

## Introduction

Welcome to *free103point9's Wave Guide*, a collection of essays, interviews, and reference materials designed as the core-curriculum texts for free103point9's education initiative Radio Lab. Radio Lab workshops explore transmission as a creative medium, how transmitters work, and the history of broadcasting.

Radio Lab instructors help students build and repair radio transmitters, and pass on important electronics expertise. Students learn about government regulations and prohibitions, and the history of pre-regulated radio and unlicensed uses. Students also learn about the rich history of Transmission Art and the diverse ways artists have used the radio spectrum in their work. Students learn how to produce content for the airwaves and the internet, and other mass communication skills. They learn responsibility for the equipment that they build themselves, and how to reach out to other organizations, as radio is, by nature, a communications tool for many different voices.

Founded in Brooklyn in 1997 as a microcasting artist collective, free103point9's mobile operations made airtime available to community voices, local bands, and most significantly to a group of under-served artists shaping conceptual works specifically for radio transmission.

Today, free103point9 is a 501(c)(3) nonprofit media arts organization focused on establishing and cultivating the genre Transmission Arts by promoting artists who explore ideas around transmission as a medium for creative expression. These investigations include practices in AM and FM radio, Citizen's Band, walkie-talkie, generative sound, and other broad and microcasting technologies utilizing the transmission spectrum. free103point9 programs include a performance/exhibition/transmission series, an online radio station, a distribution label, an education initiative, an artist-in-residency program, a preservation program, and a forthcoming study center and archive.

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## I. The History of Broadcasting / Understanding Regulation Policy

**The Cartoon Guide to Spectrum Policy**  
New America Foundation

**United States Early Radio History (excerpts)**  
Thomas H. White

**An Explanation of the Citizen's Guide to the Airwaves (excerpts)**  
J.H. Snider

**An Interview with Edward Miller**  
Sarah Lippek

## II. How Transmitters Work

**How Stuff Works: Radio (excerpts)**  
Marshall Brain

**Microcasting Basics**  
Tom Roe

## III. Transmission as a Creative Medium

**Transmission Works:  
Selections Towards Identifying a History**  
Galen Joseph-Hunter

**Regenerative Feedback in the Medium of Radio:  
Study 1.0 (FM) for Radio Transceiver**  
Matthew Burtner

**Tune(In)) Radio Communities and Microcosm**  
Matt Mikas

**Transmission II: Airborne**

**free103point9 Transmission Artists**

**An Interview with Gregory Whitehead**  
Allie Alvarado

## IV. Resources