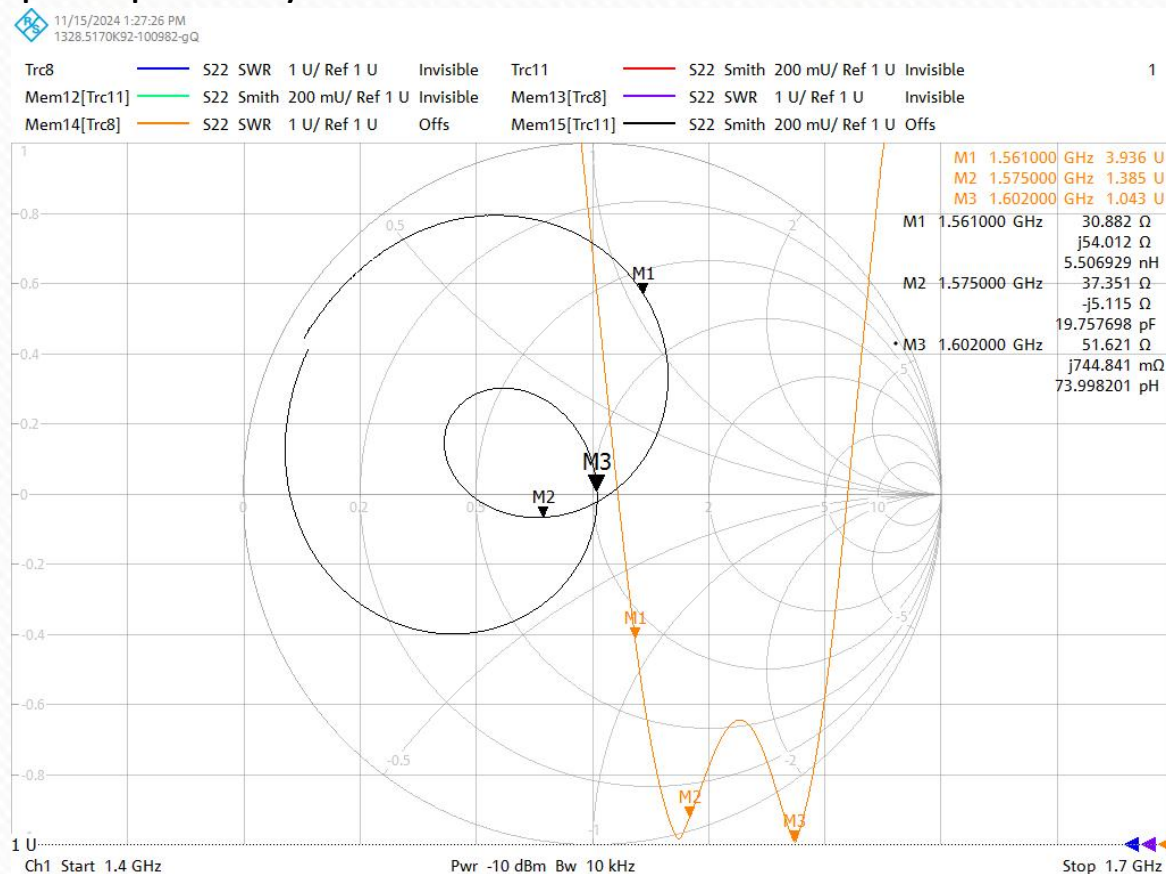
device name	total quantity	Number of R&D centers in Shanghai	Number of R&D centers in Shenzhen	Number of R&D centers in Chongqing
OTA laboratory	10seats	4seats	5seats	1seats
5G integrated measuring instrument (SP9500-CTS)	3pcs	1pcs	1pcs	1pcs
R&S integrated measuring instrument (high equipment CMW500)	7pcs	3pcs	3pcs	1pcs
Anritsu Integrated Meter (Dual Channel 8820)	4pcs	2pcs	2pcs	--
NB-IoT Integrated Measuring Instrument (SP8315)	3pcs	1pcs	1pcs	1pcs
Agilent Integrated Measuring Instrument (8960)	9pcs	4pcs	4pcs	1pcs
Agilent network analyzer (E5062A)	7pcs	3pcs	3pcs	1pcs
Agilent network analyzer (E5071C 8.5GHZ)	11pcs	5pcs	5pcs	1pcs
Agilent network analyzer (E5071B 8.5GHZ)	10pcs	5pcs	5pcs	1pcs
R&S network analyzer (ZND)	10pcs	5pcs	4pcs	1pcs
R&S network analyzer (ZVB)	3pcs	1pcs	1pcs	1pcs
OTAHead hand/cochlea/arm	5sets	2sets	2sets	1set
GPS/WIFI active test equipment	5sets	2sets	2sets	1set



initial antenna



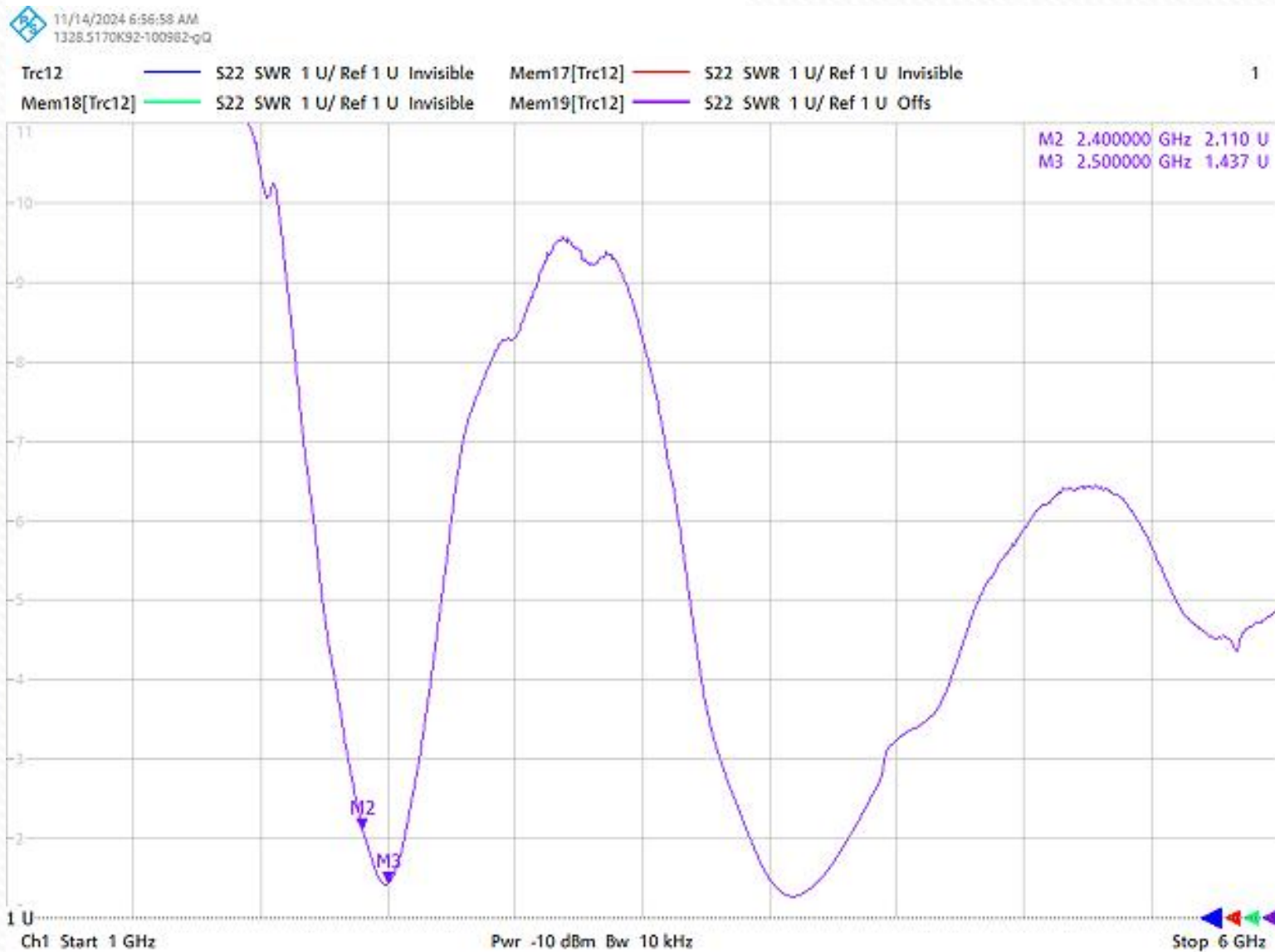
postoptimality antenna



Passive efficiency of GPS antenna

	initial antenna			postoptimality antenna				initial antenna			postoptimality antenna				initial antenna			postoptimality antenna		
Freq /Mhz	Effi / dB	Effi / %	Gain /dBi	Effi / dB	Effi / %	Gain /dBi	Freq /Mhz	Effi / dB	Effi / %	Gain /dBi	Effi / dB	Effi / %	Gain /dBi	Freq /Mhz	Effi / dB	Effi / %	Gain /dBi	Effi / dB	Effi / %	Gain /dBi
1550	-10.65	8.61	-3.62	-9.16	12.13	-5.15	1570	-3.73	42.37	2.07	-2.21	60.1	2.29	1590	-2.92	51.04	1.89	-3.1	48.98	0.81
1551	-10.4	9.13	-3.39	-8.82	13.12	-4.87	1571	-3.37	46.02	2.24	-2.14	61.12	2.36	1591	-2.94	50.81	1.87	-3.06	49.43	0.92
1552	-10.16	9.65	-3.16	-8.47	14.22	-4.56	1572	-3.06	49.43	2.38	-2.13	61.27	2.36	1592	-2.94	50.81	1.81	-3.04	49.67	1.08
1553	-9.91	10.22	-2.87	-8.11	15.45	-4.19	1573	-2.83	52.11	2.49	-2.2	60.25	2.3	1593	-2.94	50.81	1.75	-2.96	50.57	1.29
1554	-9.64	10.87	-2.54	-7.73	16.87	-3.78	1574	-2.65	54.32	2.59	-2.23	59.9	2.2	1594	-2.96	50.58	1.66	-2.86	51.79	1.5
1555	-9.37	11.57	-2.2	-7.37	18.32	-3.32	1575	-2.51	56.1	2.64	-2.34	58.36	2.05	1595	-2.97	50.46	1.6	-2.88	51.52	1.75
1556	-9.09	12.34	-1.98	-6.99	20	-3	1576	-2.42	57.28	2.68	-2.49	56.31	1.88	1596	-3.04	49.66	1.54	-2.71	53.57	1.9
1557	-8.81	13.16	-1.74	-6.61	21.83	-2.67	1577	-2.36	58.07	2.68	-2.56	55.41	1.7	1597	-3.11	48.86	1.47	-2.54	55.71	2.07
1558	-8.52	14.07	-1.42	-6.24	23.77	-2.29	1578	-2.34	58.34	2.63	-2.73	53.38	1.51	1598	-3.2	47.86	1.38	-2.39	57.67	2.18
1559	-8.2	15.15	-1.05	-5.84	26.06	-1.83	1579	-2.35	58.21	2.51	-2.79	52.6	1.33	1599	-3.32	46.55	1.27	-2.26	59.42	2.26
1560	-7.87	16.34	-0.62	-5.43	28.64	-1.36	1580	-2.37	57.93	2.38	-2.92	51.05	1.2	1600	-3.48	44.87	1.16	-2.17	60.67	2.3
1561	-7.5	17.79	-0.11	-5.02	31.48	-0.79	1581	-2.41	57.4	2.48	-3.02	49.89	1.03	1601	-3.63	43.35	1.04	-2.12	61.37	2.39
1562	-7.09	19.56	0.22	-4.58	34.83	-0.36	1582	-2.47	56.62	2.57	-3.11	48.87	0.9	1602	-3.82	41.49	0.94	-2.13	61.23	2.4
1563	-6.67	21.54	0.43	-4.14	38.55	0.06	1583	-2.53	55.84	2.48	-3.17	48.19	0.8	1603	-4.02	39.62	0.82	-2.21	60.12	2.33
1564	-6.24	23.78	0.69	-3.73	42.36	0.46	1584	-2.59	55.08	2.45	-3.22	47.64	0.73	1604	-4.23	37.76	0.7	-2.34	58.34	2.21
1565	-5.78	26.44	0.91	-3.32	46.56	0.87	1585	-2.67	54.07	2.37	-3.26	47.21	0.66	1605	-4.45	35.89	0.54	-2.52	55.97	2.05
1566	-5.33	29.32	1.12	-2.97	50.47	1.25	1586	-2.74	53.21	2.23	-3.28	46.99	0.68	1606	-4.67	34.11	0.38	-2.61	54.8	1.81
1567	-4.87	32.6	1.32	-2.64	54.45	1.59	1587	-2.8	52.48	2.12	-3.28	46.99	0.67	1607	-4.91	32.28	0.22	-2.82	52.27	1.54
1568	-4.4	36.32	1.54	-2.37	57.94	1.88	1588	-2.85	51.87	2.03	-3.25	47.32	0.68	1608	-5.15	30.55	0.06	-3.14	48.56	1.2
1569	-3.96	40.2	1.8	-2.3	58.91	2.13	1589	-2.89	51.4	1.96	-3.19	47.97	0.72	1609	-5.4	28.84	-0.11	-3.49	44.79	0.86

WIFI antenna S11 parameters



Frequency/ Mhz	Efficiency / %	Efficiency / dB	MaxGain/ dBi
2400	-3.73	42.36	2.13
2410	-3.4	45.71	1.85
2420	-3.09	49.09	2.38
2430	-3.05	49.55	2.67
2440	-2.96	50.58	2.41
2450	-2.71	53.58	2.87
2460	-2.9	51.29	2.66
2470	-2.85	51.88	2.42
2480	-2.8	52.48	2.7
2490	-2.71	53.58	2.78
2500	-2.73	53.3	2.81

The above is the antenna test data of DR2510 project of your company, and the efficiency of WiFi antenna is between 42% and 53%. From the data point of view of GPS, some performance of GLONASS has been reduced, and the efficiency of 1575MHz is 58% after optimization, and the efficiency of 1602MHz is 61%.

Thank You

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