

CairWear Printed Loop Antenna – Tests of 22nd November 2024

3m Test range

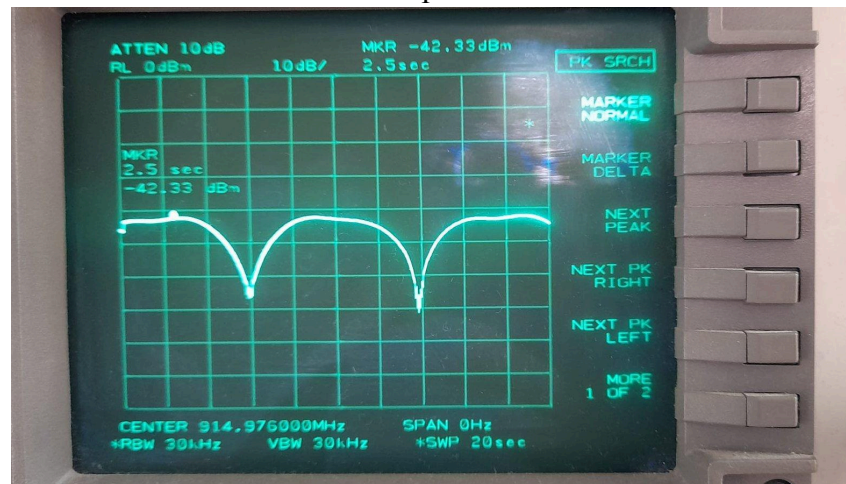


Test receive antenna: EMCO Model 93146
Receiver: HP8560A
Reference antenna – Sleeve dipole at 915MHz
Power meter MI6960
Reference Source: POA6280612 at 914.975 MHz –7.4dBm

Tests were on the #1 PCB in the printed enclosure with the motor in place
The below show the received levels horizontally polarised as the unit was rotated. It is close to omni-directional.

The loss of the range was measured with another signal source and a substitution reference sleeve dipole antenna - this came out to 39.1dB. The theoretical loss was 40.6dB. The measured result is by 1.5dB less because of ground bounce enhancement.

Reference sleeve dipole at 914.975 MHz



This gives the peak EIRP as +3.1dBm. The conducted power was +4.6dBm so this makes the loop antenna loss 1.5dB.

The results below are for a complete rotation of the table over about 15s. Some duplication is visible.

Unit under test at 915.0 MHz



Conclusion

The printed loop is approximately omni-direction when measured for horizontal polarisation.

The peak antenna gain is approximately -1.5dB over isotropic.