

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

The following chronology identifies transmission works spanning from early radio and television experiments to contemporary transmission projects completed in the current year. The selections outlined below are intended as a reference to enhance Radio Lab discussions and are by no means comprehensive.

1901 Guglielmo Marconi "S"

Guglielmo Marconi is credited as the inventor of wireless telegraphy—messages distinct from signals. Marconi's early systems were based on spark technologies inspired by Nikola Tesla's system theoretically demonstrated during his lecture *On Light and Other High Frequency Phenomena*, presented in 1893, before a meeting of the National Electric Light Association in St. Louis.

Marconi first sent radio signals of 300 meters (and up to 6 kilometers) from Salisbury Plain (England) in 1896. On December 12, 1901 the first radio signal was transmitted across the Atlantic from Poldu, Cornwall England to St John's, Newfoundland.

From Signal Hill Marconi wrote, "I placed a single earphone to my ear and started listening... The receiver on the table before me was very crude... [but] I was at last on the point of putting the correctness of all my beliefs to the test... Suddenly, there sounded the sharp click of the 'tapper'... and I listened intently. Unmistakably, the three sharp clicks corresponding to three dots [Morse Code for the letter S] sounded in my ear."

To reach Newfoundland the signal would have to bounce off the ionosphere twice. Dr Jack Belrose of Ottawa's Communications Research Centre recently contested this, however, based on theoretical work and an actual reenactment of the experiment; he believes that Marconi heard only random atmospheric noise and mistook it for the signal. However, there is little doubt that by February 1902, Marconi's apparatus was fairly reliably receiving complete messages at 2500 km (1550 miles) at night and 1100 km (700 miles) by day, and usually picked up a special test signal at 3400 km (2100 miles), the distance of Poldhu to Newfoundland. By 1903, the Marconi Company was carrying regular transatlantic news transmissions.

1924-25 John Logie Baird Television Transmission

Scottish engineer John Logie Baird is known as the first person to demonstrate a working television. Baird experimented with the Nipkow disk (a mechanically spinning disk with a series of equally distanced circular holes of equal diameter drilled in it) and demonstrated that a semi-mechanical analogue television system was possible with the transmission of a static image of Felix the Cat in London in 1924. This early system was highly primitive—images were difficult to view and transmitted only in shades of brown. On October 30, 1925 first moving image was transmitted—a grainy image of a ventriloquist's dummy's head.

1929 Bertolt Brecht "The Lindbergh Flight"

*Der Lindberghflug* was written for the Baden-Baden Chamber Music Festival in 1929. The programme included *Amateur Music* and *Original Compositions for Radio*. Bertolt Brecht's epic libretto presents the first successful flight across the Atlantic, by Charles Lindbergh in 1927, as a symbol of the individual's power in society. The music was by Kurt Weill and Paul Hindemith. The world premiere on July 27, 1929 was a purely radiophonic event: the piece was transmitted into several surrounding rooms from a space that had been temporarily converted into a broadcasting studio. For a concert performance on the following day Brecht divided the stage into two halves: the ensemble, chorus and speakers were placed on the left-hand side, The Radio, and on the right, separated by a screen, sat Josef Witt in his shirt-sleeves to represent The Listener and declaim the sung part of Lindbergh. In the radiophonic version this was actually supposed to have been realized by each listener in person, sitting by his own radio set at home.

For later performances, Brecht proposed that school classes, for example, should study the work and then complete a version broadcast without the aviator's part. This communication experiment with the Atlantic flight attracted some attention, but not much of a concrete response. Even so, the Deutsche Welle presumably derived their programme called *Making music with invisible partners* from it. Here chamber music played without the full complement of instruments invited listeners to play the missing parts by their radios at home.

1938 Orson Welles "War of the Worlds"

On October 30, 1938 Orson Welles and his recently formed Mercury

Theater group broadcast their radio adaptation of H.G. Wells *War of the Worlds* (1898). At 8 p.m. that Sunday evening, with programming interrupted with “news bulletins” (a first), an alarmed audience heard that Martians had begun an invasion of earth in an out-of-the-way place called Grover’s Mill, New Jersey.

The “Panic Broadcast,” as it came to be known, changed broadcast history, social psychology, civil defense, and set a standard for provocative entertainment. It is the progenitor of the U.S. Civil Defense program, it was the source of the first academic study (by Princeton) of mass hysteria, and broadcasters have studied it for 60 years as a classic of effective communication. Approximately 12 million people in the U.S. heard the broadcast; perhaps a million people believed a serious Martian invasion was underway.

1947 Artaud “To have done with the judgment of God”

*Pour en finir avec le jugement de dieu* was recorded in several sessions in the studios of Radiodiffusion Française in Paris in November of 1947. The transmission was banned from airing following rumors circulating around the broadcast production fueled by reactions to Artaud’s controversial *Histoire vecue d’Artaud-Momo* presented earlier that year.

In a letter protesting the ban, Artaud defends his project: “I wanted a new work that catches certain organic points in life, a work in which we feel the whole nervous system burning like an incandescent lamp with vibrations, consonance which invite man to go out with his body in pursuit of this new, strange and radiant epiphany in the sky.... Anybody, down to the coal merchant, must understand being fed up with the filth—physical, as well as physiological, and desires an in-depth corporal change.”

1951 John Cage “Imaginary Landscape No. 4”

Two performers are stationed at each radio, one for dialing the radio-stations, the second performer controlling amplitude and timbre. Durations are written in conventional notation, using notes, placed on a five-line staff. The rhythmic structure of the work is 2-1-3 and is expressed in changing tempi. Cage uses proportional notation where 1/2 inch equals a quarter note. The notation is not entirely proportional though, since accelerandos and ritardandos are still present in the score. The score gives notations for tuning (controlled by player 1 as

well as volume and tone color (controlled by the second player).

When one listens to the work, it is obvious that one cannot predict what will be heard, which is exactly what Cage was aiming at with this composition. Apart from that it was a way of abandoning his preferences and dislikes (Cage wasn’t very fond of radios). As he puts it himself in *For the Birds*: “I had a goal, that of erasing all will and the very idea of success”.

The method of composing is basically the same as used in *Music of Changes*. Cage used the I-Ching to create charts, which refer to superimpositions, tempi, durations, sounds and dynamics. In the sound charts 32 out of 64 fields are silences. In the charts for dynamics, only sixteen produce changes, while the other maintain the previous situation. Similar charts were produced for the other parameters. Cage gives an extensive description of the composing means in his *To Describe the Process of Composition Used in Music of Changes and Imaginary Landscape No.4* (In ‘Silence’, pp.57-60).

Twelve radios, 24 performers, Conductor. Premiered May 2 (Fetterman) or 10 (Revill), 1951 in McMillin Theater at Columbia University in New York. Among the performers were Beck and Malina, Remy Charlip, Lou Harrison, Richard Miller, Harold Norse, Richard Stryker and others. John Cage conducted. See [www.johncage.info](http://www.johncage.info).

1962 Jean Tinguely “Radio Skulptures”

In 1962 at the Alexandre Iolas Gallery in New York, Tinguely exhibited his new *Radioskulpturen* for the first time. Propelled by small electrical motors, the tuning knob of a partially disassembled radios are moved back and forth. The result is a composition of abstract radio sounds determined by chance.

1966 Stockhausen “Telemusik”

Composed in Tokyo in the electronic studio of Japanese Radio NHK. Stockhausen used shortwave radio transmissions to compose a work with which he wanted, “to take a step further in the direction of composing not ‘my’ music but a music of the whole Earth, of all countries and races.”

While Telemusik incorporates sounds from many countries including

Japan, Sahara, Bali, Vietnam, China, the Amazons, Spain, and Hungary, Stockhausen does not consider this work to be a collage, but “Rather—through the process of intermodulation between old ‘found’ objects and new sound events which I made using modern electronic means—a higher unity is reached: a universality of past, present and future, of distant places and spaces: *TELE-MUSIK*.”

*Telemusik* consists of 32 structures (moments) incorporating shortwave radio transmissions. Additional equipment used for the realization of the electronic music was two beat frequency oscillators, three sine-wave generators, one delta generator, one function generator, one transposing tape recorder with a pilot frequency generator, two tape recorders, one amplitude modulator, two ring modulators, three high-pass and low-pass filters, one third-octave filter, one six-track tape recorder.

1967-68 Max Neuhaus “Drive In Music”

With *Drive In Music*, Max Neuhaus was interested in developing the idea of sound for a public space that is tonally complex but does not force itself upon passers-by. Neuhaus installed 20 low-powered radio transmitters in the trees along a stretch of just under 600 metres on a broad avenue, Lincoln Parkway in Buffalo, New York. They pointed in different directions and produced different sounds, thus producing seven overlapping zones with various sound components. The sounds were synthesized by home-made equipment on the spot, and changed according to what was going on around them. As the transmitters were all tuned to be received on the same frequency, people driving by heard different sets of sounds according to speed, direction of travel, time of day and weather conditions. Neuhaus did not just work with the synthetic sounds generated by his equipment for his installations in public spaces, but also used them as a counterpoint for the random noises produced in a particular place, placing them in an aesthetic context by setting them alongside sound with tonal quality.

1968 Juan Downey “3-Way Communication”

Three performers sit at the corners of a large triangle formed by three voice-transmission laser beams. The performers exchange faces by means of super-8 movie projections while talking through the laser beams. Conversations and transfigurations are video-taped and play-back one the three performers leave.

Conceived as a project for the Juan Downey exhibition at the Corcoran Gallery of Art in Washington, D.C.

1969 “Art by Telephone” Chicago Museum of Contemporary Art

Thirty-six artists were asked to place a phone call to the museum and to instruct museum staff about what their contribution to the show would be. The museum then produced the pieces and displayed them.

1973 Chris Burden “Through the Night Softly”

Chris Burden produced provocative, often shocking conceptual performance pieces in the early 1970s. In *Through the Night Softly* Burden, arms tied behind his naked torso, drags himself over shards of broken glass. Burden purchased a series of commercial slots on a local cable channel to broadcast this performance documentation which manifested in an on-air intervention for the general viewing public.

1975 Kieth Sonnier “Scanners”

Originally titled *Quad Scan*, *Scanners* involves six to eight radio scanning devices arranged in the gallery and tuned to varying frequencies. Each scanner continually emits a random assortment of real-time sounds, including snatches of private telephone conversations, ship to shore calls, police, and cellular transmissions.

1976 Robert Whitman “Children and Communication”

“Whitman constructed low-ceilinged, tent-like environments, meant primarily for children, in three boroughs of New York City. They were interconnected via facsimile machines, telexes, and telephones. Telex turned out to be the most popular medium for chats between children who didn’t know one another, proving less abrupt than the phone and more intuitive than the facsimile machine. Perhaps telex also appealed in a way akin to e-mail: one is given time to consider a question before replying. In any case, all three technologies were framed in an intimate way, positioning the audience as a willing and active participant.”

*Excerpted from Robert Whitman’s Telecommunication Projects by Bettina Funcke. Originally printed in Printed Project 01: There Once was a West, Sarah Pierce, Guest editor, Dublin: Sculptors’ Society of Ireland, 2003*

1977 Joseph Beuys, Douglas Davis, Nam June Paik  
"Documenta 6 Telecast"

"Documenta, held every five years in Kassel, Germany, is one of the largest and most important contemporary art surveys. In 1977, Documenta 6 featured the first live international satellite telecast by artists. Performances by Nam June Paik, German conceptual artist Joseph Beuys, and Douglas Davis were transmitted to over twenty-five countries. Paik and Charlotte Moorman are seen live from Kassel in Fluxus-inspired collaborative performances, including TV Bra, TV Cello, and TV Bed. They fuse music, performance, video and television in an homage to global communications. Also from Kassel, Joseph Beuys presents a direct address to the public, elaborating on his utopian theories of art as 'social sculpture,' which were crucial to his conceptual project. From Caracas, Venezuela, Davis performs *The Last Nine Minutes*, a participatory piece in which he addresses the time/space distance between himself and the television viewing audience." Excerpted from the description of the video 'Documenta 6 Satellite Telecast' available through Electronic Arts Intermix, [www.eai.org](http://www.eai.org).

1978 Joel Chadabe "Solo"

In 1977, composer Joel Chadabe obtained one of the first Synclaviers off the production line and had it outfitted with special software that created melodies based on predefined parameters such as harmony and interval content. The Synclavier was interfaced with two modified theremins. One antenna controlled the tempo (note durations), while the other controlled relative volumes of four Synclavier voices (in effect, overall timbre). Chadabe wrote that performing with the system was like having, "a conversation with a clever friend." He could do things like cue clarinet sounds to play slowly; but since he did not know which pitches would play, the notes he heard then influenced his next control gesture. "Solo" (1978, revised 1981), was first performed August 30, 1978, at a UNESCO Summer Workshop in Computer Music, Aarhus, Denmark.

1982 "The World in 24 Hours"

*Die Welt in 24 Stunden* was an ambitious project using low-tech (telephone-based) communications equipment to set up a global network of participating artists and groups that would each organize a contribution from their location using any or all of SSTV, fax, computer

mailbox/ conference or telephone sound. The cities involved were: Vienna, Frankfurt, Amsterdam, Bath, Wellfleet, Pittsburgh, Toronto, San Francisco, Vancouver, Honolulu, Tokyo, Sydney, Istanbul and Athens. Each location was called from Linz at noon local time - so the project began at noon Central European Time on September 27th and, following the midday sun around the world, ended at Noon C.E.T. on September 28. In Linz Robert Adrian was assisted by Waltraut Cooper, Norbert Hinterberger and students from the class of Prof. Ortner at the Hochschule für Gestaltung. In Wien the organization was by Helmut Mark and Zelko Wiener at the Österreichische Kultur Service (ÖKS) Studio.

1983 "Telephone Music"

In 1983, Robert Adrian, Helmut Mark, and Zelko Wiener formed the Verein BLIX together with musician/technician Karl Kubaczek and technician Gerhard Taschler. *Telephone Music*, was a telephone concert organized by BLIX between Wien, Berlin and Budapest on April 15, 1983.

It was an effort to use the telephone (as the most universally available electronic communications medium) to create a common space for artists across the ideological barriers that divided Central Europe at the time—between "western" Wien, divided Berlin and "eastern" Budapest. At the ÖKS in Wien, Artpool in Budapest and Aufbau/Abbau in Berlin, we simply connected our telephones to amplifiers and played live music to each other for a couple of hours.

1985-1990 Peter d'Agostino "TransmissionS"

"Through a fluid visual and aural collage, TransmissionS explores the history of 20th century communications, and probes the cultural and personal implications of technology's power to effect change. Through a fusion of allegory, documentary, science and autobiography, d'Agostino creates a trenchant, often poignant analysis of communications technology as both witness and catalyst to history. A quick succession of fragmented images -- the Camera Obscura, Marconi's Wireless, Edison's early films, early television, mammoth radio telescopes -- generates a virtual index of the evolution of communications technology. In the segment titled 'The Well,' a human drama illustrates television's omniscience and its limits. A small boy is trapped in a well in Italy, and the nation, transfixed at its television sets, follows the futile rescue attempt. In a personal look at how technology encapsulates human experience, from birth to death, *Generations* draws on d'Agostino's

own home movie footage. The tape ends in an explosive visual fragmentation that is a virtual catalogue of 20th-century technology.” Excerpted from the description of the video “TransmissionS” available through Electronic Arts Intermix, [www.eai.org](http://www.eai.org).

1985 Nicholas Collins “Devil’s Music”

In *Devil’s Music* fragments of radio broadcast are digitally sampled, looped, re-triggered, and occasionally reversed or de-tuned. All the material is taken from FM and AM transmission occurring at the time of the performance. The performer plays off of certain musical ground-rules intrinsic to the sampling system (which consists of two modified inexpensive effect devices) to develop the quirky rhythmic interplay that characterizes the piece. Originally released on Trace Elements Records, New York.

1987 Muntadas & Hank Bull “Cross-Cultural Television”

Muntadas writes, “Television reflects the global cultural, political and economic spectrum. This is a videotape about television. It is a fragmented, personal view. It is only one of many ways to explore television. This is a videotape about the cosmetics and packaging of television. It is about editing. It presents the work of an independent chain of editors: the cameraman, the correspondent, the satellite, the videotape editor, the broadcaster, the anchorman, the viewers who recorded this material, the editors of this videotape and you, the viewer.” Excerpted from the description of the video *Cross-Cultural Television* available through Electronic Arts Intermix, [www.eai.org](http://www.eai.org).

1991 Gregory Whitehead “Pressures of the unspeakable : a nervous system for the City of Sydney”

Writes Whitehead, “I arrived in Sydney on October 3, 1991, carrying an “impossible object” a concept of the Screamscape - inside its fictive institutional vesicle or envelope, a bogus institution named The Institute for Screamscape Studies. Through the establishment of a series of cross-media circuits, I would then attempt to transform this object, both as an idea and as an acoustic phenomenon, into an “Invisible City”: the invisible city of Sydney nervous system. Everything that happened in, across or through the circuits of the screamscape would become part of the nervous flow, culminating in a broadcast radiophonic “theatre of operations”.

The circuit was wired across three synapses:

1. The elaboration of the nerve impulse path itself: founding of the Institute, establishing a 24-hour answering machine, called the “screamline” in reference to the acoustic “line” representing the journey that screamers take into their own interior space; the designation and “opening” of the scream room within the Australian Broadcasting Corporation (ABC); and the circulation of “scream discourse” within various news media: column eight, ABC television, and various talk/cultural affairs programs within ABC radio. In addition to framing the nervous system, the telephone-microphone-tape recorder-radio circuitry also provided the key for the acoustic demarcation of pressure in the system: distortion, the disruption of digital codes, pure unmanageable noise. The scream as an eruption in excess of prescribed circuitries, as capable of “blowing” communications technologies not designed for such extreme and unspeakable meanings.

2. Monitoring of the scream flow, and the development of various techniques for scream hermeneutics that would allow individual screamers to find their own rightful place in the city screamscape. At this stage, periodic memoranda and reports were circulated through the ABC and the University of Technology, Sydney on genesis of the screamland and on the indivisible “Rights of Nerves” (courtesy of Marie Curnick). Secondary publicity accomplished through release of select screams to television and radio programs. Lubricated by the greasy jelly of discourse and publicity, the scream trickle soon became a flood, in both the scream room and on the screamline, and the producer “nodes” at the Institute began to feel the first effects of The Pressure on our own increasingly jangled nervous systems.

3. The completion of the circuitry, the breakdown of the last nodes of resistance within our own nervous systems, the passage of all screams fluidly through a now massive network of private and public ganglia. Strange things began to happen as we listened again and again to hundreds of “blown” and distorted screams. As needles pinned in the studio, bones rattled in the body, and the brain began to play curious tricks on the rest of us, our dreamlands turned into screamlands. At last, the narrative authority of Dr. Scream himself simply dissembled into pieces and he left the Institute to start a rhythm and blues band in Louisiana.

Without him, though, there still followed the national BROADCAST of the assembled “report”, transmitted by The Listening Room, followed by the accumulation of hundreds of additional post-broadcast screamline

calls: objections, responses, post-screams, reflections, wrong numbers, confessions, and bold polemics.

Two days after the repeat broadcast, after a moment of silence, the screeline is unplugged, and the nervous system is put, at least for the moment, to rest.”

*Excerpted from Continuum: The Australian Journal of Media & Culture vol. 6 no 1 (1992). Edited by Toby Miller.*

#### 1992 Scanner “Scanner 1”

Writes Scanner, “This debut CD featured the intercepted cellular phone conversations of unsuspecting talkers, picked up from a radio scanner, which I edited into minimalist musical settings as if they were instruments, bringing into focus issues of privacy and the dichotomy between the public and the private spectrum. I wove the recordings into a collage of found voices, transmissions, and archive tapes of mine from 1978 onwards, recorded on an early portable tape recorder.

Sometimes the high frequency of cellular noise pervades the atmosphere, at other junctures it erupts into words and melts down to radio hiss. Intercepted in the data stream, transmissions blend, blurring the voices and rupturing the light, creating audio transparencies of dreamy, cool ambience.”

#### 1993 Scanner “Scanner 2”

Writes Scanner, “This second release follows a more narrative structure, where the voices are embedded into abstract frames, a rare opportunity to record experience as it happens in real time and highlight the threads of desire and interior narrative that we weave into our everyday lives. The sounds of an illicit affair, a liaison with a prostitute, a drug deal or a simple discussion of “what’s for dinner” all exist within an indiscriminate ocean of signals flying overhead, but just beyond our reach. “

#### 1993 Disembodied Art Gallery “Babble”

Disembodied Art Gallery, a British group that explores conceptual and telecommunication-based art, presented the telepresence-art installation Babble in 1993. The project received over 70 voice

contributions from the United States, Australia, Japan and Europe. Callers telephoned a U.K. number and could record poetry, stories, and thoughts on an answering machine. These messages were then collected and replayed automatically to visitors of the gallery whenever a member of the public entered the installation room.

#### 1995 Bill Talsma “Orthodoxy”

Writes Talsma, “*Orthodoxy* was produced in 1995 as a radio work. The piece builds a dynamic relationship between the voice of authority—a.k.a. the disembodied radio voice—and the interior voice of the submissive listener. A conflict of self-comprehension over self-confusion ensues, and exposes the realm of the human soul that is precarious and susceptible to outside influence. The composition revolves around a sentence in which each word has been sampled, isolated, and recombined to form new phrases through a compositional approach inspired by traditional techniques of brainwashing, subliminal listening, and hypnosis audiotapes. The manipulation of these words functions to generate a variety of meanings, including a sense of introspective self-doubt. Phrases such as “I was not myself” ask more questions than they answer. Was he himself? A part of him? A scared part? A gullible part? A defenseless part? An emotional part? An ignorant part? The same part that thinks it wasn’t true because it’s not true today? This (de)construction of the phrase consistently reinforces these signs of doubt in the submissive listener, and as the material works to break down the listener, it reminds us of the struggle to remain dubious of the authoritative voice. The voice transforms from exterior to interior, and the submissive listener must respond to the unceasing subliminal suggestion.”

#### 1997 Ilya Kabakov, “Transmission Tower”

For his work included in the 1997 Munster Sculpture Show, Ilya Kabakov used the Aasee field near a 1977 Donald Judd sculpture as the site for what he called a “poetic transmission tower.” Resembling a TV antennae and standing over 40 feet tall, this structure carried fragile-looking lettering that was best seen by visitors stretched out in the grass below. Kabakov’s words spelled out an ode to the blissful pleasures of a summer day.

1998 Matmos "Always Three Words"

First word: 4-channel tape recorder. Second word: walkie-talkie (no input). Third word: another walkie-talkie (no input). Both of the hand-held walkie-talkies are put in transmit mode and moved over the recorder; producing interference which can be manipulated with gestural sweeps. Last word: smart and funny and it's got a beat.

2001 Matthew Burtner "Studies for Radio Transceiver: Study 1.0 (FM)"

Writes Burtner, "Transmit a silent signal. Receive the signal and feed the line outputs of the receiver back into the transmitter. A loop is created in which the listener hears the compounding of the inherent noise generated in the process of transference. The growth of the systemic noise move from the periphery of the music, a byproduct of the media, to the central focus of the musical material. We hear the resonance of the FM band grow from noise, the intoning of the medium."

2000 & 2004 Brennan McGaffey "Project Citizens Band, Four Times Daily for 27 Mhz"

This project was a month long broadcast over CB radio using prerecorded sounds designed to be mood altering. Four different audio tracks corresponded to common emotions experienced at the scheduled time of day. These were transmitted for a 5-minute duration, creating a sedative or stimulating affect. There were no voice-overs or songs. The broadcast was amplified to 225 watts to increase the chance for short wave skip and reception over long distances. A container was designed and constructed to house the radio equipment and computer. A portable, three-piece tripod tower provided support for the antenna.

*Produced with Whitewalls, Chicago. Sounds created with Ernst Karel.*

2003 free103point9 "Tune(In)))"

free103point9's *Tune(In)))* events explore the creative use of transmission mediums challenging artist and audience relationships in a shared public space. *Tune(In)))*s are sound events designed for a virtually silent environment in which listeners experience simultaneous

live performances in individual radio headsets as opposed to amplified within a performance space. In order to access the performances, listeners must engage and consider the radio spectrum, traversing the dial to the *Tune(In)))* FM frequencies, encountering other commercial stations available on FM radio, or the minimal ambient room noise. Past *Tune(In)))*s have been presented at the NY Center for Media Arts, Long Island City (2003); The Kitchen, New York (2004); The Santa Fe Art Institute, New Mexico (2004); the free103point9 Gallery, Brooklyn (2005), and free103point9 Wave Farm (2005).

2003 free103point9 "Radio 4x4"

*Radio 4x4* is a collaborative radio transmission performance. Four simultaneous audio performances are separately sent through FM transmitters to radios positioned throughout a performance space. Each radio receives only one of the signals, so that the audience becomes an active collaborator in the performance, "mixing" the audio feeds by moving about the space among the four signals. *Radio 4x4*'s have taken place at Anthology Film Archives, Art in General, the free103point9 Gallery, OfficeOps, and Hogar Collection in New York; the Walker Art Center at the Minneapolis School of Art in Design in Minnesota; as part of South Korea's tenth Gwangju Biennale; and at the Center for Contemporary Art Laznia in Gdansk, Poland in May 2005.

2004 The Swiss Institute "212 925 2035 ext 17"

In 2004, The Swiss Institute of Contemporary Art began inviting artists to create voicemail works as part of their effort to inhabit their exhibition space as comprehensively as possible. Past projects have included works from Kim Gordon, John Giorno, Olaf Breuninger, Radio Ghost/Laurent Grasso, Lawrence Wiener, Bill of the Mob Project, Dan Graham, Santa Clause, Janine Gordon, Nic Hess, and Christophe Fiat. Call (212) 925-2035 ext 17 to hear the current project.

2004 Thom Kubli and Sven Mann "Determinale Verschweifungen"

For the premiere event as part of the Transmission Series at the New Museum of Contemporary Art in New York, Thom Kubli and Sven Mann (Cologne, Germany) created a spatial sound environment where the principle of "transmission" is explored through a wireless FM transmitter system and listening stations. *Determinale Verschweifungen* provided a topology of fragmented electronic loops and microphone recordings of spatial ambiances and encouraged the audience to interfere. Visitors

could bring their own radios to the venue or pick up one of the portable radios positioned in the site to select their own channels and manipulate the transmitters.

2004 Kristin Lucas "The Dispatcher: Carrying Green"

*The Dispatcher: Carrying Green* is a political satire and comedy set in the near future. New York City is nicknamed The Big Orange after decades of relentless government-issued orange alert status. The play chronicles the day-to-day engagements of a radio dispatcher for hire (private contractor of the airwaves). Among dispatch clientele are a neighborhood vigilante patrol of canine-identified humans formed out of a therapeutic support group. They call themselves the Sniff Squad.

*Commissioned by 6th Werkleitz Biennale (2004), Germany.*

2004 free103point9 "Microradio Sound Walk"

*Microradio Sound Walk* is a multiple transmitter sound piece and walking tour of local airwaves utilizing broadcast and computer technology to create a soundscape on a single FM frequency that responds to both the architecture and sonic phenomena of a specific space. Consisting of multiple transmission stations situated along a loosely defined walking path, listeners proceed through the route in the order of their choosing, as they move farther away from one station and grow closer to the next, the signal they receive too will shift. This sonic progression maps the spatial qualities of an area's local airwaves. *Microradio Sound Walk* premiered in 2004 with free103point9 transmission artists Damian Catera, Matt Mikas, Michelle Nagai and Tom Roe. It was presented in conjunction with Spectropolis: Mobile Media, Art and the City, a three-day event in New York City that highlighted the diverse ways artists, technical innovators and activists are using communication technologies to generate urban experiences and public voice. In May 2005, free103point9 presented its second *Microradio Sound Walk* at the Center for Contemporary Art Ujazdowski Castle in Warsaw, Poland with Damian Catera, Tianna Kennedy, Radio Ruido, Tom Roe, Facial Index, Arszyn, and Kamil Antosiewicz and Dominik Kowalczyk.

2004-2005 Brian Duffy "Lunaphone"

Optophonic Lunaphone is the sound recording of a recent performance

held at the Mac store in Birmingham, that explored the "celestial soundscape." Brian Duffy created a unique instrument called a *Lunaphone*, consisting of six specially adapted telescopes that collected light waves from the night sky. These waves were translated into sounds and fed into a central control panel where they were mixed and sequenced in real-time. Co-commissioned by Ikon, Vivid and mac.

2005 Rirkrit Tiravanija "Untitled 2005"

For his Hugo Boss Prize exhibition at the Guggenheim Museum in New York, Tiravanija created *Untitled 2005 (the air between the chain-link fence and the broken bicycle wheel)*, a self-built low-power television station, to demonstrate that individuals can be active contributors to their own media culture, rather than mere consumers of it. "Using rudimentary electronic equipment, Tiravanija reveals how a broadcast can be transmitted over unused frequencies to a local community, circumventing traditional media networks. Two rooms have been constructed within the gallery: A sealed glass vitrine holds a transmitter, and a plywood structure holds the receiver, or television. Isolated within the vitrine, the transmitter is deemed valuable—just as the Federal Communications Commission (FCC) regards the airwaves as valuable. While the First Amendment protects the freedom of speech, it does not defend unrestricted access to all mechanisms of communication, such as the airwaves. A program is broadcast from a DVD player via the transmitter to the television across unused airwaves by means of the antennae. The found objects enlisted here as antennae indicate the grassroots nature of low-power transmission. To further demystify the broadcasting process, Tiravanija has surrounded the installation with texts describing the technology and its contentious regulation by the FCC in the United States. He also offers viewers instructions for building their own homemade TV stations.

While a low-power broadcast could potentially reach viewers miles away, Tiravanija's transmission has been restricted to within this gallery's walls due to the many physical hindrances in New York City (for instance, the widespread use of cable and satellite television interferes with the signal) and the considerable legal and policy implications of broadcasting on museum premises. Tiravanija's democratic desire for everyone to participate freely in his artworks stands in contrast to the FCC's strict regulation of this public resource. Through such a reality-based project, Tiravanija encourages our consideration of commonly held assumptions about methods of communication in this country and issues of free speech."

` - Joan Young, Associate Curator, Guggenheim Museum.