

**SAN DIEGO POLICE DEPARTMENT
PROCEDURE**

DATE: DECEMBER 18, 2020

NUMBER: 1.46 - ADMINISTRATION

SUBJECT: USE OF THE LONG-RANGE ACOUSTICAL DEVICE (LRAD)

RELATED POLICY: N/A

ORIGINATING DIVISION: OFFICE OF HOMELAND SECURITY / CRITICAL INCIDENT MANAGEMENT UNIT (CIMU)

NEW PROCEDURE:

PROCEDURAL CHANGE: **MINOR CHANGES**

SUPERSEDES: DP 1.46 – 09/01/2016

I. PURPOSE

This Department procedure establishes guidelines for the proper use of the LRAD.

II. SCOPE

This procedure applies to all sworn members of the Department.

III. BACKGROUND

The LRAD is a type of loudspeaker system that emits a focused and directional beam of sound. The sound levels of this device are controllable and range from a mild public address type speaker sound level, for giving directions, to a high intensity, high pitch sound designed to deter or move subjects from an area.

Two models of the LRAD are authorized for use. The Model 100X is a small portable device, about the size of a backpack and is capable of emitting 137 decibels at 765 yards. The Model 500 is transportable, the size of a large stage speaker, designed to be tripod-or vehicle-mounted and can emit 148 decibels at a range of over a mile.

The safe deployment of LRAD devices require that the operator be properly trained in its use.

IV. **DEFINITIONS**

- A. Decibels (dB) – a unit for expressing the relative intensity of sounds on a scale. The decibel scale ranges from zero to 130 decibels. The threshold of audibility is at zero decibel and the threshold of physical pain for the human ear is at 130 decibels. These sound ratings (dB) are measured at one meter from the device. To understand the producible volume level of the LRAD in relation to normal sounds see the table below:
1. 20 dB – leaves rustling
 2. 60 dB – normal conversation
 3. 70 dB – busy street traffic
 4. 80 dB – vacuum cleaner
 5. 85 dB – OSHA requires hearing protection
 6. 100 dB – large orchestra
 7. 105 dB – lawn Mower
 8. 110 dB – front row of rock concert
 9. 115 dB – limit of sound permitted in industry
 10. 130 dB – threshold of pain; deafening
 11. 135 dB – LRAD 100 at max volume
 12. 140 dB – military jet takeoff (at 50 meters)
 13. 146 dB – LRAD 500 at max volume
 14. 160 dB – Permanent hearing damage
- B. LRAD – Long-Range Acoustical Device
1. LRAD 500 – large transportable system
 2. LRAD 100 – small, portable system
- C. Tone – a high-pitched, pulsating sound generated by the device, similar to a car alarm.

V. PROCEDURES

A. LRAD Operation

1. The LRAD is capable of playing pre-recorded messages, working as a Public Address system, or emitting a high intensity tone. Personnel operating the LRAD should wear appropriate hearing protection, whether standing in front of, or behind, the unit.
2. Authority to use the LRAD must be approved by the Incident Commander, Mobile Field Force (MFF) Platoon Commander, SWAT Commanding Officer, or their designee. Only properly trained personnel are authorized to operate the LRAD (CIMU maintains the list of authorized users).
3. The LRAD 100 and 500 have four primary law enforcement uses:
 - a. Public Address (PA) to issue Emergency Evacuation Orders, like those typically announced over a PA system to evacuate residents during a fire, landslide, earthquake, or other disaster or critical incident.
 - b. Communicate with subject(s) during a SWAT or other law enforcement operation where direct communications is not possible or feasible and loud, clear commands need to be relayed.
 - c. When directions need to be relayed to a group/crowd in a noisy environment (i.e., an order to disperse).
 - d. Because of its direct, high-intensity sound, the LRAD can be used to move a disruptive crowd (an unlawful assembly order should be given prior to using the device in this mode unless a public safety urgency exists).
4. Both LRADs have a volume control with a graph that indicates intensity by color. Red is the most intense volume; yellow is intermediate; and, green is a lower sound output. **The LRAD shall not be operated in the red zone if subjects are closer than 15 yards from the LRAD 100X and 83 yards for the LRAD 500X.**

NEW

B. LRAD Use Instructions

1. Point the LRAD in the direction of the subjects(s) and turn the unit on. Increase the volume, **within the restrictions of this procedure**, until the message is clearly audible. It is recommended that an officer be placed

behind any subjects/crowd to determine whether the device is safely audible to the crowd.

2. The LRAD shall not be operated in the red zone if subjects are closer than 15 yards from the LRAD 100X and 83 yards from the LRAD 500X.
3. Use the tone in “short burst” (2-5 seconds) to gain attention; transmit a pre-recorded message on the MP3 player (like an order to disperse or an evacuation order); or, use the microphone for live, PA - type messaging.
4. “Voice boost” should be off when using the microphone.
5. The chart below shows the permissible sound levels for a given period of time.

Duration of Exposure (hrs./day)	Sound Level - dB(A)		
	ACGIH	NIOSH	OSHA
16	82	82	85
8	85	85	90
4	88	88	95
2	91	91	100
1	94	94	105
.5	97	97	110
.25	100	100	115*
.133	103	103	---

***NOTE: Subjects should not be exposed to continuous or intermittent noise in excess of 115 dB or to impulsive or impact noise in excess of 140 dB peak sound pressure level.**

VI. REPORTS

NEW

- A. When the LRAD is used as a device to move a disruptive crowd, via tone, it is considered a Use of Force. Reporting Officers shall coordinate with the authorizing entity to document the circumstances surrounding the use of the LRAD with the appropriate report (arrest, detention, ARJIS-9). The report will include the dial settings used on the LRAD, as well as the duration of use. In addition, a Force Effectiveness Form shall be completed. The Force Effectiveness Form is for the sole purpose of capturing statistical data.

- B. An ARJIS-9 shall be prepared to document any significant damage to the LRAD. This report should be forwarded to the Mobile Field Force Coordinator, located with CIMU at MS 730.

VII. MAINTENANCE/ACCOUNTABILITY

CIMU will maintain a list of personnel authorized to use the LRAD and will be responsible for maintaining the device and providing training.