

2.4G PCB antenna

This section mainly talk about 2.4G PCB antenna. If regardless of cost, we can chose other antenna, like patch antenna (small size, medium performance, medium cost) or external whip antenna (large size, high performance, high cost), while PCB antenna have the lowest cost, medium size, and sufficient performance as long as being well designed.

This section include 3 types of antenna.



◆ Utral-mini PIFA antenna: PCB antenna used for Nano Dongle. Due to limited space of PCB, the max gain will be 6dB less than other antennas, which means the effective distance will halve. Thus, the size of whole board with antenna and MCU is about 11*18mm.

Small size Nano Dongle using PIFA antenna

Size of antenna is shown below (material of board is double-layer FR4 0.8mm)

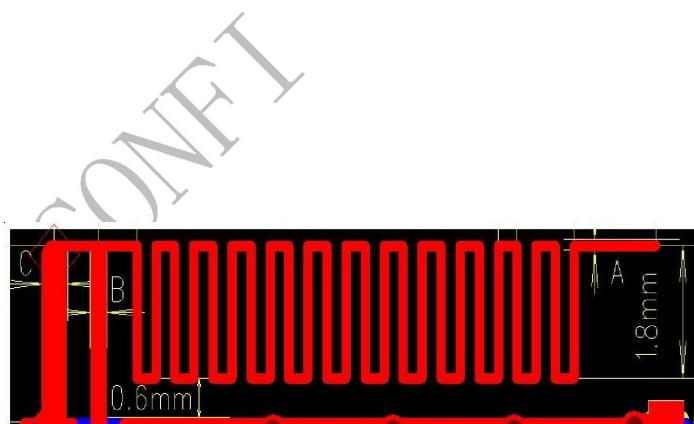
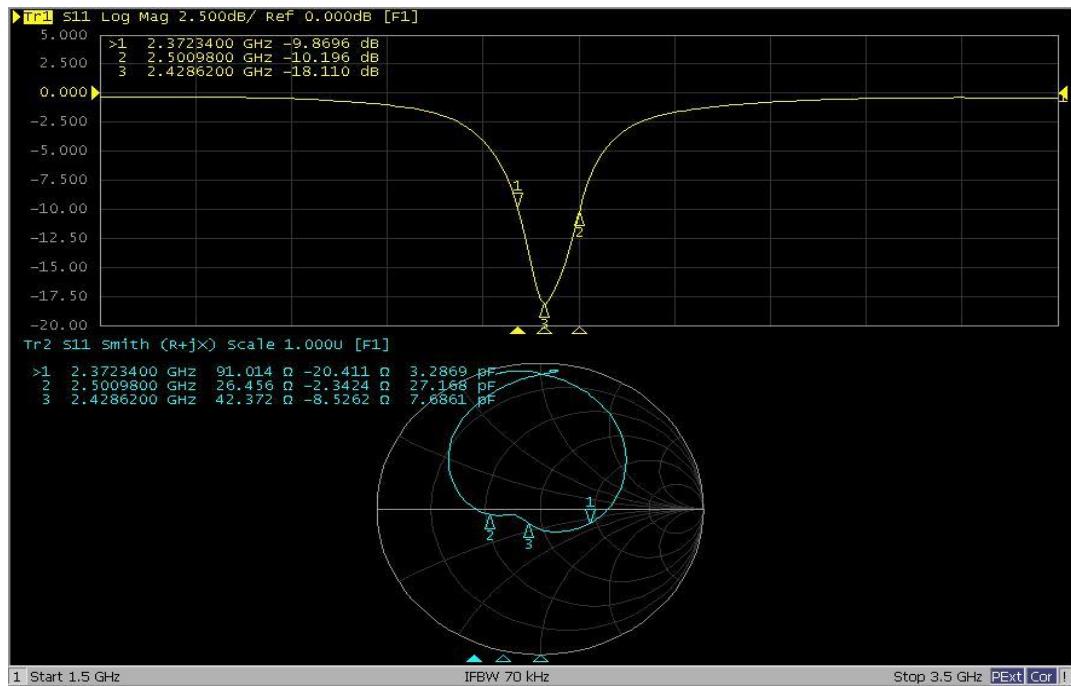


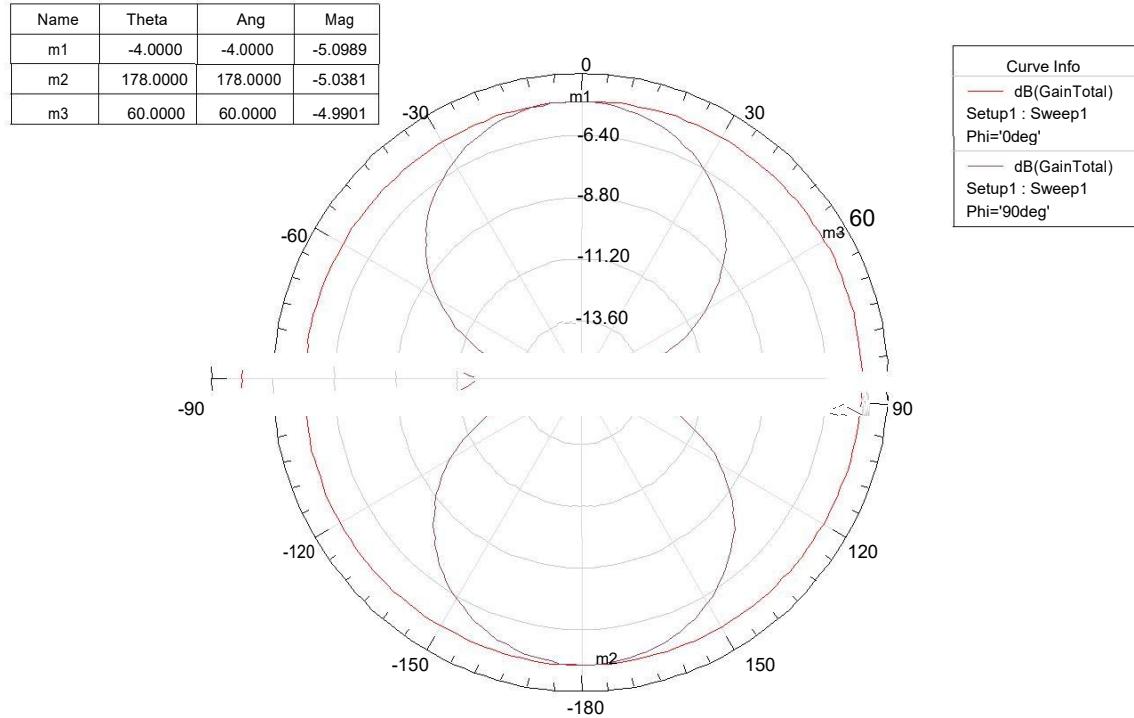
Image 1 : Nano Dongle PIFA antenna

Performance of antenna S11, working frequency range cover the whole 2.4G range.



Nano Dongle PIFA S11

2D and 3D gain shown below, this antenna max gain is about -5dB



Radiation Patterns(GAIN @ 2440MHz)

Plane	XY			XZ			YZ		
Frequency(MHz)	2400	2440	2480	2400	2440	2480	2400	2440	2480
Peak Gain(dBi)	-5.09	-5.11	-5.08	-4.97	-4.99	-4.98	-5.10	-5.08	-5.11

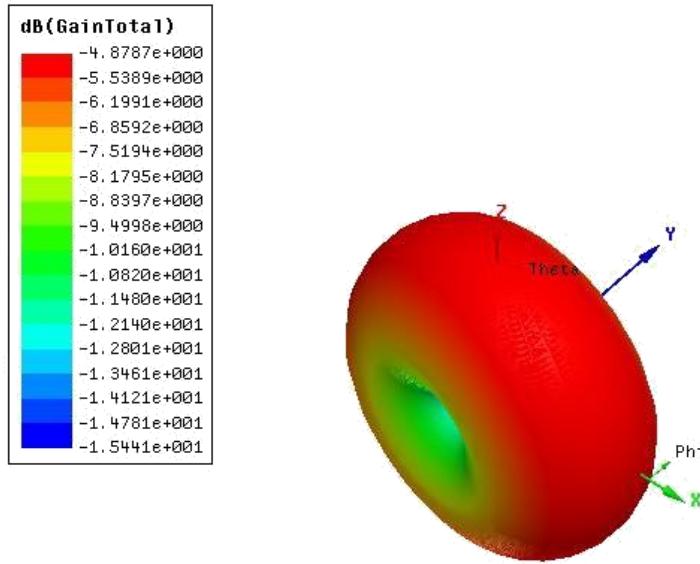


Image2 **Nano Dongle PIFA antenna gain**

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