



POLICE DEPARTMENT
Office of Deputy Commissioner,
Legal Matters
One Police Plaza, Room 1406A
New York, New York 10038

September 11, 2012

Katherine Bromberg
New York Civil Liberties Union
125 Broad Street
New York, New York 10004

RE: FREEDOM OF INFORMATION LAW
REQUEST: LBF # 11PL107361

Dear Ms. Bromberg:

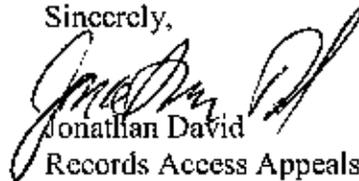
This is in response to your letter dated August 2, 2012, appealing the determination of the Records Access Officer (RAO), dated April 27, 2012, regarding records pertaining to the NYPD's use of Long Range Acoustical Devices that were requested from the New York City Police Department pursuant to the Freedom of Information Law (FOIL) by letter dated December 21, 2011.

Your appeal is granted to the extent that the eight pages of records that were withheld by the RAO pursuant to the April 27, 2012 determination are enclosed. These eight pages, together with the 17 pages that were previously disclosed, constitute all of the records that were located as a result of a diligent search that was conducted pursuant to your request.

Please send a check or money order in the amount of \$2.00 (the copying fee for 8 pages), payable to the *New York City Police Department*, to the Records Access Officer, One Police Plaza, Room 110C, New York, New York 10038. Please note the file number, 11PL107361, on your remittance.

You may seek judicial review of this determination by commencing an Article 78 proceeding within four months of the date of this decision.

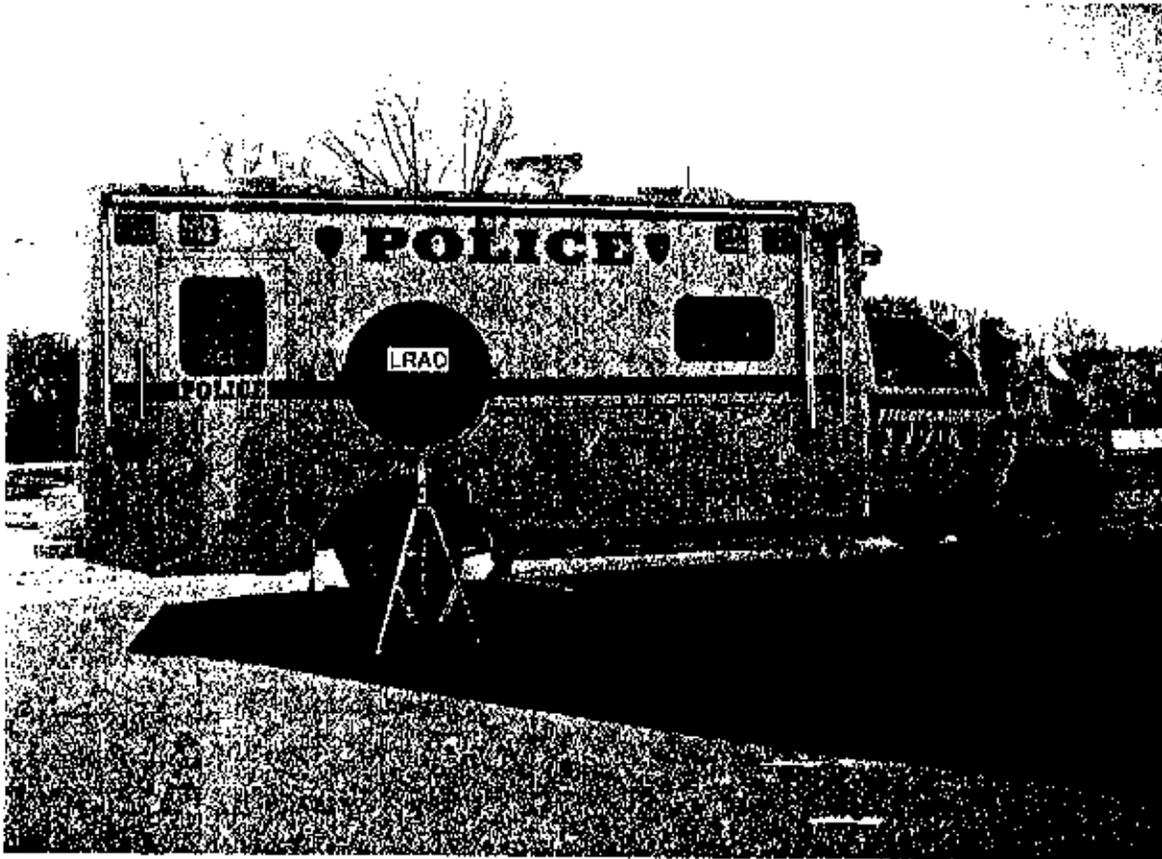
Sincerely,


Jonathan David
Records Access Appeals Officer

c: Committee on Open Government



New York City Police Department
Special Operations Division
**Disorder Control
Unit**



Briefing on the
LRAD
(Long Range Acoustical Device)

January, 2010

I. Introduction

In 2004, the New York City Police Department's Disorder Control Unit purchased two (2) LRAD (Long Range Acoustical Device) model 3300 devices from the American Technology Corporation of San Diego California. The NYPD purchased the devices in anticipation of using them at the Republican National Convention in New York City in August, 2004.

The LRAD is a machine that uses innovative technology to propel sound over great distances. Although it can be thought of as a "loudspeaker", it actually works differently and may also be used as an "area denial" device for crowd management purposes. The LRAD is the size of a large truck tire, but much thinner, weighs approximately 45 lbs, and can be mounted on a free standing tripod device or on a vehicle. Some newer models are portable and can be carried in one hand.

The LRAD was created partially in response to the 2000 terrorist attack on the USS Cole, a U.S. Navy destroyer which was attacked while in port in Yemen. The attack was perpetrated by the use of a small boat, laden with explosives, which rammed into the USS Cole, killing seventeen sailors and injuring dozens more.

In addition to having "loudspeaker" capabilities, the device can also be used, in a special mode, to propel piercing sound at higher levels (as measured in decibels) than are considered safe to human ears. In this dangerous range (above 120 decibels), the device can cause damage to someone's hearing and may be painful. It is this technology that the device was designed for a USS Cole attack-type scenario. If mounted aboard a Navy ship, the device's loudspeaker could be used to "warn off" boats that come too close. If those warnings are ignored, the device could be used to send out sound at a dangerously high level causing attackers to turn away, or at least, to cause pain/hearing damage to try to repel the attack.

The LRAD devices purchased by the Disorder Control Unit were deployed during the Republican National Convention in 2004, for use as loudspeakers. One device was mounted on a marked NYPD Humvee truck, and the other on a marked 3-wheeled scooter. It was thought that the scooter could be used in situations where its maneuverability in traffic and in parks would allow for use of the device in areas the HUMVEE could not get into.

Both devices were used sporadically in Manhattan at protests outside of the convention site (Madison Square Garden), including those in the Union Square area. In all cases, the device was used as a loudspeaker to make announcements to the crowd of protesters, with mixed results. No injuries were sustained as a result of the use of either LRAD at the convention.

LRAD devices (newer versions) were used successfully by the Pittsburgh, (Pennsylvania) Police Department during the G-20 Summit Conference in 2009.

II. Technology

Sound travels in waves, and generally spreads in all directions from a source, in the form of a wave front. As the waves travel farther from their sources, they spread even wider, effectively lowering the volume of the sound.

The LRAD device produces sound through the use of piezoelectric transducers, rather than the traditional diaphragm used by loudspeakers. This allows a greater volume of sound.

The LRAD also used directional sound, in that it focuses the sound waves in a specific direction. While the sound being emitted from in front of the LRAD may be very loud, it is substantially quieter outside the "cone" of sound produced by the device. In fact, someone could stand next to the device or just behind it and hear the noise being emitted at much lower levels than someone standing several hundred feet away, but within the "cone" of sound being emitted.

Some examples of sound levels for comparison, in decibels (dB):

Whisper	30 dB
Normal speech	60 dB
Telephone Dial Tone	80 dB
Vacuum Cleaner	85 dB
Sustained exposure may cause hearing loss	90-95 dB
Subway at 200 feet	95 dB
Motorcycle	105
Power Saw	110
Sandblasting	115
Pain may begin	120-125 dB
Shot gun	120
Short term exposure can cause permanent damage	140 dB
LRAD sustained at maximum power/audio	146 dB
Ear drum breaks	160 dB

Sources: www.osha.gov
www.esoundproof.com
www.makeitlouder.com
www.gcaudio.com
www.science.howstuffworks.com/lrad.htm

III. Testing

The results of tests conducted by the Disorder Control Unit in 2004 are unavailable. More recently, in early 2010, DCU staff tested both of their LRAD devices in an empty parking lot at Orchard Beach, in the Bronx. The devices were set on tripods approximately five feet tall, and the sound was directed from one end of the parking lot toward the other.



Notes: Distances were calculated by measuring parking spaces (eight feet wide) and counting the number of spaces that our testing meter was located away from the LRAD.

While the extreme cold (28 degrees) ensured that no one was at the beach or in the lot, the accompanying wind may have had an effect on the results of the test.

The sound meter used was the same as currently used by the NYPD, with appropriate calibration tests.

LRAD @ south
End of parking lot
Facing north



Potential danger
area
Not tested

**Test #1- Power/Audio
turned to level just
below Maximum,
using spoken voice
commands**

102 dB at 40 parking spots away (320 feet)

78 dB at 80 parking spots away (640 feet)

64 db at 100 parking spots away (800 feet)

Unintelligible/barely heard (no register on meter) at 140 parking spots away (1120 feet)

LRAD @ south
End of parking lot
Facing north



**Test #2- Power/Audio
turned to Maximum,
using noise bursts**

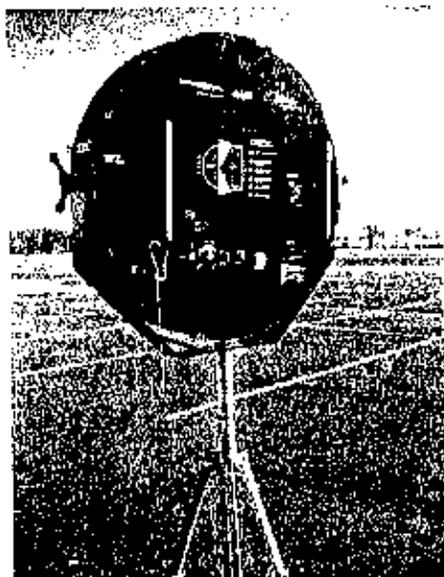
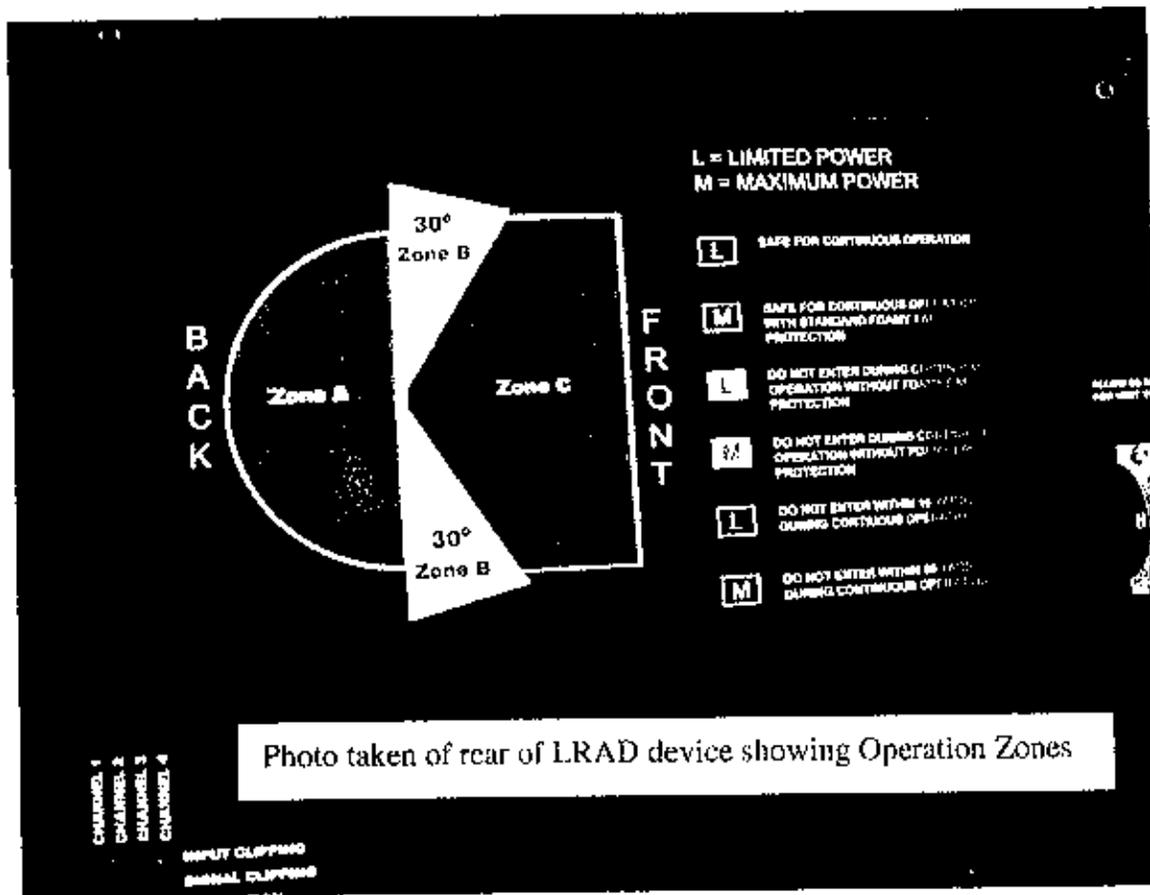
**Potential danger
area
Not tested**

110 dB at 40 parking spots away (320 feet)

90 dB at 80 parking spots away (640 feet)

68 db at 100 parking spots away (800 feet)

Unintelligible/barely heard (no register on meter) at 140 parking spots away (1120 feet)



IV. Updates

Since the purchase of the LRAD 3300s, among the first devices sold to law enforcement, the American Technology Corporation has made significant improvements and now offer several versions of LRAD devices, all of which provide clearer sound at greater distances than the one currently used by the NYPD ("one of our first science projects" according to a company official).

Additionally, technological improvements have allowed the company to produce smaller versions of LRAD devices, including one that weighs only fifteen (15) lbs. and can be easily carried by one M.O.S.

The current LRAD 3300 possessed by the NYPD has been replaced technologically with the LRAD 1000X model, although that model is generally recommended for shipboard use and may be much larger than the needs of local law enforcement. Instead, the company produces a LRAD 500X model that weighs forty-four (44) lbs, and can be used for similar applications as the current 3300 model.

The newest version, the 100X can be carried by hand, and could be used on foot, or in situations where a portable device would be appropriate. It could be used to aid in searching for missing persons in parks or on the beach, or for help in communicating the evacuation of a building (from outside) or a large outdoor area.

All of the new devices allow the use of a microphone, MP3 voice player, pre-taped messages. Some models allow for the attachment of video cameras, searchlights, or use portable, rechargeable batteries.

For further information:

American Technology Corporation
15378 Avenue of Science, Suite 100
San Diego, CA 92128
(858) 676-1112
www.atcsd.com