# LUMASIL: A Low-Level Light Therapy Device for Treating Diabetic Foot Ulcers

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## Technology description

Summary
LumaSiL is a low-level light therapy (LLLT) producing device which aims to accelerate wound healing and reduce the incidence of infection in diabetic foot ulcers (DFUs). There is no treatment option using this technology that actively encourages diabetic foot ulcer healing, complements current procedures, and maintains patient compliance. Complications like infection often require the need for surgical intervention such as lower-extremity amputation. Previous studies have shown that exposing wounds to dose-specific levels of light can reduce wound size and promote healing. Incorporated into a standard of care, the total-contact cast, this device transfers LED light from a power source to the wound site in order to introduce an active healing component for diabetic foot ulcers.
Addressed Clinical Need
Diabetic foot ulcers are wounds, resistant to healing, on the bottom of the feet of diabetic patients. One-fourth of the 29 million American diabetics will develop a diabetic foot ulcer at some point during their lifetime. The gold standard of care is an off-loading, total-contact cast that removes gait pressure from the wound. This treatment focuses on isolating these wounds in order for passive healing over time. Furthermore, maintaining patient compliance is an ongoing difficulty with diabetic care. In light of delayed healing, diabetic patients with a non-healing ulcer are more prone to lower-extremity amputations. LumaSil looks to augment this current gold standard therapy.
Technology Description
LumaSil is an automated, preprogrammed active healing device that can be easily integrated into a total-contact off-loading cast. The device is weatherproof, low-risk, and has a low-profile. The current device is comprised of three main components: a module light source, a light-emitting halo, and a connector unit. The module light source, secured to the cast, produces the dose-specific levels of light, which is transmitted to the light-delivering halo. These two pieces are connected via a 3D-printed connector piece which is secured to module casing.

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