Highlander L-Code Technical Testing Report

Introduction

The Highlander (FS3) was tested according to the American Orthotic and Prosthetic Association (AOPA) test specifications published in September 2010 of *AOPA Prosthetic Foot Project Report.* The Highlander exceeds all required thresholds necessary to recommend the Healthcare Common Procedure Coding System (HCPCS) codes L5981. All tests were conducted using a standard 27 cm left foot for an A80 patient. Abbreviated test descriptions and results are described below.

L5981 (All lower extremity prosthesis, flex-walk system or equal)

In order to use code L5981, the prosthetic foot must meet the Dynamic Keel threshold of Keel Test, and must meet the Dynamic Heel threshold of Heel Test, and must have independently deflecting heel and keel as described in AOPA *Prosthetic Foot Project Report.*

The Keel Test involves loading the toe of the prosthetic foot at an angle of 20° with a force of 1230 N and determining the displacement while under that load and percent of energy returned by calculating the area between loading and unloading curves. Based on the test results the Keel can be classified as Rigid, Flexible, or Dynamic based on the classification criteria below.

Keel Type	Displacement @ 1230 N	% Return
Rigid	<25 mm	NA
Flexible	≥25 mm	<75%
Dynamic	≥25 mm	≥75%

For the Highlander, the actual displacement exceeded 25 mm and the percent of energy returned exceeded 75% which meets the criteria for the Dynamic Keel threshold of the Keel Test.

The Heel Test involves loading the heel of the prosthetic foot at an angle of 15^{o} with a force of 1230 N and determining the displacement while under that load and percent of energy returned by calculating the area between loading and unloading curves. Based on the test results the Heel can be classified as Dynamic or Cushioned based on the classification criteria below.

Heel Type	Displacement @ 1230 N	% Return
Dynamic	≥13 mm or pass % Return	≥82% or pass Displacement
Cushioned	Does not meet displacement and % Return Criteria for Dynamic	

For the Highlander, the actual displacement exceeded 13 mm and the percent of energy returned exceeded 82% which meets the criteria for the Dynamic Heel threshold of the Heel Test.

Determination of whether a foot has independently deflecting heel and keel is a judgment based on whether the mechanical design of the prosthetic foot meets AOPA requirement of independent heel/keel design. The Highlander with its two primary composite springs; the primary keel and the integrated full length soleplate in Freedom Innovations' judgment, meets the definition of independently deflecting heel and keel.