for Guided Surface Wave Transmission in a Lossy Media," which was filed on September 9, 2015 and assigned Application Number 14/848,413, and which is incorporated herein by reference in its entirety.

BACKGROUND

[0003] For over a century, signals transmitted by radio waves involved radiation fields launched using conventional antenna structures. In contrast to radio science, electrical power distribution systems in the last century involved the transmission of energy guided along electrical conductors. This understanding of the distinction between radio frequency (RF) and power transmission has existed since the early 1900's.

SUMMARY

[0001] Aspects of the present disclosure are related to site specification for directional guided surface wave transmission in a lossy media.

[0002] In one aspect, among others, a probe site comprises a propagation interface in a surface of a lossy conducting medium, the propagation interface including a first region and a second region adjacent to the first region, the first region comprising a first lossy conducting medium and the second region comprising a second lossy conducting medium; and a guided surface waveguide probe positioned over the propagation interface, and adjacent to the first region and the second region, the guided surface waveguide probe configured to generate at least one electrical field that synthesizes a wave front having a complex Brewster angle of incidence corresponding to the first lossy conducting medium when excited by an excitation source, where the wave front launches a guided surface wave along the propagation interface and the surface of the lossy conducting medium in a radial direction that is defined by the first region and restricted by the second region. In one or more aspects of the present disclosure, the wave front can intersect with the propagation interface at the complex Brewster angle of incidence at a crossover distance from the guided surface waveguide probe. The first region and the second region can extend along the propagation interface from adjacent to the guided surface waveguide probe to beyond the crossover distance. The first lossy conducting medium can be a terrestrial medium (e.g., Earth). The second region can extend into the terrestrial medium at least to a depth of a complex image of the guided surface waveguide