NEXTGEN GNSS Antenna Overview

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Dielectrically loaded antenna technology

- unique construction process
- built around a ceramic dielectric core
- electromagnetic fields are intensified within the dielectric core and reduced in the surrounding space
- reduces the density of electromagnetic near-fields
- maintains the ability of the antenna to radiate to the far-field.
NEXTGEN Multi-frequency GNSS Antenna

• Multi-frequency response optimised for both Galileo E1/E5 and GPS L1/L5 GNSS BOC waveforms
• Targetted at automotive sector – driverless cars
• Cross-polarisation isolation of the order of 30dB
• Stable phase centre
• Physically 13 mm diameter × 33 mm long
• Operation without a ground plane
• Beam-width of the order of 120°
• Improves accuracy and reliability of GNSS systems when used in urban environments with significant multi-path interference
• Field testing programme needs to be established with suitable multi-frequency GNSS module
Galileo E5 Alt-BOC Waveform
Excellent Front-to-Back Ratio Predicted at 1.181GHz and 1.574GHz
Frequency Domain Simulations: Front-to-Back Responses for Different Helix Lengths
Simulated RH circular polarised patterns at GPS L1 and GPS L2
Imaging Process Steps

Bare ceramic
Copper plated
Photo-resist coated (and image exposed) ceramic
Developed
Etched
Stripped
Helix Technologies believes that the dielectric-loaded, multi-filar helix antenna provides significant performance advantages over incumbent antenna technologies for next-generation GNSS applications.
Thank-you!