

SPECIFICATION FOR APPROVAL

CUSTOMER/PROJECT : _____

CUSTOMER P.N./ : _____

PRODUCT NAME./ : 4G Antenna

MODEL NO./ : 9Z067M

SPECIFICATION/ : _____

VERSION	DATE	REVISION DESCRIPTION
T:A	2023/12/7	newly added
T:B	2024/06/25	Update data

SUPPLIER AUTHORIZED SIGNATURE		
PREPARED	CHECKED	APPROVED
XUHAIJUN		

CUSTOMER AUTHORIZED SIGNATURE			
Project		Quality	

Please return to us one copy of "SPECIFICATION FOR APPROVAL" with your approved signature./

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1 DEFINITION

dBi	Decibel relative isotropic antenna
Tx	Transmit frequency
Rx	Receive frequency
TRP	Total Radiated Power

TIS	Total Isotropic Sensitivity
VSWR	Voltage Standing Wave Ratio
GSM	Global Service for Mobile communication
DCS	Digital Communication System
CDMA	Code Division Multiple Access
WCDMA	Wideband Code Division Multiple Access

2 Test equipment

Can be increased or decreased according to actual situation

vector network analyzer

Comprehensive test instrument

GTS darkroom

3 Applicable frequency band

Mark the applicable frequency bands with other colors.

System	up	down
GSM850	824MHz~849MHz	869MHz~894MHz
GSM900	890MHz~915MHz	935MHz~960MHz
DCS1800	1710MHz~1785MHz	1805MHz~1880MHz
PCS1900	1850MHz~1910MHz	1930MHz~1990MHz
CDMA800	825MHz~835MHz	870MHz~880 MHz
CDMA2000	824MHz ~849MHz	869MHz ~894MHz
WCDMA2100	1920MHz~1980MHz	2110MHz~2170MHz
WIFI (2.4G)	2412MHz~2483MHz	
TD-SCDMA2100	2010MHz~2025MHz	2010MHz~2025MHz
TD-SCDMA B39	1880 MHz~1920 MHz	1880 MHz~1920 MHz
LTE	700MHz ~2690MHz	

4 Basic testing items

4.1 Standing wave ratio diagram

4.2 Smith impedance diagram

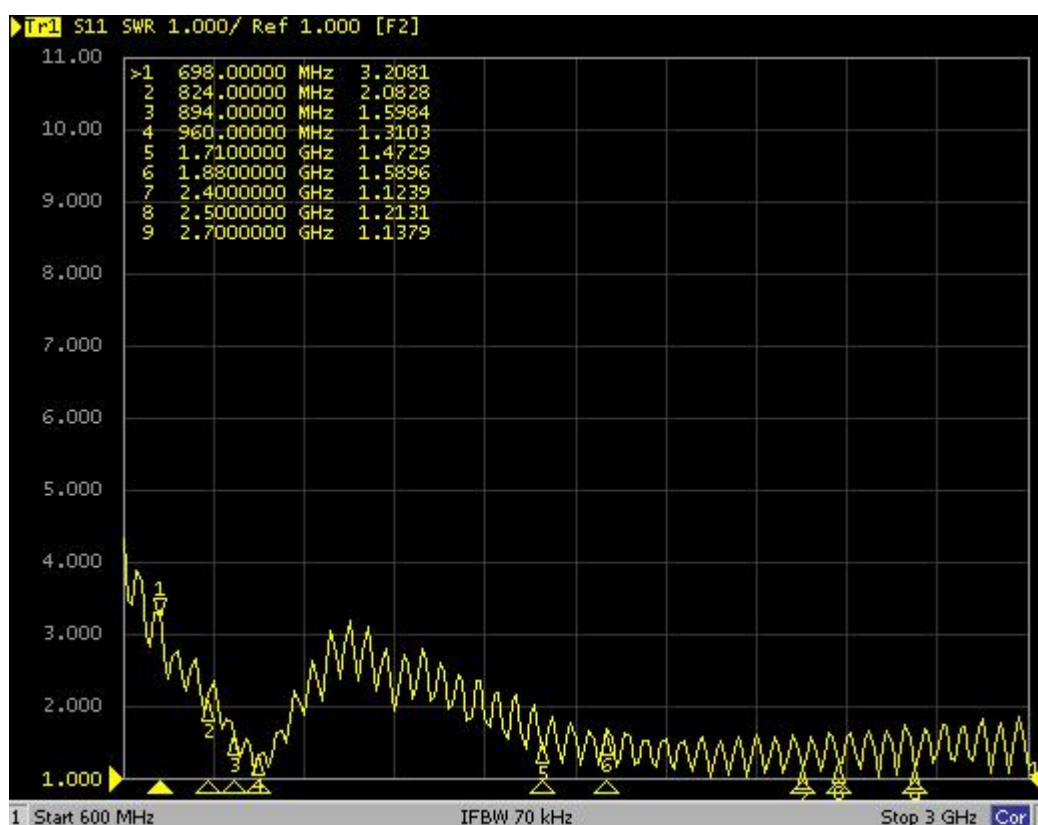
4.3 Radiation pattern

4.4 Gain and efficiency

5 Test indicators and data charts

5.1 standing-wave ratio

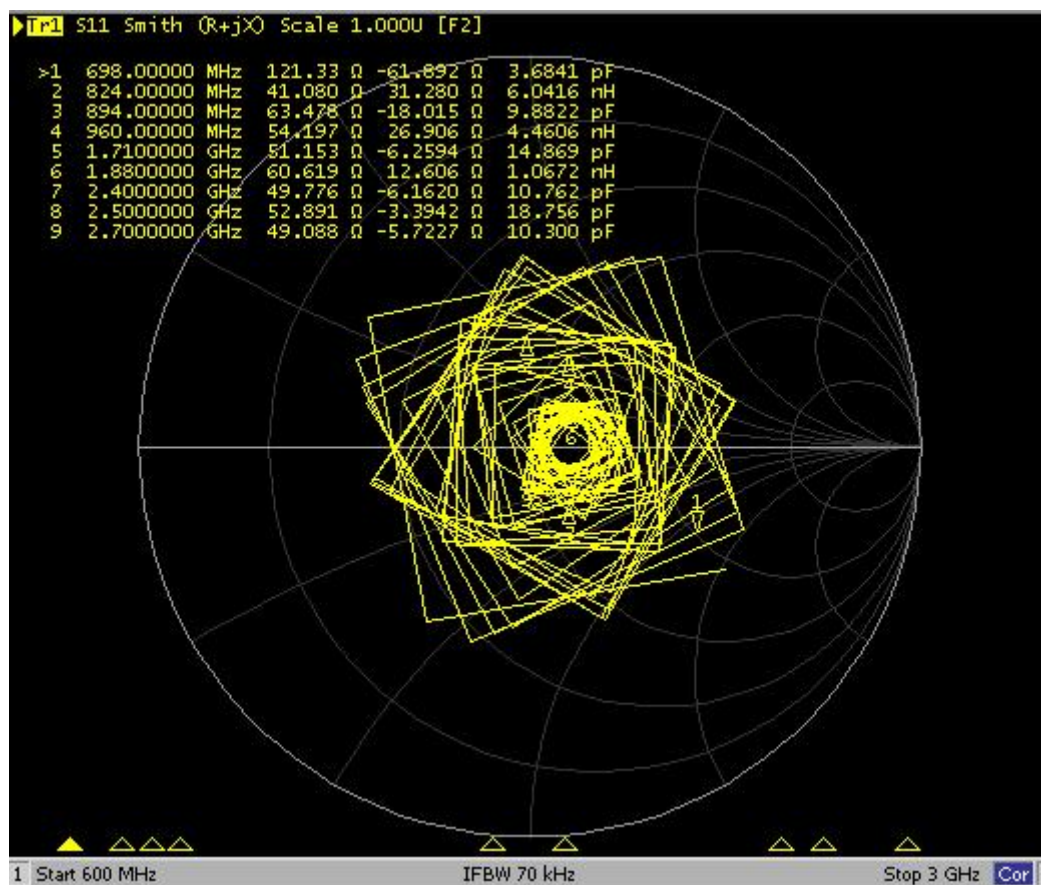
5.1.1 Standing wave ratio diagram



5.1.2 VSWR data

Freq/MHz	698	824	894	960	1710	1880	2400	2500	2690
VSWR	3.20	2.08	1.59	1.31	1.47	1.58	1.12	1.21	1.13

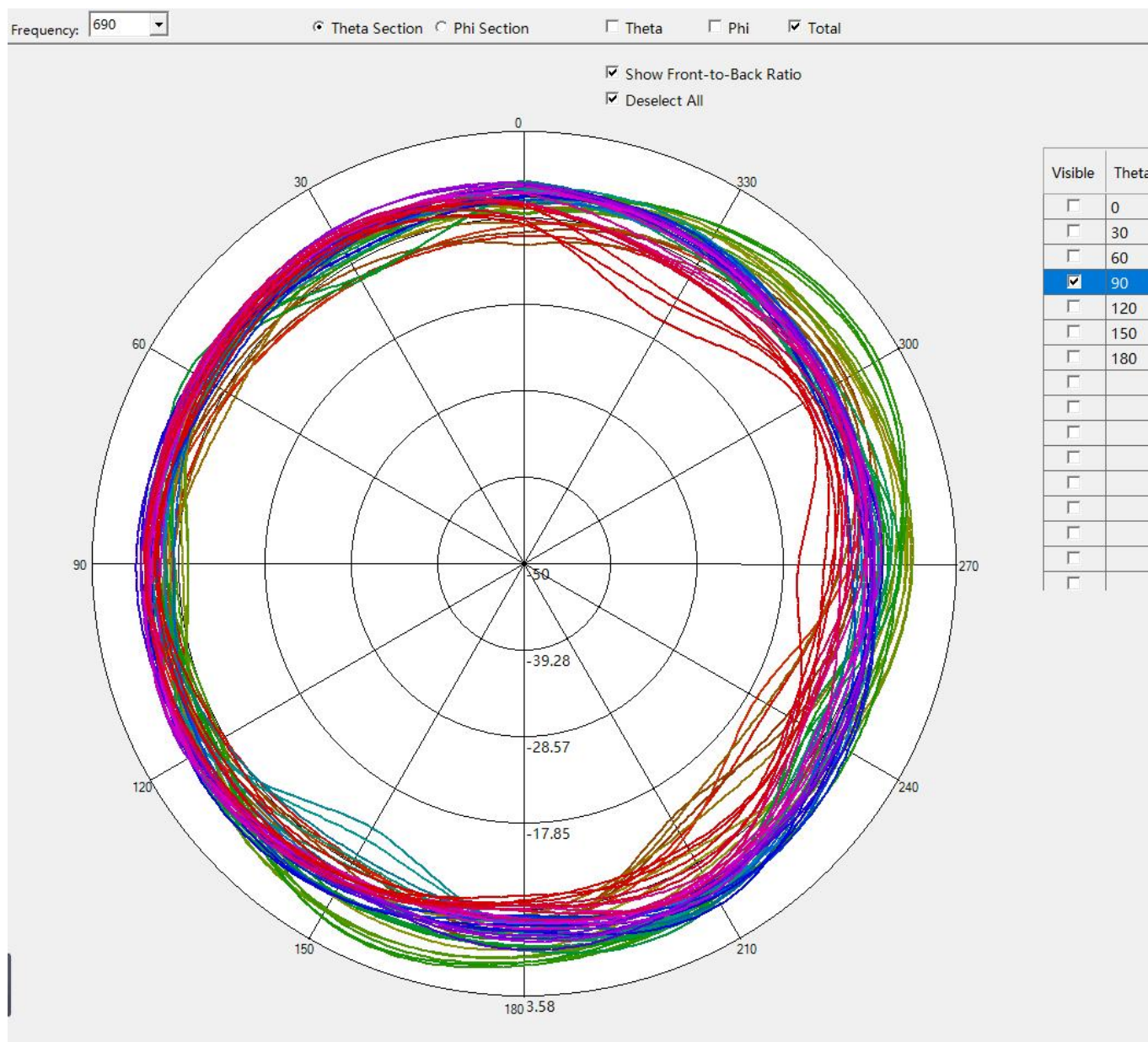
5.2 Return loss



5.3 Radiation pattern

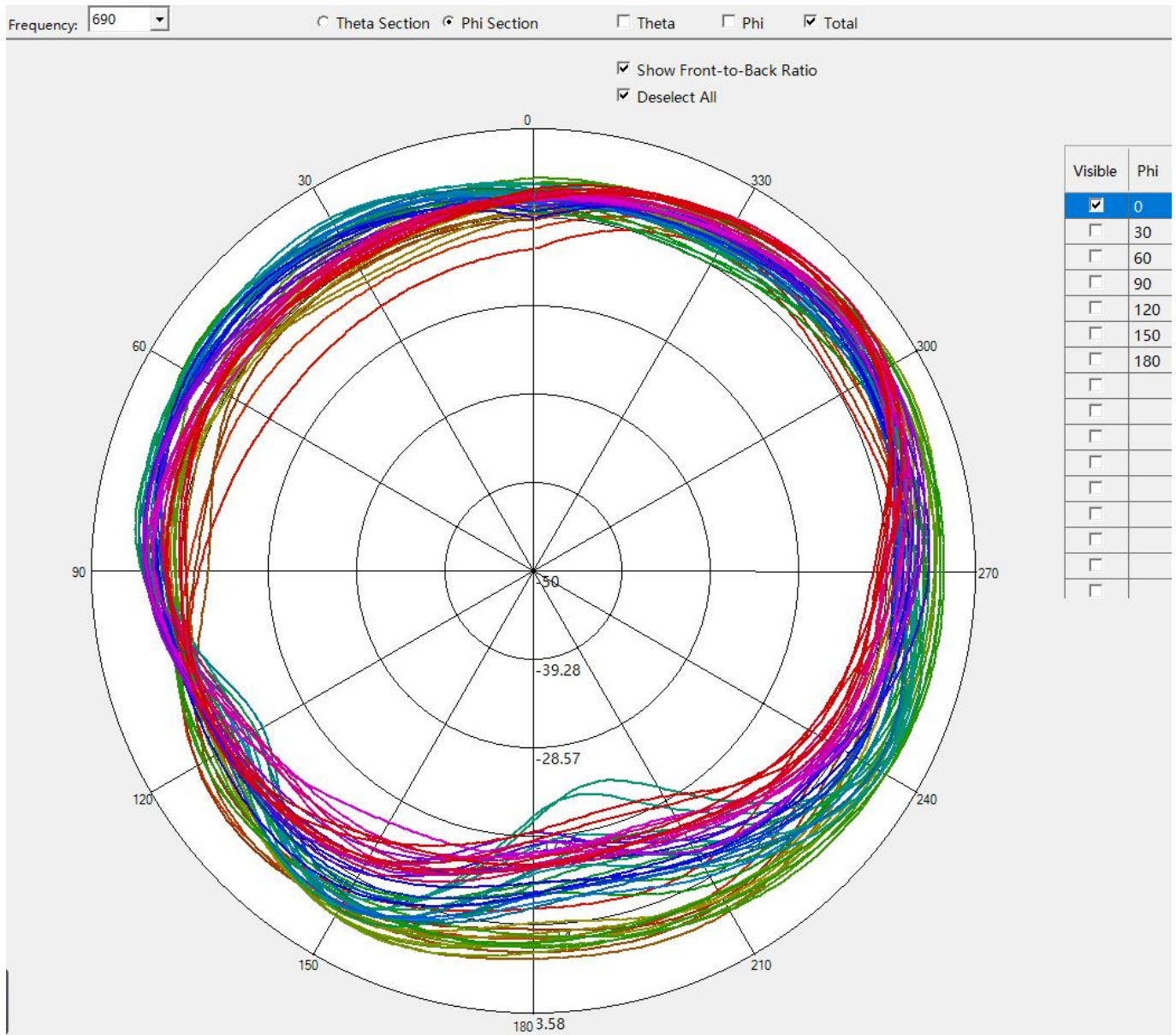
5.3.1 H-plane

H

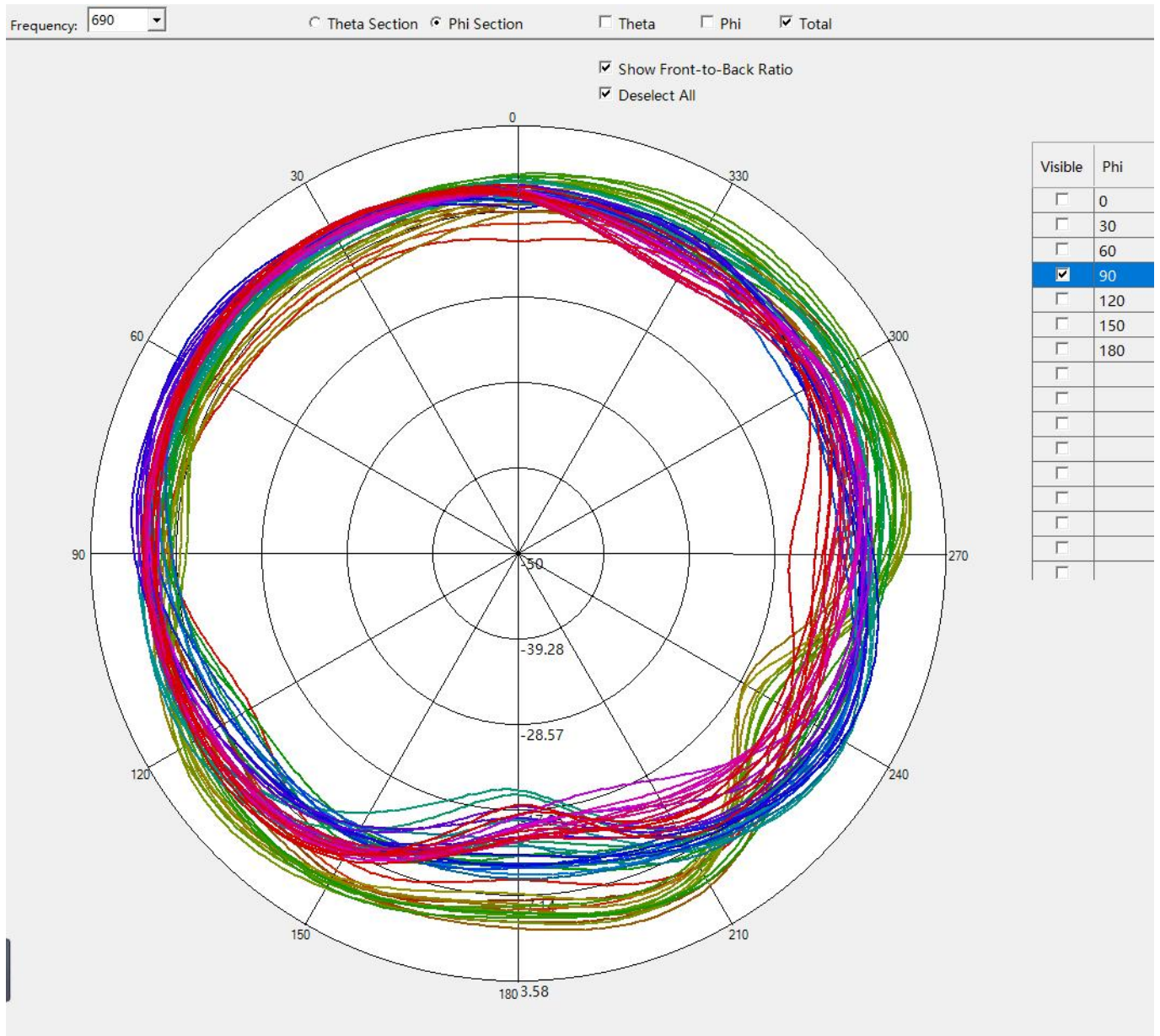


5.3.2 E-plane

E1



E2



5.4 Gain & Efficiency

Frequency [MHz]	Efficiency	Max Gain [dBi]
690	25%	0.259642
710	28%	0.404248
730	30%	0.215736
750	30%	0.398516
770	29%	-0.625538
790	34%	-0.237311
810	35%	-0.17563
824	38%	0.93626
834	39%	1.184688
844	35%	1.340972
854	31%	1.19999
864	34%	1.129361
874	31%	1.1675
884	31%	1.09106
894	35%	0.901505
900	34%	0.783117
910	34%	0.991452
920	36%	1.43704
930	36%	1.812445
940	35%	2.37196
950	38%	2.715385
960	38%	2.902979
1710	42%	1.58191
1730	42%	1.25186
1750	41%	1.57148
1770	43%	1.23616
1790	43%	1.38944
1810	40%	1.07249
1830	39%	1.56431
1850	40%	1.33824
1860	41%	1.29771
1880	44%	1.31452
1900	43%	1.46623
1920	43%	1.46533
1940	42%	1.054756

1960	43%	1.39114
1980	45%	1.48126
2000	46%	1.09387
2020	44%	1.47711
2040	44%	1.11968
2060	46%	1.309831
2080	44%	1.043453
2100	42%	1.305294
2300	42%	0.667
2320	41%	0.87656
2340	42%	1.544
2360	41%	1.36304
2380	41%	1.03735
2400	38%	1.79229
2420	39%	1.25332
2440	40%	1.72723
2460	38%	1.6411
2480	39%	1.54483
2500	40%	1.276007
2520	38%	1.17682
2540	41%	1.15828
2560	40%	1.807038
2580	40%	1.34901
2600	37%	1.441757
2620	39%	1.607505
2640	40%	1.928624
2660	40%	1.873034
2680	41%	1.01914
2700	41%	1.479912

LTE-FDD		<u>TRP</u>	<u>TIS</u>
	Channel	Average value	Average value
BAND2	650	17.81	
	900	18.15	
	1150	18.11	-94.26
BAND4	2000	17.60	
	2175	18.12	
	2300	17.83	-93.15
BAND5	2450	19.92	
	2525	19.50	
	2600	19.53	-95.86
BAND12	5060	16.95	
	5095	17.11	
	5130	17.22	-93.92
BAND13			
	5230	19.09	-87.01
BAND25	8065	18.06	
	8365	17.94	
	8665	17.84	-93.31
BAND26	8740	19.94	
	8865	20.13	
	8890	20.10	-95.26

WCDMA		<u>TRP</u>	<u>TIS</u>
	Channel	Average value	Average value
BAND2	9262	18.16	
	9400	18.02	

	9538	17.85	-106.47
BAND4	1312	18.01	
	1413	18.31	
	1513	17.66	-105.82
BAND5	4132	20.20	
	4183	20.07	
	4233	20.02	-108.76

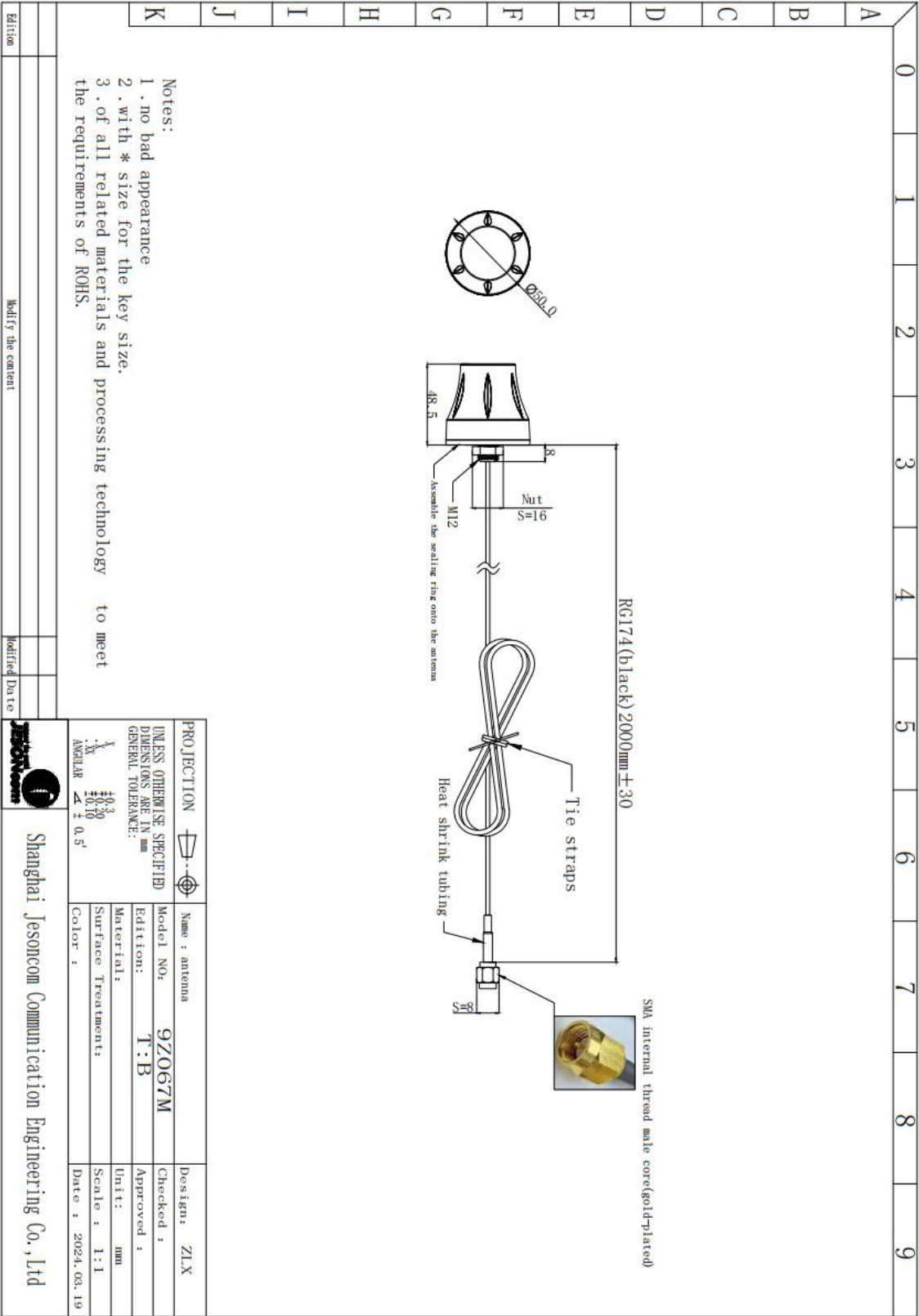
6 Environmental treatment suggestions

The environment doesn't need to be treated

7 Impedance matching

No changes are required to match

8 Antenna plan



9 Antenna installation guide

9.1 Antenna installation instructions

10 Other