PHOENIX ANTENNA

TEST RESULTS

PTAPNWG-AW

ABSTRACT

Parsec's Phoenix is a paddle screw on Wi-Fi external antenna designed to be mounted directly to a standard reverse polarity SMA connector. The Phoenix works on both the 2.4GHz and 5 GHz Wi-Fi bands with high efficiency. Available in both black and white. Detailed product information and options are available under NDA.

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Product Details

Product Description

Parsec's Phoenix PTAPNWG-AW is a paddle screw on Wi-Fi external antenna designed to be mounted directly to a standard reverse polarity SMA connector. The PTAPNWG-AW works on both the 2.4 GHz and 5 GHz Wi-Fi bands with high efficiency. Available in both black and white.

Detailed product information and options are available under NDA. Patent pending.

Mechanical Details

Dimensions	8.16-inch length x 1.10-inch width x 0.60-inch thickness
Mounting	Directly screws onto a RPSMA female connector

Environmental Details

Operating Temperature	-40°C to 85°C
Ingress Protection	indoor

Product Dimensions

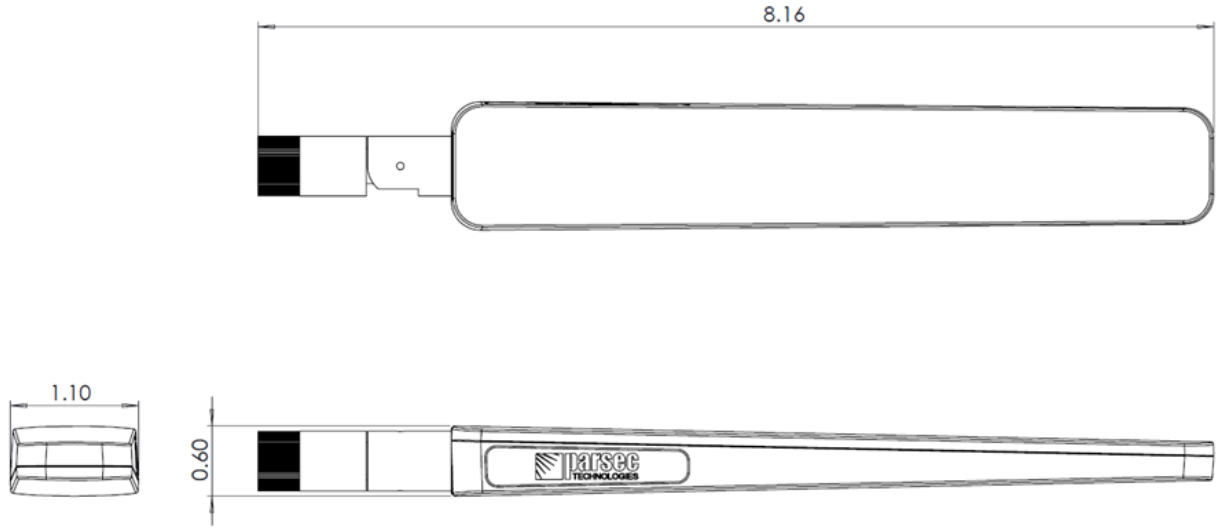


Figure 1: Product Dimensions

PARSEC PHOENIX WI-FI ANTENNA TEST RESULTS

Parsec Phoenix PTAPNWG-AW Dual Band Wi-Fi Antenna Peak Gain

The Parsec Phoenix PTAPNWG-AW dual band Wi-Fi antenna peak gain is determined from the peak gain for the PCB and radome in the ANSYS simulation combined with the measured loss for the cable and connector assembly connected to the antenna. The net peak gain is vs. frequency is shown in the table below.

Frequency (GHz)	ANSYS Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)
2.40	2.68	-0.27	2.41
2.44	2.86	-0.41	2.45
2.48	2.82	-0.14	2.68
5.15	6.06	-1.37	4.70
5.20	6.00	-1.28	4.72
5.25	5.84	-1.23	4.61
5.30	5.62	-1.25	4.37
5.35	5.35	-1.11	4.24
5.40	5.08	-1.08	4.01
5.47	4.73	-0.91	3.82
5.60	4.01	-0.82	3.19
5.73	4.61	-0.76	3.86
5.80	4.71	-0.73	3.97
5.85	4.36	-0.84	3.52

Table 1: Frequency vs ANSYS Gain vs Cable Loss vs Net Gain

The frequencies in the table include the upper and lower band edge frequencies for the U-NII bands plus a frequency in the middle of each band.

The radiation pattern for the Parsec Phoenix PTAPNWG-AW dual band Wi-Fi antenna is omnidirectional with highest gain perpendicular to the length of the antenna. The azimuth and elevation radiation patterns are shown on the following pages.

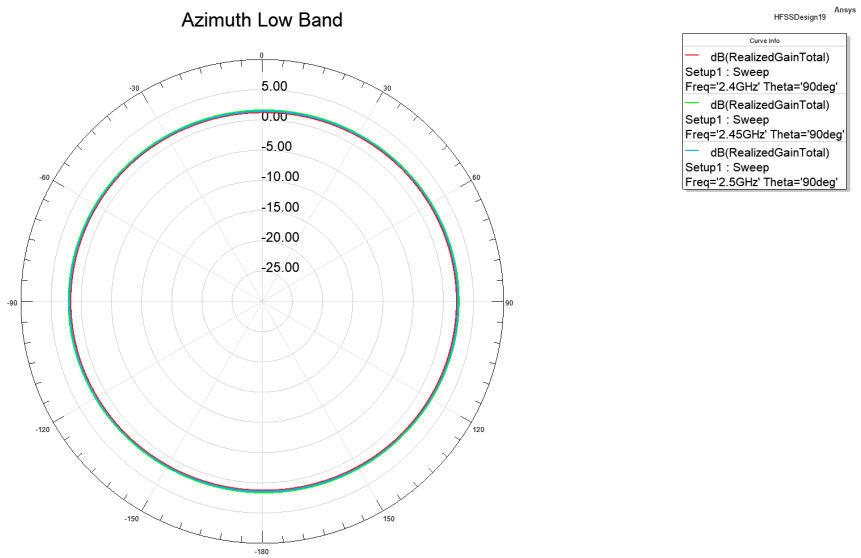


Figure 2: Azimuth, 2.4 GHz

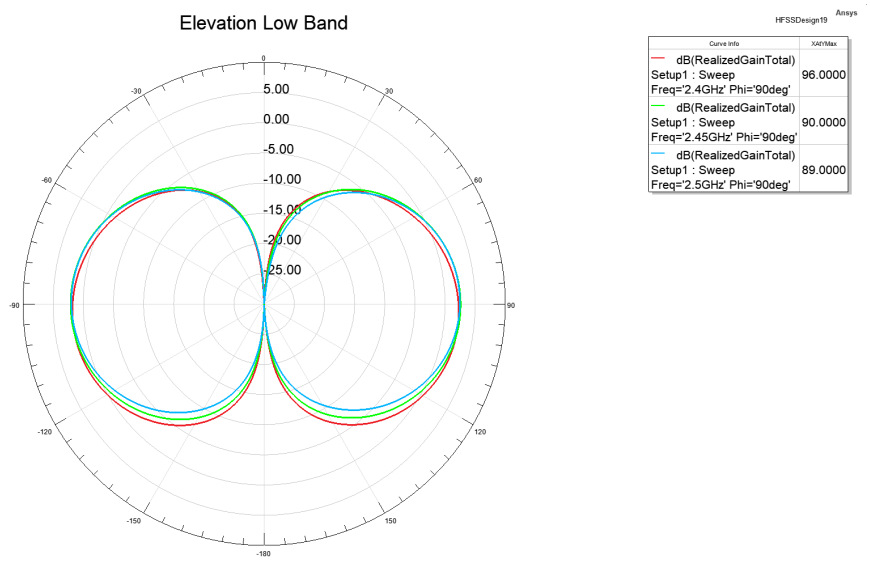


Figure 3:Elevation, 2.4 GHz

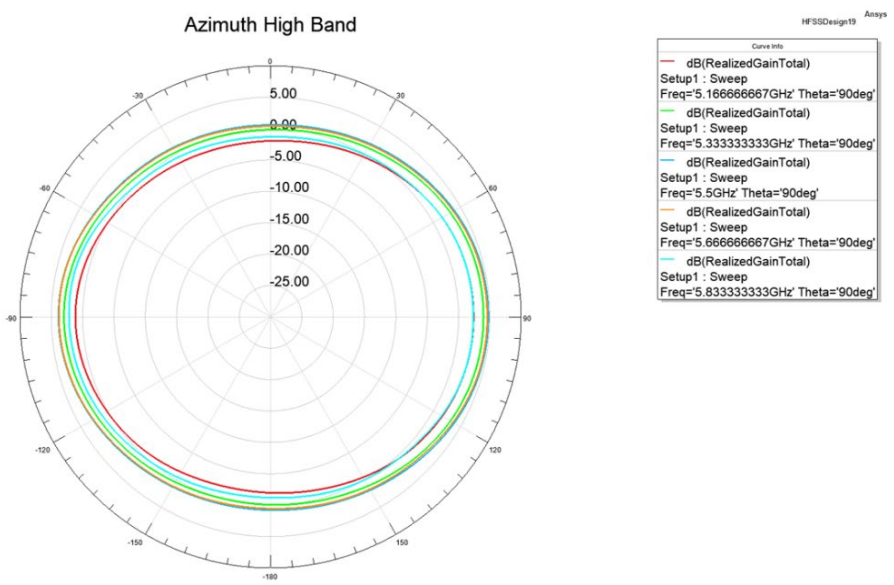


Figure 4: Azimuth, 5 GHz

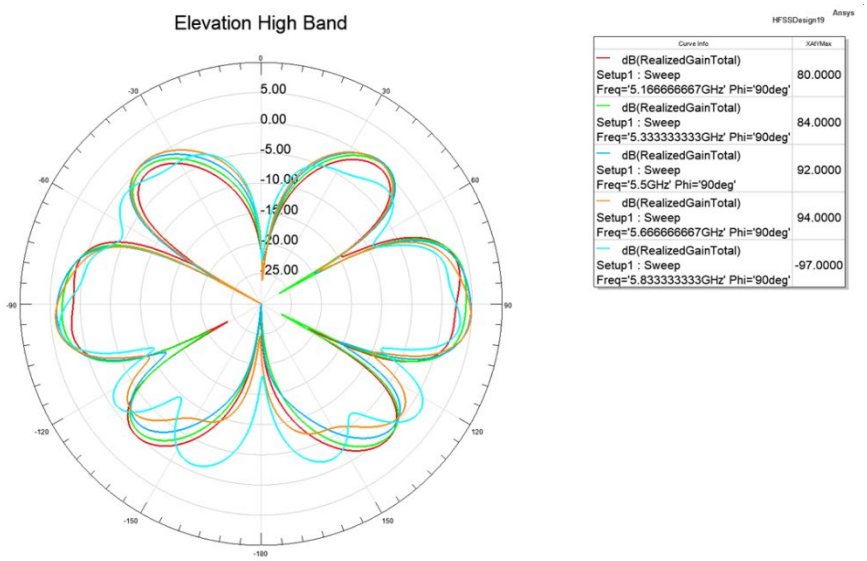


Figure 5: Elevation, 5 GHz

ANSYS Simulation Setup Details

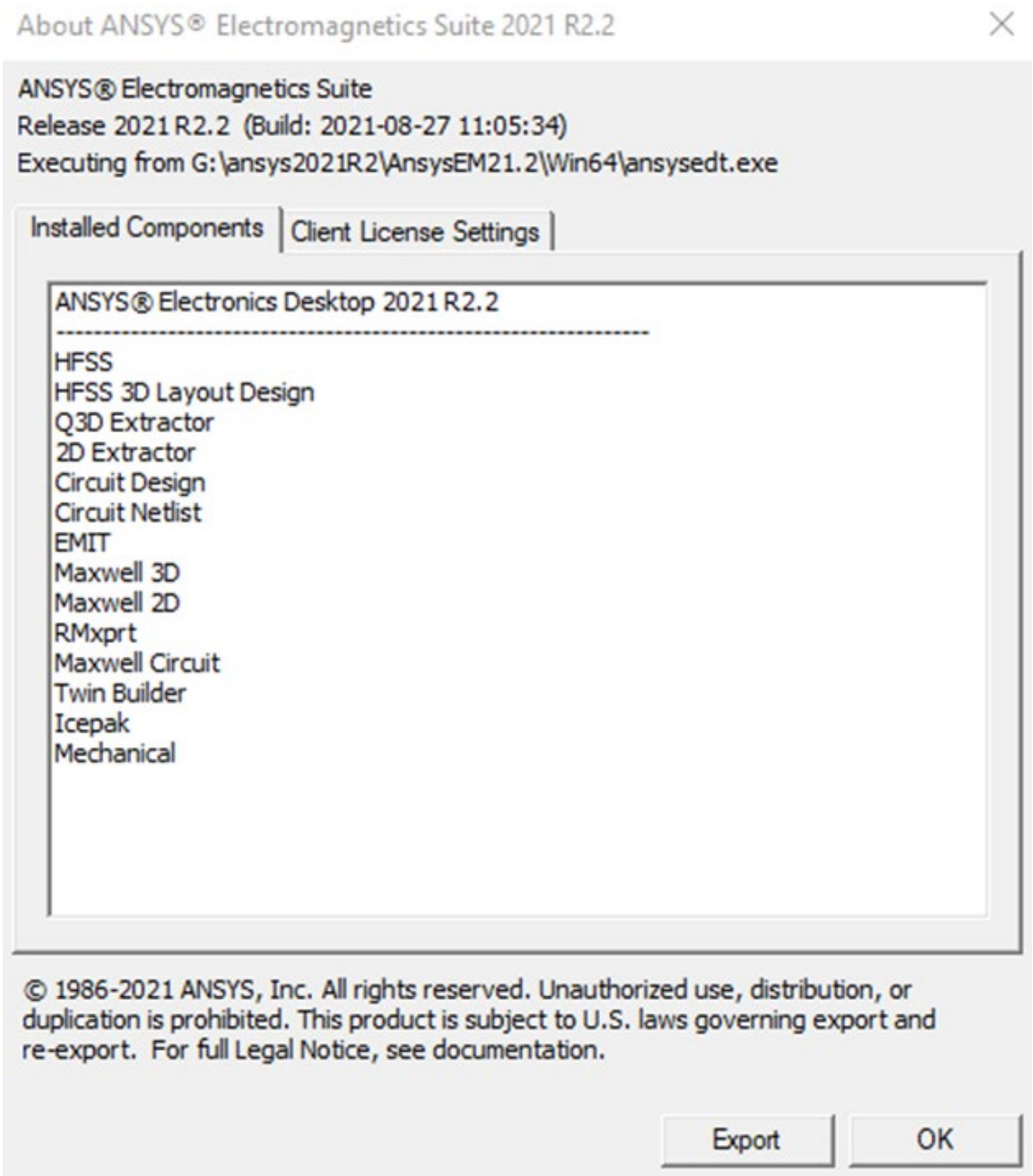


Figure 6: ANSYS Software details.

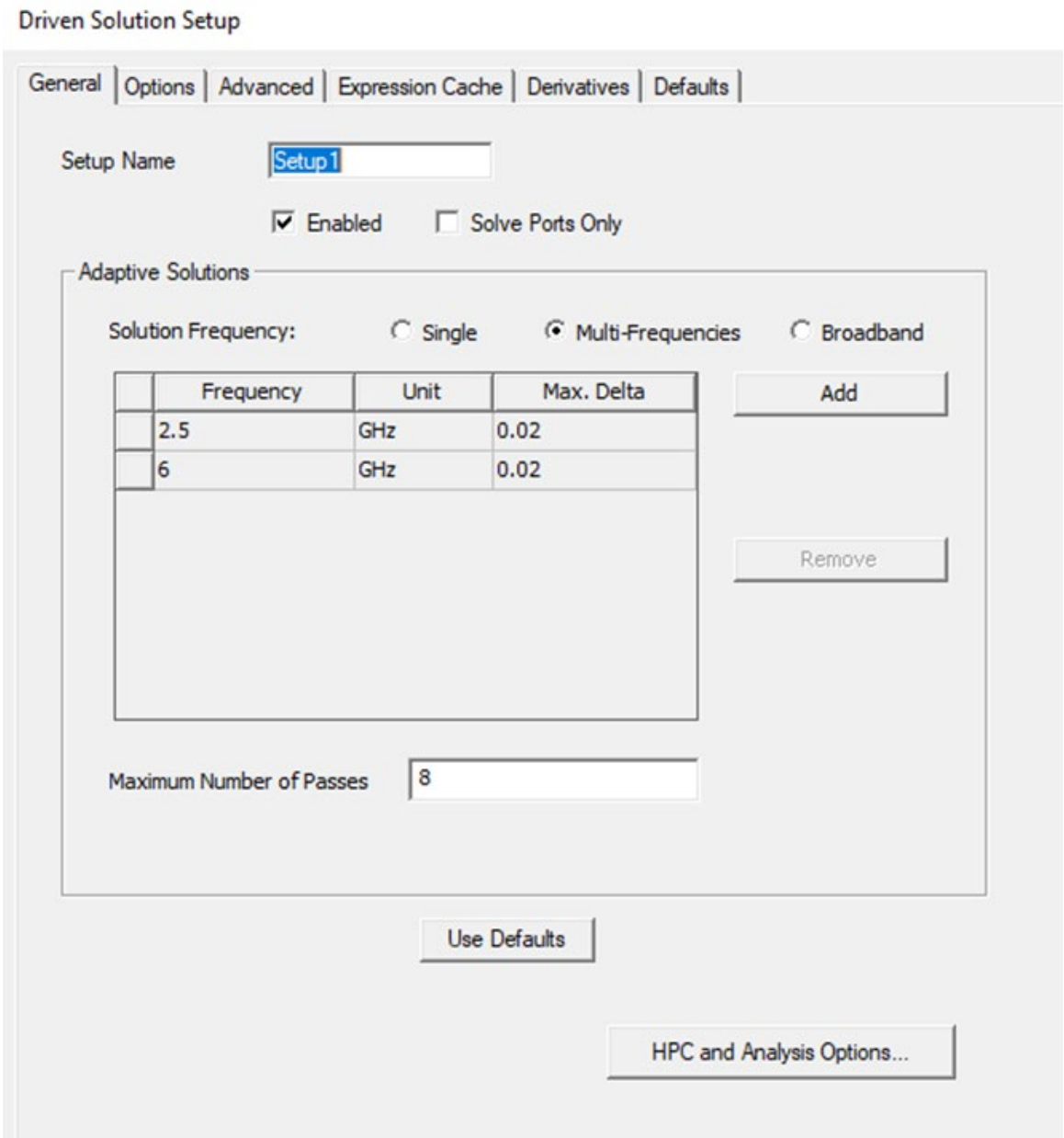


Figure 7: Driven Solution Setup: General

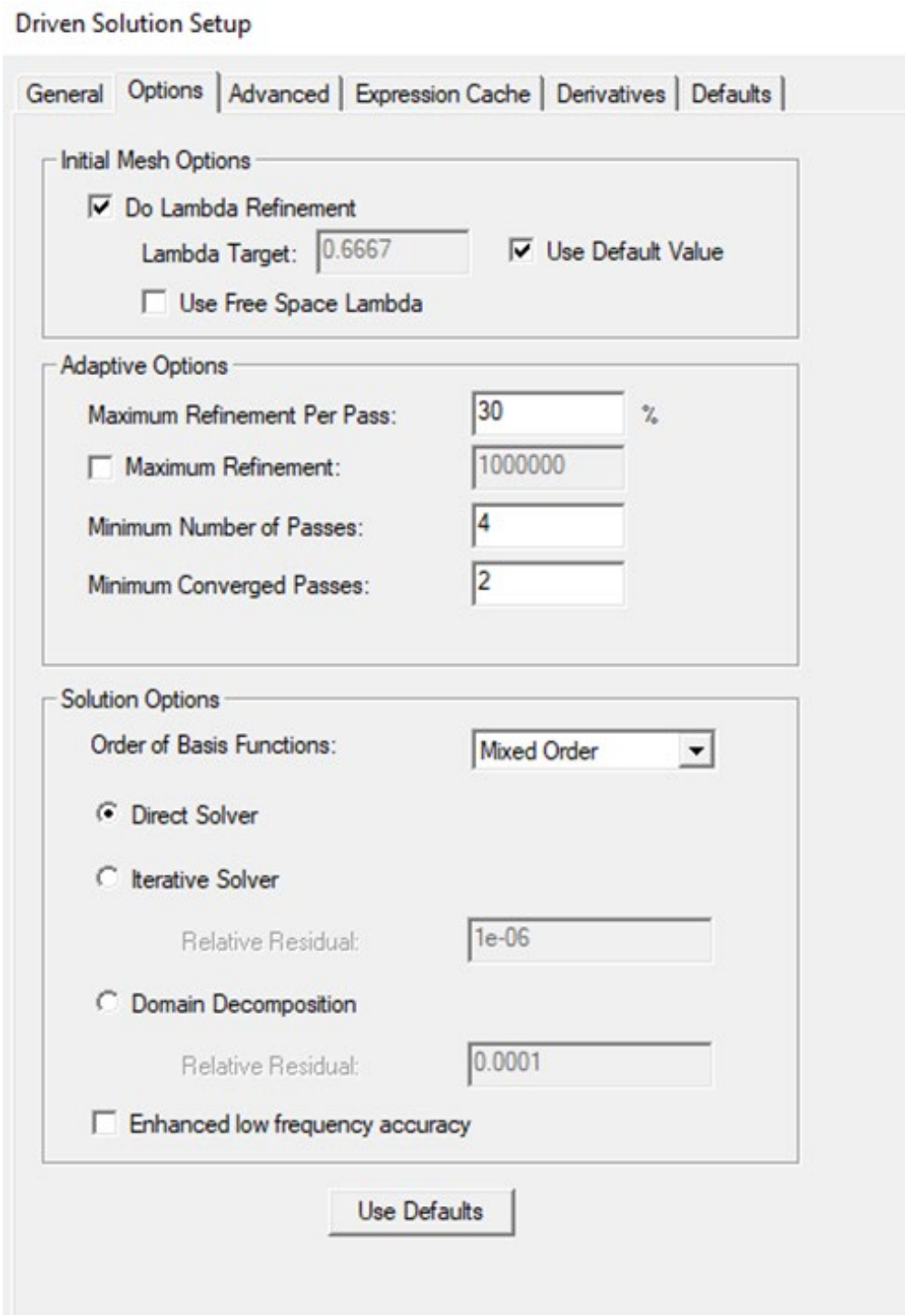


Figure 8:Driven Solution Setup: Options

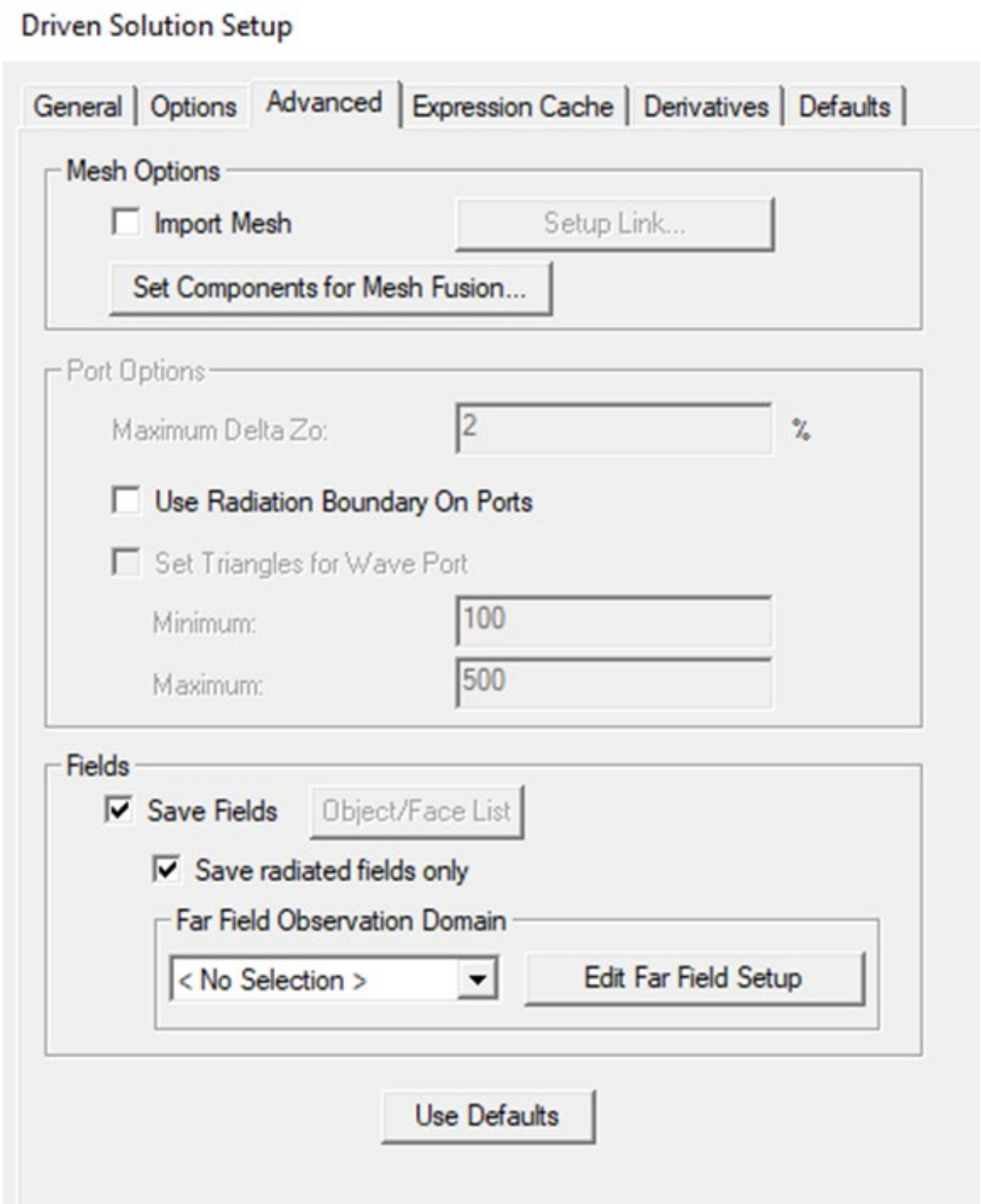


Figure 9: Driven Solution Setup: Advanced

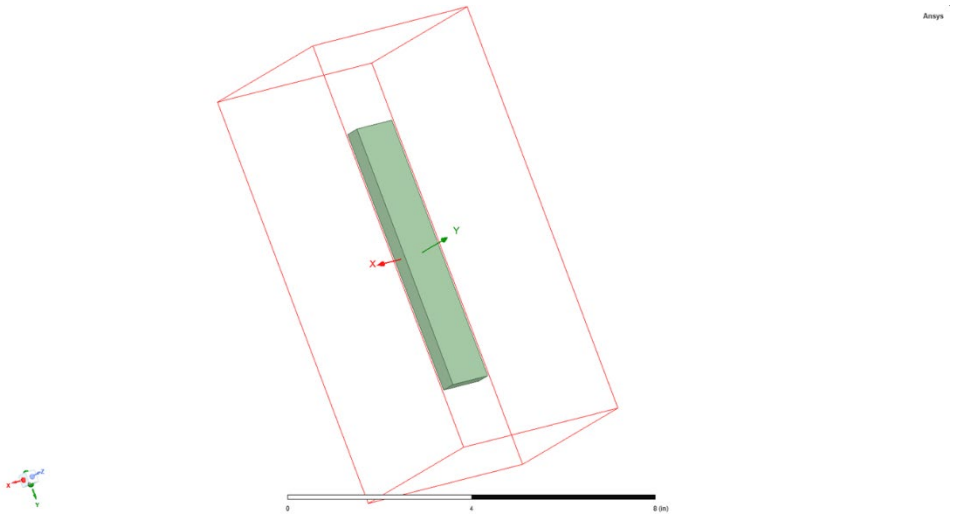


Figure 10: Origin and X, Y, Z planes setup of the model

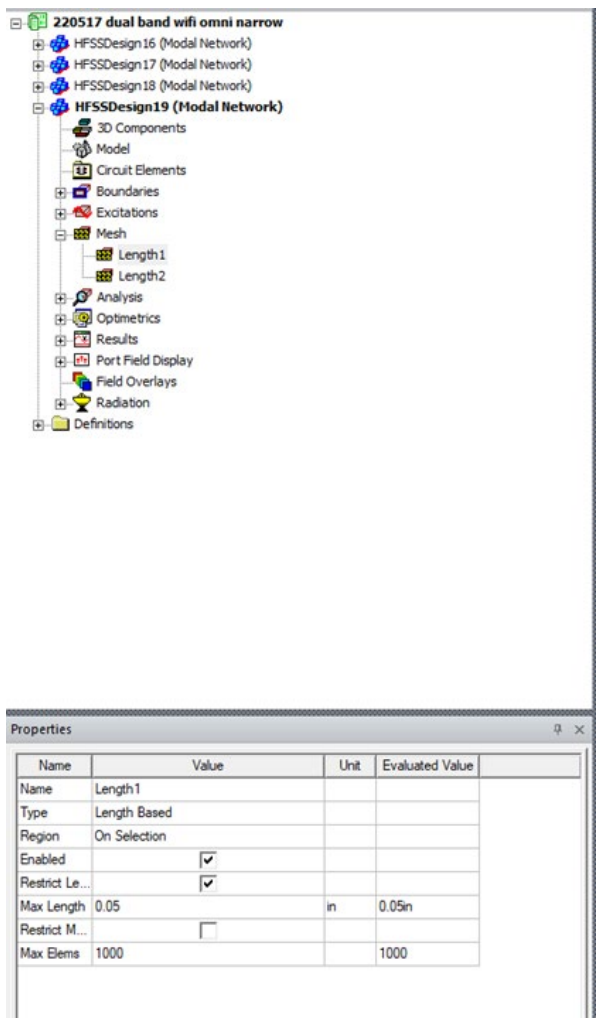
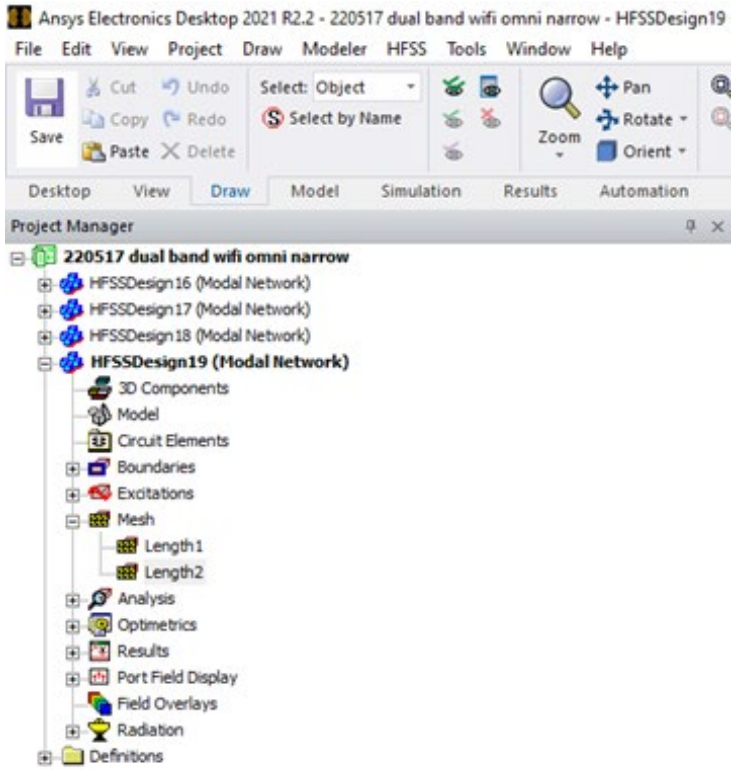


Figure 11: Length 1 mesh properties



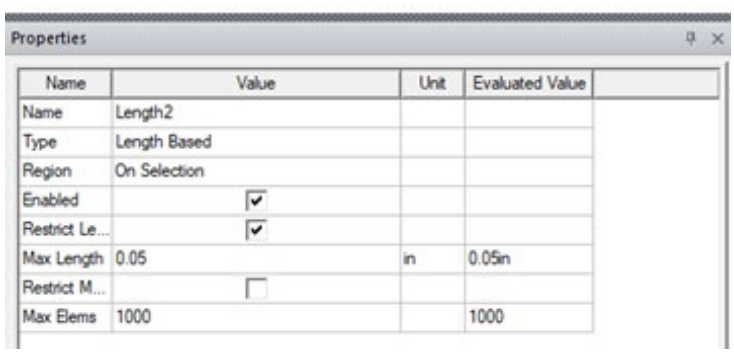


Figure 12: Length 2 mesh properties

Network Analyzer Measurement

The Hewlett Packard 8753 E network analyzer show below was used to make return loss measurements for the assembled Parsec Phoenix PTAPNWx dual band Wi-Fi antenna. It was also used to measure the insertion loss of the cable and connector knuckle assembly at the base of the antenna separate from the antenna.

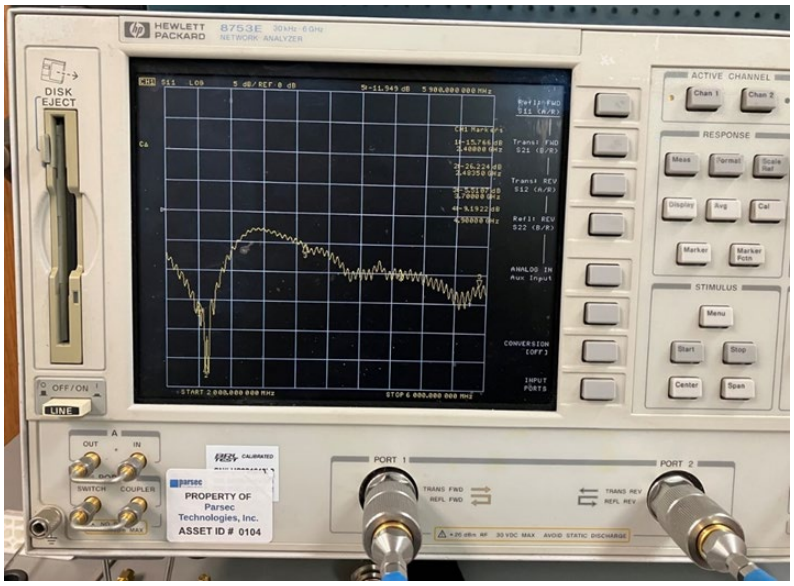


Figure 13: Hewlett Packard 8753 E network analyzer

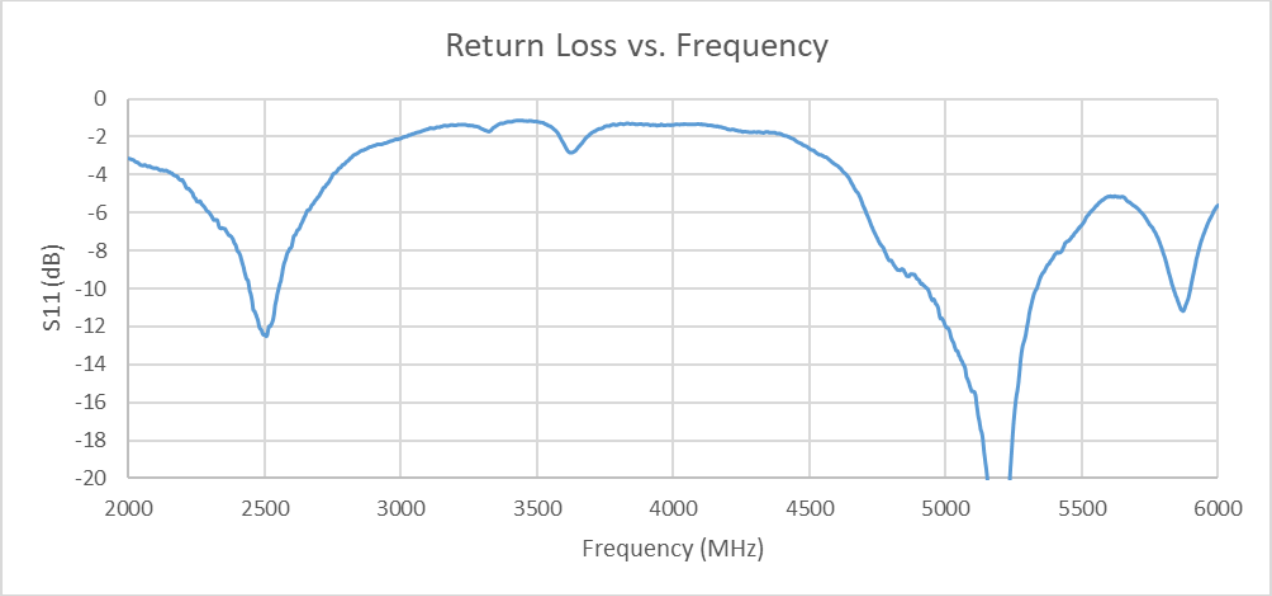


Figure 14: Return Loss vs Frequency Plot

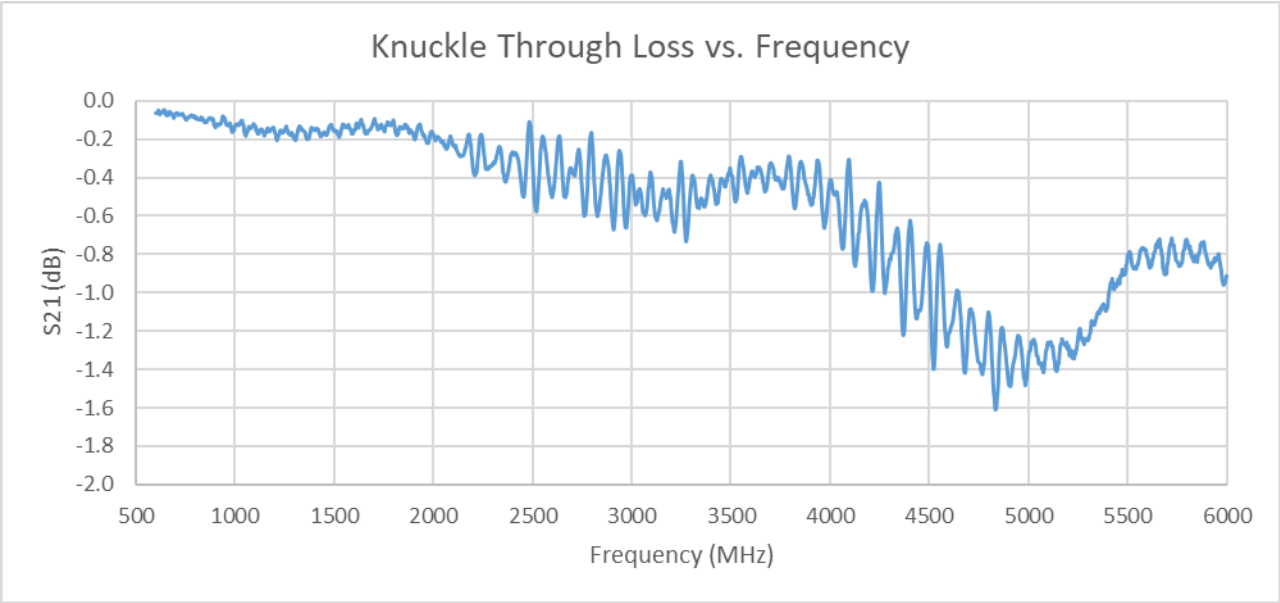


Figure 15: Knuckle Through Loss vs Frequency

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