Single-shot dense 3D reconstruction using colored structured light is a difficult problem due to the undesired effects of ambient lighting, object albedo, non-equal channel gains, and channel cross-talk. We propose a novel single-shot dense 3D reconstruction using colored structured light. Our method combines the self-equalizing De Bruijn sequence, scale-space analysis, and bandpass complex Hilbert filters to achieve insensitivity to ambient lighting, object albedo, and non-equal channel gains. The proposed method reconstructs about 85% of points compared to time-multiplexing structured light strategies and the decoding error in the recovered projector coordinate is less than one projector pixel for about 90% of reconstructed points.