

ATTACHMENT A

Noise Sampling for Police Officers Using Handguns, Rifles, Tear Gas and Flash-Bang Devices

The following readings provide a composite of the noise level samples taken during weapons qualifications. The averages are based on time firing and do not integrate other activities. All firing range activities have “down time” (non-firing) as officers receive instructions, prepare for the next round of firing, as well as changing weapons. All of these readings are from personal monitoring using Type II ANSI noise dosimeters.

The table provides the actual integrated noise levels for firing period and then assumes the same actions were taken for just the firing period, 2 hours, 4 hours, and 8 hours providing the noise dose that would be compared to OSHA standard of 50%.

Outdoor Range

Firing Activity Handguns and Rifles	Firing Activity Noise Level
Qualification Drill with handguns and rifles *RANGE MASTER taken 11/12/03 .40 caliber and 9 mm handguns, and AR 15 .223 caliber rifle and other handguns and shotguns	96 dBA for 7 hours 7 hours = 197%
Qualification Drill with handguns and rifles *Officer 1 taken 11/12/03 .40 caliber handgun and AR 15 .223 caliber Rifle	97 dBA for 2 hours 2 hours = 65%
Qualification Drill with handguns and rifles *Officer 2 taken 11/12/03 9 mm Glock handgun	97 dBA for 2 hours 18 minutes 2 hours = 65%
Qualification Drill with hand guns and rifles *Officer 3 taken 11/12/03 Glock 22 .40 caliber handgun	93 dBA for 3 hours and 43 minutes 2.75 hours = 66%
Qualification Drill with hand guns and rifles *Officer 1 taken 2/28/03 List of Weapons footnote 1.	92 dBA for 39 minute qualification 40 minutes = 10%

Firing Activity handguns and rifles	Firing Activity Noise Level
Qualification Drill with hand guns and rifles *Officer 2 taken 2/28/03 List of Weapons footnote 1.	93 dBA for 37 minute qualification 40 minutes = 11%
Qualification Drill with handguns and rifles *Officer 1 taken 1/11/02 Footnote 2: List of Weapons	87 dBA for 2 hours and 27 minutes 2 hours = 17%
Qualification Drill with handguns and rifles *Officer 2 taken 1/11/02 Footnote 2: List of Weapons	89 dBA for 2 hours and 30 minutes 2.5 hours = 27%
Qualification Drill with handguns and rifles *Officer 3 taken 1/11/02 Footnote 2: List of Weapons	98 dBA for 2 hours and 29 minutes 2.5 hours = 94%
SWAT Team Qualifications	
Qualifications Drill Taken by OR-OSHA no date given Using Glock 22 .40 caliber pistol, 12 ga. Shotgun, Colt AR-15 .223 caliber and HK-33 .223 caliber Rifle	86.1 dBA for 145 minutes as 8-hour TWA 2.4 hours = 60%
Qualification Drill Taken by OR-OSHA, no date given Using Glock 22 .40 caliber handgun, 12 ga. Shotgun, Colt AR-15 and HK-33 .223 caliber rifles	87.2 dBA for 145 minutes as 8-hour TWA 2.4 hours = 70%
Oregon OSHA Hearing Conservation Action Level	85 dBA as 8-hour time weighted average or 50% Dose

Footnote: 1 Weapons used: Noise Diversion or Flash Bang concussion device, .40 and .45 caliber and 9mm handguns firing 3 sets of 5 shots, 3 shots and 2 shots, 9 mm handgun fired a full clip, 5.65 mm automatic rifle firing full clip, 30 caliber rifle with 3 rounds, 12 gauge shotgun with 2 sets of rounds (pellet and slugs), and one firing of tear gas launcher weapon.

Footnote: 2 Weapons used: .45 caliber handgun, .223 caliber rifle, and 12 gauge shotgun.

Indoor Range

Firing Activity	Firing Activity Noise Level
General Officer Qualifications	
Qualification Drills Taken by OR-OSHA, no date given, Using Glock 9 mm handgun and M1A1 7.62 mm semi-automatic rifle	86.2 dBA as TWA reading from 89 minutes 1.5 hours = 60%
Qualification Drills taken by OR-OSHA, no date given, Using Glock 9 mm handgun and Colt AR-15 .223 caliber rifle	85.7 dBA as TWA reading from 91 minute sample 1.5 hours = 55%
Range Master for above	82 dBA as TWA for 89 minute reading 1.5 hours = 60%
Instructor for Glock 9 mm handgun 50 rounds and 12 ga. Shotgun 10 rounds	87 dBA as TWA for 61 minutes 1 hour = 65%
SWAT Team Qualifications	
Qualification for SWAT Team Taken by OR-OSHA, no date is given 5 sets of readings for use of Glock 22 .40 caliber handgun, 12 ga. Shotgun, Colt AR-15 and HK-33 .223 caliber rifles	89 dBA as TWA reading from 151 minutes 2.5 hours = 87%
Same as above Test 2	92.4 dBA as TWA reading from 141 minute sample 2.3 hours = 140%
Same as above Test 3	89.6 dBA as TWA reading from 145 minute sample 2.4 hours = 94%
Same as above Test 4	89 dBA as TWA reading from 143 minute sample 2.4 hours = 87%
Same as above Test 5	88 dBA as TWA reading from 141 minute sample

	2.4 hours = 75%
SWAT Team <u>Range Master</u> Reading 1: Using Glock 22 .40 caliber handgun, 12 ga. Shotgun, Colt AR-15 and HK-33 .223 caliber rifles	90.7 dBA as a TWA reading from 370 minute sample 6.2 hours = 110%
SWAT Team <u>Range Master</u> Reading 2, Using Glock 22 .40 caliber handgun, 12 ga. Shotgun and Colt AR-15 .223 caliber rifle	93.8 dBA as TWA reading from 370 minute sample 6.2 hours = 170%
Oregon OSHA Hearing Conservation Action Level	85 dBA as 8-hour time weighted average or 50% Dose

Results by Type of Weapon

The following provides noise survey results taken January 11, 2002 and February 28, 2003 at the outside firing range using CEL noise meter/dosimeter to determine noise exposures of various weapons.

WEAPON TYPE	SOUND LEVEL dBA Readings
Noise Diversion or Flash Bang Concussion Device (instantaneous noise)	Up to 106 dBA Linear peak: 112 dB
.40 and .45 Caliber Handguns (3 sets with about 5 seconds between each set with 5 shots, 3 shots, 2 shots)	110 to 120 dBA 103 to 106 dBA: Officer average during 40 caliber with linear peaks of 144 dB 103 to 108 dBA Officer average during 45 caliber with linear peaks of 146-147 dB
.45 Auto Handgun 3 rounds fired	97 dBA average 114 1-second maximum peak
9 mm Handgun Fired a full clip	116 – 119 dBA range 101 dBA Officer one-minute average 147 dB Linear Peak
9 mm Handgun 3 rounds fired	97 dBA average 114 dBA 1 second maximum peak

Full automatic rifle .223 caliber Fired full clip including 3 at time which resulted in higher reading	119-124 dBA during rapid firing Officers average exposure 106 to 105 dBA Linear Peaks 145 dB
.223 caliber Rifle 3 rounds fired	100 dBA average 113 1-second maximum peak
12 Gauge Shotgun Fired two sets first rounds were pellets followed by rounds of slugs. 12 Gauge Shotgun 3 rounds fired	116 dBA pellet fire 122 dBA slug fire 102 dBA Officers one minute average 147 dB Linear Peak 103 dBA average 112 dBA 1-second maximum average
.30 Caliber Rifle two rounds one under canopy cover and other outside	128 dBA under cover 126 dBA outside 96 and 94 dBA Officer one-minute average 147 dB Linear Peak
Cartridge Tear Gas Weapon (fire one round)	117 dBA 94 dBA one minute average 145 dBA Linear Peak
Oregon OSHA Hearing Conservation Action Level	85 dBA as 8-hour time weighted average