

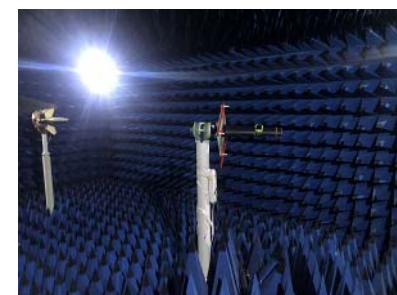
Ouli T1021HM Antenna Test Report

RF: Hong Yuankai

Date: September 13, 2022

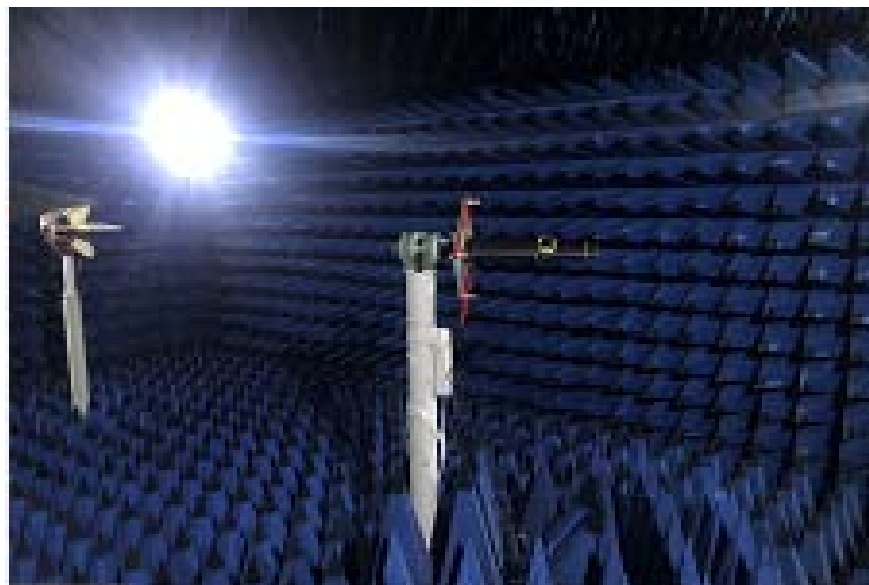
Contact information:

15119409299



Project development environment

We are moving from the Internet era to the intelligent era, and the country is building a digital society and a smart city. In the next 5-10 years, both there is huge development potential in the consumer electronics market and the Internet of Things market. The field of wireless communication is very diversified. In the future, relying on the customer platform advantages of the main antenna business and its own comprehensive strength, Yusheng will strive to provide customers with professional product solutions with market competitiveness.



RenSheng communication products cover almost all wireless terminal equipment antenna applications, including car antenna, high precision surveying and mapping aerial, drone ground and satellite data navigation, high precision positioning antenna, medical equipment wireless transmission, consumer antenna (mobile phone antenna, PAD, laptop antenna), base station / indoor distribution antenna, smart wearable antenna (smart watch, TWS headphones), security home antenna and a variety of wireless data transmission and wireless control of smart equipment antenna, etc.

1

Project commissioning brief

2

Outline of the report version

3

Antenna active parameters

4

Antenna passive parameter

5

Antenna environment treatment and improvement

6

Summary & Additional Notes

Project commissioning
brief

type	dull and stereotyped			
template	motherboard			
Frequband and antenna material	main antenna	frequency range		material quality
		2G	GSM850/900/1800/1900	FPC
		3G	WCDMA B1/2/4/5/8	
		4G	LTE B2/3/4/5/7/8/12/13/17/26/28AB/66 38/40	
	Other antennas	GWB	1575.42MHz/2.450GHz	FPC
		DRX	1700MHz -2700MHz	FPC
performance requirement	As per the customer's requirements			

Outline of the report version

Report version	Report time	The problem solved by the antenna research and development
V0.8	20220913	Bright-screen test report (increase direction diagram)

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	GSM 850			GSM 850		
Channel	128	190	251	128	190	251
TRP (dBm)	27.05	27.14	27.23	27.01	27.12	27.19
TIS (dBm)			-102.18			-99.35

Test	EGSM 900			EGSM 900		
Channel	1	62	124	1	62	124
TRP (dBm)	27.15	27.02	26.63	27.03	26.75	26.51
TIS (dBm)			-100.61			-98.06

Test	DCS 1800			DCS 1800		
Channel	512	698	885	512	698	885
TRP (dBm)	25.13	25.26	25.52	25.08	25.16	25.32
TIS (dBm)			-102.04			-102.01

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	PCS 1900			PCS 1900		
Channel	512	661	810	512	661	810
TRP (dBm)	25.19	25.35	25.54	25.17	25.31	25.51
TIS (dBm)			-103.09			-103.03

Test	WCDMA_I			WCDMA_I		
Channel	10562	10700	10838	10562	10700	10838
TRP (dBm)	17.05	17.16	17.24	17.02	17.13	17.21
TIS (dBm)			-103.52			-103.09

Test	WCDMA_I I			WCDMA_I I		
Channel	9662	9800	9938	9662	9800	9938
TRP (dBm)	17.06	17.18	17.27	17.01	17.14	17.22
TIS (dBm)			-103.55			-103.06

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	WCDMA_I V			WCDMA_I V		
Channel	1537	1638	1738	1537	1638	1738
TRP (dBm)	17.12	17.23	17.35	17.06	17.19	17.31
TIS (dBm)			-103.54			-103.03

Test	WCDMA_V			WCDMA_V		
Channel	4357	4408	4458	4357	4408	4458
TRP (dBm)	17.04	17.11	17.17	17.02	17.07	17.14
TIS (dBm)			-103.02			-100.37

Test	WCDMA_V III			WCDMA_V III		
Channel	2937	3013	3088	2937	3013	3088
TRP (dBm)	17.13	17.06	17.03	17.11	17.05	17.01
TIS (dBm)			-101.51			-99.18

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	FDD B2			FDD B2		
Channel	18750	18950	19150	18750	18950	19150
TRP (dBm)	18.08	18.29	18.55	18.02	18.21	18.52
TIS (dBm)			-91.24			-91.04

Test	FDD B3			FDD B3		
Channel	19250	19575	19900	19250	19575	19900
TRP (dBm)	18.54	18.27	18.06	18.41	18.23	18.01
TIS (dBm)			-91.07			-90.58

Test	FDD B4			FDD B4		
Channel	20000	20175	20350	20000	20175	20350
TRP (dBm)	18.15	18.38	18.61	18.11	18.35	18.56
TIS (dBm)			-92.38			-92.01

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	FDD B5			FDD B5		
Channel	20450	20525	20600	20450	20525	20600
TRP (dBm)	17.53	17.61	17.69	17.51	17.58	17.64
TIS (dBm)	-94.31	-94.68	-94.25	-92.39	-91.03	-92.44

Test	FDD B7			FDD B7		
Channel	20800	21100	21400	20800	21100	21400
TRP (dBm)	19.04	18.75	18.56	19.01	18.72	18.51
TIS (dBm)			-93.12			-92.58

Test	FDD B8			FDD B8		
Channel	21500	21650	21750	21500	21650	21750
TRP (dBm)	17.71	17.63	17.54	17.68	17.59	17.51
TIS (dBm)			-90.12			-88.13

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	FDD B12			FDD B12		
Channel	23060	23095	23130	23060	23095	23130
TRP (dBm)	16.05	16.34	16.59	16.02	16.28	16.51
TIS (dBm)	-92.95	-92.55	-92.76	-90.77	-90.58	-90.48

Test	FDD B13			FDD B13		
Channel		23230			23230	
TRP (dBm)		17.08			17.03	
TIS (dBm)		-92.77			-89.89	

Test	FDD B17			FDD B17		
Channel	23780	23790	23800	23780	23790	23800
TRP (dBm)	16.12	16.37	16.65	16.07	16.31	16.52
TIS (dBm)	-92.27	-92.04	-91.97	-90.18	-90.38	-90.40

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	FDD B26			FDD B26		
Channel	26740	26865	26990	26740	26865	26990
TRP (dBm)	17.06	17.38	17.61	17.03	17.34	17.58
TIS (dBm)	-94.73	-94.83	-94.37	-93.30	-92.35	-92.36

Test	FDD B28A			FDD B28A		
Channel	27260	27360	27460	27260	27360	27460
TRP (dBm)	16.13	16.58	17.06	16.11	16.52	17.04
TIS (dBm)	-92.45	92.43	-93.37	-89.40	-89.63	-90.34

Test	FDD B28B			FDD B28B		
Channel	27410	27510	27610	27410	27510	27610
TRP (dBm)	16.55	16.68	16.81	16.52	16.61	16.73
TIS (dBm)	-92.88	-93.39	-92.56	-89.55	-92.21	-90.71

Main antenna bright and out screen comparison data

Out of the screen

Bright screen

Test	TDD B38			TDD B38		
Channel	37850	38000	38150	37850	38000	38150
TRP (dBm)	18.42	18.21	18.05	18.35	18.17	18.01
TIS (dBm)			-92.56			-92.04

Test	TDD B40			TDD B40		
Channel	38750	39150	39550	38750	39150	39550
TRP (dBm)	17.53	17.75	18.04	17.51	17.72	18.02
TIS (dBm)			-92.73			-92.11

Test	FDD B66			FDD B66		
Channel	132022	132322	132622	132022	132322	132622
TRP (dBm)	18.61	18.36	18.14	18.53	18.29	18.05
TIS (dBm)			-92.21			-92.01

WIFI bright out screen contrast data

Out of the screen

Bright screen

Test	2.4WIFI-B			2.4WIFI-B		
Channel	1	6	11	1	6	11
TRP (dBm)	14.92	14.42	15.44	14.75	14.21	15.13
TIS (dBm)	-83.51	-85.76	-83.73	-81.18	-83.37	-81.29

Test	2.4WIFI-G			2.4WIFI-G		
Channel	1	6	11	1	6	11
TRP (dBm)	15.59	15.93	17.98	15.36	15.72	17.71
TIS (dBm)	-68.22	-69.06	-68.65	-66.09	-67.01	-66.42

Test	2.4WIFI-N			2.4WIFI-N		
Channel	1	7	13	1	7	13
TRP (dBm)	17.62	15.97	18.00	17.36	15.74	17.81
TIS (dBm)	-67.27	-66.55	-66.67	-65.09	-64.27	-64.52

Contrare data with playback music (maximum volume)

Out of the screen

Unscreen music (maximum volume)

Test	FDD B12			FDD B12		
Channel	23060	23095	23130	23060	23095	23130
TRP (dBm)	16.05	16.34	16.59	16.02	16.28	16.51
TIS (dBm)	-92.95	-92.55	-92.76	-92.81	-92.35	-92.58

Test	FDD B17			FDD B17		
Channel	23780	23790	23800	23780	23790	23800
TRP (dBm)	16.12	16.37	16.65	16.07	16.31	16.52
TIS (dBm)	-92.27	-92.04	-91.97	-92.09	-91.85	-91.82

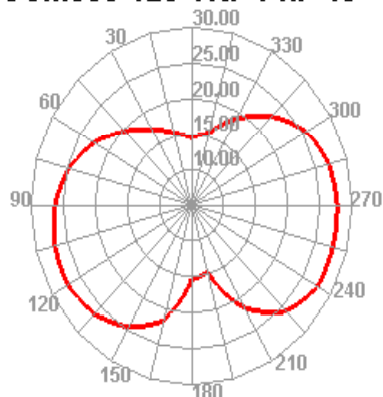
antenna gain

Band	Gain (MAX)
GSM850	0.65
EGSM900	0.61
DCS1800	1.17
PCS1900	1.21
WCDMA B1	1.22
WCDMA B2	1.21
WCDMA B4	1.12
WCDMA B5	0.65
WCDMA B8	0.61
Band2	1.21
Band3	1.17
Band4	1.12
Band5	0.65
Band7	1.27
Band8	0.61
Band12	0.53

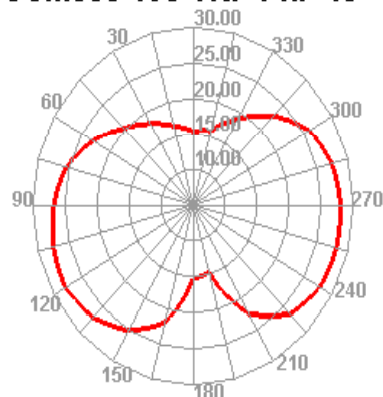
Band	Gain (MAX)
Band13	0.51
Band17	0.55
Band26	0.65
Band28A	0.57
Band28B	0.56
Band38	1.25
Band40	1.23
Band66	1.22
GPS	1.11
2.4GWiFi	1.22
BT	1.22

Main antenna directivity diagram:

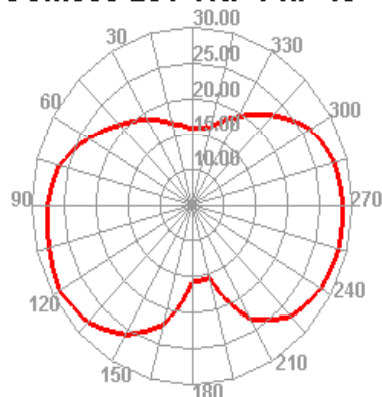
GSM850 128 TRP Phi=45



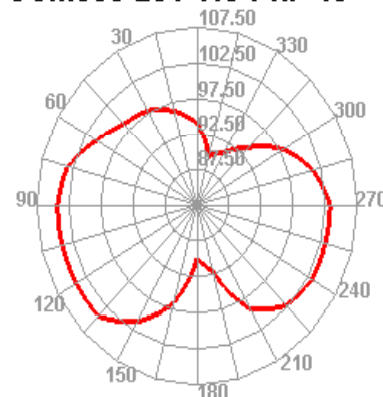
GSM850 190 TRP Phi=45



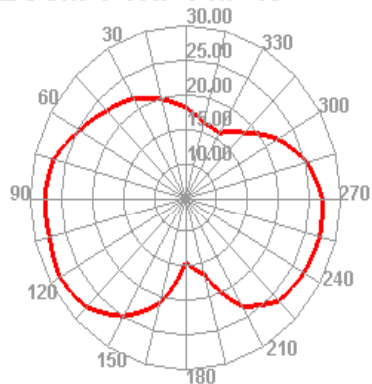
GSM850 251 TRP Phi=45



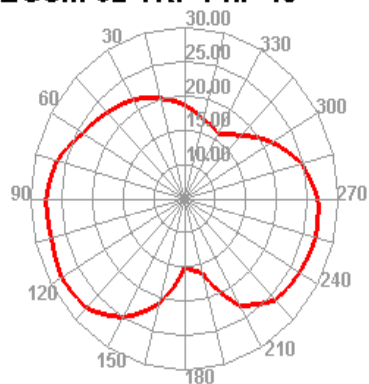
GSM850 251 TIS Phi=45



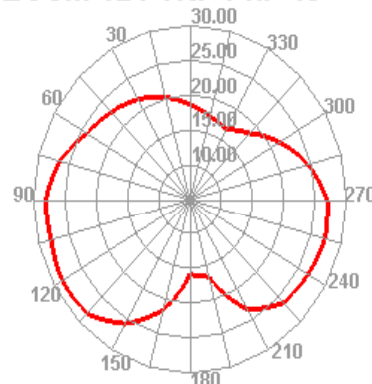
EGSM 1 TRP Phi=45



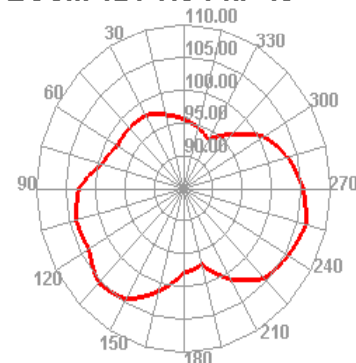
EGSM 62 TRP Phi=45



EGSM 124 TRP Phi=45

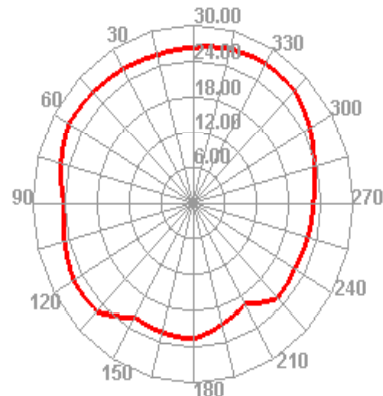


EGSM 124 TIS Phi=45

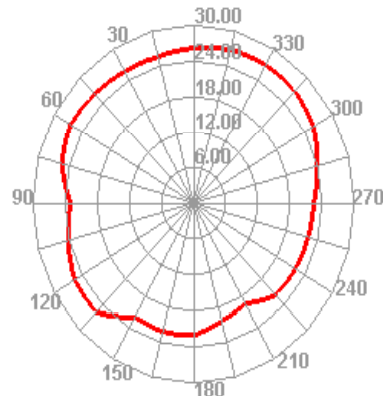


Main antenna directivity diagram:

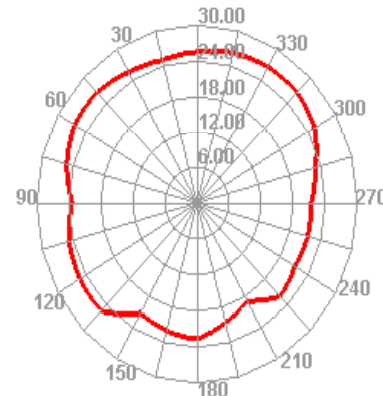
DCS 512 TRP Phi=45



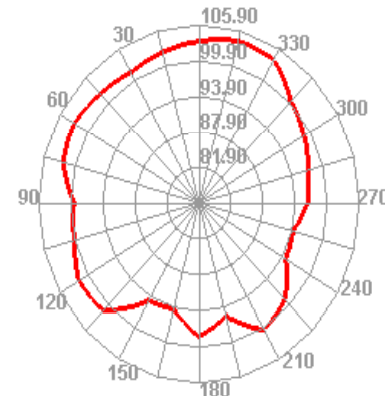
DCS 698 TRP Phi=45



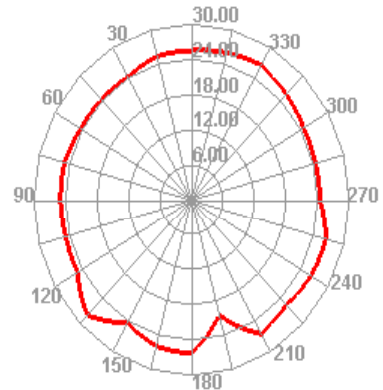
DCS 885 TRP Phi=45



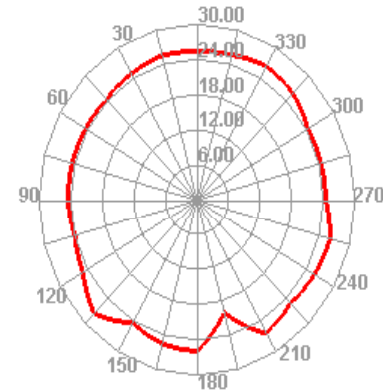
DCS 885 TIS Phi=45



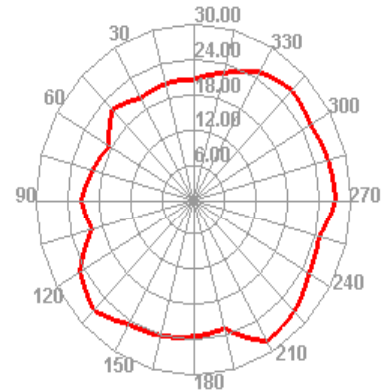
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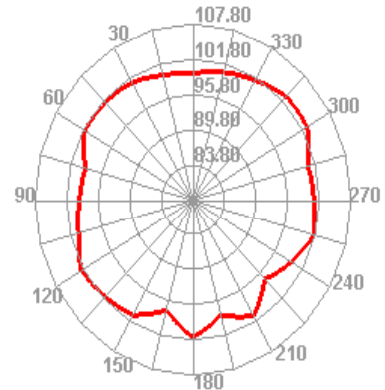
PCS 661 TRP Phi=45



PCS 810 TRP Phi=45

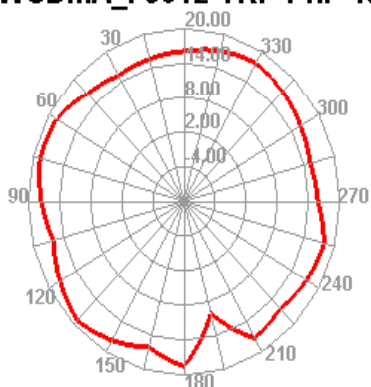


PCS 810 TIS Phi=45

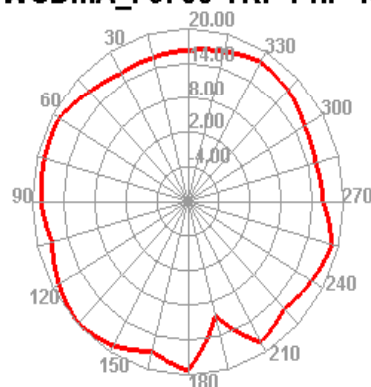


Main antenna directivity diagram:

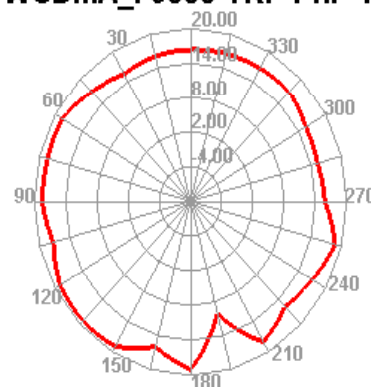
WCDMA_I 9612 TRP Phi=45



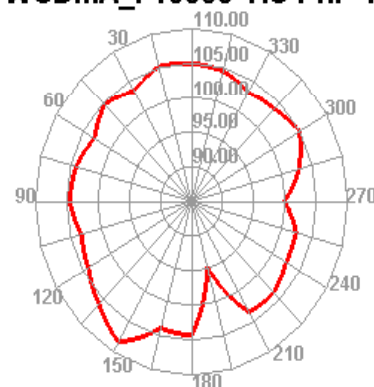
WCDMA_I 9750 TRP Phi=45



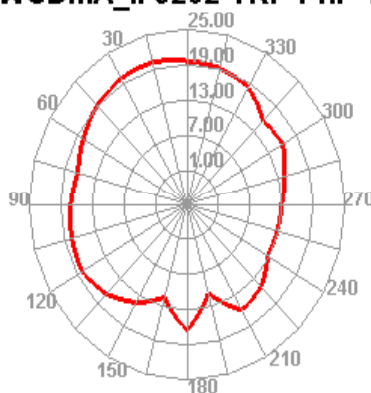
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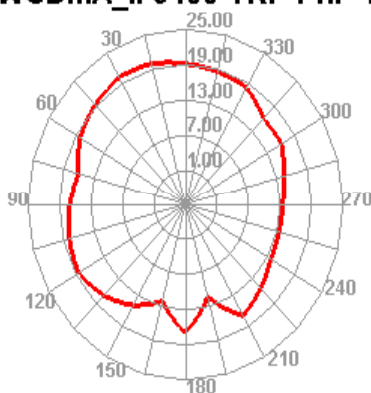
WCDMA_I 10838 TIS Phi=45



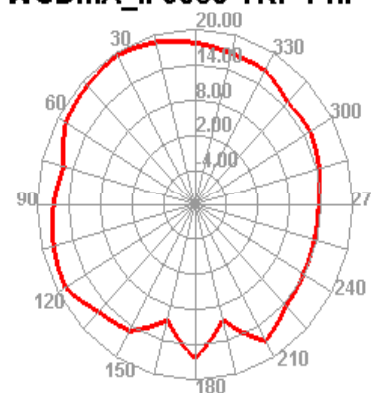
WCDMA_II 9262 TRP Phi=45



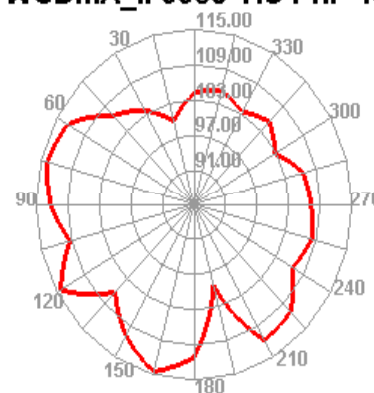
WCDMA_II 9400 TRP Phi=45



WCDMA_II 9538 TRP Phi=45

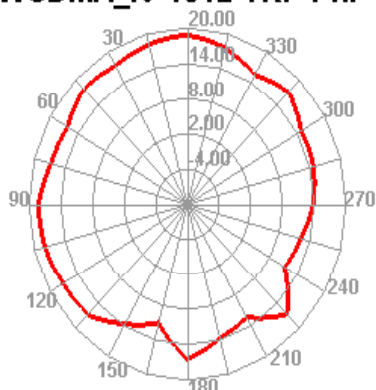


WCDMA_II 9938 TIS Phi=45

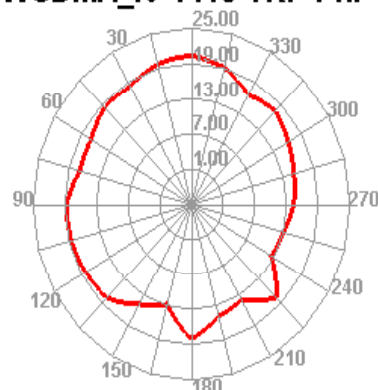


Main antenna directivity diagram:

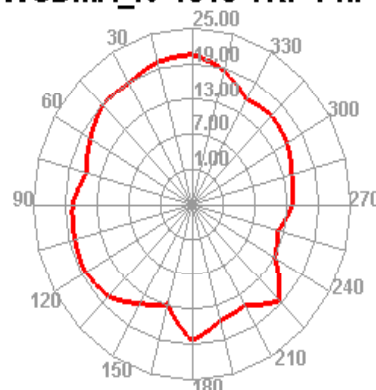
WCDMA_IV 1312 TRP Phi=45°



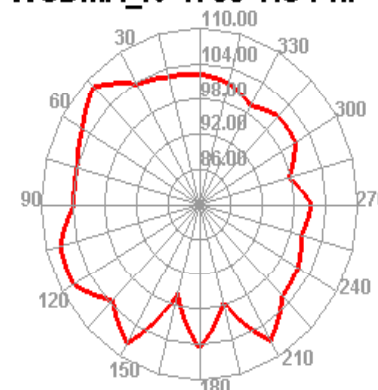
WCDMA_IV 1413 TRP Phi=45°



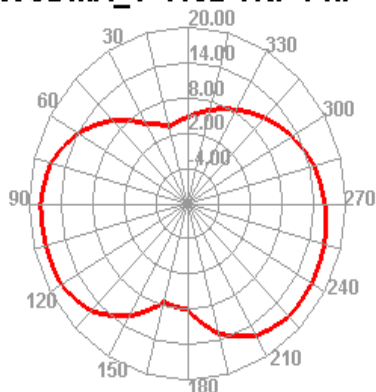
WCDMA_IV 1513 TRP Phi=45°



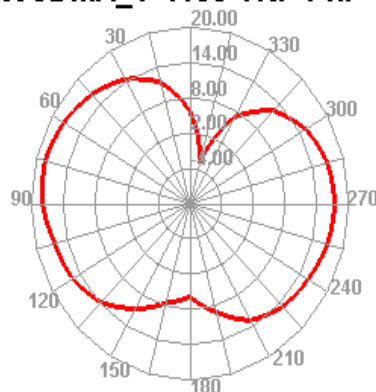
WCDMA_IV 1738 TIS Phi=45°



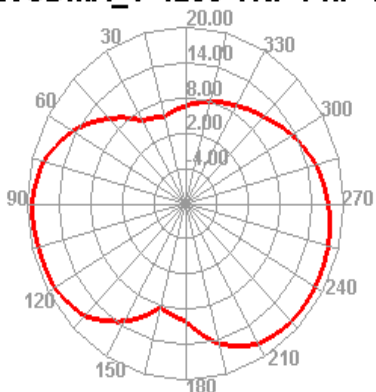
WCDMA_V 4132 TRP Phi=45°



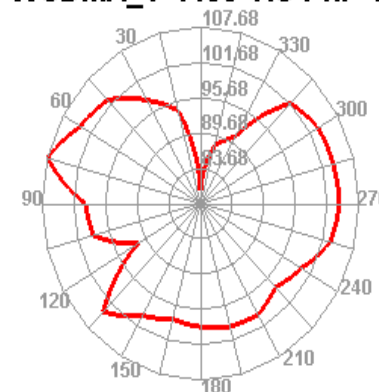
WCDMA_V 4185 TRP Phi=45°



WCDMA_V 4233 TRP Phi=45°

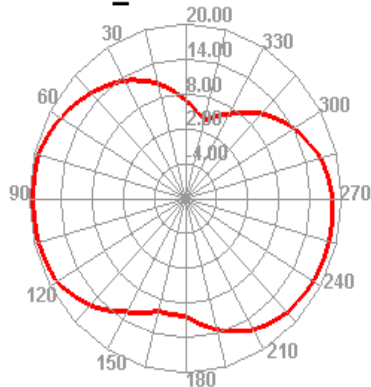


WCDMA_V 4458 TIS Phi=45°

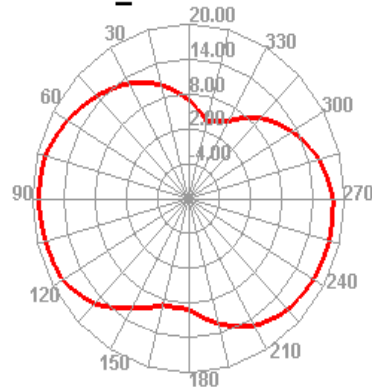


Main antenna directivity diagram:

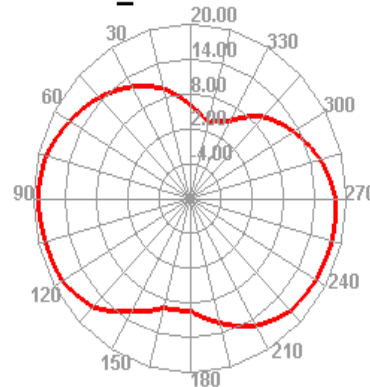
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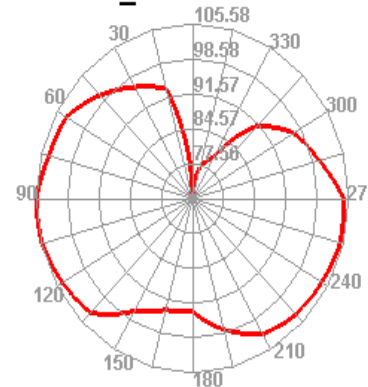
WCDMA_VIII 2788 TRP Phi=4



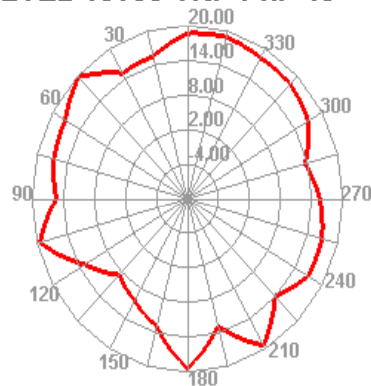
WCDMA_VIII 2863 TRP Phi=4



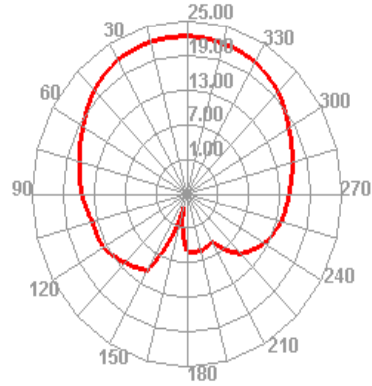
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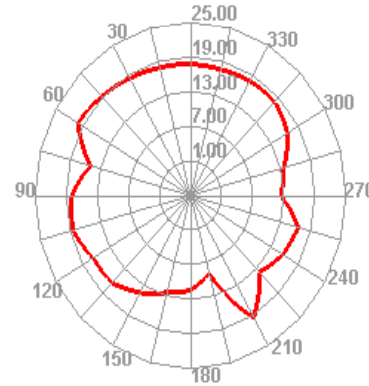
LTE2 18650 TRP Phi=45



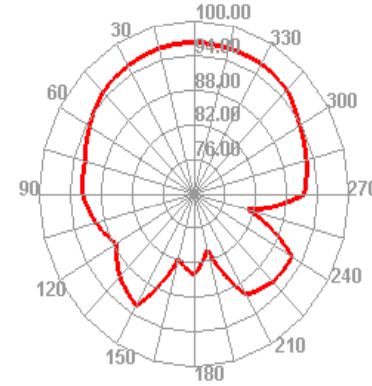
LTE2 18900 TRP Phi=45



LTE2 19150 TRP Phi=45

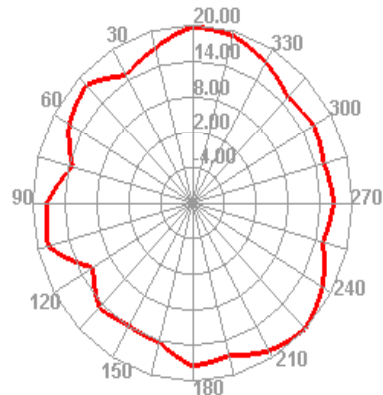


LTE2 1150 TIS Phi=45

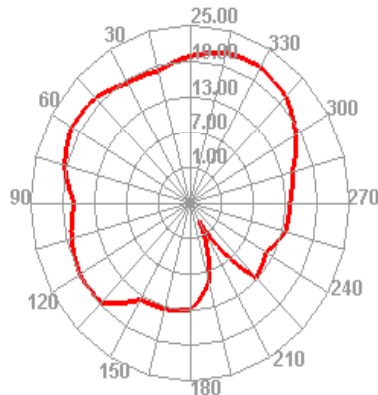


Main antenna directivity diagram:

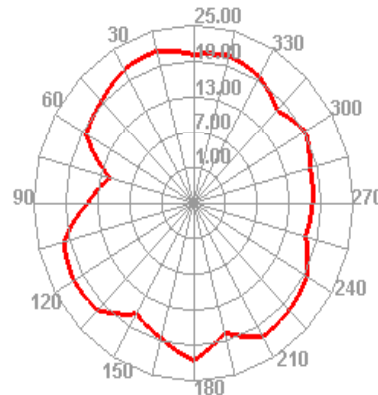
LTE3 19250 TRP Phi=45



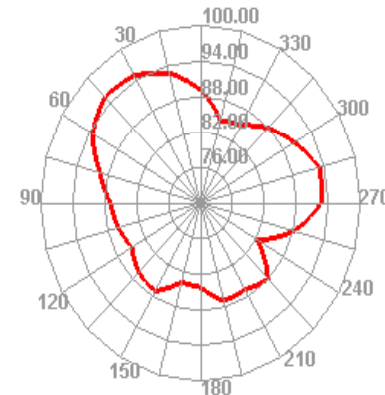
LTE3 19575 TRP Phi=45



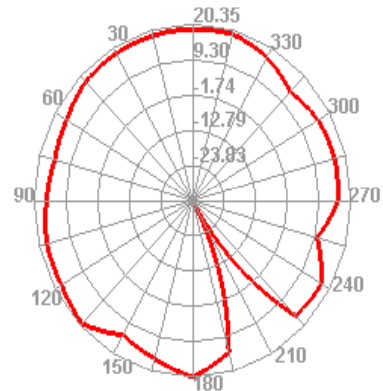
LTE3 19575 TRP Phi=45



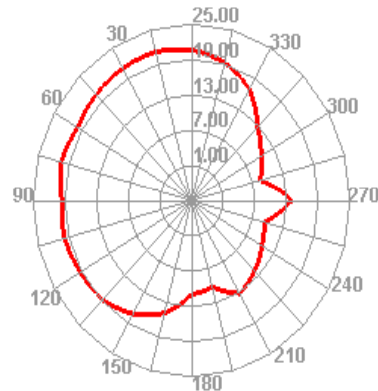
LTE3 1900 TIS Phi=45



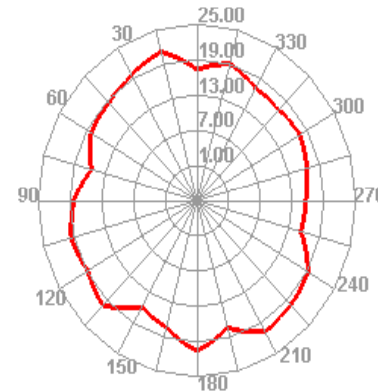
LTE4 20000 TRP Phi=45



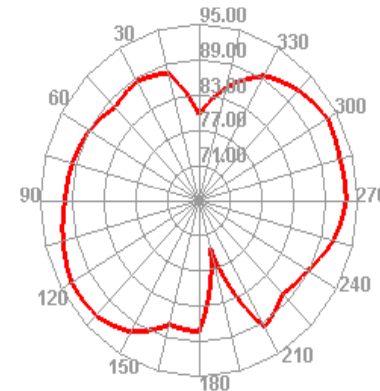
LTE4 20175 TRP Phi=45



LTE4 20350 TRP Phi=45

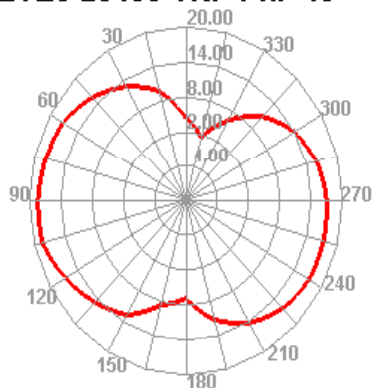


LTE4 2350 TIS Phi=45

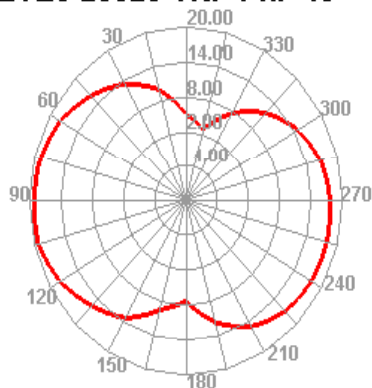


Main antenna directivity diagram:

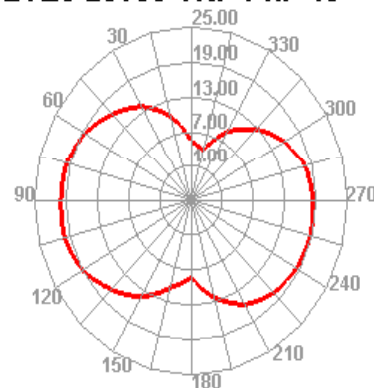
LTE5 20450 TRP Phi=45



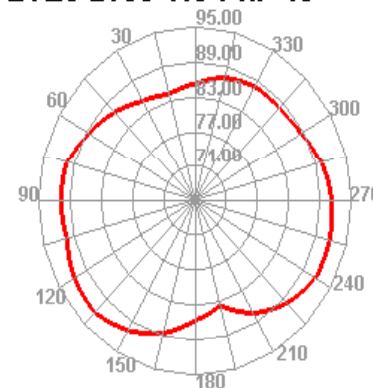
LTE5 20525 TRP Phi=45



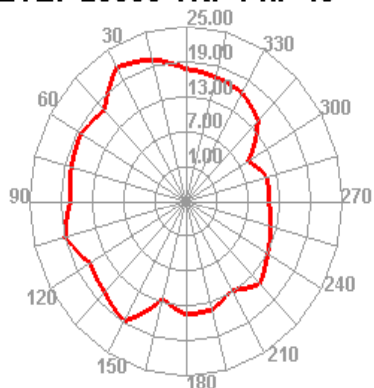
LTE5 20600 TRP Phi=45



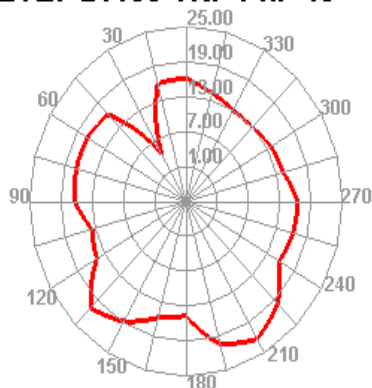
LTE5 2600 TIS Phi=45



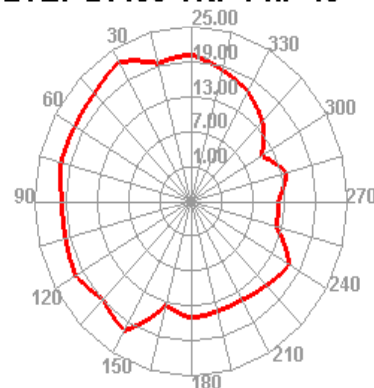
LTE7 20800 TRP Phi=45



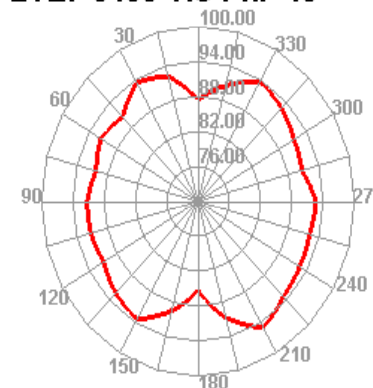
LTE7 21100 TRP Phi=45



LTE7 21400 TRP Phi=45

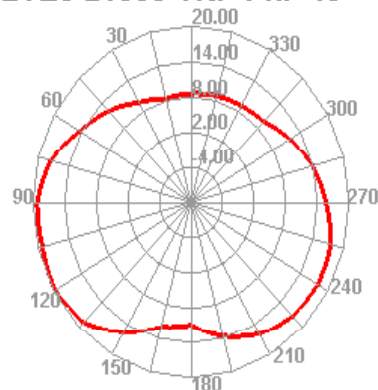


LTE7 3400 TIS Phi=45

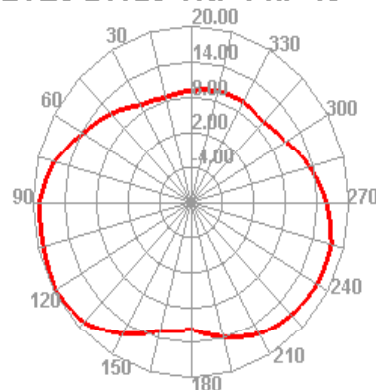


Main antenna directivity diagram:

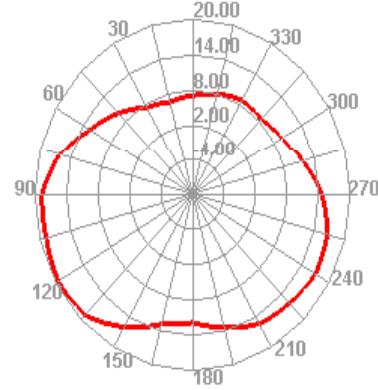
LTE8 21500 TRP Phi=45



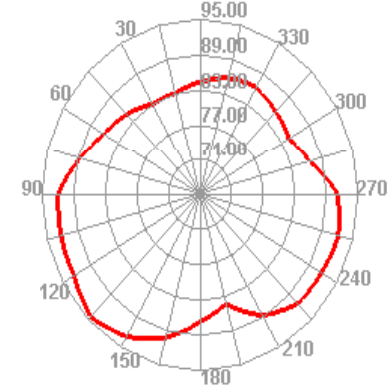
LTE8 21625 TRP Phi=45



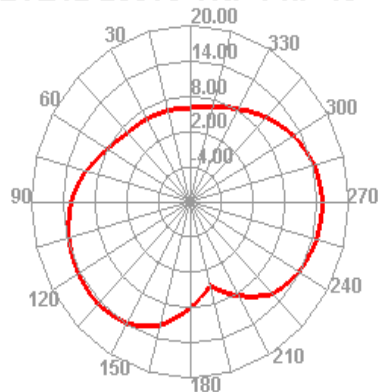
LTE8 21750 TRP Phi=45



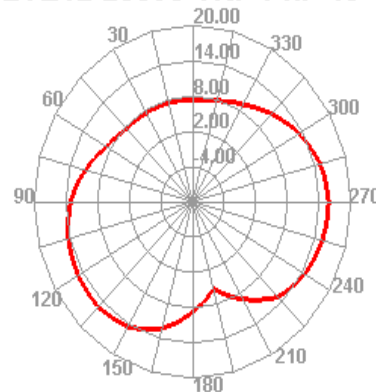
LTE8 3750 TIS Phi=45



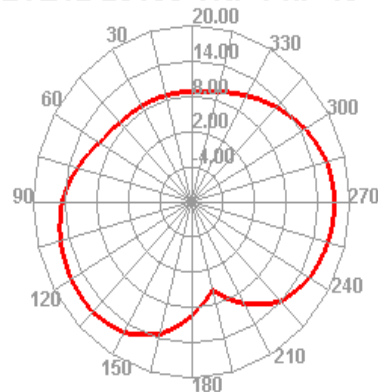
LTE12 23060 TRP Phi=45



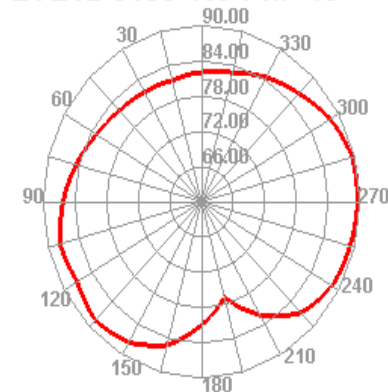
LTE12 23095 TRP Phi=45



LTE12 23130 TRP Phi=45

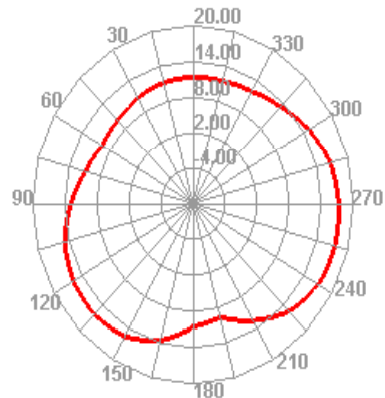


LTE12 5130 TIS Phi=45

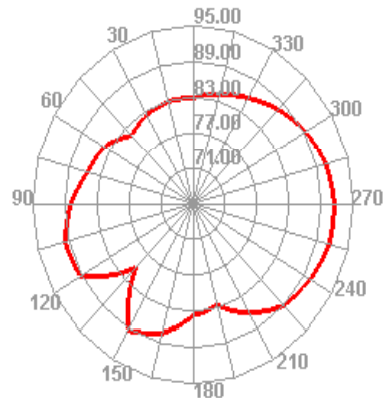


Main antenna directivity diagram:

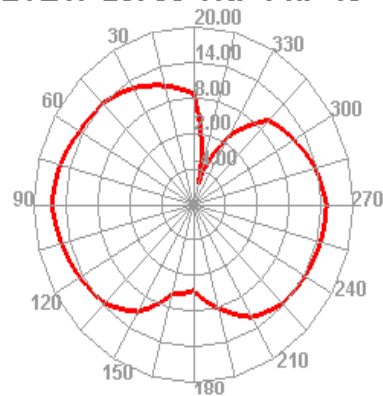
LTE13 23230 TRP Phi=45



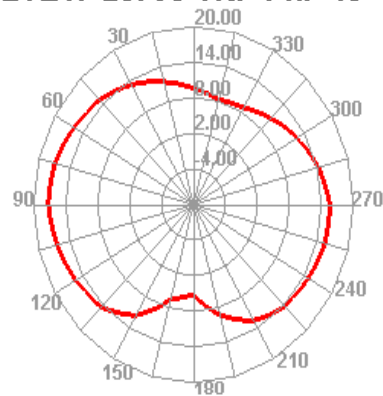
LTE13 5230 TIS Phi=45



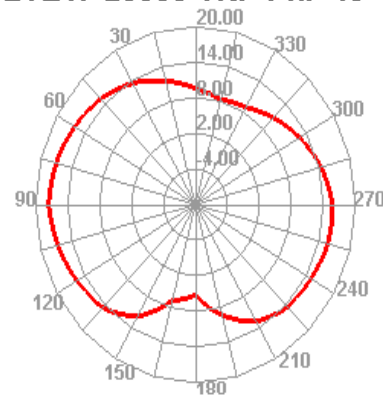
LTE17 23780 TRP Phi=45



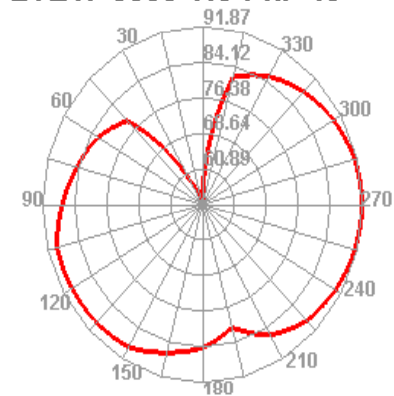
LTE17 23790 TRP Phi=45



LTE17 23800 TRP Phi=45

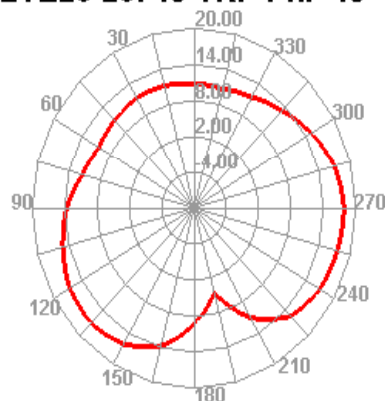


LTE17 5800 TIS Phi=45

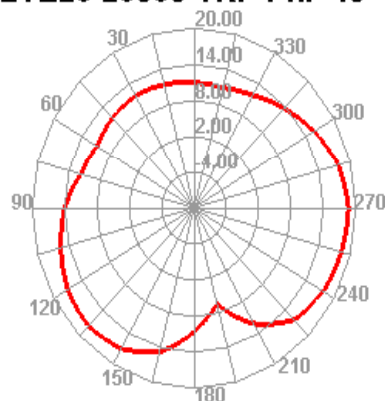


Main antenna directivity diagram:

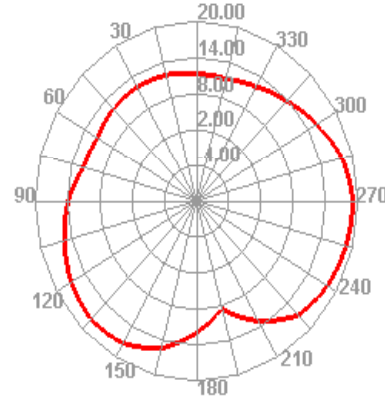
LTE26 26740 TRP Phi=45



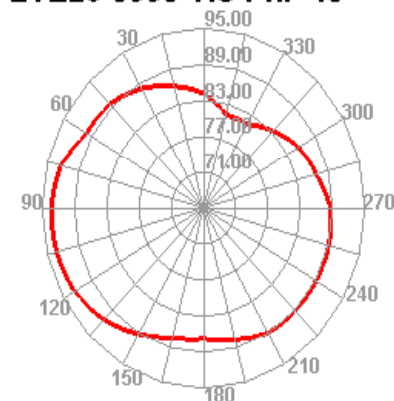
LTE26 26865 TRP Phi=45



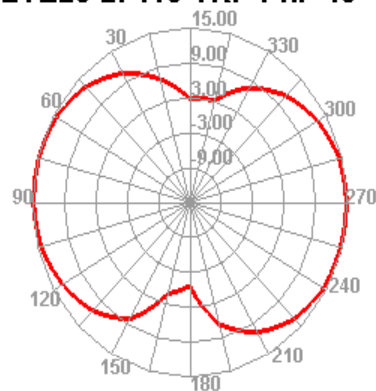
LTE26 26990 TRP Phi=45



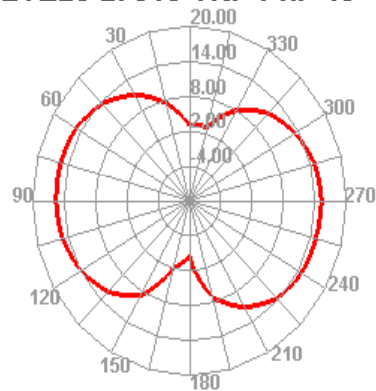
LTE26 8990 TIS Phi=45



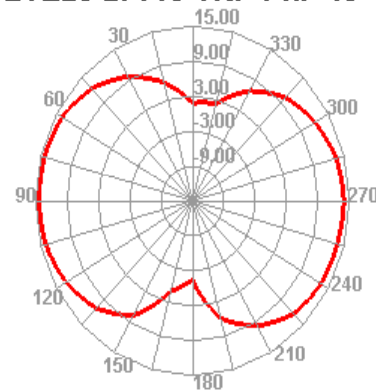
LTE28 27410 TRP Phi=45



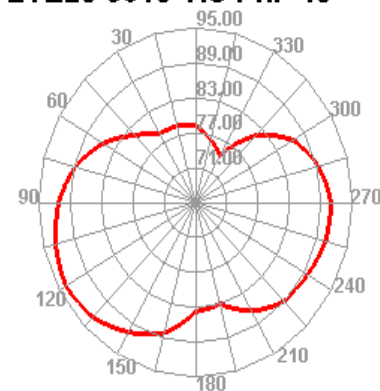
LTE28 27510 TRP Phi=45



LTE28 27610 TRP Phi=45

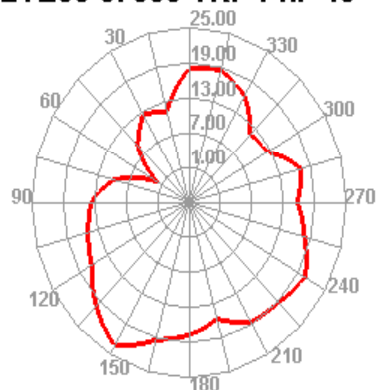


LTE28 9610 TIS Phi=45

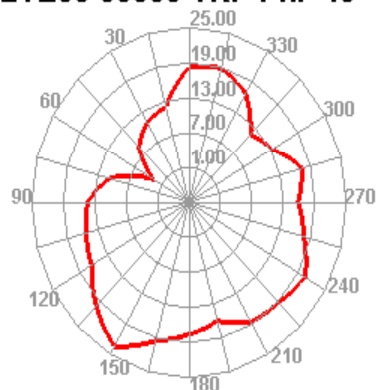


Main antenna directivity diagram:

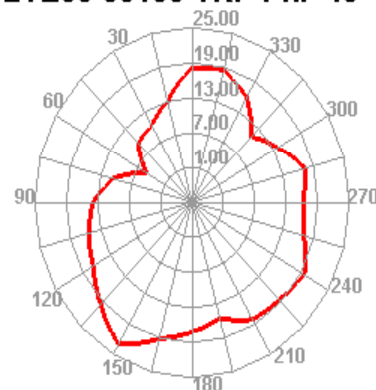
LTE38 37850 TRP Phi=45



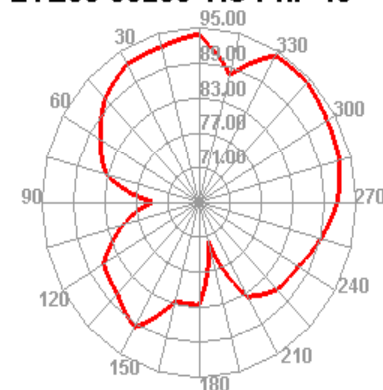
LTE38 38000 TRP Phi=45



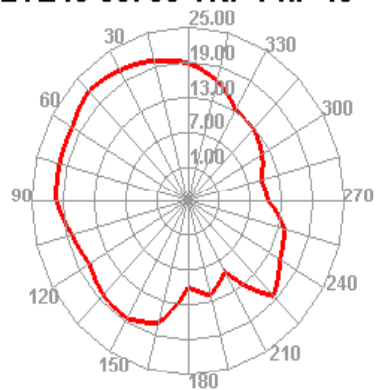
LTE38 38150 TRP Phi=45



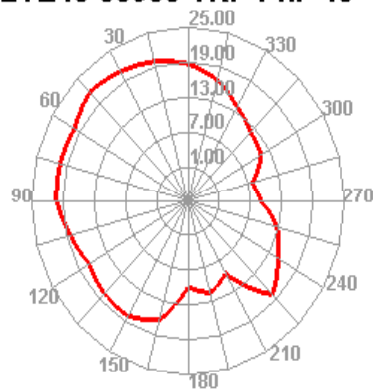
LTE38 38200 TIS Phi=45



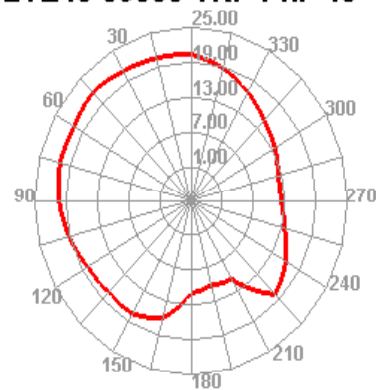
LTE40 38750 TRP Phi=45



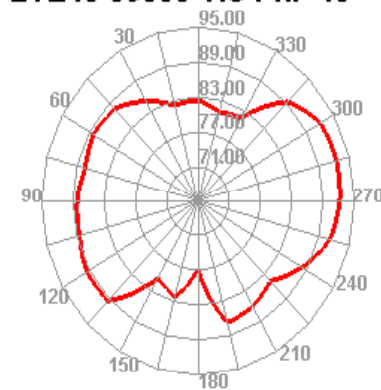
LTE40 38950 TRP Phi=45



LTE40 39550 TRP Phi=45

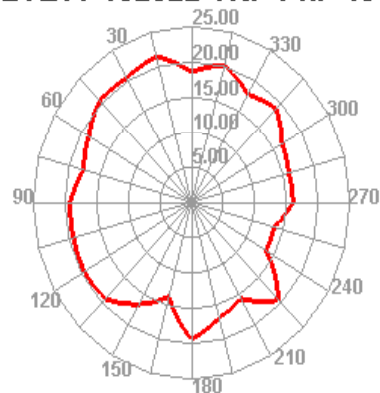


LTE40 39550 TIS Phi=45

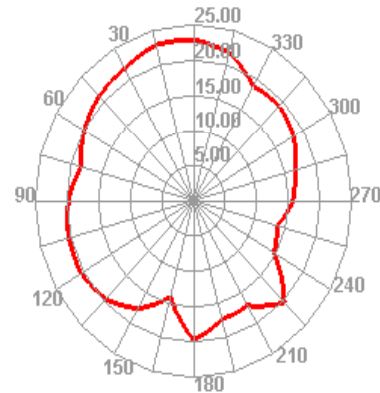


Main antenna directivity diagram:

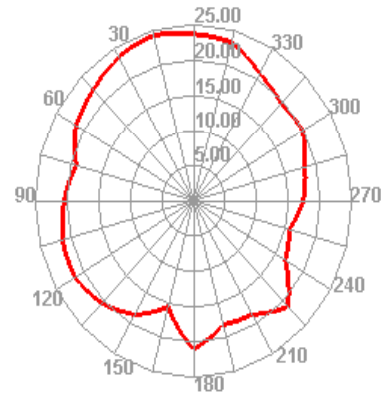
LTE66 132022 TRP Phi=45



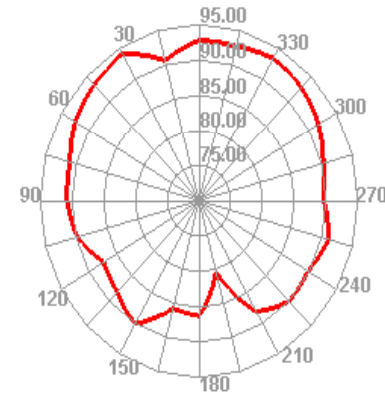
LTE66 132322 TRP Phi=45



LTE66 132622 TRP Phi=45

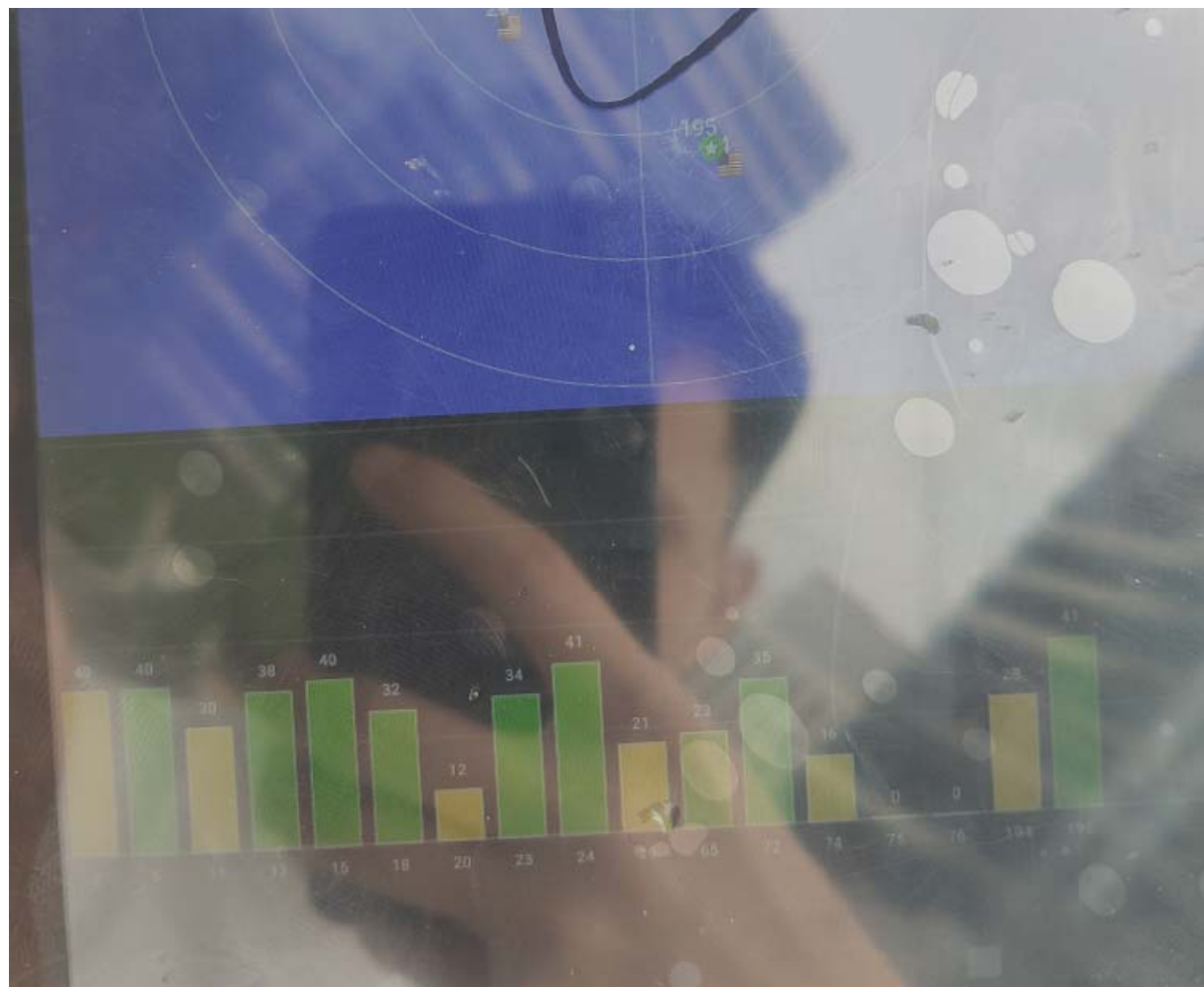


LTE66 67086 TIS Phi=45

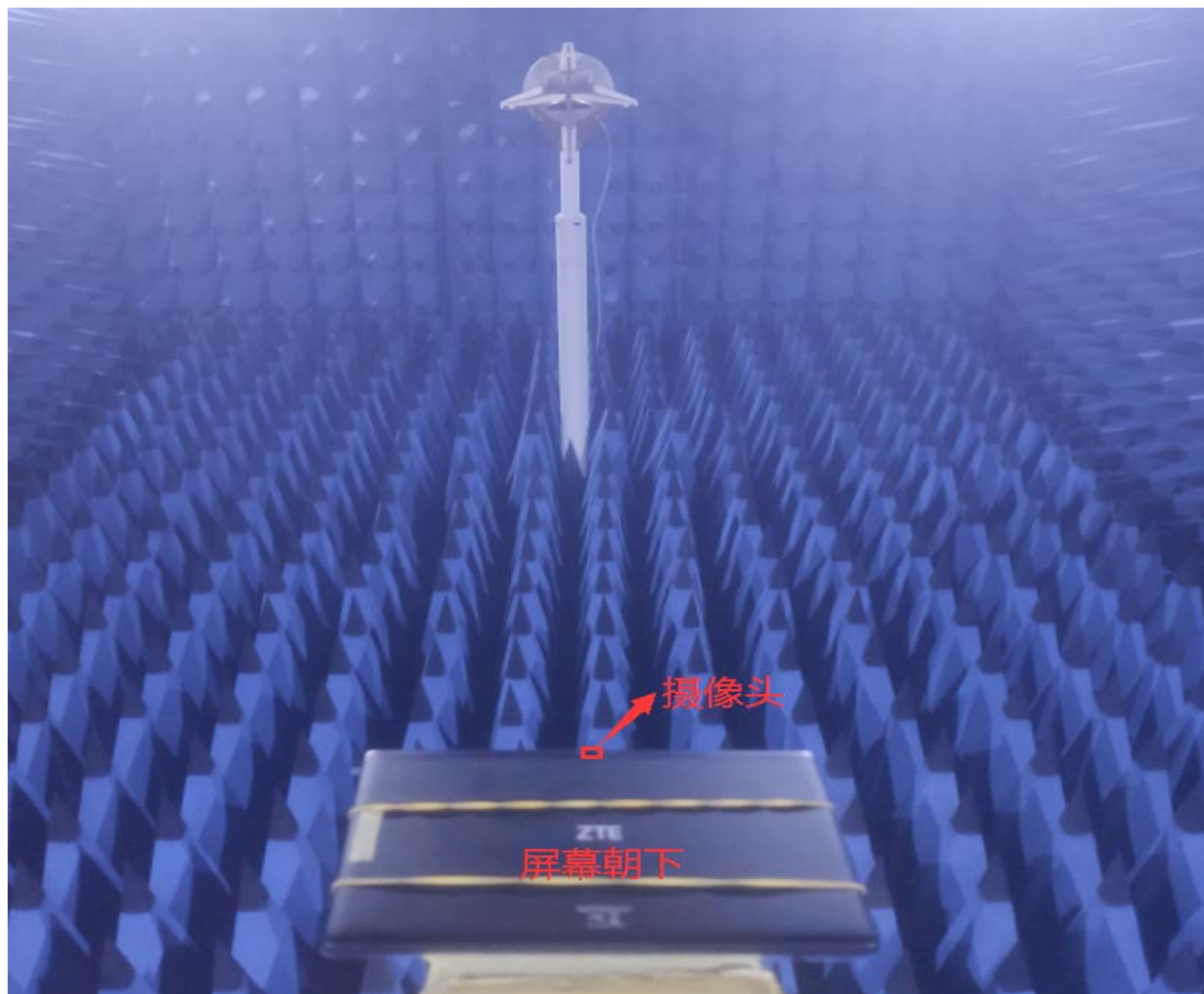


GPS test asterisk diagram

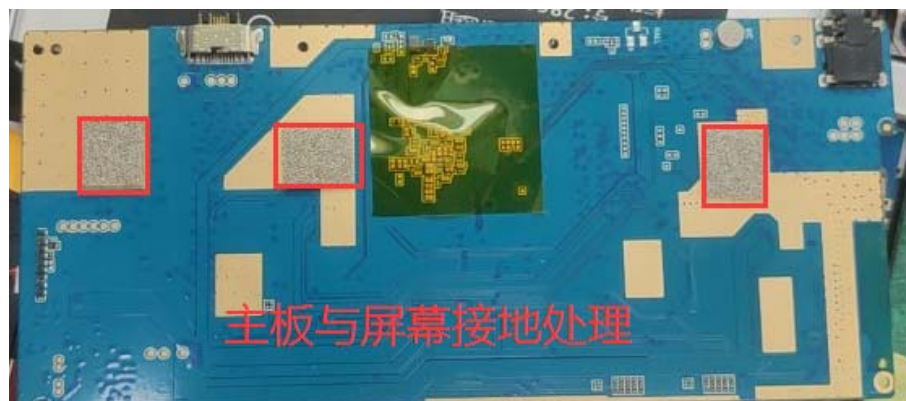
1. In the empty space below us,
Test on the lawn



Dark room test placement-Bright screen sideways
down



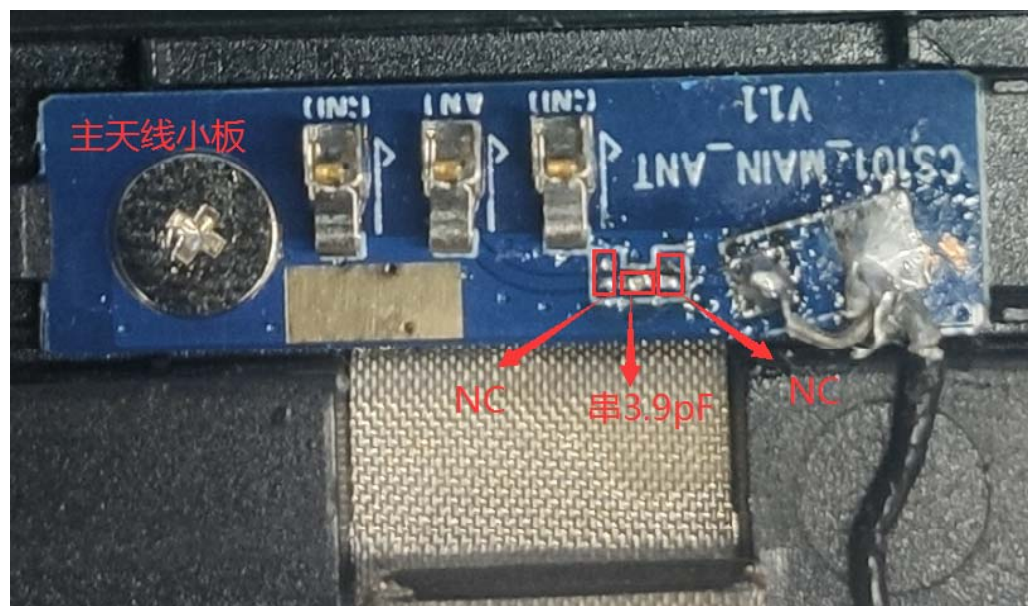
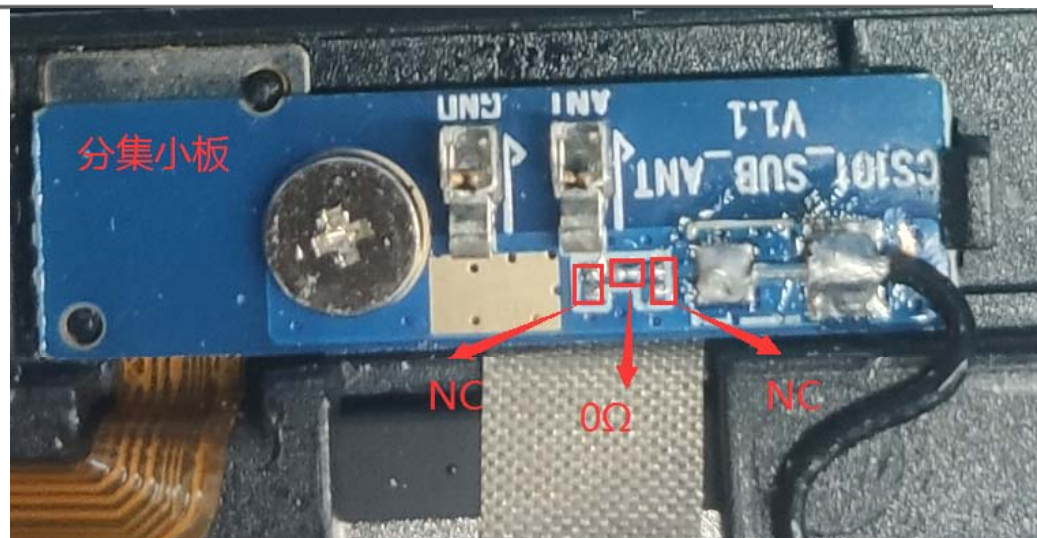
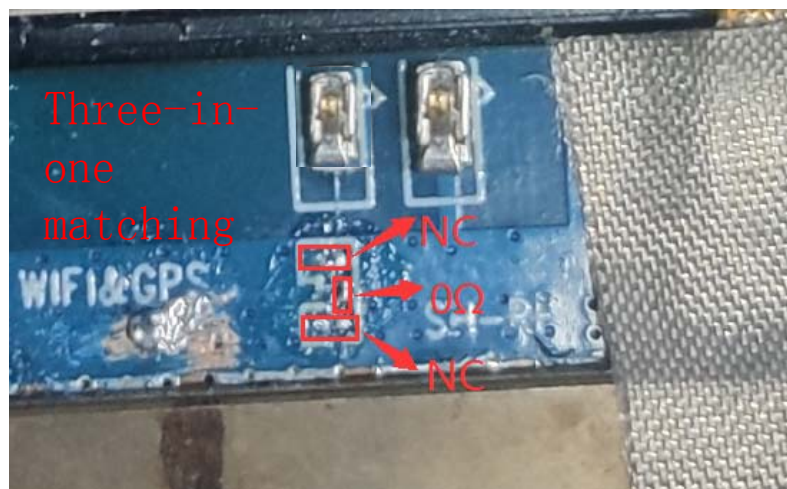
Environmental treatment (as
T1021HT)



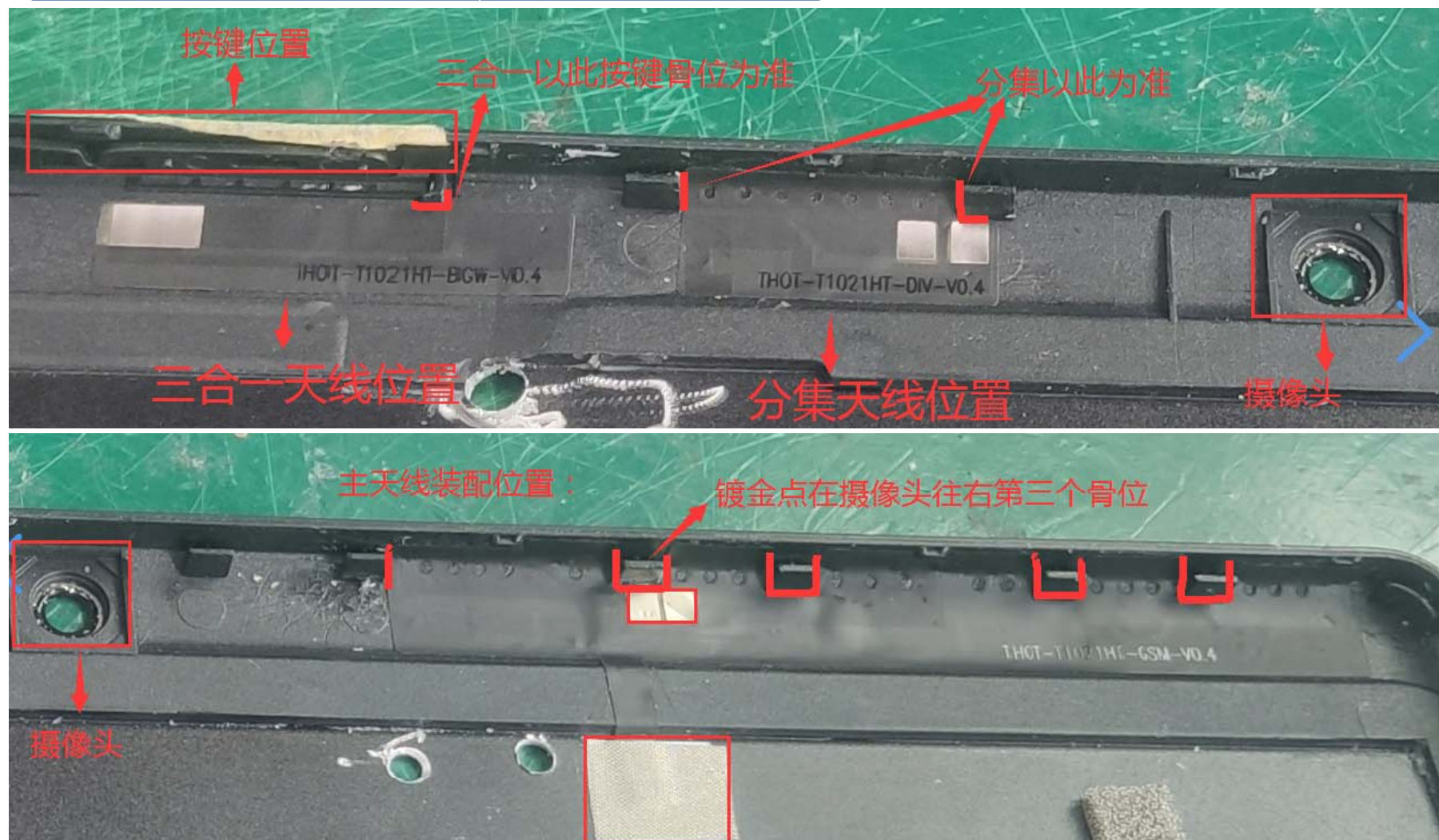
Environmental treatment (as
T1021HT)



Main board and small panel matching
(with T1021HT)



Antenna assembly position (the same as the T1021HT)



sum up

1. Attention should be paid to the environmental treatment installation capacity in the report to ensure the consistency of the whole machine
2. Please pay attention to the detailed matching in the report. If you have any questions, please contact us in time!!!

Thank you!



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