

418MHz Antenna

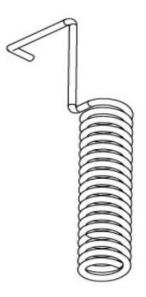
RF Engineer: 牟振韬

Version: V1.1

Date: 2018.06.02



- 1 Feature
- * internal monopole antenna;
- * frequency: 417MHz-419MHz;
- * Through-hole interface;
- * wireless communication;



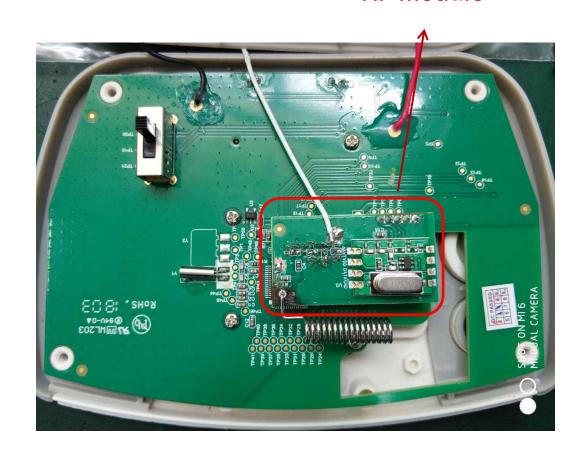


2 Real Electromagnetic Environment

* The ground of RF module in the transmitters is discrete with the ground of the whole PCB. It will affect 418MHz antenna.

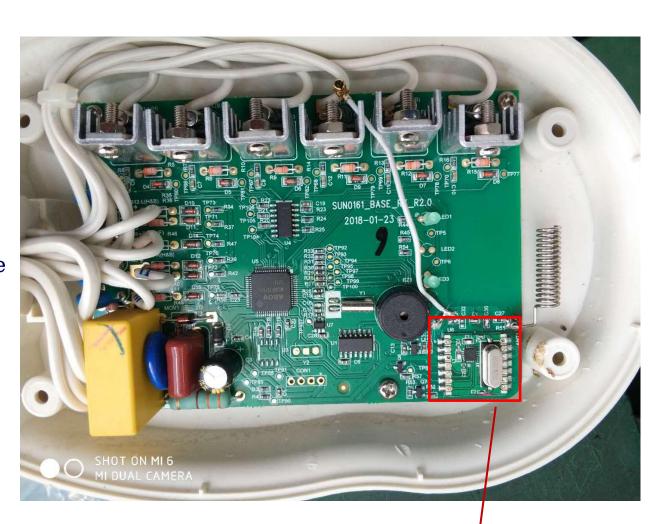
* It has no clear area for the 418MHz antenna.

RF module





* The ground of RF module in the receviers is also discrete with the ground of the whole PCB. It will affect 418MHz antenna.



RF module

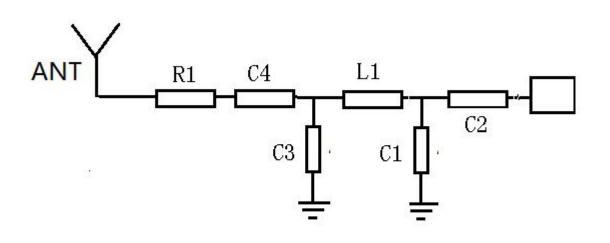


3 Matching Circuit

*As each internal environment is different, we should add some different elements to make the antenna

independace approach $50\,\Omega$.

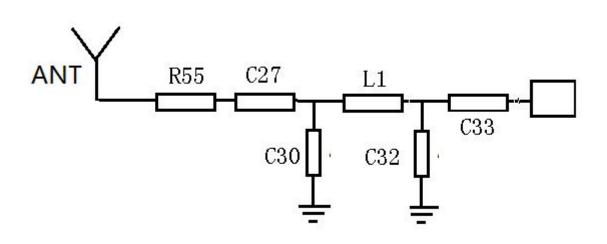
*Transmitters



Value
0Ω
0Ω
N/A
0Ω
10nH
0Ω



*Receivers



Element	Value
R55(0402)	0Ω
C27(0402)	0Ω
C30(0402)	27nH
L1(0402)	2.7pF
C32(0402)	N/A
C33(0402)	0Ω



4 General parameters

*Transmitters

Product Name	418MHz Antenna
Frequency	417-419MHz
V. S. W. R(Center)	€2
Peak Gain	'-9dBi — -8dBi
Polarization	Vertical
Storage Temp	-40°C—80°C
Operating Temperature	−10°C—60°C
Impedance with matching	50 Ω
Weight	0. 12g
Antenna Type	Monopole



*Receivers

Product Name	418MHz Antenna
Frequency	417-419MHz
V. S. W. R(Center)	€2
Gain	'-4dBi — -3dBi
Polarization	Vertical
Storage Temp	-40°C—80°C
Operating Temperature	-10°C──60°C
Impedance with matching	50 Ω
Weight	0. 12g
Antenna Type	Monopole



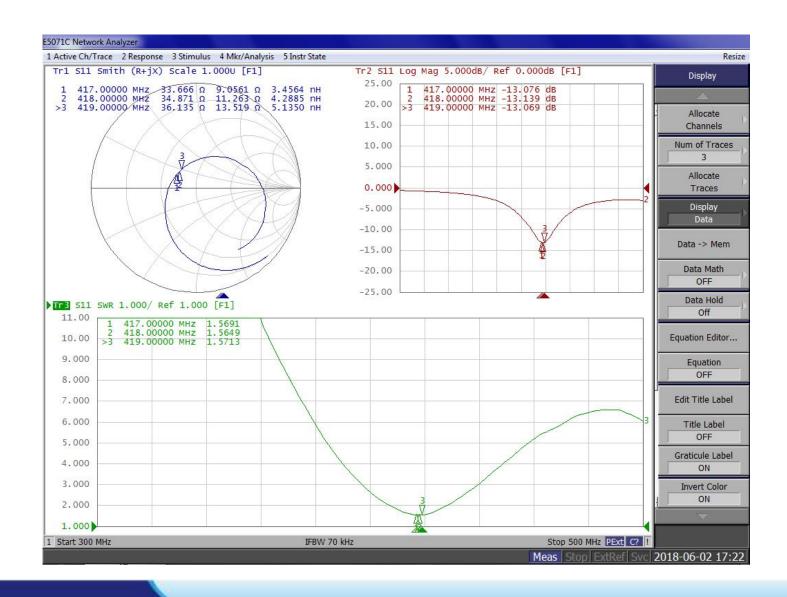
4 VSWR

E5071C Network Analyzer *Transmitters 1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State Resize Tr1 S11 Smith (R+jX) Scale 1.000U [F1] Tr2 S11 Log Mag 5.000dB/ Ref 0.000dB [F1] System 1 417.00000 MHz 36.346 Ω 17.448 Ω 6.6595 nH 2 418.00000 MHz 34.044 Ω 15.507 Ω 5.9044 nH >3 419.00000 MHz 31.645 Ω 14.058 Ω 5.3400 nH 1 417.00000 MHz -11.989 dB 2 418.00000 MHz -11.689 dB Print 20.00 >3 419.00000 MHz -11.086 dB 15.00 Invert Image ON 10.00 Dump 5.000 Screen Image... 0.000 Multiport Test Set Setup -5.000 Misc Setup -10.00-15.00Backlight ON -20.00Firmware -25.00Revision S11 SWR 1.000/ Ref 1.000 [F1] 11.00 Service Menu 417.00000 MHz 1.6721 2 418.00000 MHz 1.7041 >3 419.00000 MHz 1.7734 10.00 Help 9.000 8.000 Return 7.000 6.000 5.000 4.000 3,000 2.000 1.000 1 Start 300 MHz IFBW 70 kHz Stop 500 MHz PExt C? !

Meas Stop ExtRef Svc 2018-06-02 17:22

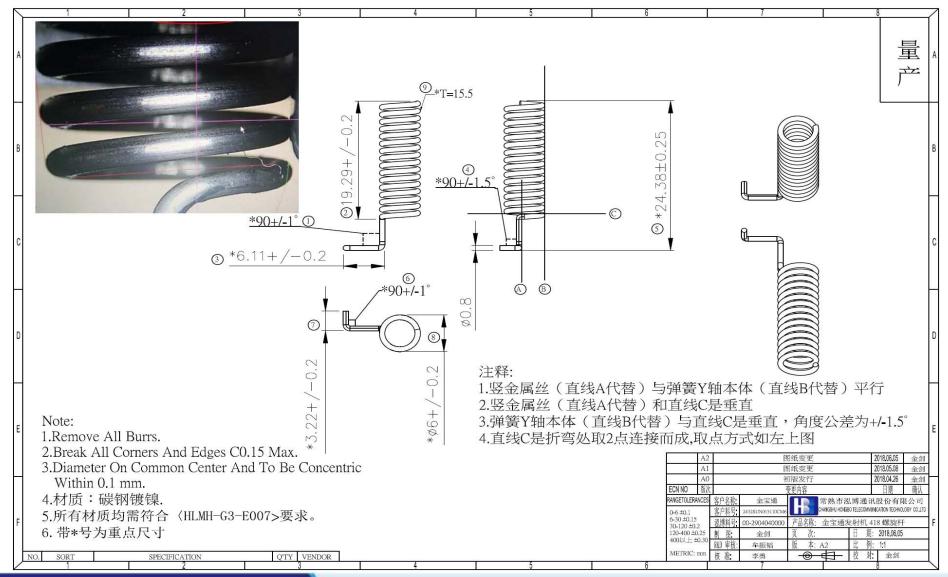


*Receivers





5 Dimension





Thanks For Your Kind Support!

