



Antenna Debugging Report

Shenzhen Xinbinuo Communication Technology Co., Ltd.

Address: Room A, 3rd Floor, Building 25, No. 171, Ping'an Avenue, Pinghu Subdistrict, Longgang District, Shenzhen City

Customer: Duoke

Project: Active 7

Structure: Xiao Xiang-13316888409

Radio Frequency: Long Yaobin-15874137313

Date: 2026-1-5



Antenna Debugging Report

Report Type:

Version: V1.0

Machine Status: Trial Production Machine

Debugging frequency band:

GSM:B2/B3/B5/B8

WCDMA:W1/W2/W4/W5/W8

CDMA:BC0/BC1/BC10

FDD-LTE: B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B26/B28B/B28A/B66

TDD-LTE: B38/B40/B41

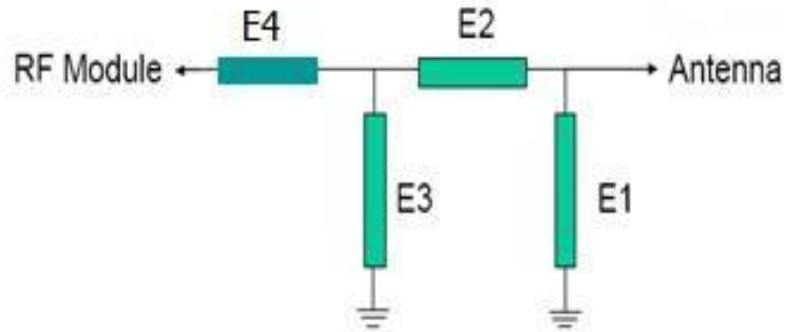
GPS and other satellite positioning antennas

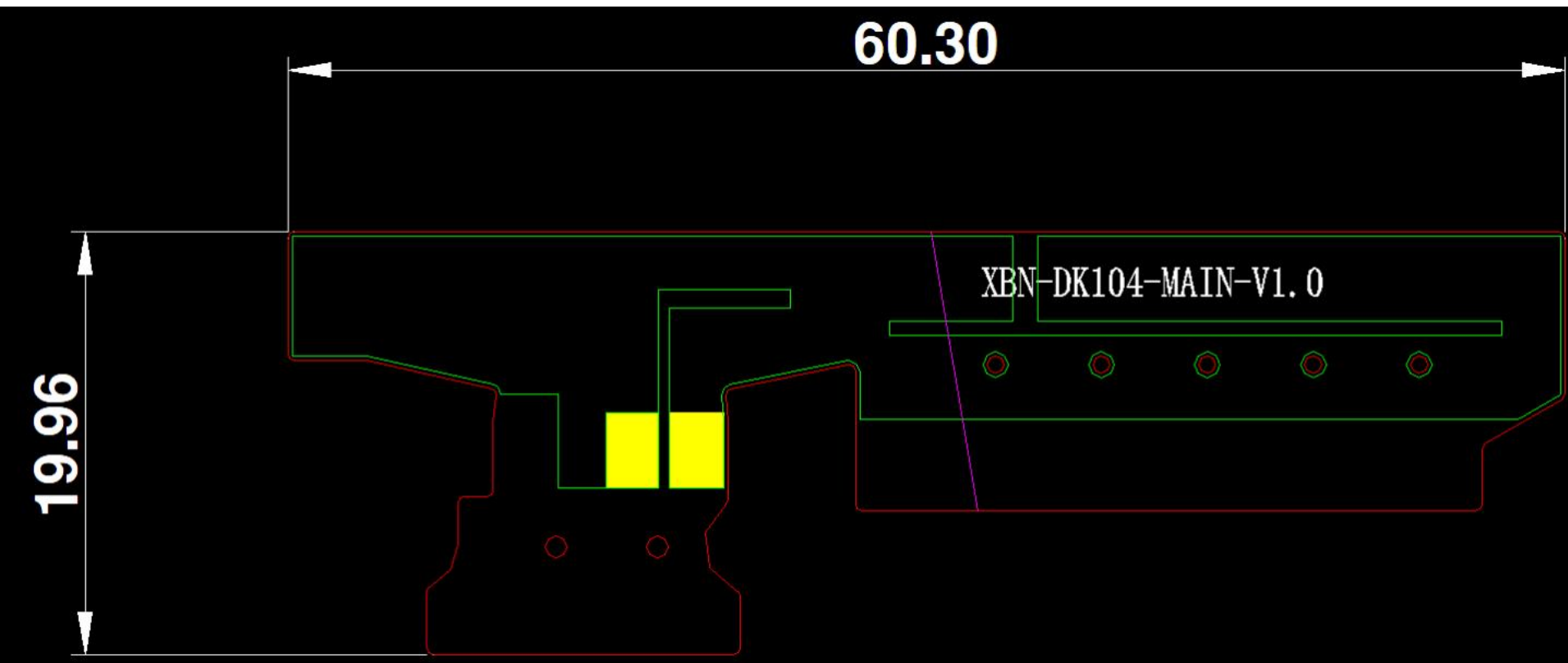
2.4G/5G WIFI

NFC

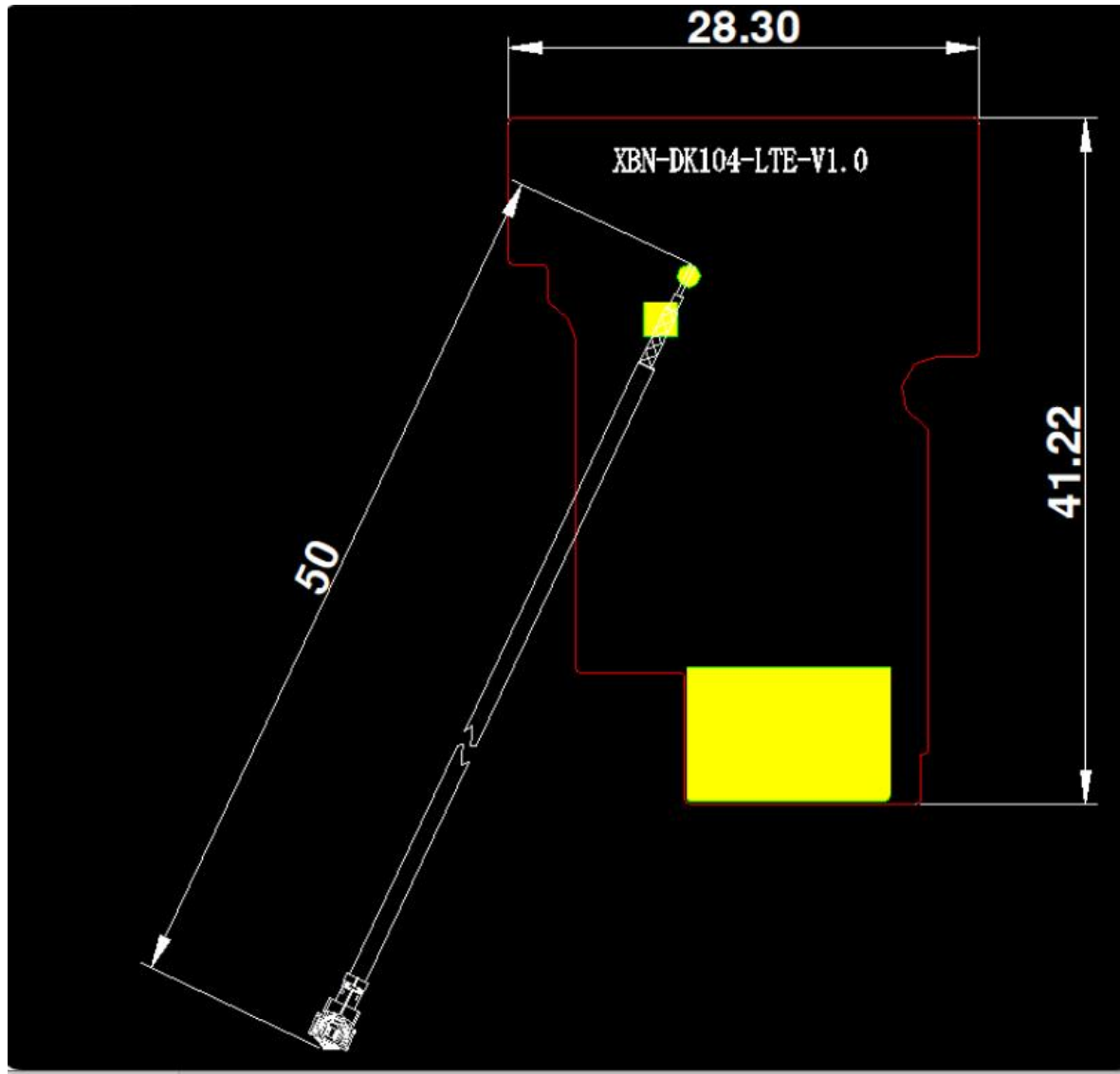
PCB small board (ant0):

0201specs		
Element	Value	PCB Designator
E1 (0201)	22nH	L0029
E2 (0201)	3pF	C0014
E3 (0201)	12nH	L0031
E4 (0201)	0 Ω	C1



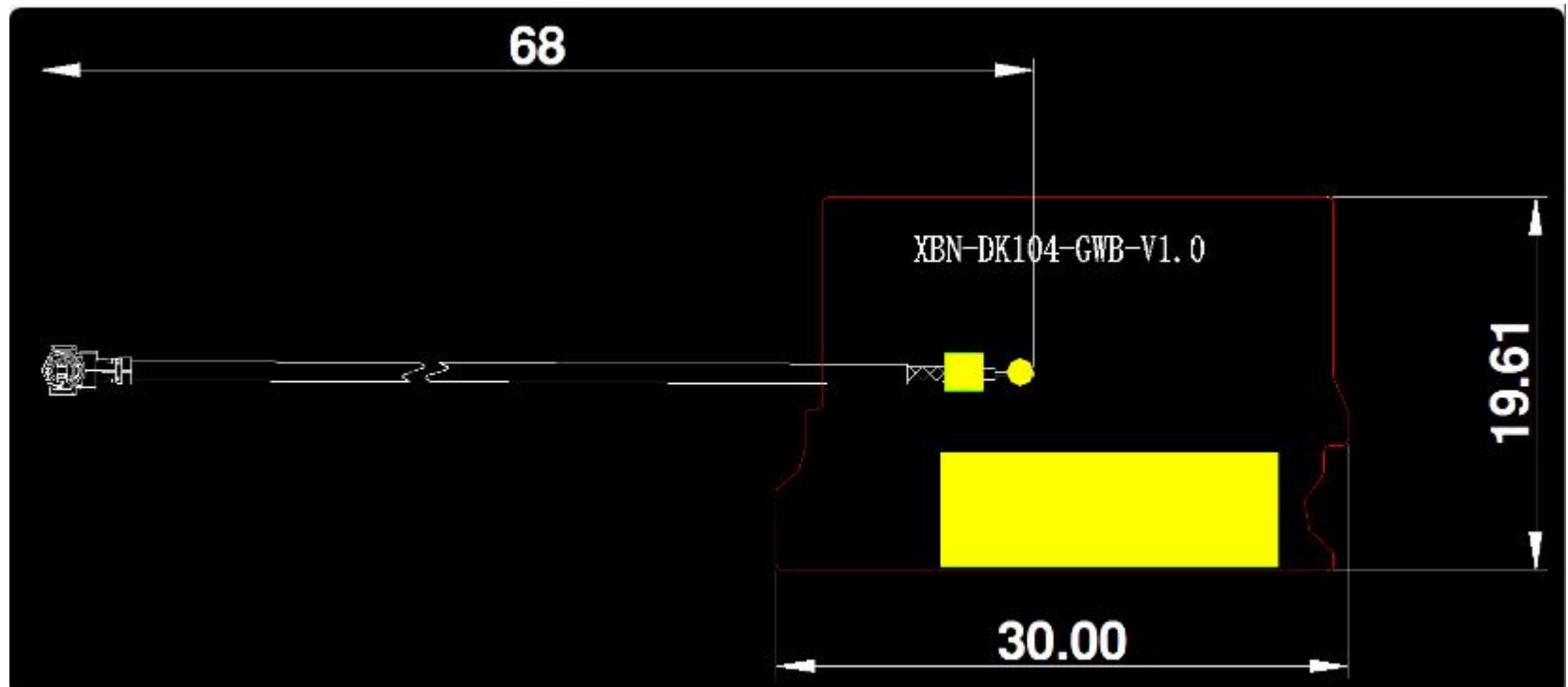


ant0



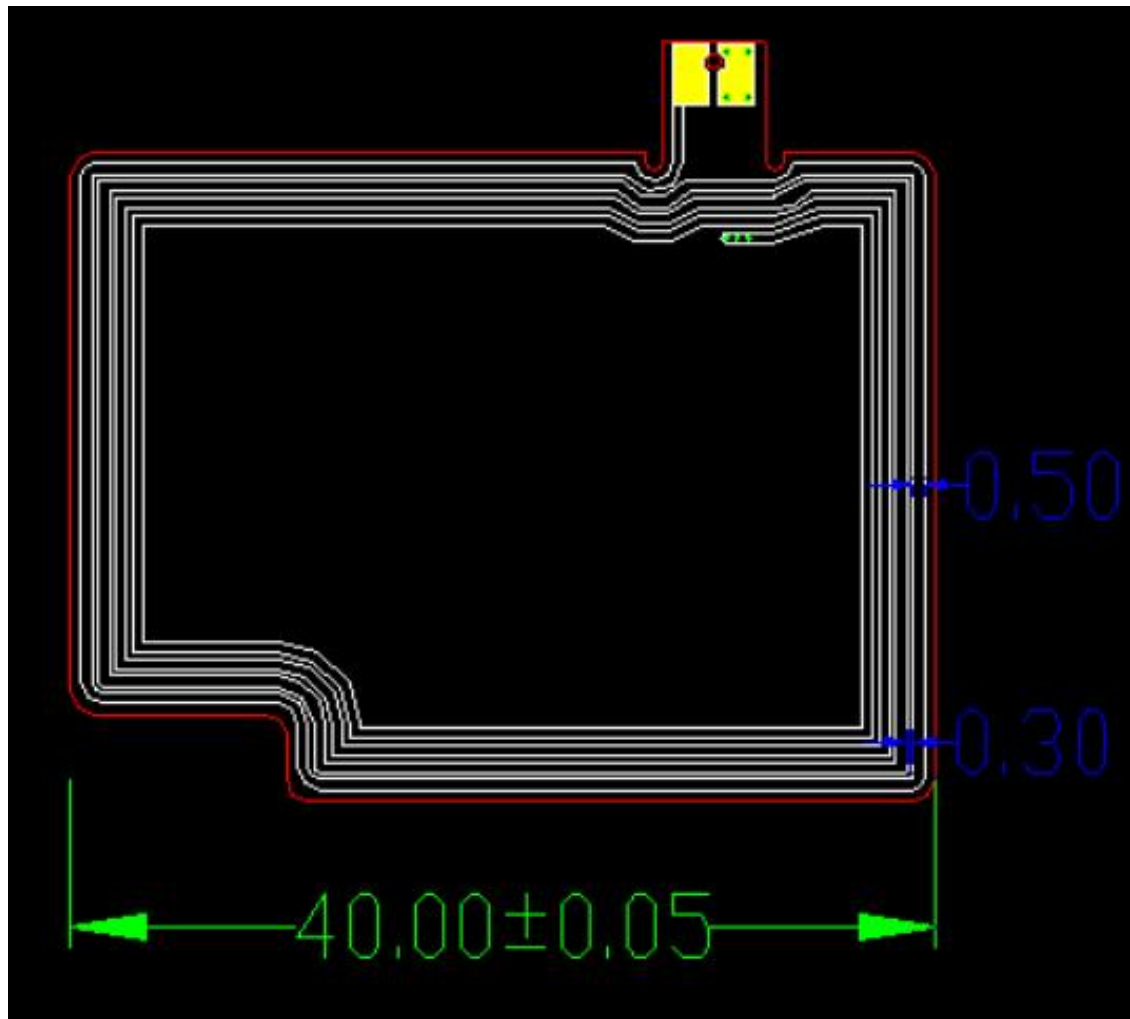
ant1

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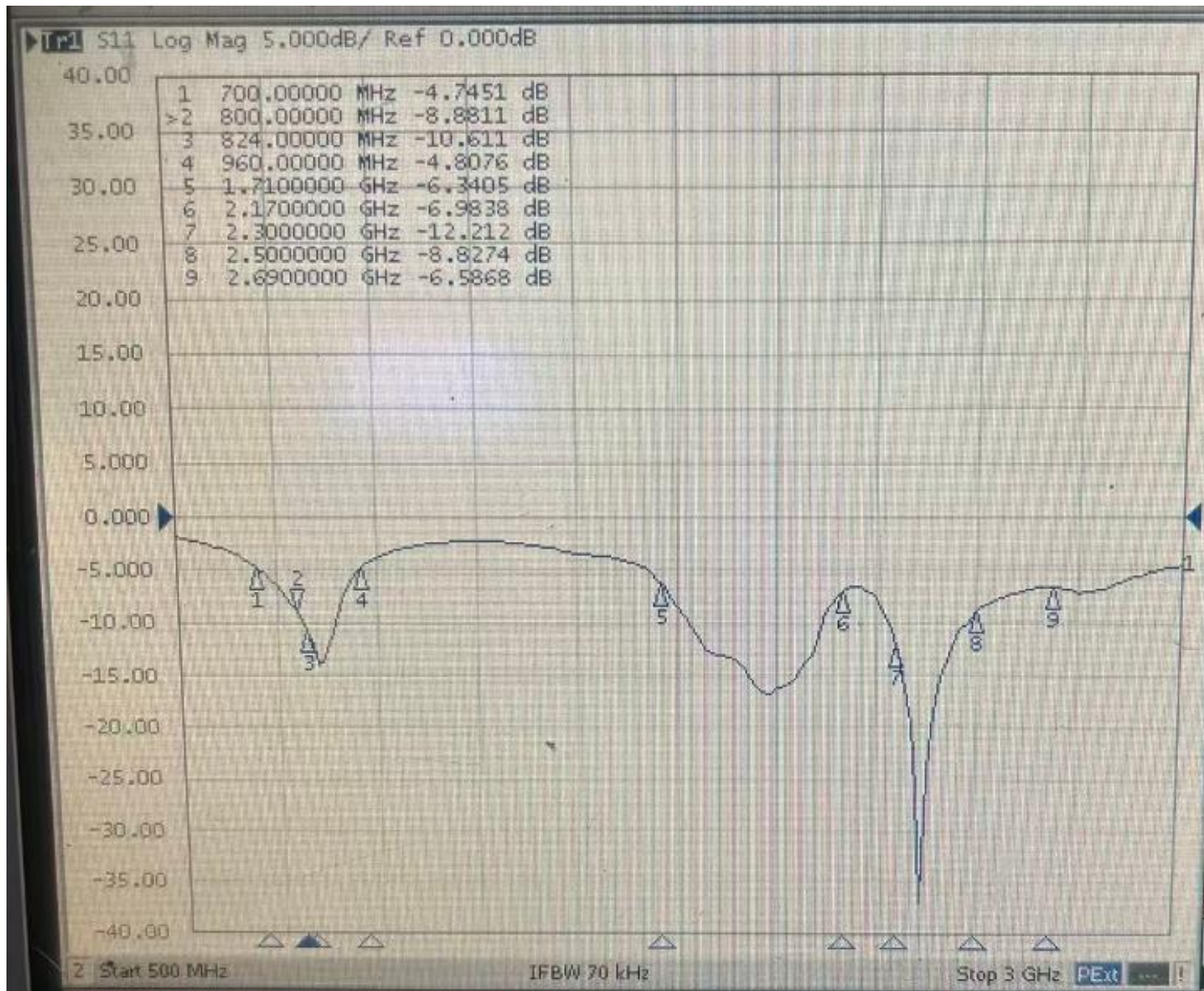
GWB

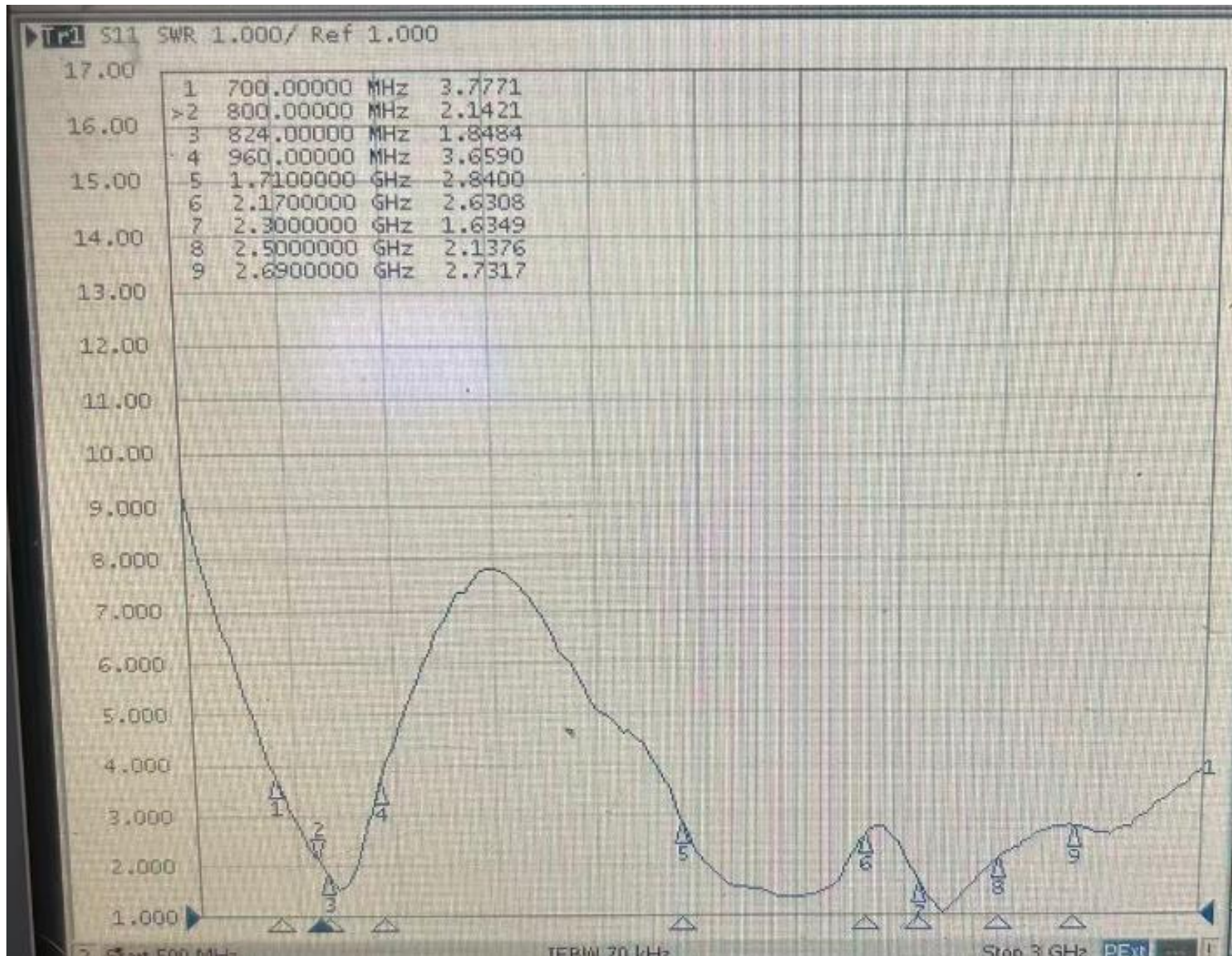
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NFC

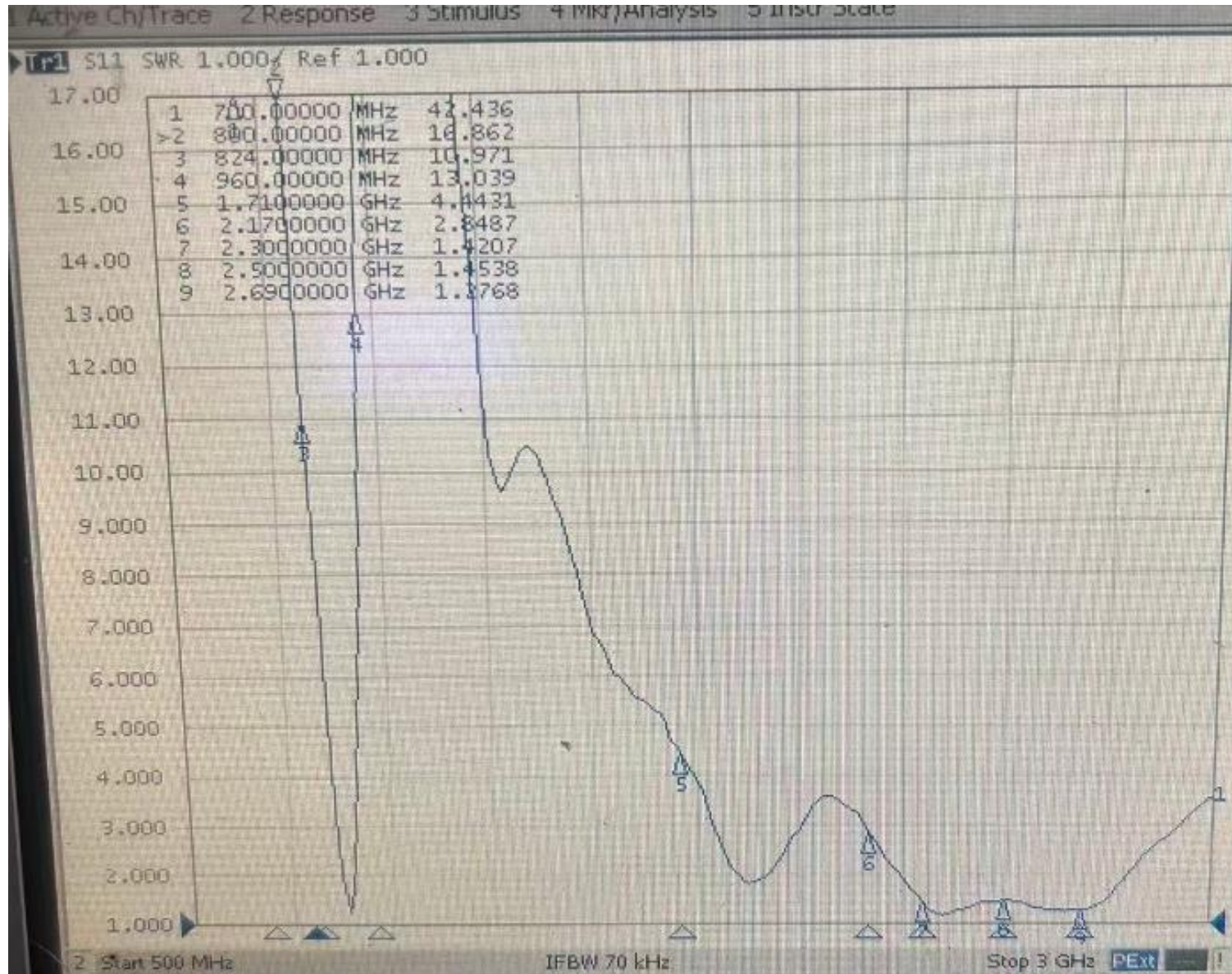
Shenzhen Xinbino Communication Technology Co., Ltd



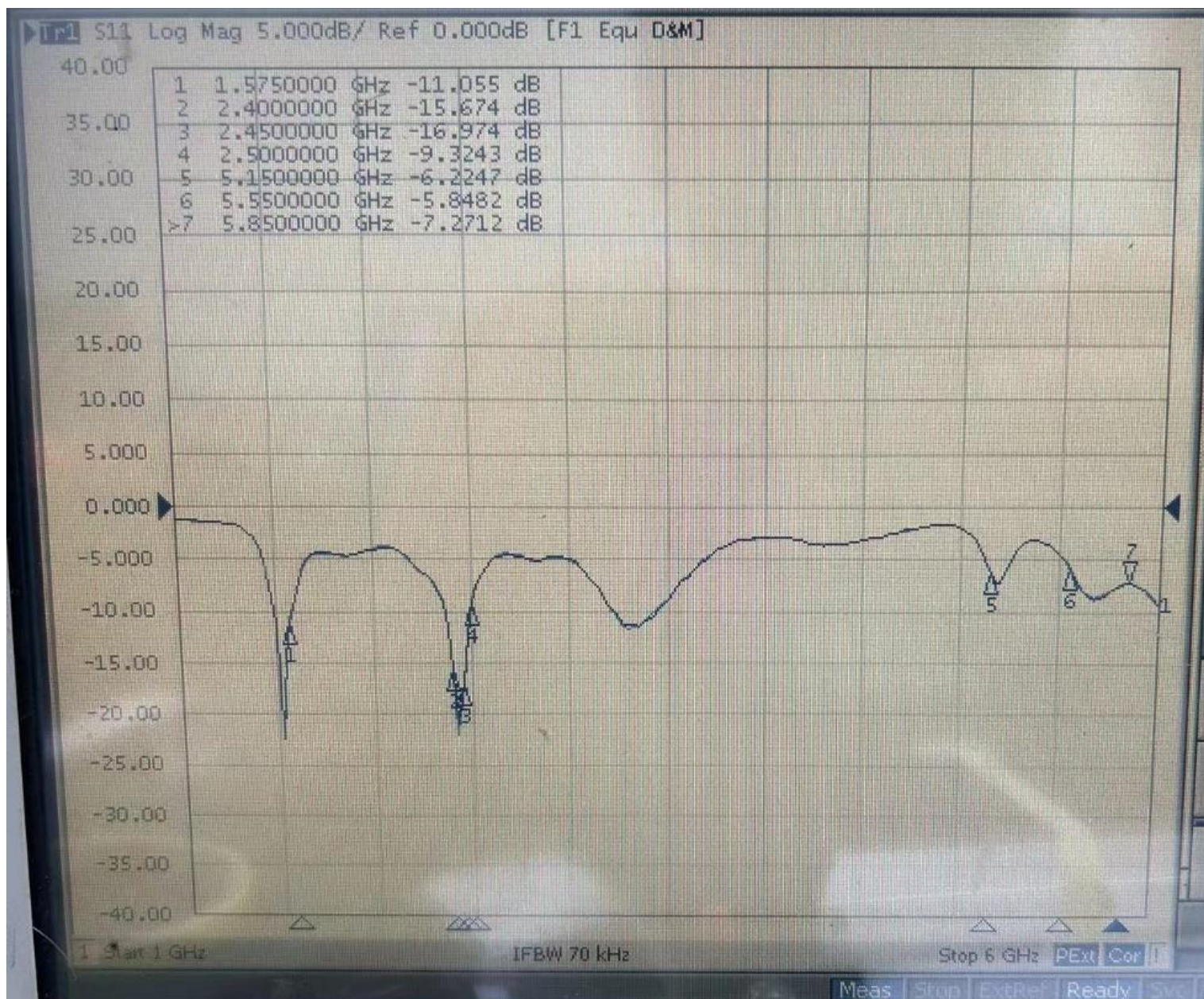


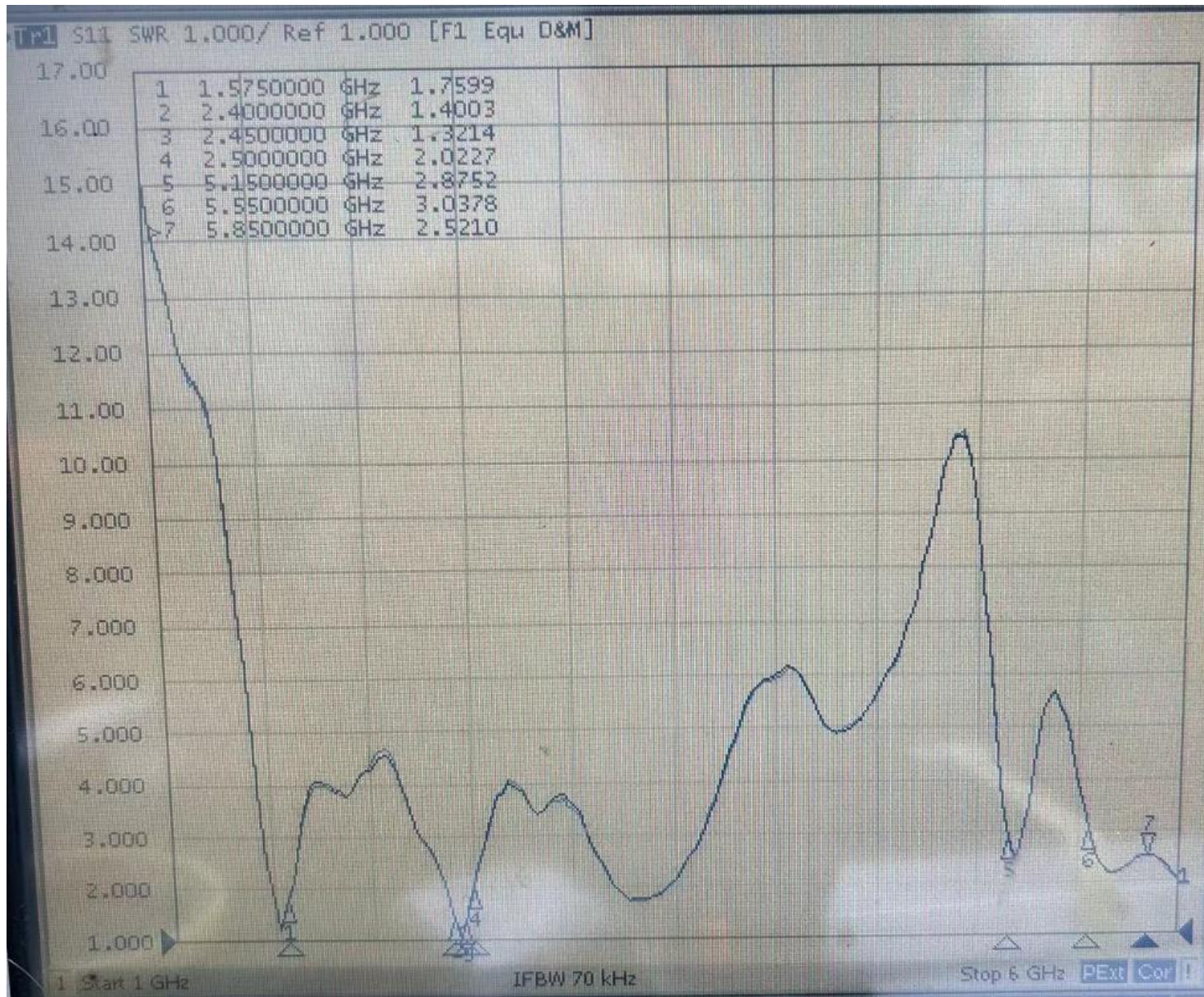
ant1 antenna LOG MAG





GPS/Wifi/BT antenna LOG MAG







ant0 Antenna gain

Frequency（MHZ）	Average Gain(dBi)	Peak Gain(dBi)	Frequency（MHZ）	Average Gain(dBi)	Peak Gain(dBi)
GSM850	-5.8	-2.7	LTE B18	-5.6	-2.5
GSM900	-6.2	-3.1	LTE B19	-6.1	-3.3
DCS1800	-5.1	-0.5	LTE B20	-5.7	-2.6
PCS1900	-4.1	0.7	LTE B26	-5.9	-2.8
WCDMA B1	-4.9	-0.1	LTE B28a	-6.5	-3.5
WCDMA B2	-4.5	0.3	LTE B28b	-6.6	-3.5
WCDMA B4	-4.7	0.1	LTE B66	-5.5	-0.8
WCDMA B5	-5.8	-2.7	LTE B38	-4.2	0.8
WCDMA B8	-6.1	-3.1	LTE B40	-4.5	0.5
LTE B1	-4.9	-0.1	LTE B41	-4.9	-0.2
LTE B2	-4.5	0.3	BC0	-5.8	-2.7
LTE B3	-5.1	-0.5	BC1	-4.1	0.7
LTE B4	-4.7	0.1	BC10	-6.1	-3.3
LTE B5	-5.8	-2.7	BT: 2402-2480MHz	-4.9	-0.3
LTE B7	-4.8	-0.1	WIFI 2.4G: 2412-2462MHz	-4.9	-0.3
LTE B8	-6.2	-3.1	5745-5825MHz	-6.2	-1.5
LTE B12	-6.8	-3.7	GPS	-4.7	-0.3
LTE B13	-5.9	-2.5	NFC 13.56MHz		
LTE B17	-6.7	-3.6			



OTA test data

OTA Testing				
GSM	Band	Channal	TRP	Screen-off TIS
	GSM850	128	26.8	
		190	27.1	
		251	27.5	-102.1
	EGSM	1	27.2	
		62	26.6	
		124	26.1	-101.2
	DCS	512	23.8	
		698	24.1	
		885	25.2	-103.1
	PCS	512	25.6	
		661	25.1	
		810	25.1	-103.2



OTA test data

OTA Testing			
Band	Channa1	TRP	Screen-off TIS
WCDMA-B1	10562	18.8	
	10700	18.8	
	10838	18.8	-102.8
WCDMA-B2	9662	17.8	
	9800	17.5	
	9938	17.4	-103.5
WCDMA-B4	1538	17.6	
	1675	17.3	
	1738	17.5	-102.8
WCDMA-B5	4357	17.2	
	4410	17.2	
	4458	17.4	-103.7
WCDMA-B8	2937	17.1	
	3013	17.6	
	3088	17.1	-102.1



OTA test data

OTA Testing				
FDD	Band	Channal	TRP	Screen-off TIS
	B1	50	18.9	
		300	19.2	
		550	19.5	-94.7
	B2	650	18.6	
		900	18.9	
		1150	18.8	-94.8
	B3	1250	18.5	
		1575	18.7	
		1900	18.9	-93.3
	B4	2000	19.1	
		2175	19.2	
		2350	19.4	-95.7



OTA test data

OTA Testing				
FDD	Band	Channal	TRP	Screen-off TIS
	B5	2450	18.2	
		2525	18.1	
		2600	18.2	-93.1
	B7	2800	19.5	
		3100	19.4	
		3400	19.7	-95.4
	B8	3500	17.8	
		3625	18.1	
		3750	18.2	-91.7
	B12	5060	14.5	
		5095	16.1	
		5130	16.3	-91.3

OTA Testing				
FDD	Band	Channel	TRP	Screen-off TIS
	B13			
		5230	18.5	-90.9
	B17	5780	15.4	
		5790	16.3	
		5800	16.8	-90.4
	B18	5900	18.2	
		5925	18.3	
		5950	18.2	-91.9
	B19	6050	17.8	
		6075	17.7	
		6100	17.8	-92.3

30TA Testing				
FDD	Band	Channal	TRP	Screen-off TIS
	B20	6200	17.8	
		6300	18.3	
		6400	17.4	-92.6
	B26	8740	17.8	
		8865	17.8	
		8990	18.2	-91.7
	B28A	9310	16.1	
		9360	16.5	
		9410	17.1	-92.3
	B28B	9460	16.5	
		9510	17.3	
		9560	17.9	-92.5
	B66	66536	18.9	
		66786	18.8	
		67036	18.9	-92.9

30TA Testing				
TDD	Band	Channal	TRP	Screen-off TIS
	B38	37850	19.3	
		38000	19.7	
		38150	19.9	-91.7
	B40	38750	18.9	
		39150	19.4	
		39550	19.1	-92.7
	B41	40620		
		40140	18.6	-91.1
		41240		

OTA Testing				
CDMA	Band	Channal	TRP	Screen-off TIS
	BC0	L	17.5	
		M	17.2	
		H	17.4	-100.6
	BC1	L	17.4	
		M	17.2	
		H	17.1	-103.2
	BC10	L	17.3	
		M	16.9	
		H	16.5	-100.2



Antenna Test Data

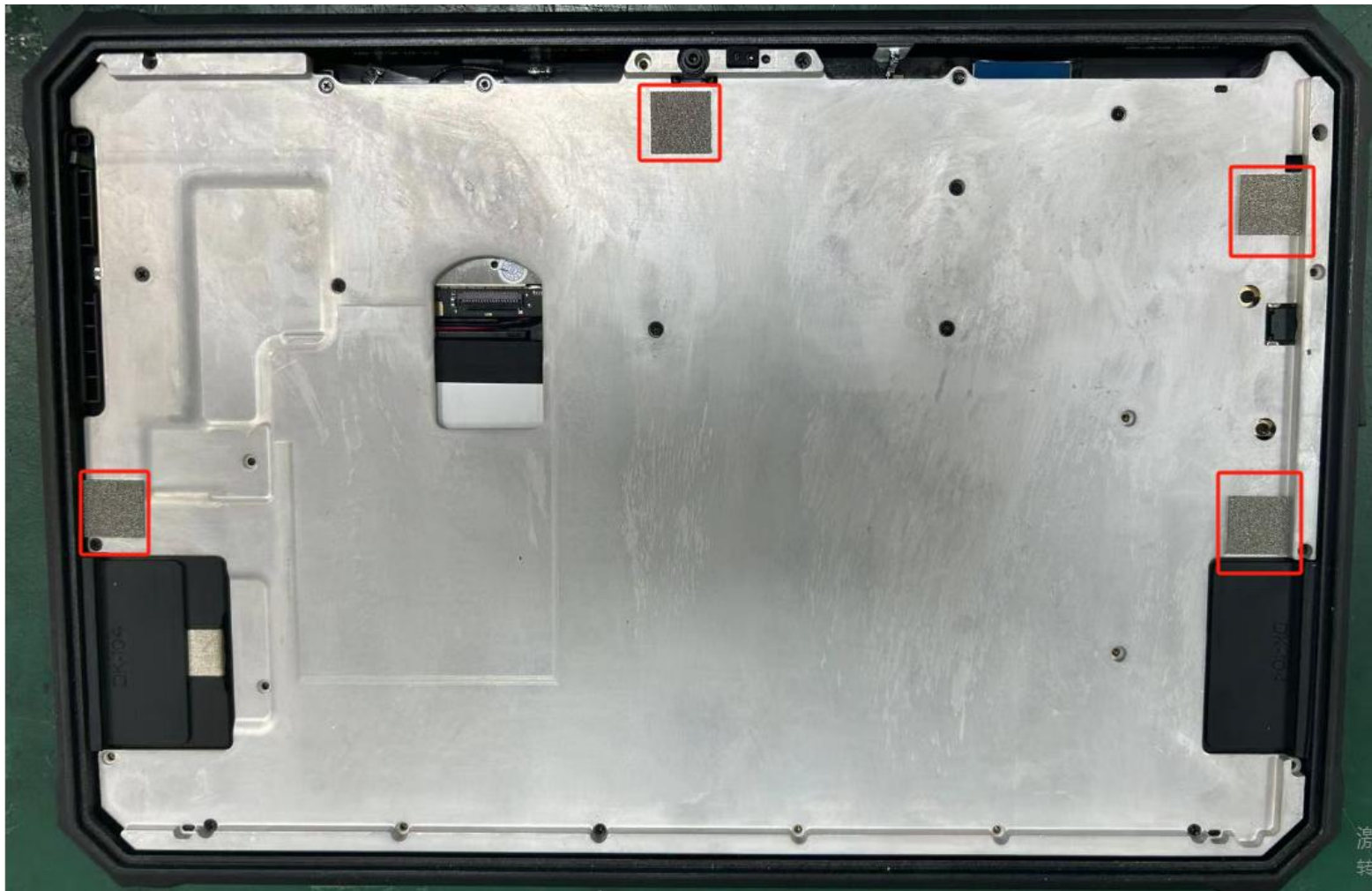
OTA Testing				
2.4G	Band	Channel	TRP	Screen-off TIS
	b (11M)	1	12.8	
		6	13.1	
		13	13.9	-83.1
	g (54M)	1	10.9	
		6	11.2	
		13	11.6	-70.5
	n (MCS7)	1	12.2	
		6	12.1	
		13	12.2	-65.8
5.8G	a (54M)	36	11.1	
		149	11.8	
		165	11.9	-70.1
	n (MCS7)	36	10.1	
		149	11.1	
		165	11.1	-66.3
	AC (MCS8)	36	10.3	
		149	11.4	
		165	11.3	-65.4

GPS antenna field test, Location: Ping'an Avenue
intersection

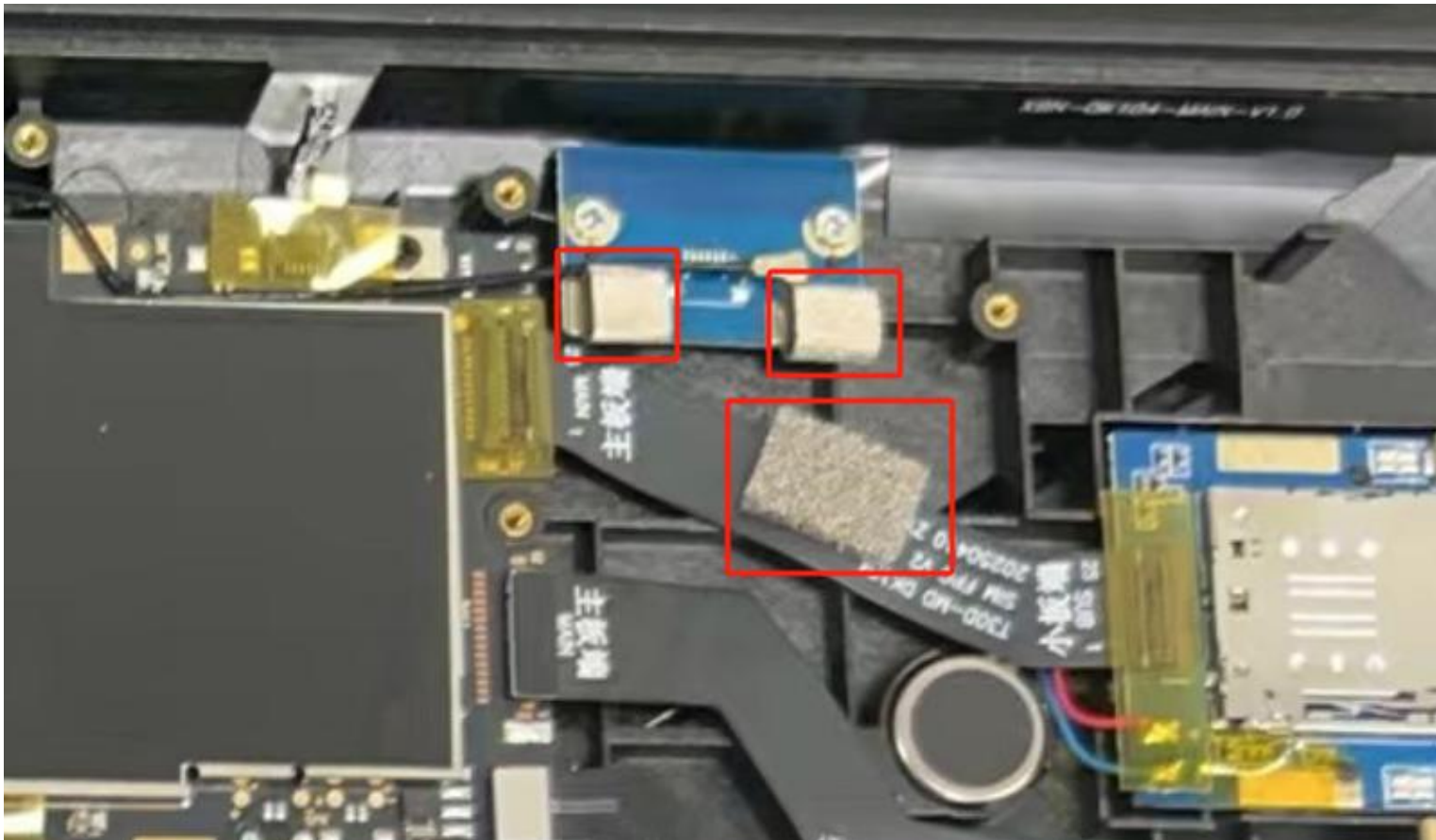
Weather: Sunny

ID	CNR	ID	CNR	ID	CNR
G1	0.0/-/-/-/-/-	G3	0.0/-/-/-/-/-	G10	40.7/-/-/-/-/-
G16	24.9/-/-/-/-/-	G23	0.0/-/-/-/-/-	G25	20.5/-/-/-/-/-
G26	39.5/-/-/-/-/-	G28	39.7/-/-/-/-/-	G29	31.3/-/-/-/-/-
G31	40.7/-/-/-/-/-	G32	36.4/-/-/-/-/-	R68	19.7/-/-/-/-/-
R77	24.8/-/-/-/-/-	B1	0.0/-/-/-/-/-	B2	29.9/-/-/-/-/-
B3	27.5/-/-/-/-/-	B4	26.2/-/-/-/-/-	B5	26.4/-/-/-/-/-
B6	29.6/-/-/-/-/-	B7	0.0/-/-/-/-/-	B8	31.3/-/-/-/-/-
B9	29.7/-/-/-/-/-	B10	0.0/-/-/-/-/-	B13	29.3/-/-/-/-/-
B16	0.0/-/-/-/-/-	B21	24.8/-/-/-/-/-	B24	35.3/-/-/-/-/-
B25	30.3/-/-/-/-/-	B26	25.2/-/-/-/-/-	B33	31.2/-/-/-/-/-
B57	0.0/-/-/-/-/-	B59	0.0/-/-/-/-/-	B60	0.0/-/-/-/-/-
B61	0.0/-/-/-/-/-	B62	0.0/-/-/-/-/-	Q2	22.3/-/-/-/-/-
S45	27.0/-/-/-/-/-				

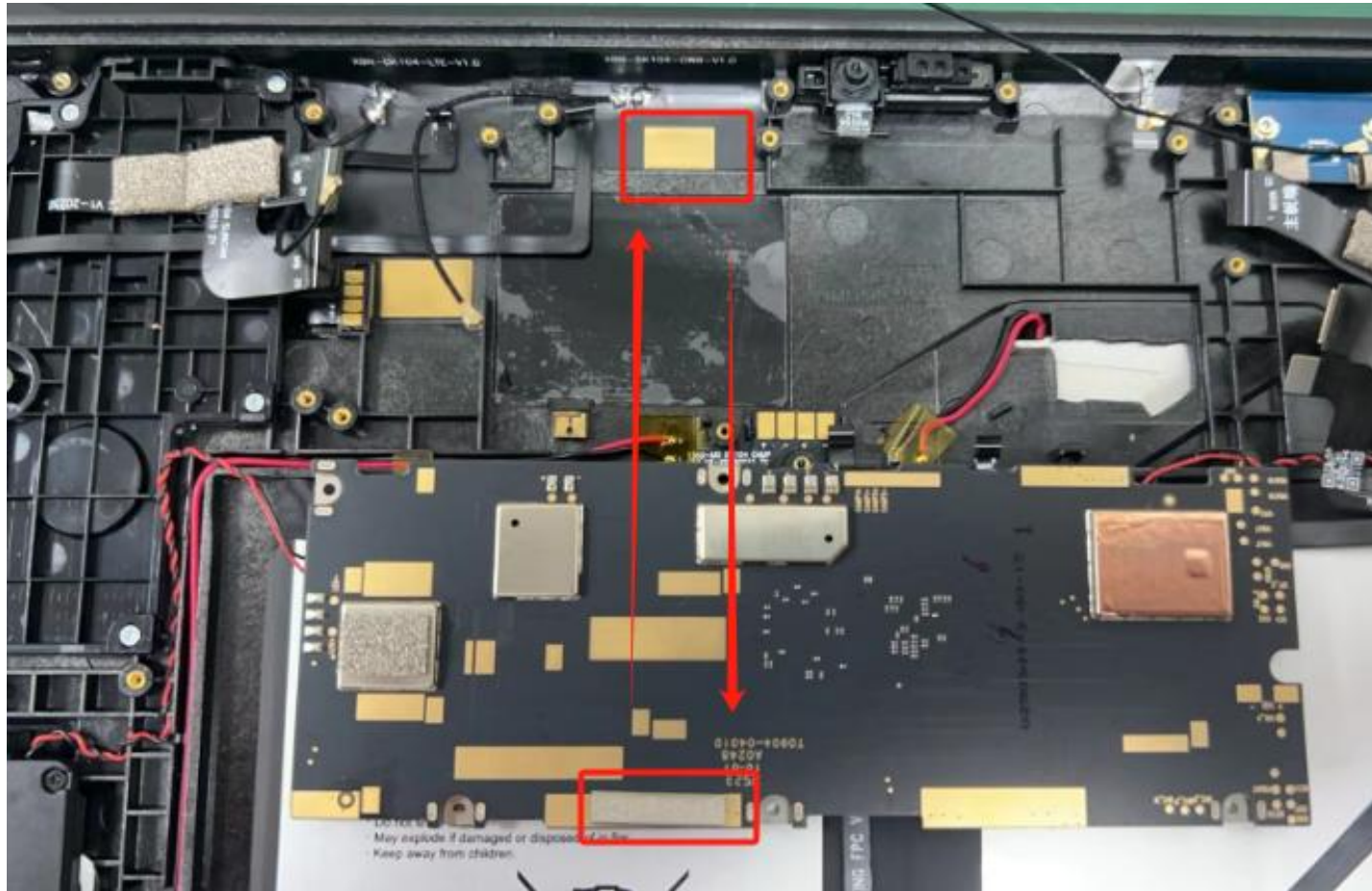
As shown in the figure: the conductive sponge attached to the metal middle frame within the red box is grounded at multiple points with the shielding metal area, effectively reducing TIS screen interference.



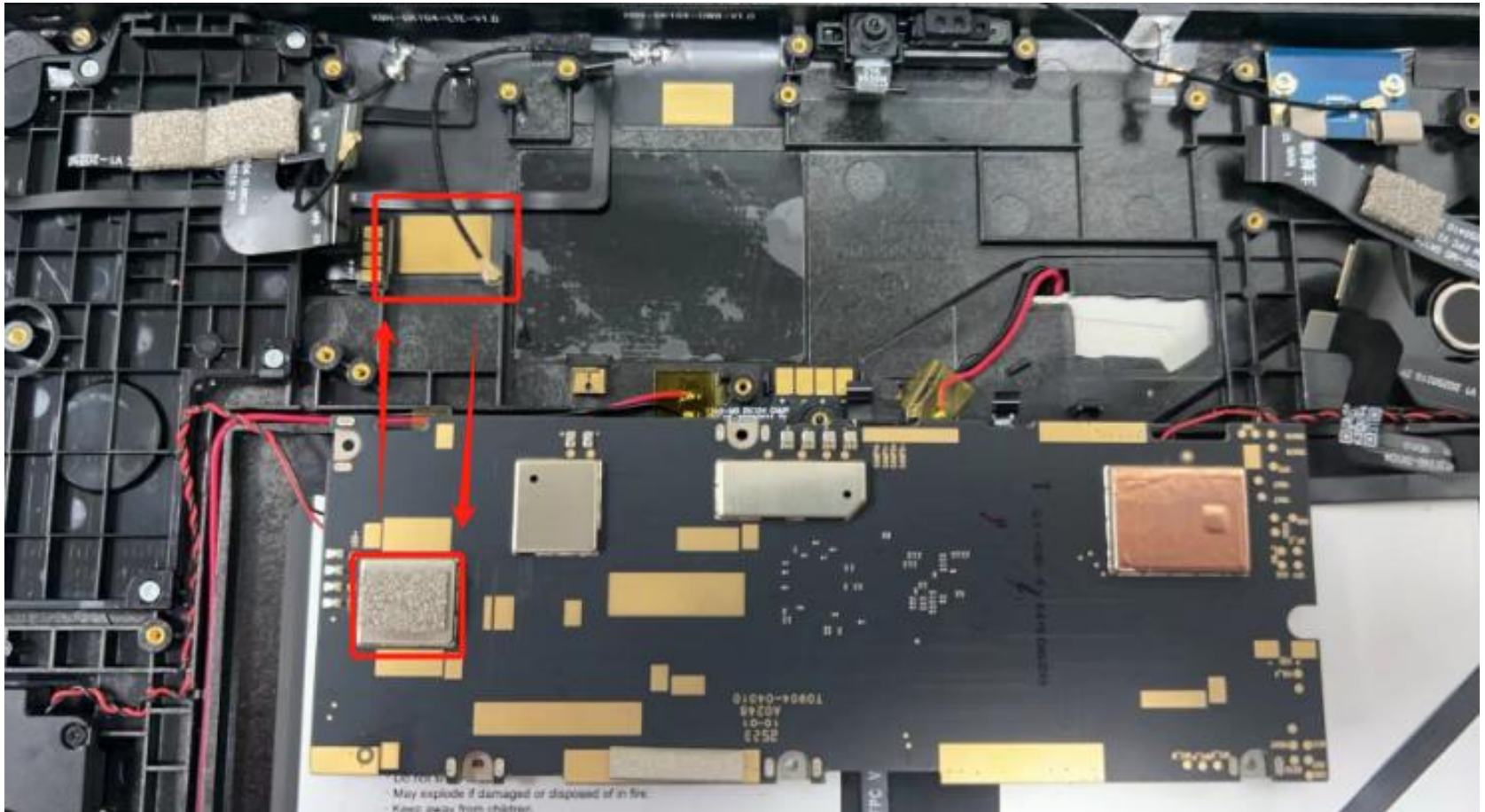
As shown in the figure: 1. Add conductive foam to the exposed copper area on the back of the small board to ground it to the zinc alloy middle frame (the height of the conductive foam on the small board shares the same specification as the conductive foam used for grounding the mainboard and WiFi antenna). 2. Add conductive sponge to the exposed copper area of the SIM card slot flex cable to ensure full grounding with the metal middle frame.



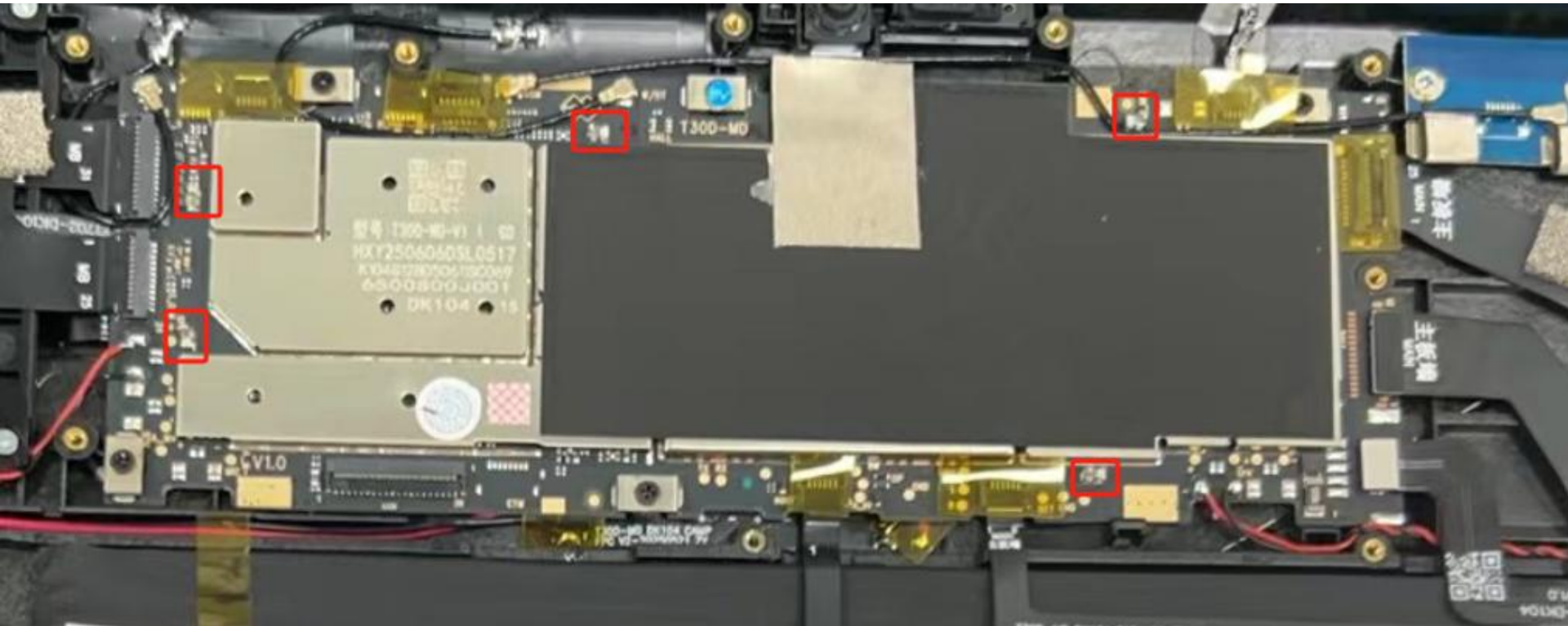
As shown in the figure: Add conductive foam to the exposed copper areas on the back of the motherboard within the red box to ensure proper grounding with the exposed copper areas of the tri-band antenna.



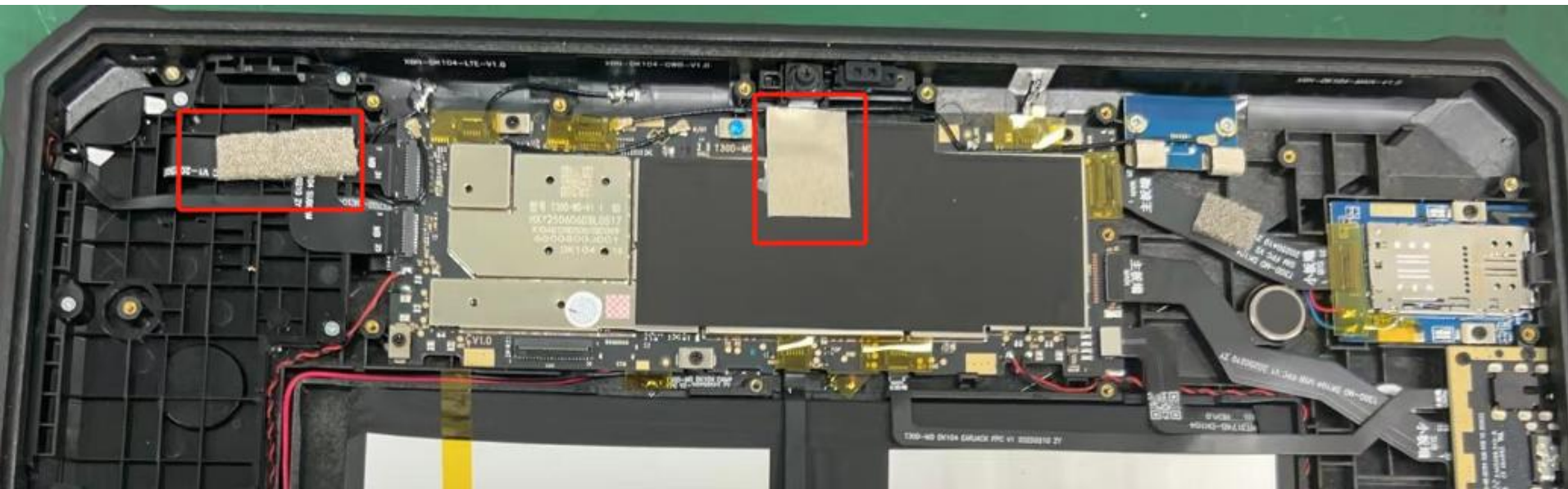
As shown in the figure: a conductive sponge is added above the shielding cover on the back of the motherboard within the red frame to ground the exposed copper area of the diversity antenna.



As shown in the figure: The motherboard is grounded at multiple points with the metal middle frame through spring clips, and the middle frame is laser-engraved at the corresponding positions of the spring clips.

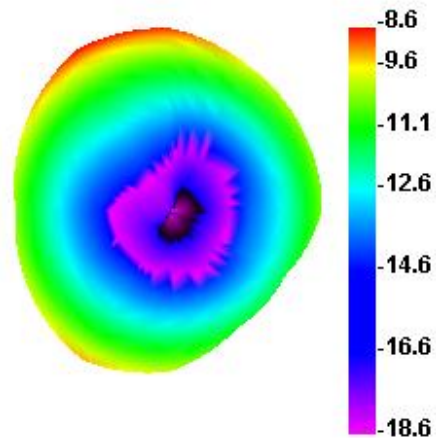


As shown in the figure: add a 2mm high conductive sponge at the exposed copper area of the rear camera flex cable to ground it to the middle frame zinc alloy. For the front camera flex cable, extend a large strip of conductive fabric over the top of the motherboard shielding cover (apply insulating tape at the flex cable interface first to prevent short circuits).

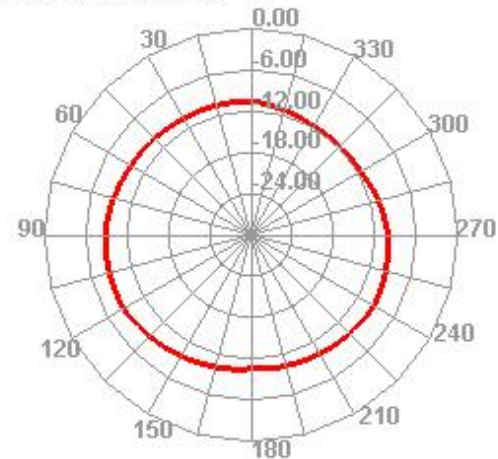


We, HONG KONG LELEGAO TECHNOLOGY CO., LIMITED, states that All measurements were performed radiated and therefore additional antenna gain documentation is not required for NFC antenna.

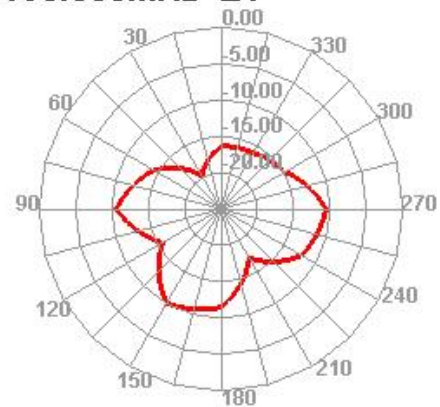
690.000MHz



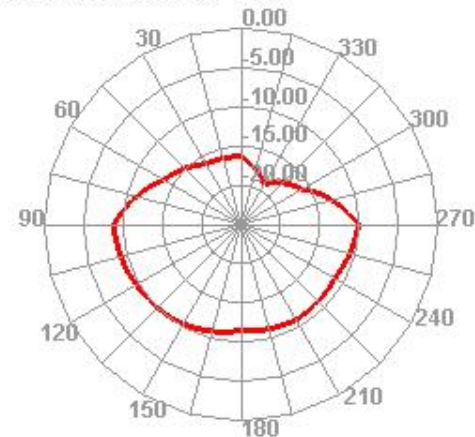
690.000MHz H



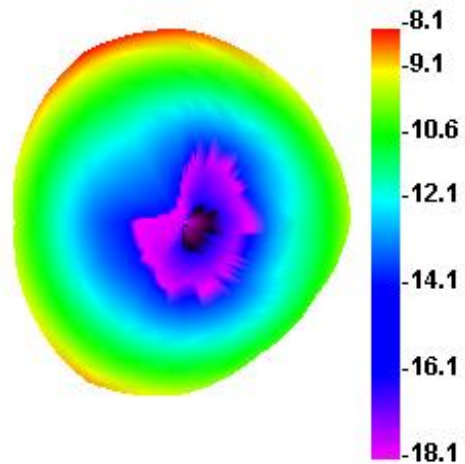
690.000MHz E1



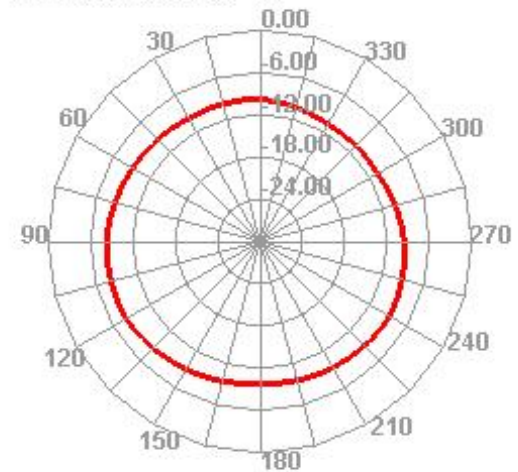
690.000MHz E2



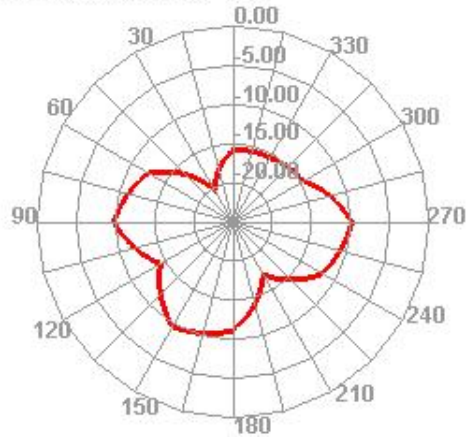
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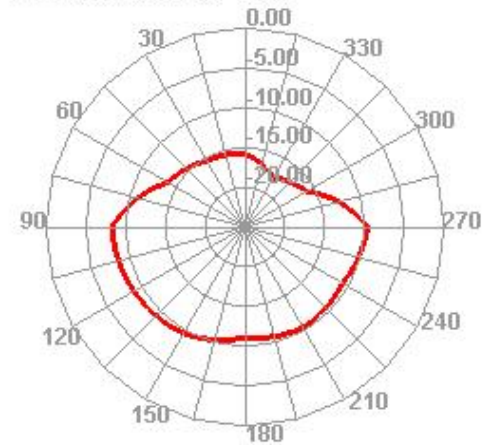
700.000MHz H



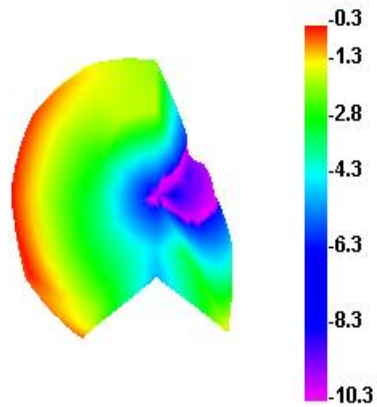
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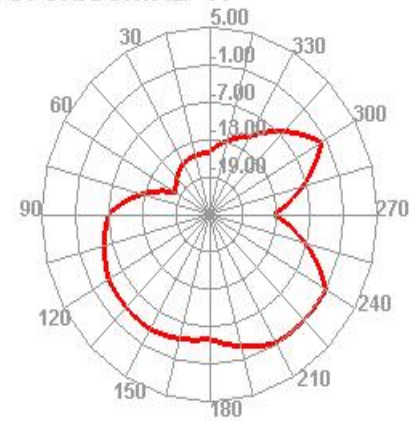
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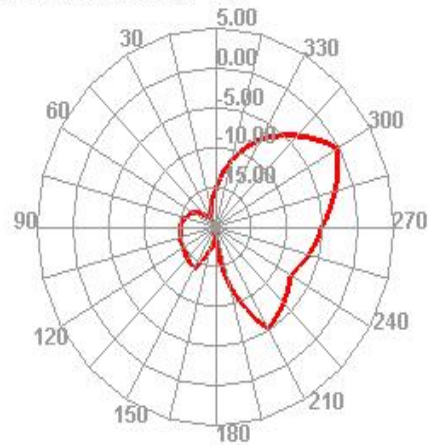
870.000MHz



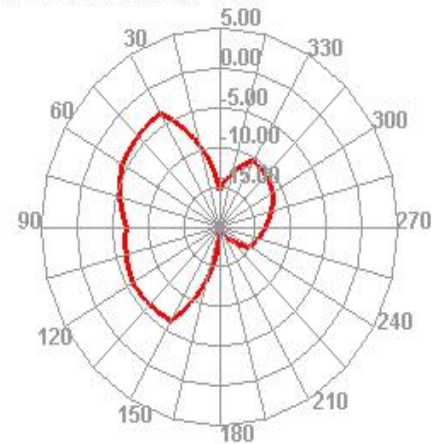
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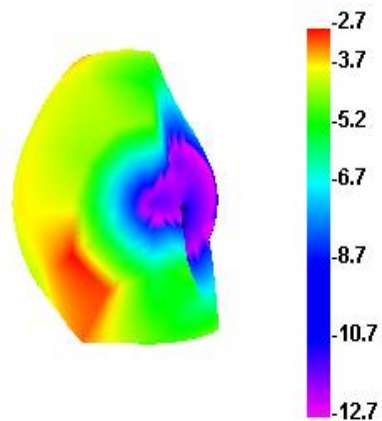
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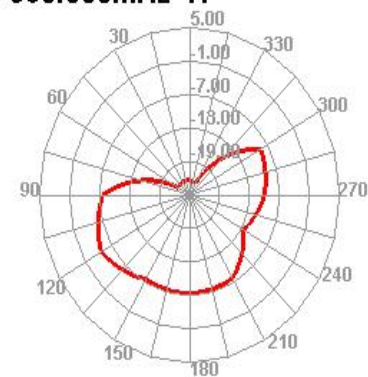
870.000MHz E2



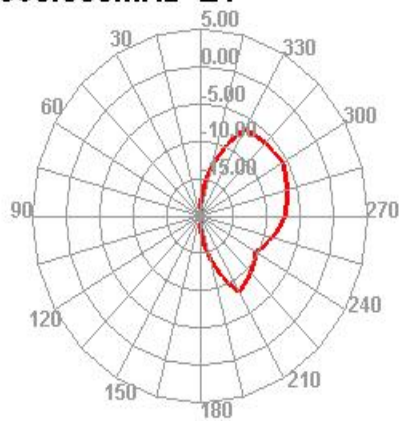
960.000MHz



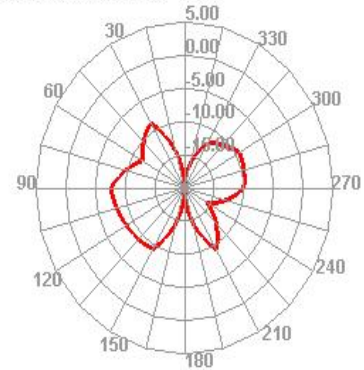
960.000MHz H



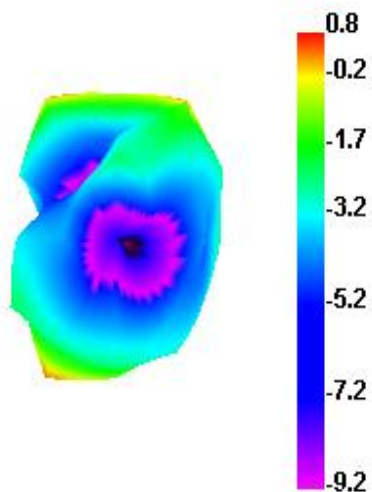
960.000MHz E1



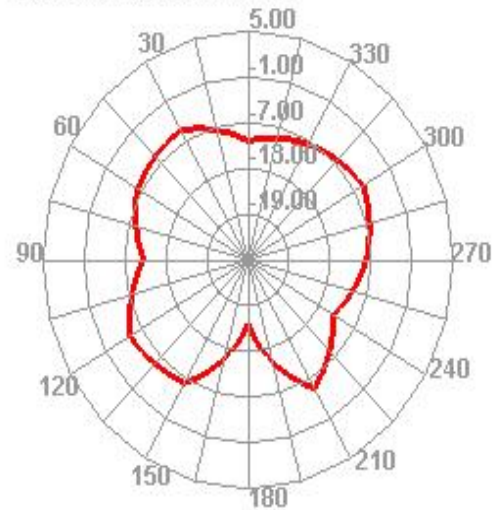
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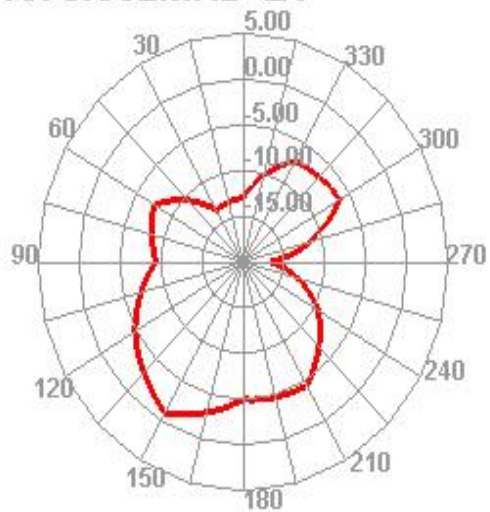
1573.332MHz



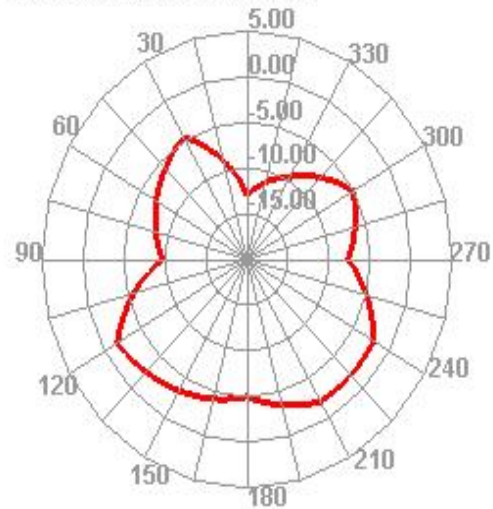
1573.332MHz H



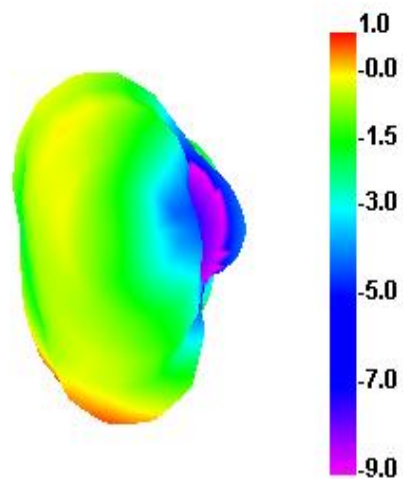
1573.332MHz E1



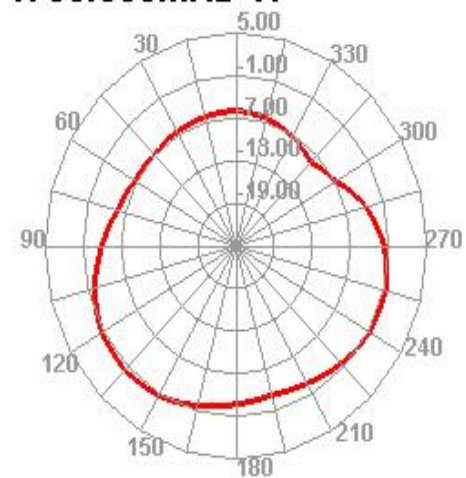
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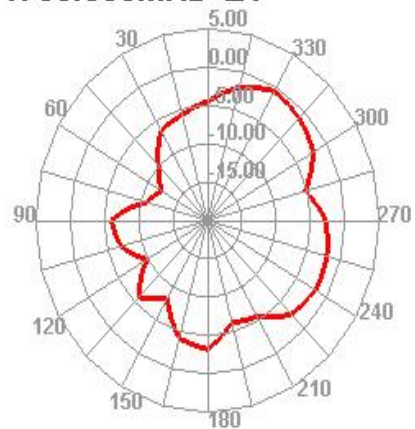
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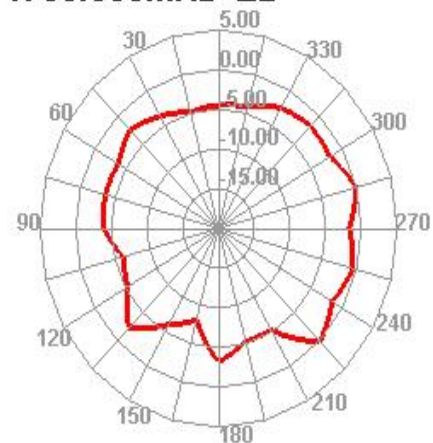
1700.000MHz H



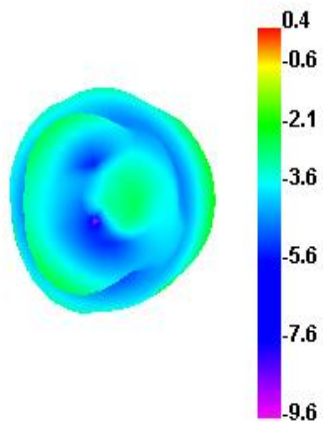
1700.000MHz E1



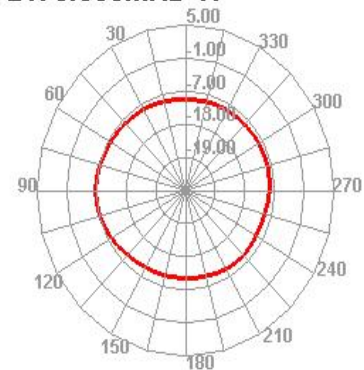
1700.000MHz E2



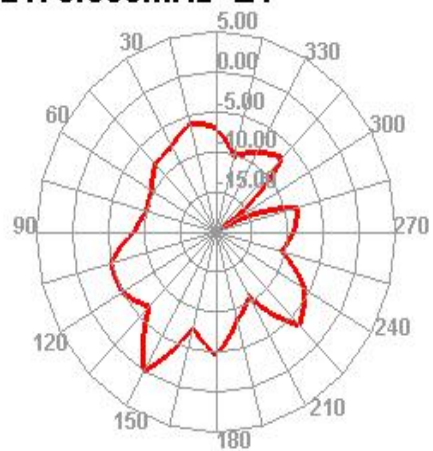
2170.000MHz



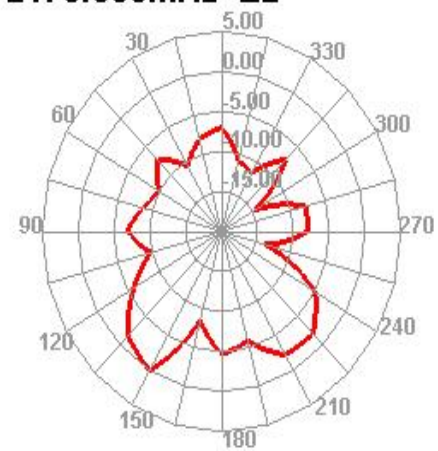
2170.000MHz H



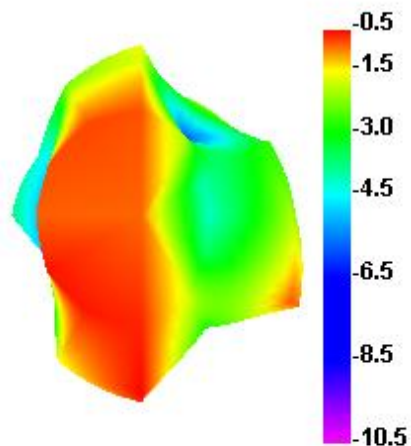
2170.000MHz E1



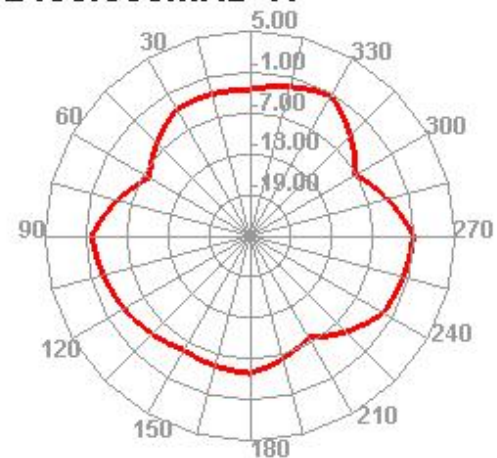
2170.000MHz E2



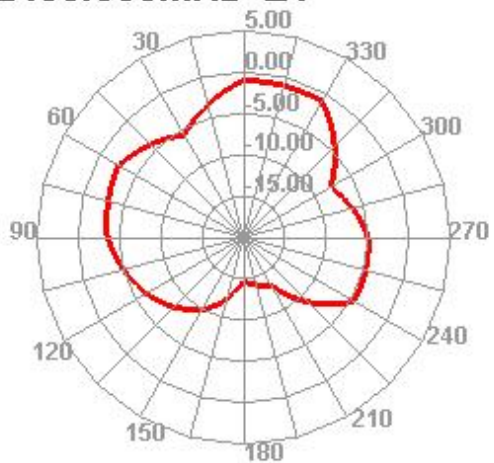
2400.000MHz



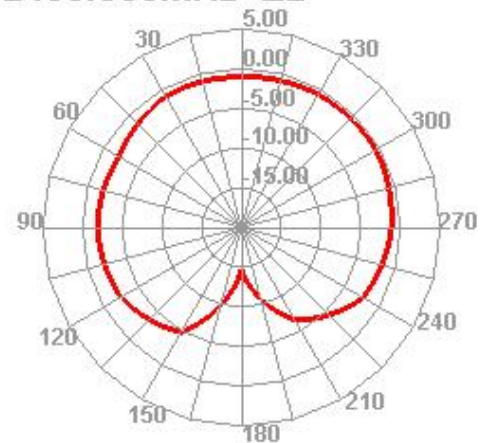
2400.000MHz H



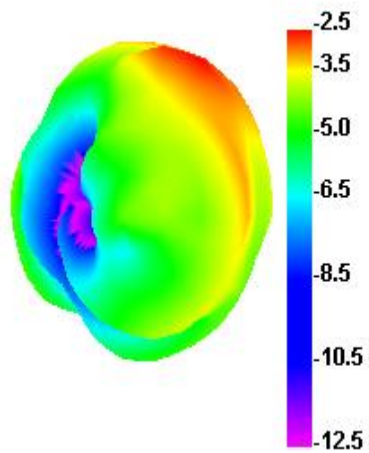
2400.000MHz E1



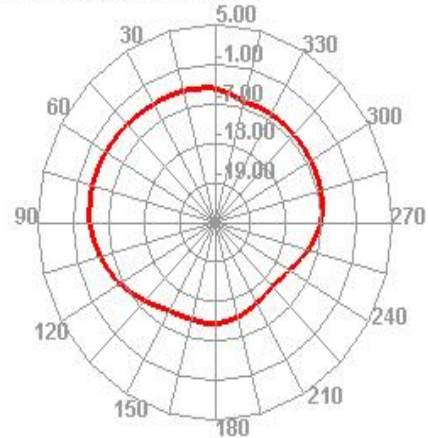
2400.000MHz E2



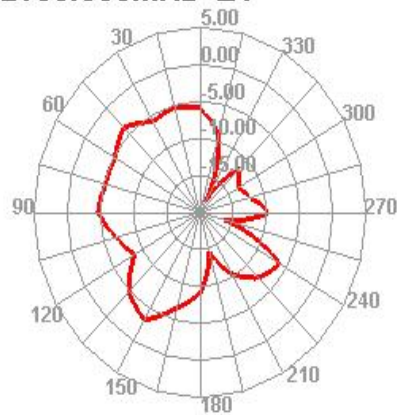
2650.000MHz



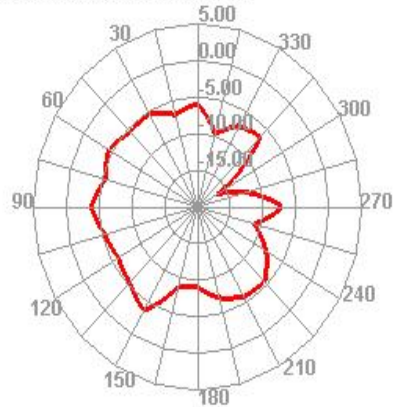
2650.000MHz H



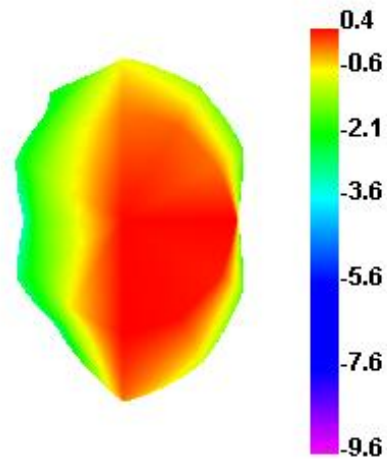
2650.000MHz E1



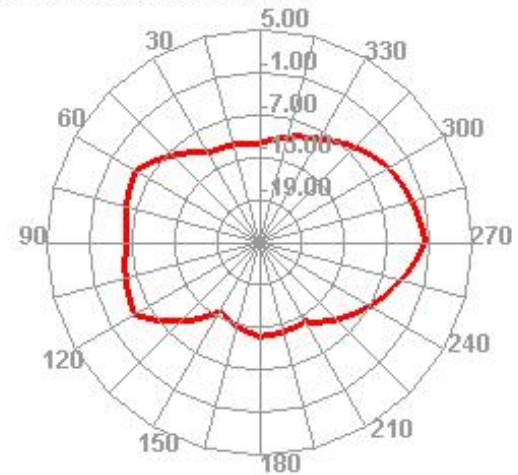
2650.000MHz E2



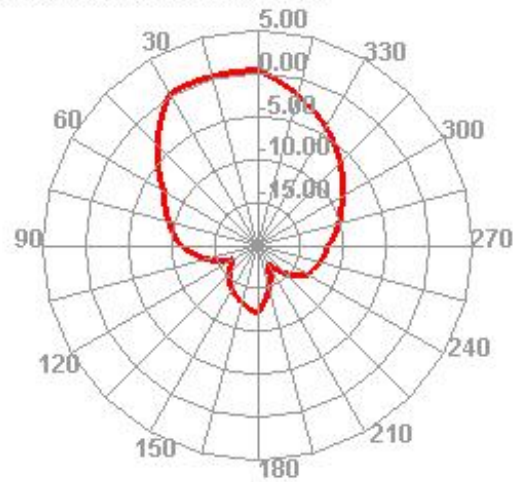
5100.000MHz



5100.000MHz H



5100.000MHz E1



5100.000MHz E2

