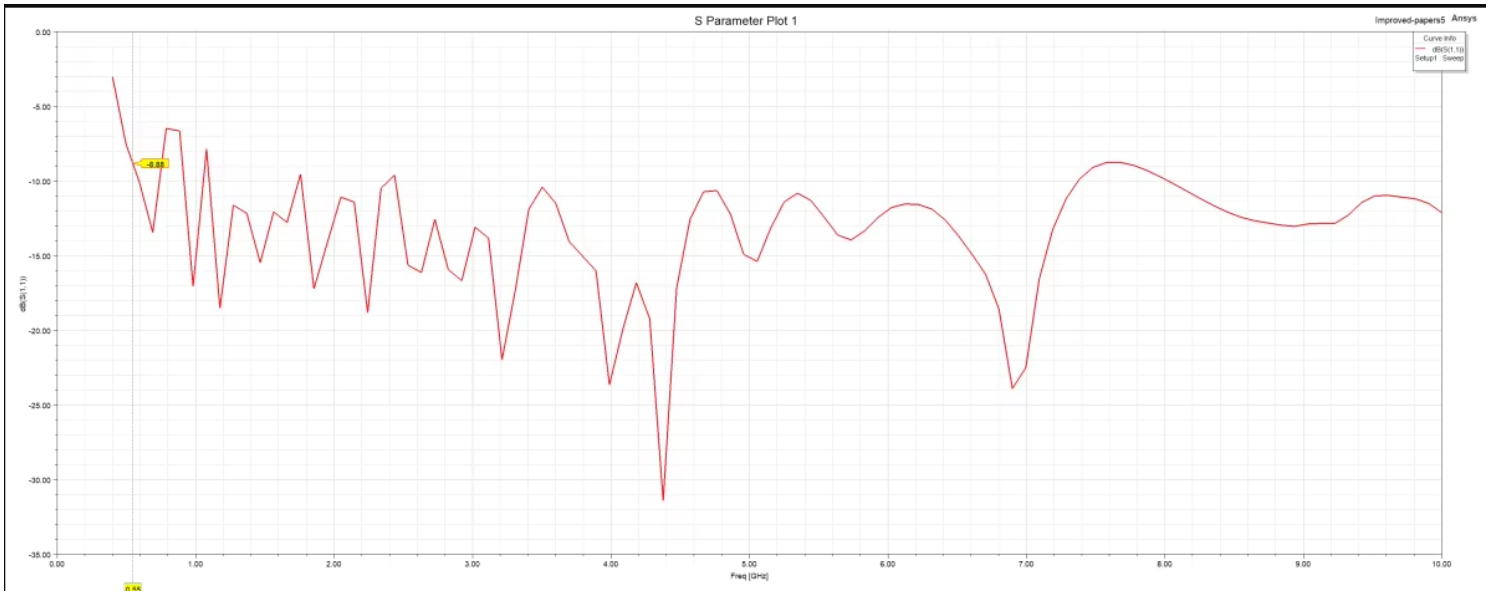
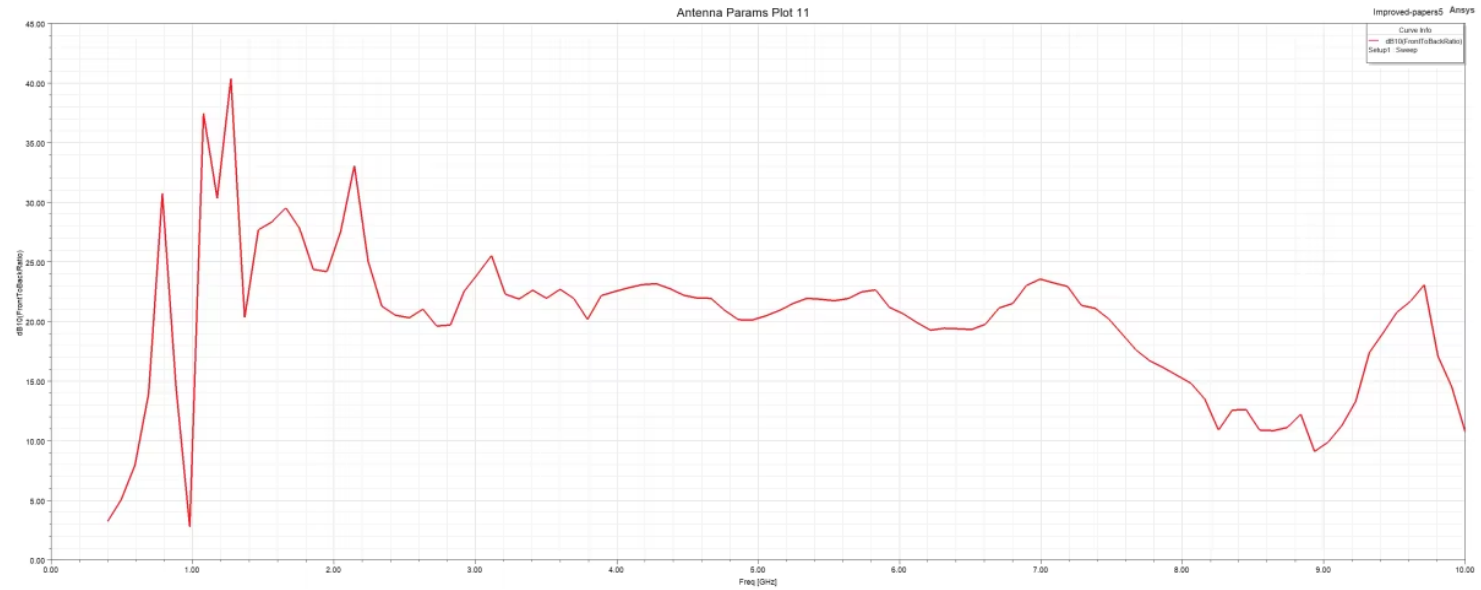
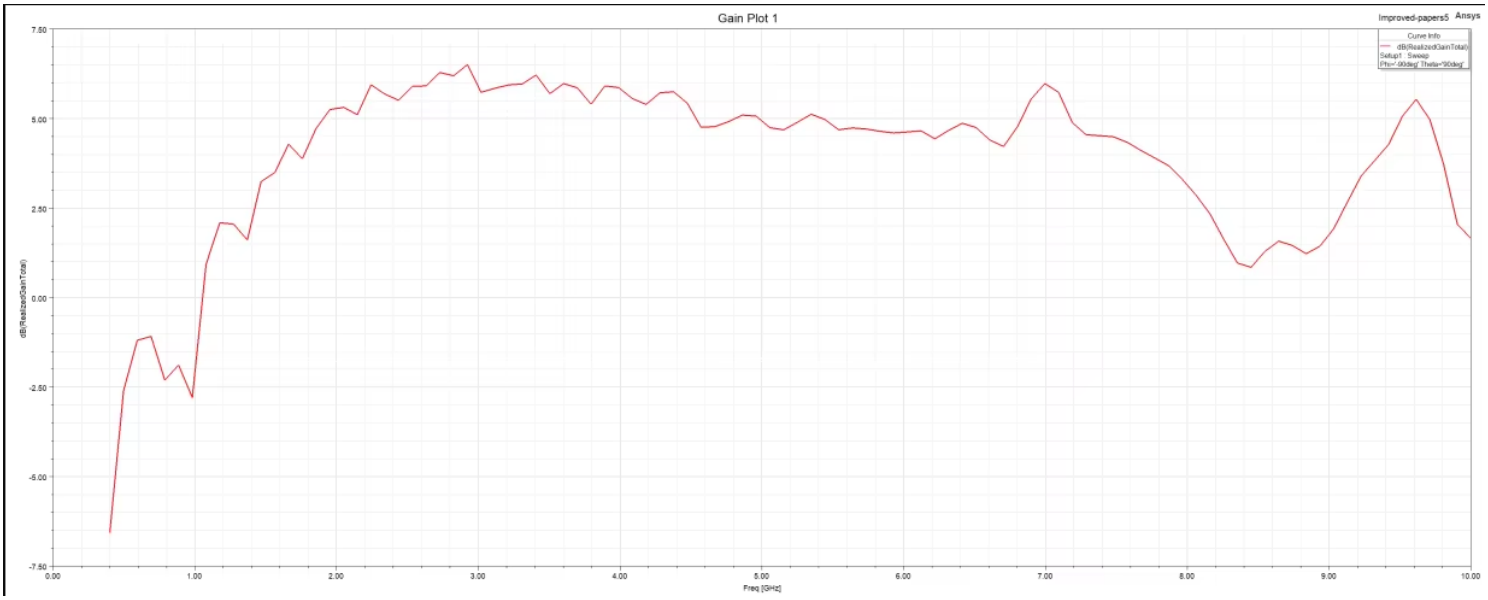
The ZA-048 antenna is a printed LDPA. We have used some optimized design techniques to significantly reduce the size of the antenna, and it can now be easily used with the tinySA ULTRA.Using new technology, we are now able to match the ultra-wide range of 400MHz-8GHz with only 27x23cm, but with some loss of low-frequency directionality. The antenna's input resistance is rated at 50Ω, and return loss fluctuates when the antenna is connected to a 50Ω source. In most frequency bands above 1GHz, the return loss is about 10dB or less, and the VSWR is about 2. In the 400M-1GHz band, the return loss is about 4.5dB or less, and the VSWR is about 4. The VSWR increases rapidly at frequencies below 400MHz.

ZA-048 can be used for radio direction finding under the frequency between 1GHz-8.5GHz without strict requirements. It exerts a decent sensitivity of direction of the signal source when being held single-handedly and changes directions along with the body. We designed it to be as low-frequency matching and directional as possible, but we had to lose some low-frequency directionality due to antenna area constraints.Please refer to the gain and front-back comparison charts below.




Antenna Params Plot 11
Improved-papers5
Ansys
Curve Info
dB10(FrontToBackRatio)
Setup1 : Sweep
dB10(FrontToBackRatio)
Freq [GHz]
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00


Gain Plot 1
Improved-papers5
Ansys
Curve Info
dB(RealizedGainTotal)
Setup1 : Sweep
Phi='-90deg' Theta='90deg'
dB(RealizedGainTotal)
Freq [GHz]
7.50
5.00
2.50
0.00
-2.50
-5.00
-7.50
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00