



Sound and Communication Apprenticeship

Program Report For Greater South Bay and Peninsula Region (Santa Clara and San Mateo Counties)

November 2016

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Communications Systems Installation and Repair Technology

CIP 2010: A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair one- and two- way communications equipment and systems, including television cable systems and mobile or stationary communication devices. Includes instruction in diagnostic techniques, the use of testing equipment and the principles of mechanics, electricity, and electronics as they relate to the repair of communications systems.

Target Occupations‡

Radio Operators (27-4013)

Communications Equipment Operators, All Other (43-2099)

Radio, Cellular, and Tower Equipment Installers and Repairs (49-2021)

Telecommunications Equipment Installers and Repairers, Except Line Installers (49-2022)

Electronic Home Entertainment Equipment Installers and Repairers (49-2097)

Telecommunications Line Installers and Repairers (49-9052)

Camera and Photographic Equipment Repairers (49-9061)

Electrical and Electronic Equipment Assemblers (51-2022)

‡Based on EMSI crosswalk of the Classification of Instructional Programs (CIP) codes with Standard Occupational Classification (SOC) codes as published by the U.S. Department of Education.

In 2016, the number of Sound and Communication jobs in the target occupations in Santa Clara and San Mateo Counties totaled 12,428. The Bureau of Labor Statistics (BLS) expects the total number of positions to increase by <1% over the next three years.

Occupation Summary for Sound and Communication

12,428 Jobs (2016) ¹ 106% above National average ²	0.4% % Change (2016-2019) ³ Nation: -0.9%	\$21.19/hr Median Hourly Earnings Nation: \$21.89/hr
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¹Based on total number of jobs for target occupations in Santa Clara and San Mateo Counties.

²Represents occupation density as compared to national average (national average=1).

³Based on turnover and new jobs.

Target occupations that are mapped to the Sound and Communication program are disaggregated to see which occupations are projected to see the highest number of annual openings (Electrical and Electronic Equipment Assemblers), highest percentage rate of growth over the next three years (Camera and Photographic Equipment Repairers), and the highest median hourly earnings (Telecommunications Line Installers and Repairers). While Electrical and Electronic Equipment Assemblers are expected to experience job growth (1%), these occupations are highly represented and concentrated in our region (Santa Clara and San Mateo Counties) compared to the national average.

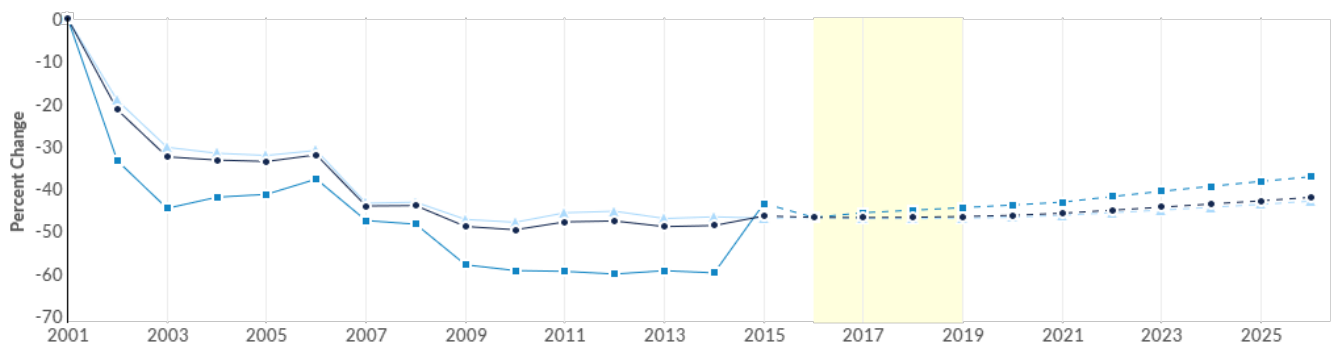
Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Growth (2016 - 2019)	Location Quotient (2016)
Electrical and Electronic Equipment Assemblers	8,478	138	\$17.15/hr	0.65%	4.02
Telecommunications Equipment Installers and Repairers, Except Line Installers	2,123	40	\$30.53/hr	-0.38%	0.94
Telecommunications Line Installers and Repairers	1,278	43	\$31.50/hr	-0.70%	1.15
Radio, Cellular, and Tower Equipment Installers and Repairs	260	5	\$25.19/hr	2.69%	1.70
Electronic Home Entertainment Equipment Installers and Repairers	253	8	\$19.89/hr	0.79%	0.76
Camera and Photographic Equipment Repairers	25	1	\$22.04/hr	4.00%	0.68
Communications Equipment Operators, All Other	<10	Insf. Data	Insf. Data	Insf. Data	Insf. Data
Radio Operators	<10	Insf. Data	Insf. Data	Insf. Data	Insf. Data

Growth in the Sound and Communication occupations show how each occupation is projected to increase or decrease in jobs over the next three years. A growth of 0.4% is expected in the next three years for Sound and Communication.

Growth for Sound and Communication

	12,428	12,478	50	0.4%
	2016 Jobs	2019 Jobs	Change (2016-2019)	% Change (2016-2019)
Occupation	2016 Jobs	2019 Jobs	Change	% Change
Radio Operators (27-4013)	3	3	0	0%
Communications Equipment Operators, All Other (43-2099)	9	10	1	11%
Radio, Cellular, and Tower Equipment Installers and Repairs (49-2021)	260	267	7	3%
Telecommunications Equipment Installers and Repairers, Except Line Installers (49-2022)	2,123	2,115	-8	0%
Electronic Home Entertainment Equipment Installers and Repairers (49-2097)	253	255	2	1%
Telecommunications Line Installers and Repairers (49-9052)	1,278	1,269	-9	-1%
Camera and Photographic Equipment Repairers (49-9061)	25	26	1	4%
Electrical and Electronic Equipment Assemblers (51-2022)	8,478	8,533	55	1%

Regional Trends

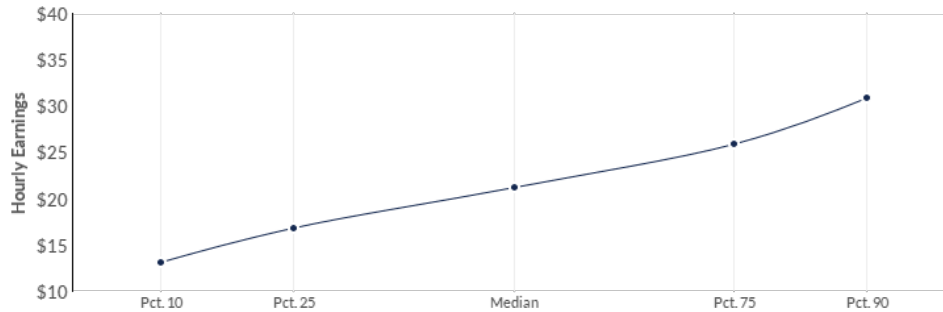


	Region	2016 Jobs	2019 Jobs	Change	% Change
●	Region	12,428	12,478	50	0.4%
●	San Mateo County, CA	1,931	2,015	84	4.4%
●	Santa Clara County, CA	10,496	10,463	-33	-0.3%

The percentile earnings table shows the range the Sound and Communication occupations earn in the region. While the median earnings are about \$21/hour, wages can range from below \$16/hour to above \$25/hour. Each of the target occupations' range in wages is also displayed.

Percentile Earnings for Sound and Communication

\$16.82/hr 25th Percentile Earnings	\$21.19/hr Median Earnings	\$25.90/hr 75th Percentile Earnings
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Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
Radio Operators (27-4013)	\$19.89	\$28.64	\$34.31
Communications Equipment Operators, All Other (43-2099)	\$15.40	\$20.07	\$27.55
Radio, Cellular, and Tower Equipment Installers and Repairs (49-2021)	\$15.13	\$25.19	\$31.85
Telecommunications Equipment Installers and Repairers, Except Line Installers (49-2022)	\$24.26	\$30.53	\$34.83
Electronic Home Entertainment Equipment Installers and Repairers (49-2097)	\$16.25	\$19.89	\$24.94
Telecommunications Line Installers and Repairers (49-9052)	\$27.51	\$31.50	\$34.71
Camera and Photographic Equipment Repairers (49-9061)	\$17.34	\$22.04	\$28.51
Electrical and Electronic Equipment Assemblers (51-2022)	\$13.35	\$17.15	\$22.10

Target Occupations Demographics

The demographics among those employed in Sound and Communication occupations in Santa Clara and San Mateo Counties for 2016 show that are a majority of male (57%) and more than a quarter are between the ages of 45-54 (28%) and a little less than half are Asian (44%).

Occupation Gender Breakdown

Gender	2016 Jobs	2016 Percent	
Males	7,115	57.3%	
Females	5,313	42.7%	

Occupation Age Breakdown

Age	2016 Jobs	2016 Percent	
14-18	93	0.7%	
19-24	663	5.3%	
25-34	2,131	17.1%	
35-44	3,156	25.4%	
45-54	3,516	28.3%	
55-64	2,339	18.8%	
65+	529	4.3%	

Occupation Race/Ethnicity Breakdown

Race/Ethnicity	2016 Jobs	2016 Percent	
Asian	5,502	44.3%	
White	3,894	31.3%	
Hispanic or Latino	2,212	17.8%	
Black or African American	569	4.6%	
Two or More Races	156	1.3%	
Native Hawaiian or Other Pacific Islander	66	0.5%	
American Indian or Alaska Native	30	0.2%	

Industries Employing Sound and Communication Occupations

A number of industries in Santa Clara and San Mateo Counties employ those trained in Sound and Communication and its related occupations. The following table represents a regional industry breakdown of the number of Sound and Communication positions employed, the percentage of Sound and Communication employed by industry and the Sound and Communication jobs represent within all jobs by each industry. While Wired Telecommunications Carriers employed 10% of all regional Sound and Communication positions in 2016, Sound and Communication occupations composed about 29% of all jobs in that industry.

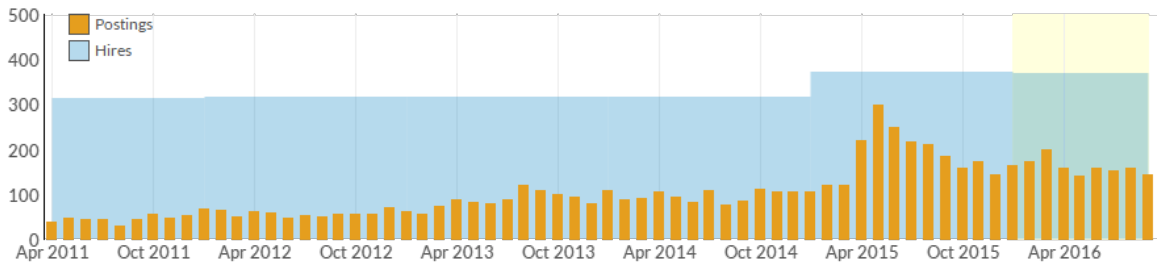
Industries Employing Sound and Communication

Industry	Occupation Group Jobs in Industry (2016)	% of Occupation Group in Industry (2016)	% of Total Jobs in Industry (2016)
Semiconductor and Related Device Manufacturing	2,515	20.2%	9.1%
Electronic Computer Manufacturing	2,026	16.3%	4.2%
Electrical Contractors and Other Wiring Installation Contractors	1,228	9.9%	8.0%
Wired Telecommunications Carriers	1,180	9.5%	28.5%
Other Electronic Component Manufacturing	573	4.6%	9.3%

In an average month, there were 161 unique (internet) job postings for Sound and Communication jobs, and 368 actually hired from January 2016 to September 2016. This means there was approximately 2 hires for every 1 unique (internet) job posting for occupations in Sound and Communication. In cases where there were hires but no job postings, it suggests that the internet may not be the primary way that job openings for these occupations are advertised.

Job Postings vs. Hires

161	368
Avg. Monthly Postings (Jan 2016 - Sep 2016)	Avg. Monthly Hires (Jan 2016 - Sep 2016)



Occupation	Avg Monthly Postings (Jan 2016 - Sep 2016)	Avg Monthly Hires (Jan 2016 - Sep 2016)
Telecommunications Equipment Installers and Repairers, Except Line Installers	86	89
Electrical and Electronic Equipment Assemblers	57	190
Electronic Home Entertainment Equipment Installers and Repairers	10	12
Telecommunications Line Installers and Repairers	8	65
Radio Operators	0	0
Radio, Cellular, and Tower Equipment Installers and Repairs	0	11
Camera and Photographic Equipment Repairers	0	1
Communications Equipment Operators, All Other	0	0

The top five relevant hard and soft skills employers list in Sound and Communication job posting descriptions are listed below. The “Postings with Skill” column is the total amount of (internet) job postings that mention the skills listed below. These numbers may be higher than the average monthly postings from above, because this number includes duplicated (internet) job postings. The “Relevance Score” gauge relevance of the skill by indicating the frequency in which this skill is being mentioned in (internet) job postings for Sound and Communication compared to all other (internet) job postings.

Most Relevant Hard Skills

Skill	Relevance Score	Postings with Skill
Microassemblers	273.40	23
Plasma Cleaning	236.27	5
Fish Tape	89.79	30
Snips	68.71	138
Integrated Circuit Packaging	64.32	48

Most Relevant Soft Skills

Skill	Relevance Score	Postings with Skill
Ethics	0.65	241
Fine Motor Skills	0.24	10
Perception	0.21	8
Active Listening	0.17	26
Listening	0.16	149

Appendix A - Data Sources and Calculations

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Occupation Data

Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Emsi earnings by industry.

CareerBuilder/Emsi Job Postings

Job postings are collected from various sources and processed/enriched by Careerbuilder to provide information such as standardized company name, occupation, skills, and geography. Emsi performs additional filtering and processing to improve compatibility with Emsi data.

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department