



Antenna matching report

Customer: 艾创力

Model Name: M2S pro

Frequency: BT(2402~2480MHz)

Date: 2024.04.22

Number: 20240422001

Producer: FAE



Outline

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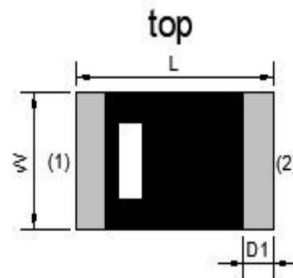




Appearance of customer Sample



3216 Chip Antenna



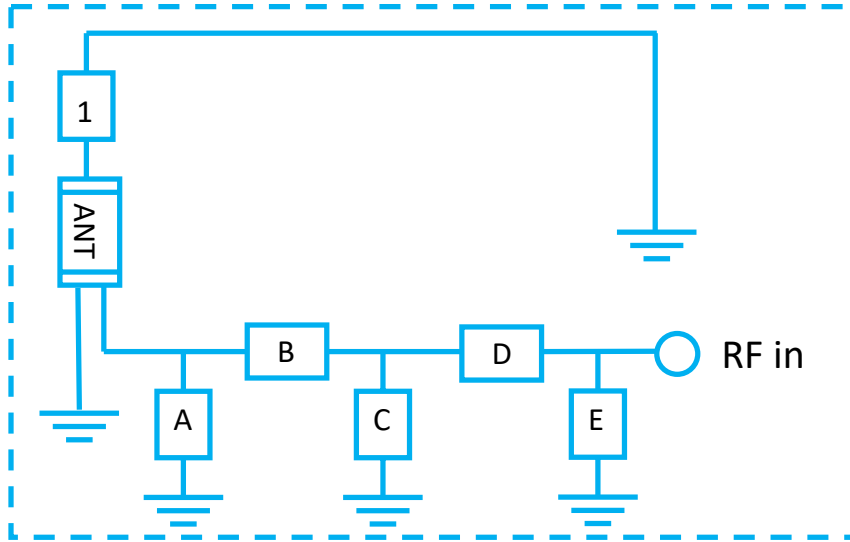
Dimension (mm)	
L	3.20 ± 0.15
W	1.60 ± 0.15
T	0.60 ± 0.10
D1	0.50 ± 0.15
D2	1.30 ± 0.15

No.	Terminal Name
1	Feeding
2	Ground



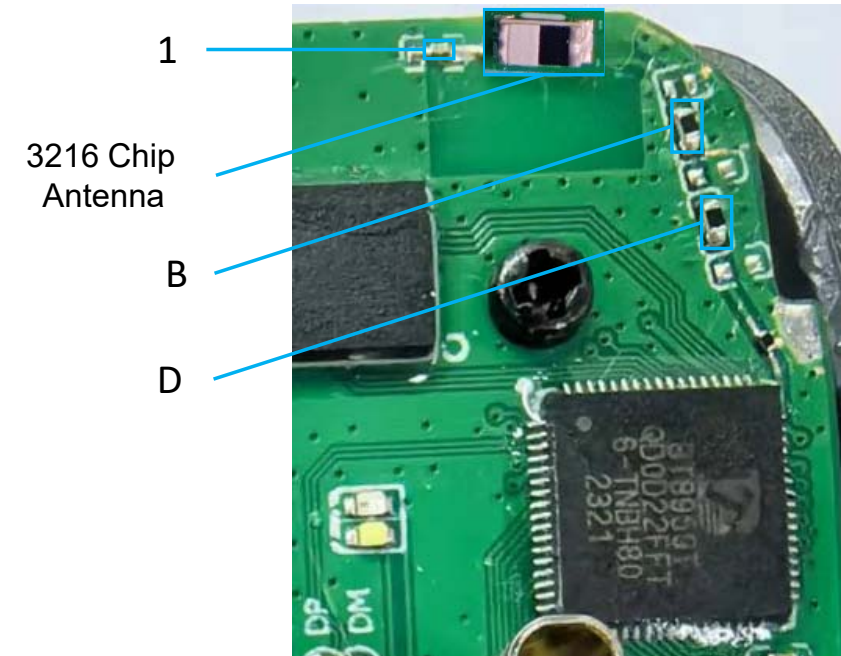


Matching parameters



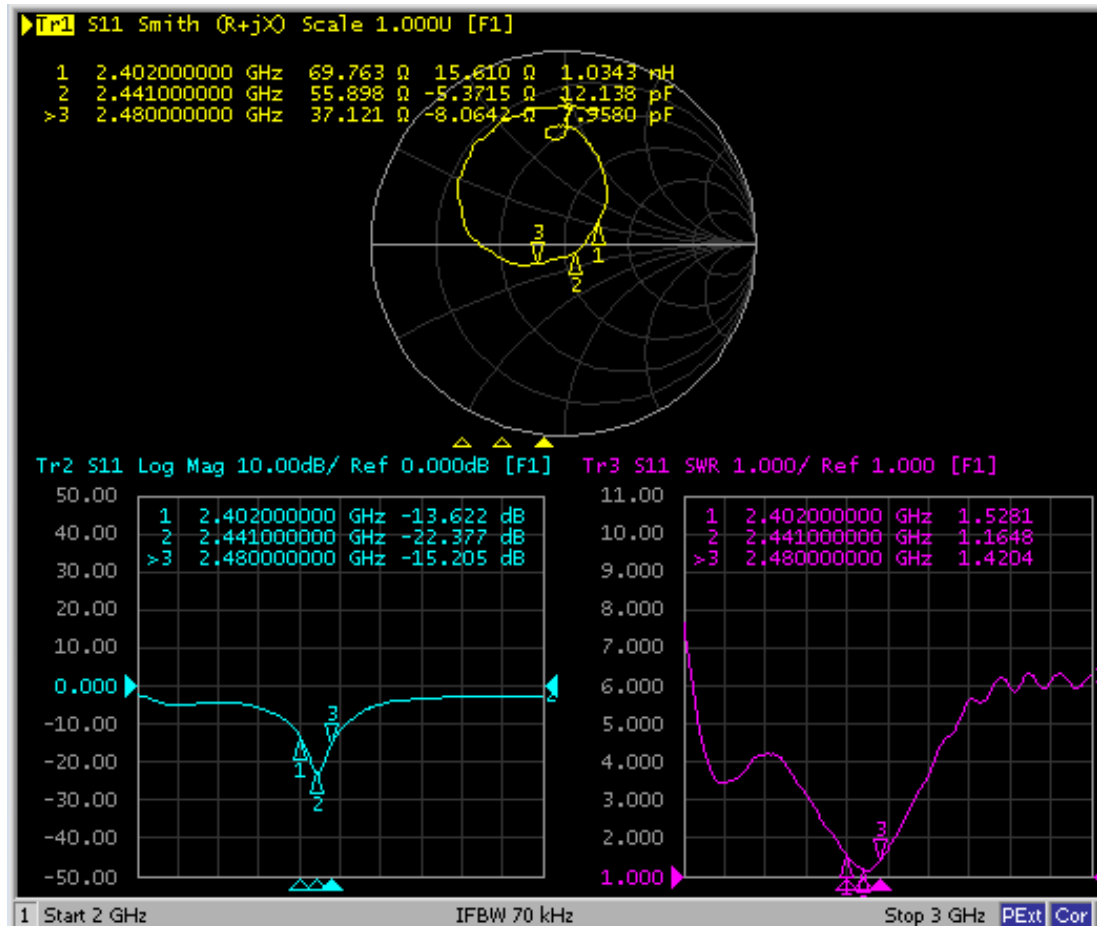
Antenna : ANT3216R2400A1L0

NO	Component	Brand	Description	P/N
1	Capacitor	muRata	0201 1.8pF	GRM0335C1H1R8BA01
A	OPEN	N/A	N/A	N/A
B	Resistor	Yageo	0402 0R	RC0402JR-070R
C	OPEN	N/A	N/A	N/A
D	Resistor	Yageo	0402 0R	RC0402JR-070R
E	OPEN	N/A	N/A	N/A





Antenna S parameters



Item	Value		
	2402(MHz)	2441(MHz)	2480(MHz)
Smith(Ω)	69.76	55.89	37.12
Return loss(dB)	-13.62	-22.37	-15.20
VSWR	1.52	1.16	1.42





Antenna Passive parameter

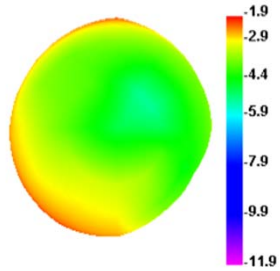
Frequency (MHz)	Efficiency (%)	Mean gain (dBi)	Peak Gain (dBi)
2400	33.43	-4.76	-1.91
2410	35.13	-4.54	-1.63
2420	34	-4.69	-1.68
2430	35.54	-4.49	-1.45
2440	36.16	-4.42	-1.28
2450	36.66	-4.36	-1.23
2460	37.79	-4.23	-1.09
2470	37.9	-4.21	-1.1
2480	38.17	-4.18	-1.08
Average value	36.09	-4.43	-1.38



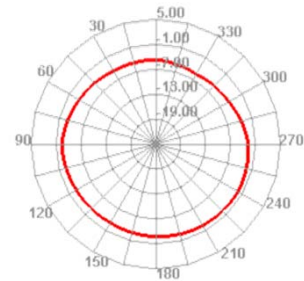


Antenna radiation pattern ---dBi

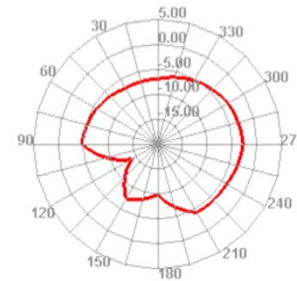
2400MHz



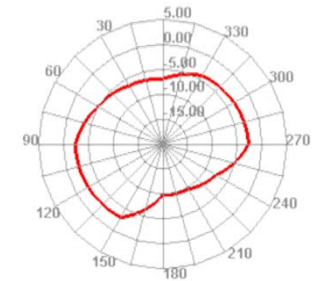
2400MHz H



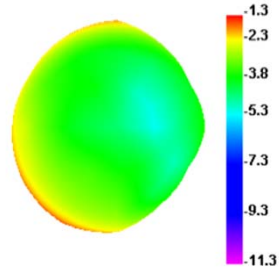
2400MHz E1



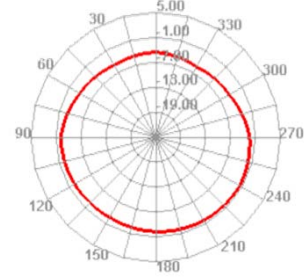
2400MHz E2



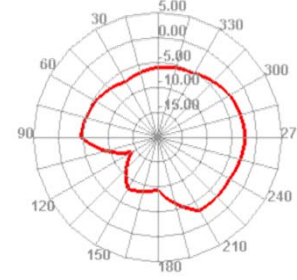
2440MHz



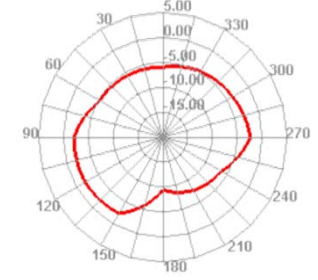
2440MHz H



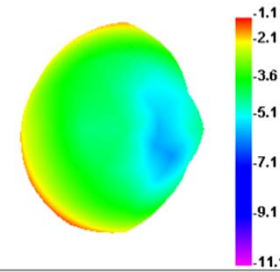
2440MHz E1



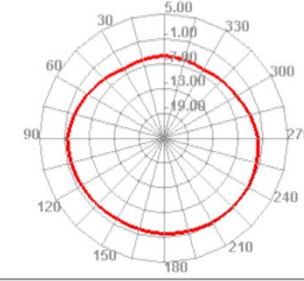
2440MHz E2



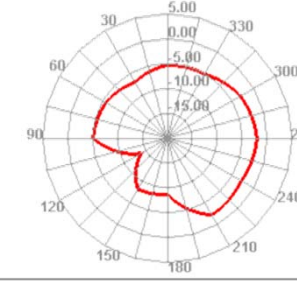
2480MHz



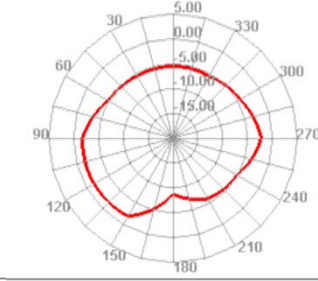
2480MHz H



2480MHz E1



2480MHz E2

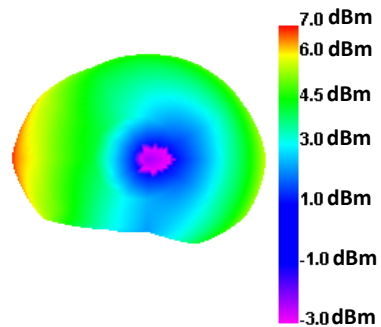




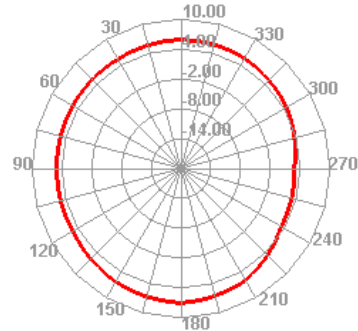
OTA test data

OTA Test date								
1#	Channel	TRP(dBm)	TIS(dBm)		2#	Channel	TRP(dBm)	TIS(dBm)
	CH 0	3.02	-89.32			CH 0	2.82	-89.41
	CH39	5.85	-89.75			CH39	5.96	-89.63
	CH78	3.46	-89.26			CH78	3.77	-89.14

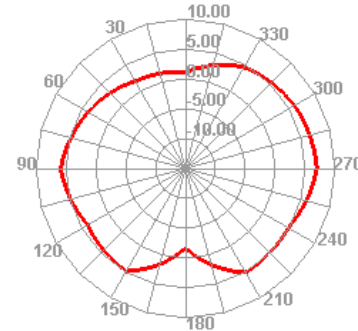
Bluetooth 39 TRP



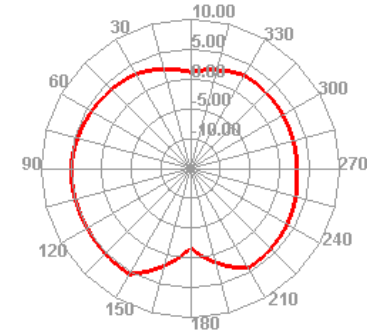
Bluetooth 39 TRP H



Bluetooth 39 TRP E1



Bluetooth 39 TRP E2





Conclusion

- The antenna's return loss is greater than 10 dB;
- The average antenna efficiency is greater than 30%, and the 2440MHz efficiency is greater than 35%;
- After the above tests, the antenna meets the requirements of Bluetooth radiation



Thanks

