Antenna Part Specification

Project name：	BDB001
Material category：	BT antenna
Version：	V2.0
Date：	2024.01.17

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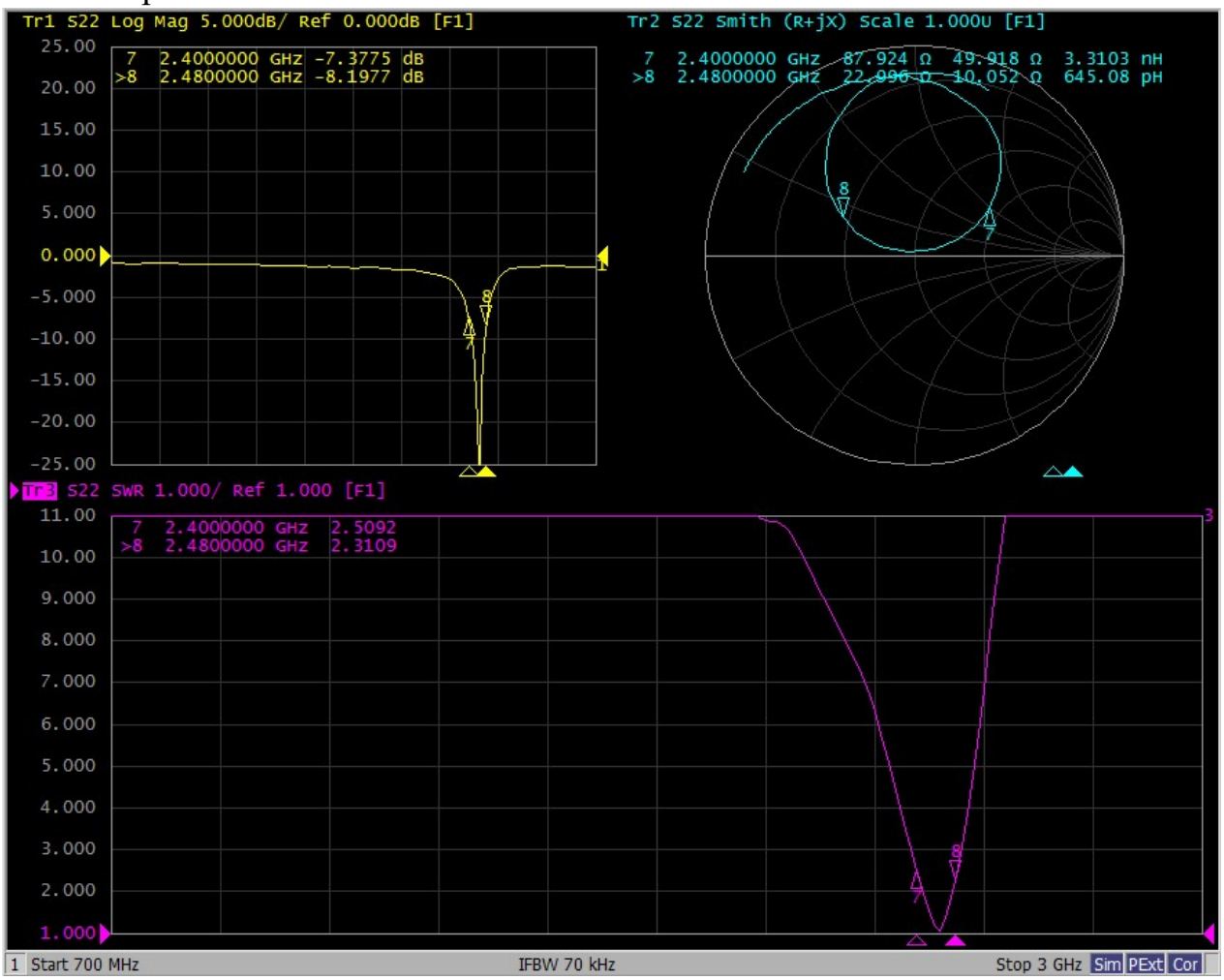
Change record			
Compile / change date	Reason for change	Changed content	Version
2024.01.11	First edition	First edition	V1.0
2024.01.17	Antenna update	Optimize antenna	V2.0

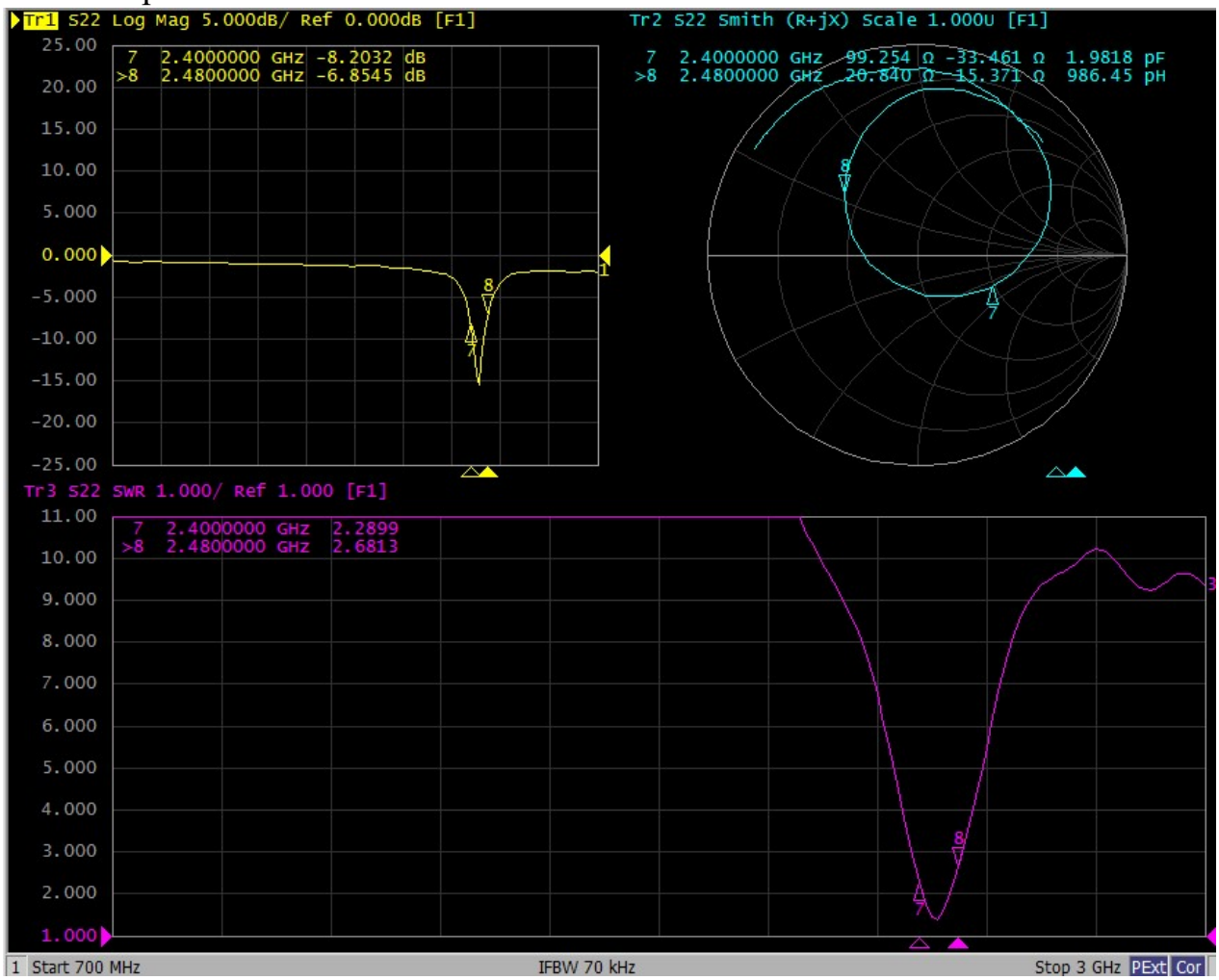
I: The report of passive data

Angilent E5071C

VSWR parameter（L）：



VSWR parameter（R）：

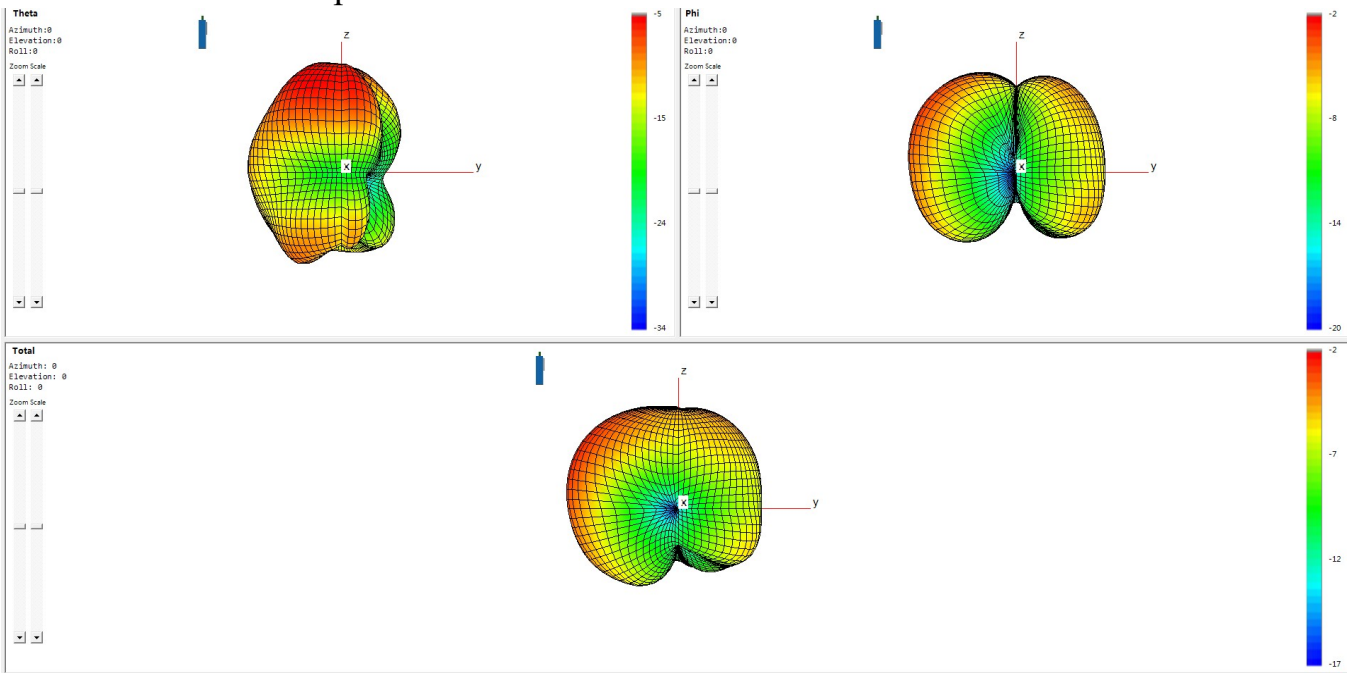


Efficiency：

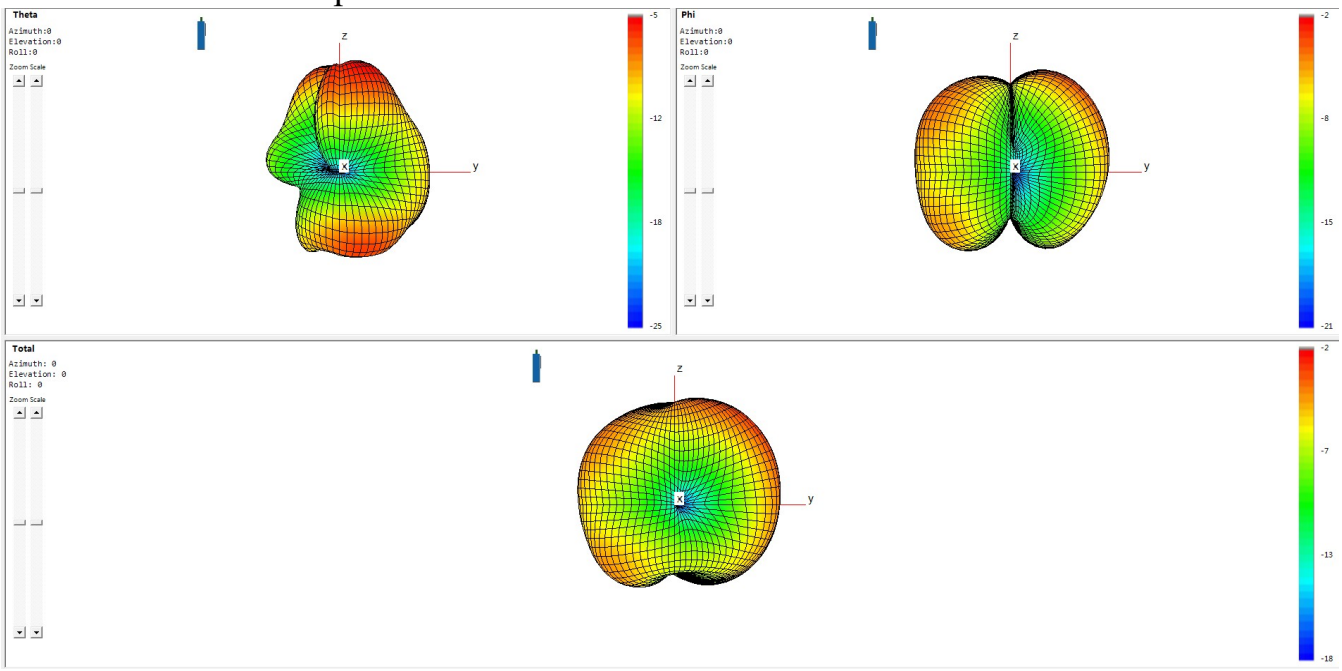
L			
Frequency（MHz）	Efficiency	Efficiency (dB)	Gain (dBi)
2400	23.9	-6.2	-2.4
2410	26.8	-5.7	-1.8
2420	28.3	-5.5	-1.3
2430	28.8	-5.4	-1.0
2440	30.1	-5.2	-1.0
2450	29.3	-5.3	-0.9
2460	30.0	-5.2	-1.0
2470	28.8	-5.4	-1.0
2480	24.5	-6.1	-1.4
Average value	27.8	-5.6	-1.3

R			
Frequency（MHz）	Efficiency	Efficiency (dB)	Gain (dBi)
2400	22.7	-6.4	-2.7
2410	24.2	-6.2	-2.5
2420	25.2	-6.0	-2.1
2430	24.4	-6.1	-2.3
2440	22.6	-6.5	-2.6
2450	21.8	-6.6	-2.7
2460	19.8	-7.0	-3.1
2470	19.4	-7.1	-3.3
2480	18.5	-7.3	-3.6
Average value	22.1	-6.6	-2.8

3D Antenna radiation pattern（L）:

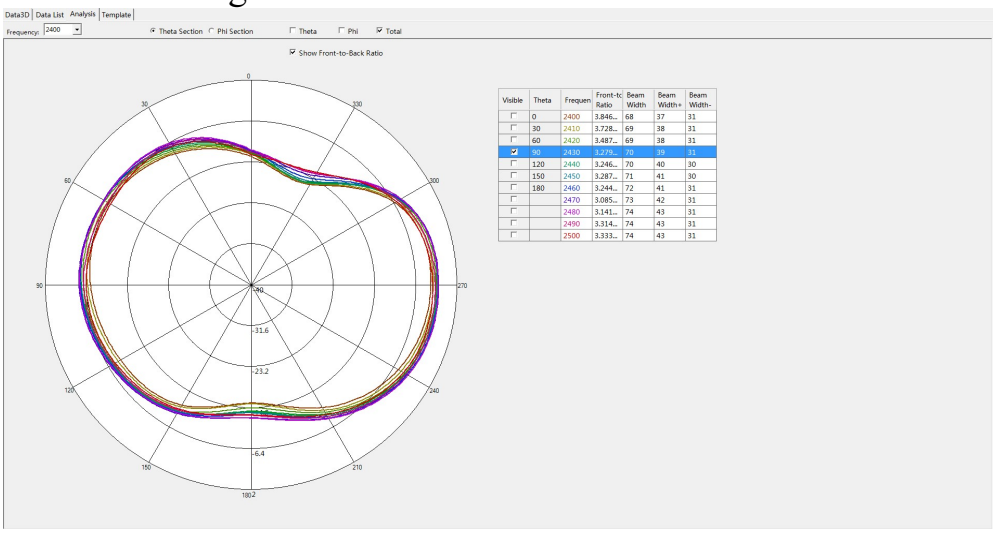


3D Antenna radiation pattern（R）:



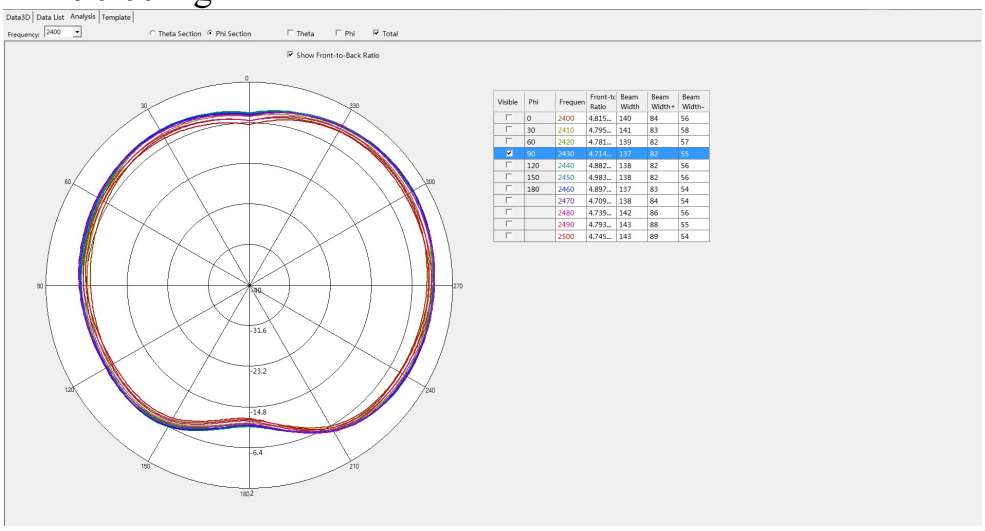
2D Antenna radiation pattern（L）:

Theta=90.00deg



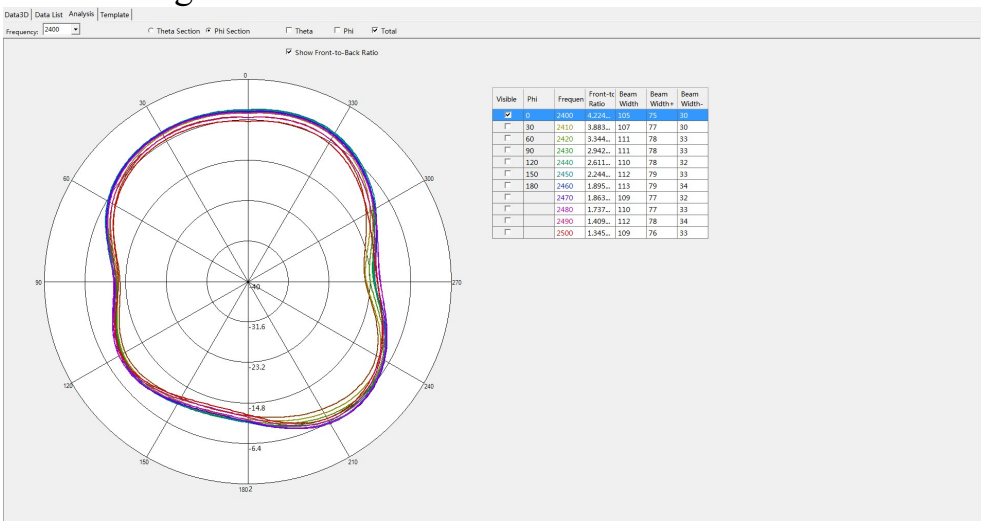
Visible	Theta	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	3.846...	68	37	31
☐	30	2410	3.728...	69	38	31
☐	60	2420	3.487...	69	38	31
☑	90	2430	3.279...	70	39	31
☐	120	2440	3.246...	70	40	30
☐	150	2450	3.287...	71	41	30
☐	180	2460	3.244...	72	41	31
☐		2470	3.085...	73	42	31
☐		2480	3.141...	74	43	31
☐		2490	3.314...	74	43	31
☐		2500	3.333...	74	43	31

Phi=90.00deg



Visible	Phi	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	4.815...	140	84	56
☐	30	2410	4.795...	141	83	58
☐	60	2420	4.781...	139	82	57
☑	90	2430	4.714...	137	82	55
☐	120	2440	4.882...	138	82	56
☐	150	2450	4.983...	138	82	56
☐	180	2460	4.897...	137	83	54
☐		2470	4.709...	138	84	54
☐		2480	4.739...	142	86	56
☐		2490	4.793...	143	88	55
☐		2500	4.745...	143	89	54

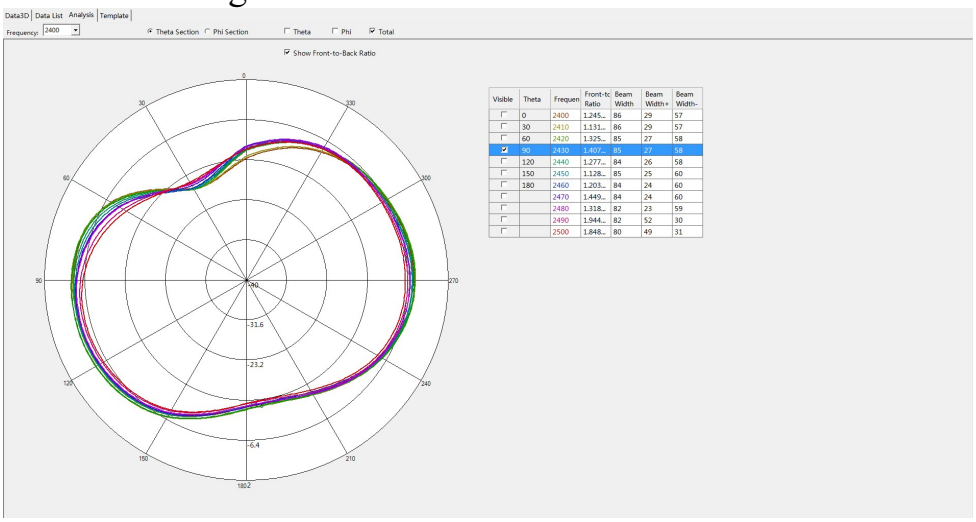
Phi=0.00deg



Visible	Phi	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☑	0	2400	4.224...	105	75	30
☐	30	2410	3.883...	107	77	30
☐	60	2420	3.344...	111	78	33
☐	90	2430	2.942...	111	78	33
☐	120	2440	2.611...	110	78	32
☐	150	2450	2.244...	112	79	33
☐	180	2460	1.895...	113	79	34
☐		2470	1.863...	109	77	32
☐		2480	1.737...	110	77	33
☐		2490	1.409...	112	78	34
☐		2500	1.345...	109	76	33

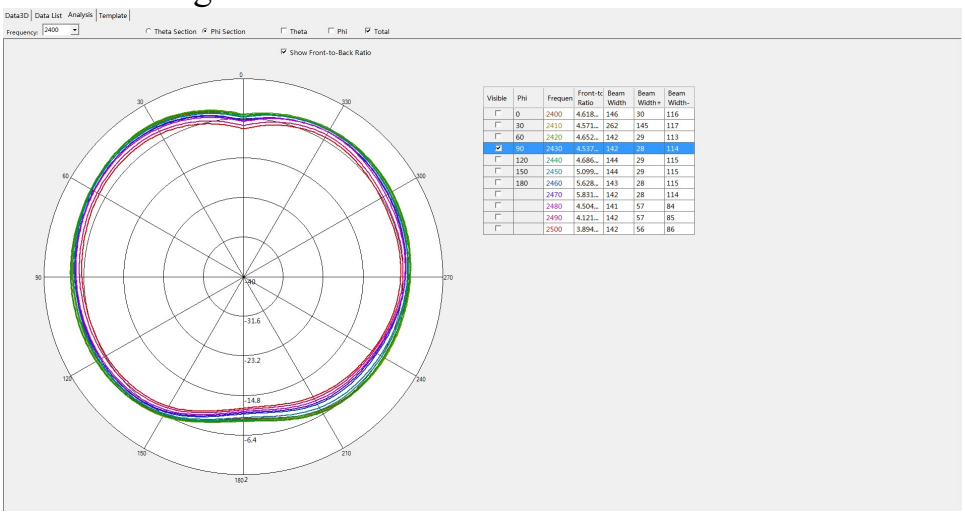
2D Antenna radiation pattern（R）:

Theta=90.00deg



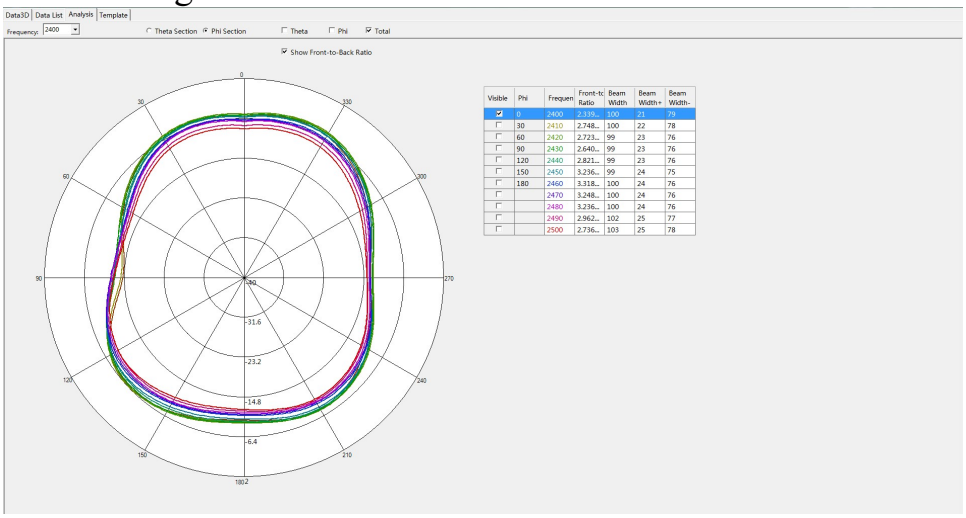
Visible	Theta	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	1.245...	86	29	57
☐	30	2410	1.131...	86	29	57
☐	60	2420	1.325...	85	27	58
☑	90	2430	1.407...	85	27	58
☐	120	2440	1.277...	84	26	58
☐	150	2450	1.128...	85	25	60
☐	180	2460	1.203...	84	24	60
☐		2470	1.449...	84	24	60
☐		2480	1.318...	82	23	59
☐		2490	1.944...	82	52	30
☐		2500	1.848...	80	49	31

Phi=90.00deg



Visible	Phi	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	4.618...	146	30	116
☐	30	2410	4.571...	262	145	117
☐	60	2420	4.652...	142	29	113
☑	90	2430	4.537...	142	28	114
☐	120	2440	4.686...	144	29	115
☐	150	2450	5.099...	144	29	115
☐	180	2460	5.628...	143	28	115
☐		2470	5.831...	142	28	114
☐		2480	4.504...	141	57	84
☐		2490	4.121...	142	57	85
☐		2500	3.894...	142	56	86

Phi=0.00deg



Visible	Phi	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☑	0	2400	2.339...	100	21	79
☐	30	2410	2.748...	100	22	78
☐	60	2420	2.723...	99	23	76
☐	90	2430	2.640...	99	23	76
☐	120	2440	2.821...	99	23	76
☐	150	2450	3.236...	99	24	75
☐	180	2460	3.318...	100	24	76
☐		2470	3.248...	100	24	76
☐		2480	3.236...	100	24	76
☐		2490	2.962...	102	25	77
☐		2500	2.736...	103	25	78

II：3D Active test report of antenna

Free space	Channel	TRP（dBm）	TIS（dBm）
L	CH 0	5.8	-88.6
	CH 39	6.7	-89.1
	CH 78	5.0	-87.5

Headform	Channel	TRP（dBm）	TIS（dBm）
L	CH 0	0.6	-83.5
	CH 39	1.4	-83.9
	CH 78	-0.2	-83.0

Free space	Channel	TRP（dBm）	TIS（dBm）
R	CH 0	6.8	-89.0
	CH 39	7.9	-90.0
	CH 78	6.5	-89.3

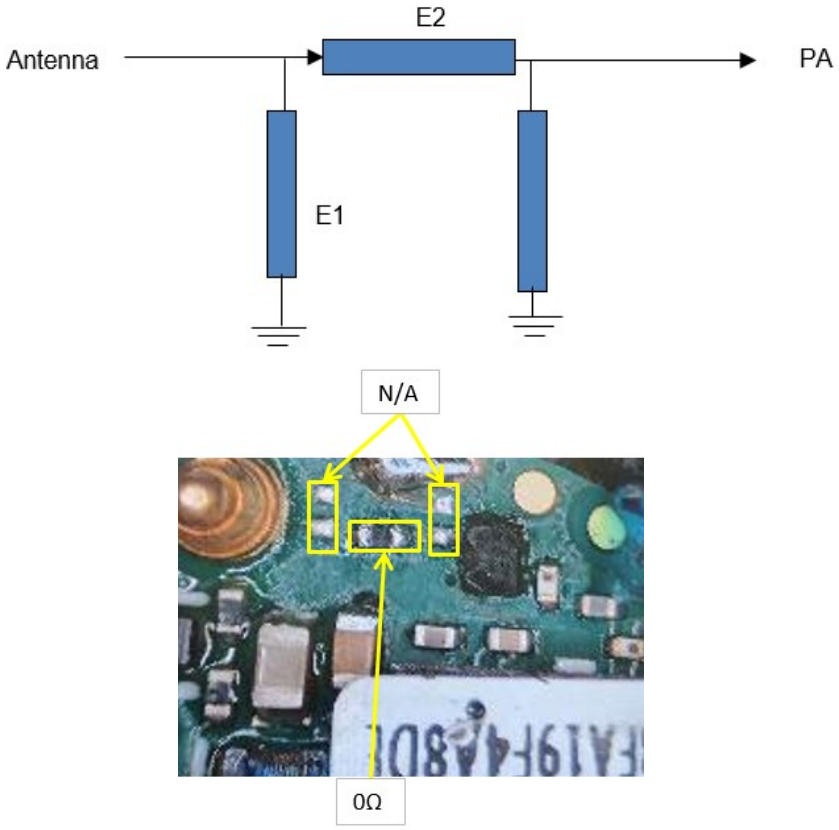
Headform	Channel	TRP（dBm）	TIS（dBm）
R	CH 0	0.8	-83.3
	CH 39	1.6	-84.0
	CH 78	0.5	-83.1

OTA Standard Chamber

III：Matching circuit

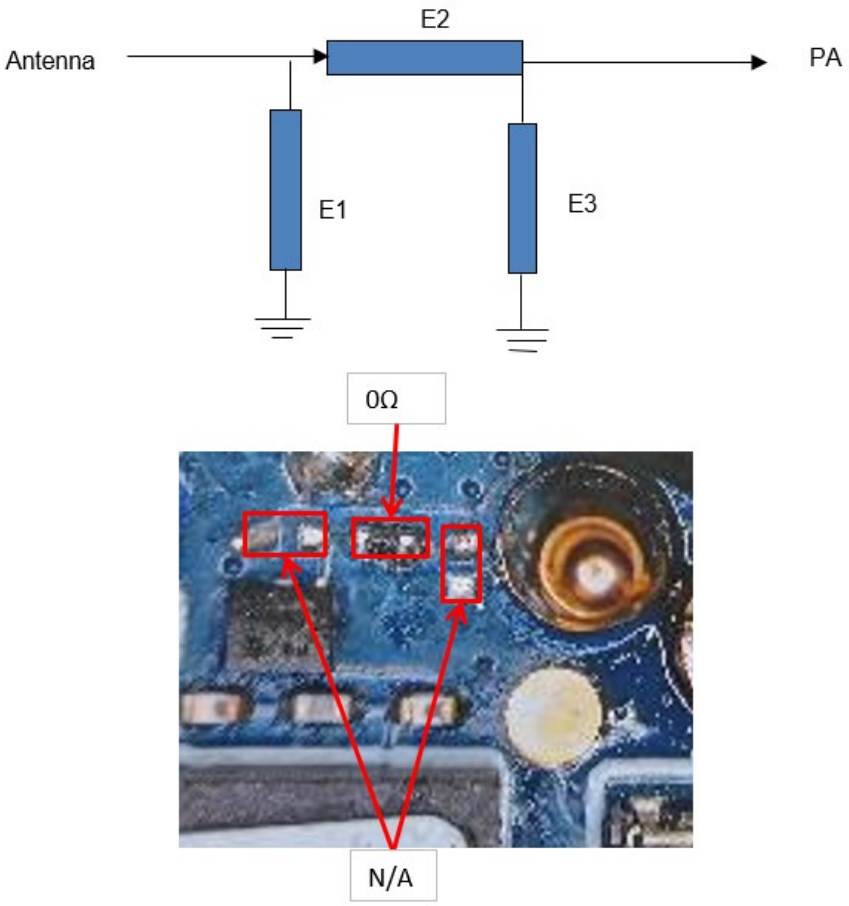
L：

Element	Value
E1(0201)	N/A
E2(0201)	0Ω
E3(0201)	N/A



R：

Element	Value
E1(0201)	N/A
E2(0201)	0Ω
E3(0201)	N/A

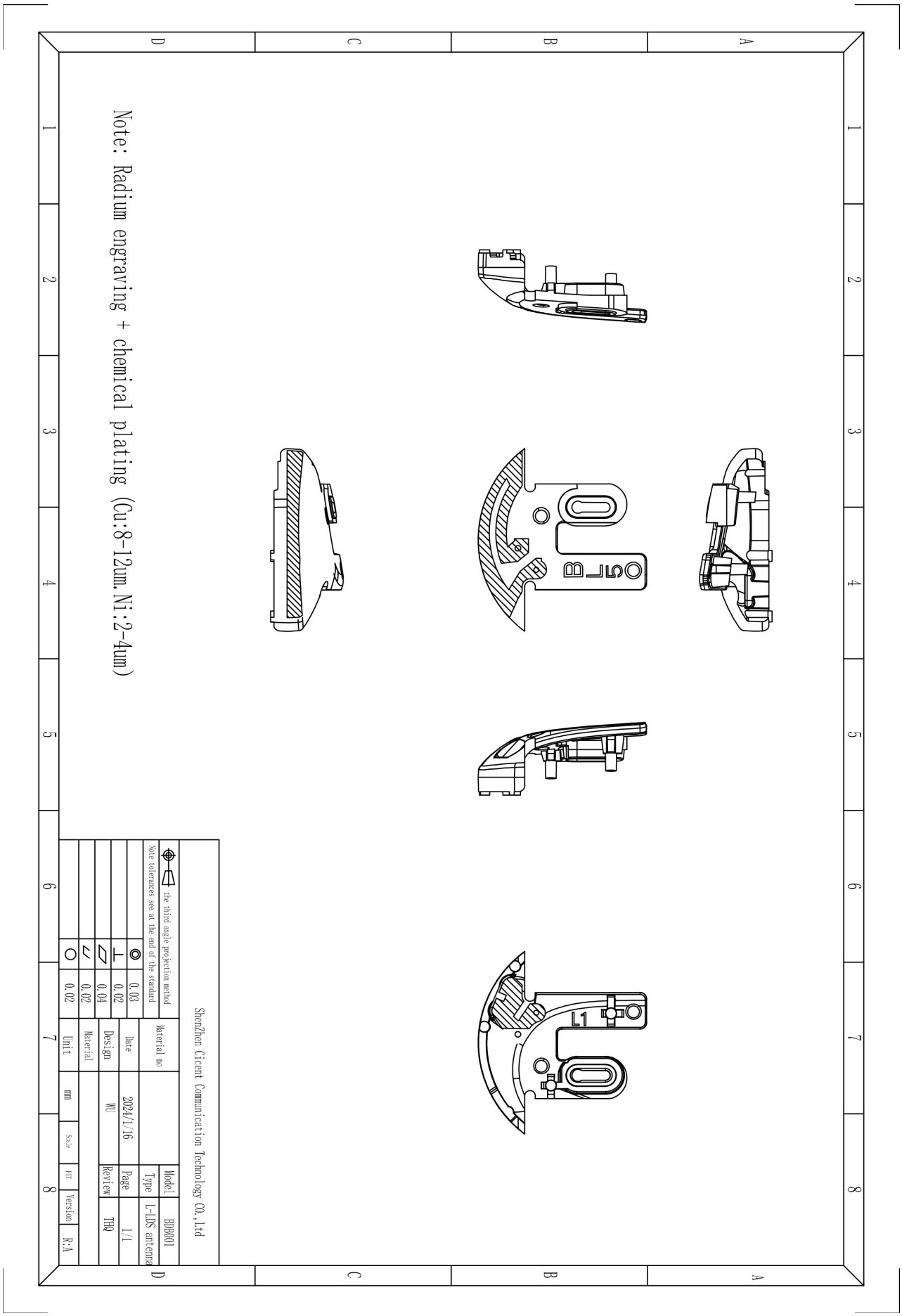


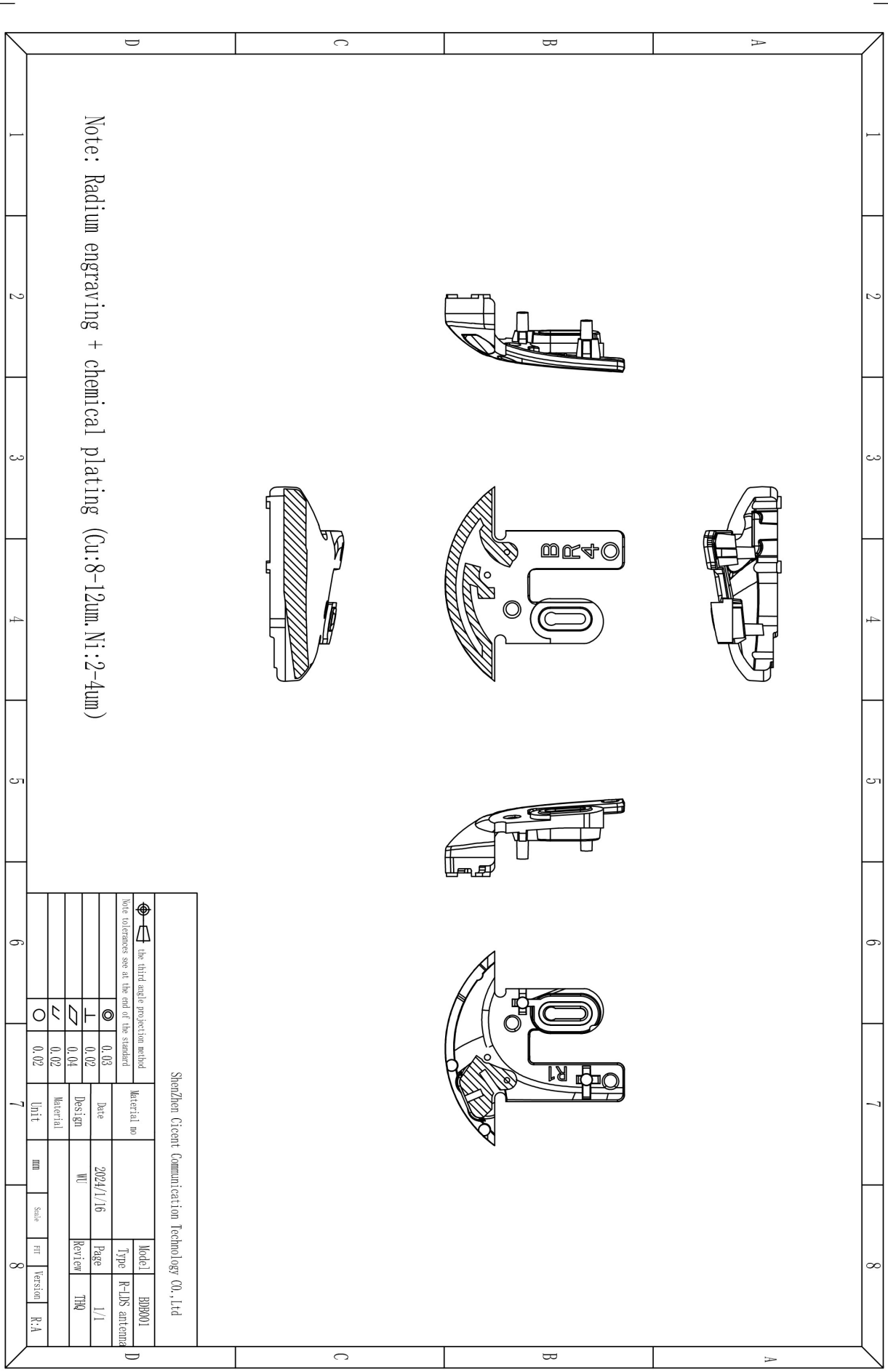
IV：Environmental treatment

During debugging, it was found that the contact surface between the feed point pin and the LDS bracket is prone to poor contact. It is recommended to replace the pin with a higher one and preferably with stronger elasticity to ensure stable contact with the antenna.

There are currently no other environmental treatment measures for the left and right ears except for increasing elongation. As shown in the above figure, the extension of the left and right ears is formed by welding two pads to form a closed loop.

V：Structure file




A
B
C
D
1
2
3
4
5
6
7
8
Note: Radium engraving + chemical plating (Cu:8-12um.Ni:2-4um)
R0.40
R1
the third angle projection method
Note tolerances see at the end of the standard
0.03
0.02
0.04
0.02
0.02
Material no
Date
2024/1/16
Design
WU
Material
Unit
mm
Scale
FIT
Version
R:A
Review
THQ
Page
1/1
Type
R-LDS antenna
Model
BDB001
ShenZhen Cicent Communication Technology CO.,Ltd