NBS Special Publication 480-13

Police Communications Equipment Survey of 1976

Law Enforcement Equipment Technology

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

ACKNOWLEDGMENTS

This report was prepared by the Law Enforcement Standards Laboratory of the National Bureau of Standards under the direction of Marshall J. Treado, Manager, Communications Systems Program, and Jacob J. Diamond, Chief of LESL.

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Police Communications Equipment Survey of 1976

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FOREWORD

The Law Enforcement Standards Laboratory (LESL) of the National Bureau of Standards (NBS) furnishes technical support to the Law Enforcement Assistance Administration (LEAA) program to strengthen law enforcement and criminal justice in the United States. LESL's function is to conduct research that will assist law enforcement and criminal justice agencies in the selection and procurement of quality equipment.

LESL is (1) subjecting existing equipment to laboratory testing and evaluation and (2) conducting research leading to the development of several series of documents, including national voluntary equipment standards, user guidelines, state-of-the-art surveys and other reports.

This document is a law enforcement equipment report developed by LESL under the sponsorship of LEAA. Additional reports as well as other documents are being issued under the LESL program in the areas of protective equipment, communications equipment, security systems, weapons, emergency equipment, investigative aids, vehicles and clothing.

Technical components and suggestions concerning the subject matter of this report are invited from all interested parties. Comments should be addressed to the Law Enforcement Standards Laboratory, National Bureau of Standards, Washington, D.C. 20234.

Jacob J. Diamond
Chief, Law Enforcement
Standards Laboratory

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1. Background and Methodology

A. Background

○ The Law Enforcement Standards Laboratory (LESL) was established in 1971 by the National Bureau of Standards (NBS) under the sponsorship of the National Institute of Law Enforcement and Criminal Justice (NILECJ), Law Enforcement Assistance Administration (LEAA).

○ LEAA requested that LESL develop and conduct a survey to obtain information from the users of law enforcement communications equipment.

○ The user information was desired to aid LEAA in evaluating the distribution and use of existing standards, guidelines and reports. It was also to be used in setting priorities for future documentation.

○ A nationwide mail sample survey was selected as the best procedure for the collection of the user information.

B. Design of Questionnaire

○ A questionnaire was developed by LESL in conjunction with LEAA and cooperating police departments. The questionnaire was pre-tested in five police departments.

○ The questionnaire sought information on whether or not the recipients were aware of NILECJ, LESL and the NILECJ communications documents.

○ The questionnaire was designed to provide information regarding the use of present standards, guidelines and reports.

○ The questionnaire also sought information about priority needs for standards, guidelines and reports on communication equipment.

C. Sample

○ The population considered for sampling was composed of the police departments listed in a computerized file maintained by the LEAA Statistical Service, the fifty State Planning Agencies (SPA) and the ten LEAA regional offices.

○ From this total population, 120 police officials who had participated in an earlier (1972) survey of police communications equipment were selected as follows:

20 from state police or highway patrols
20 from county police departments
20 from cities with 1 to 9 sworn officers
20 from cities with 10 to 49 sworn officers
20 from cities with 50 or more sworn officers
20 from the 50 largest cities.

○ In addition, 120 police communication specialists and 14 representatives from State Planning Agencies and LEAA regional offices were selected. These officials were not known to have participated in the earlier survey. All 50 states and all 10 regional offices were represented in this group.

D. Questionnaire Administration

○ Each mailing consisted of a letter and a questionnaire.

○ Three different form letters were used, one for police officials, one for communication specialists and one for SPA and LEAA representatives. (See appendix A).

○ On January 22, 1976, the 254 questionnaire packages were mailed.

○ During the month of March, over 120 telephone calls were made to those who had not responded.

○ Each returned questionnaire was examined and tabulated on a master chart.

○ Completed questionnaires were accepted through April 16, 1976.

E. Rates of Return

○ 176 respondees (69 percent) of the overall mailing returned usable questionnaires. (See table 1).

○ 82 (68 percent) of the 120 police officials returned usable questionnaires.

○ 85 (71 percent) of the 120 communication specialists returned usable questionnaires.

○ 9 (64 percent) of the 14 SPA and LEAA offices returned usable questionnaires.

○ The highest rate of return (90 percent) was from the states. (See table 2).

○ The lowest rate of return (50 percent) was from cities with 1–9 officers.

TABLE 1. *Rate of return by category*

Category	Number mailed	Usable returned
*Police officials	120	82 (68%)
Communication Specialists	120	85 (71%)
SPA and LEAA Offices	14	9 (64%)
Overall	254	176 (69%)

* See Table 2 for responses by jurisdiction.

TABLE. 2. *Rate of return by type of jurisdiction*

Jurisdiction	Number mailed	Usable returns
State	20	18 (90%)
County	20	12 (60%)
1-9 Officers	20	10 (50%)
10–49 Officers	20	14 (70%)
50 or more officers	20	12 (60%)
50 largest cities	20	16 (80%)

2. Summary of Results

A. Police Officials

○ 60 out of 82 respondents (73 percent) were aware of the Law Enforcement Equipment Standards Program.

○ 55 (67 percent) knew the program was being conducted by LESL for NILECJ.

○ 50 (61 percent) knew that LESL had developed documents on police communications equipment for NILECJ.

○ 47 (57 percent) had received the NILECJ communications documents.

○ 48 (59 percent) know how to order NILECJ communications documents.

○ 48 (59 percent) would use the documents for procurement, 74 (90 percent) for reference and 21 (26 percent) for testing purposes.

○ 69 (84 percent) would like copies of the LESL communications documents.

○ 69 (84 percent) would like a copy of the updated list of the LESL communications publications.

○ Information on the following equipments would be the most valuable. (In order of priority. See table 3.):

1. Personal two-way radios *
2. Base station equipment *
3. Mobile FM equipment *
4. Mobile antennas *
5. Batteries for personal radios *
6. Battery chargers *
7. Evidence gathering equipment
8. Tape recorders
9. Vehicle power generators
10. Repeaters *

* Denotes documentation already developed by LESL.

○ Information which would be most valuable on equipment for which documentation is not currently available.

1. Evidence gathering equipment
2. Tape recorders *
3. Vehicle power generators
4. Fixed antennas *
5. Paging
6. Console displays
7. Microphones
8. Computer-aided dispatch
9. Control heads *
10. Relay and remote equipment

* Work in progress at LESL on documents for this equipment.

B. Communications Specialists

○ 76 out of 85 respondents (89 percent) were aware of the Law Enforcement Equipment Standards Program.

○ 71 (84 percent) knew the program was being conducted by LESL for NILECJ.

○ 67 (79 percent) knew that LESL had developed documents on police communications equipment for NILECJ.

○ 60 (71 percent) had received the NILECJ communications documents.

○ 59 (69 percent) know how to order NILECJ communications documents.

○ 47 (55 percent) would use the documents for procurement, 76 (89 percent) for reference and 29 (34 percent) for testing purposes.

○ 72 (85 percent) would like copies of the LESL communications documents.

○ 73 (86 percent) would like a copy of the updated list of LESL communications publications.

○ Information on the following equipment would be the most valuable. (In order of priority. See table 4.):

1. Personal two-way radios *
2. Base station equipment *
3. Computer-aided dispatch
4. Relay and remote equipment
5. Repeaters *
6. Satellite receivers
7. Receiver voting equipment
8. Mobile FM equipment *
9. Test equipment
10. Tape recorders

* Denotes documentation already developed by LESL.

○ Information which would be most valuable on equipment for which documentation is not currently available:

1. Computer-aided dispatch
2. Relay and remote equipment
3. Satellite receivers
4. Receiver voting equipment
5. Test equipment
6. Tape recorders *
7. Mobile digital terminals *
8. Fixed antennas *
9. Microwave transmission
10. Paging

* Work in progress at LESL on documents for this equipment.

C. SPA and LEAA Representatives

○ Nine out of nine respondents (100 percent) were aware of the Law Enforcement Equipment Standards Program.

○ Nine (100 percent) knew the program was being conducted by LESL for NILECJ.

○ Nine (100 percent) knew that LESL had developed documents on police communications equipment for NILECJ.

○ Eight (89 percent) had received the NILECJ communications documents.

○ Five (56 percent) know how to order NILECJ communication documents.

○ Two (22 percent) would use the documents for procurement and nine (100 percent) for reference purposes.

○ Five (56 percent) would like copies of the LESL communications documents.

○ Eight (89 percent) would like a copy of the updated list of the LESL communications publications.

○ Information on the following equipment would be the most valuable. (In order of priority. See table 5.):

1. Mobile antennas *
2. Personal two-way radios *
3. Mobile FM equipment *
4. Base station equipment *

5. Repeaters *
6. Voice privacy *
7. Computer-aided dispatch
8. Automatic vehicle location *
9. Facsimile equipment
10. Communications Terms and Definitions *

* Denotes documentation already developed by LESL.

○ Information which would be most valuable on equipment for which documentation is not currently available:

1. Computer-aided dispatch
2. Facsimile equipment *
3. Selective signaling *
4. Fixed antennas *
5. Mobile digital terminals *
6. Microwave transmission
7. Combination radios
8. Record retrieval
9. Relay and remote equipment
10. Control heads *

* Work in progress at LESL on documents for this equipment.

POLICE COMMUNICATIONS EQUIPMENT SURVEY OF 1976

W. A. SHAND AND M. J. TREADO

This report discloses the results of a survey conducted by NBS for the Law Enforcement Assistance Administration. The survey was designed to determine the degree of utilization of law enforcement communications equipment documentation developed by the Law Enforcement Standards Laboratory of NBS and the need, if any, for additional documentation. 176 of 254 questionnaires were returned by respondents for a 69 percent rate of return.

Key Words: Communications equipment priorities; equipment standards; Law Enforcement Standards Laboratory; police equipment; reports and guidelines; survey

1. INTRODUCTION

1.1 Project Background

During the past several years, law enforcement agencies in the United States have become more aware of the importance of equipment in the performance of their duties. Much of their equipment had originally been designed for other uses and had been modified to meet current needs. Other equipment items had to be used as developed. No standards existed against which equipment performance could be measured, nor were any standard test methods or procedures available. It has been difficult for agencies to compare the performance of equipment items. Recognizing this problem, the Law Enforcement Assistance Administration (LEAA) of the Department of Justice began a concentrated program in 1971 toward the improvement of law enforcement equipment.

As one of the first steps in its program, LEAA asked the Department of Commerce to establish the Law Enforcement Standards Laboratory (LESL) at the National Bureau of Standards (NBS). The broad goal of LESL is to prepare performance standards and guidelines which can be promulgated by LEAA as voluntary aids for the selection of equipment by law enforcement agencies. Additionally, LESL is developing standard test methods and procedures so that the relative performance of similar items may be evaluated and compared.

In order to obtain current information to assist in planning a continuing program for communications equipment documentation, LEAA asked the Law Enforcement Standards Laboratory to gather information from the users of law enforcement communications equipment about their equipment needs and problems. Although face-to-face interviews with a large sample of representatives from law enforcement agencies would have been desirable, time and manpower constraints led to the development of a nationwide, mail sample survey having two general objectives: (1) to obtain information about the current documentation which had been distributed to the law enforcement users; and (2) to assist LEAA in the establishment of priorities for LESL's standards development activities. This report fulfills these objectives.

1.2 Sample Design

Three basic organization groups were considered for the sample design: (a) police officials (from agencies varying in size), (b) known police communications specialists, and (c) LEAA and State Planning Agency (SPA) offices.

The first group consisted of 120 police officials from states, counties, and cities of all sizes. These were selected from a listing of 428 police agencies who had responded to an earlier (1972) communications equipment survey.[1] Twenty police officials were randomly selected from each of the following:

[1] NBS Special Publication 480–2 (In Press).

State police or highway patrols
County police departments
Cities with 1 to 9 sworn officers
Cities with 10 to 49 sworn officers
Cities with 50 or more sworn officers
The 50 largest cities

The second group of 120 was selected in the main from the Associated Public-Safety Communications Officers (APCO), Inc., organization. APCO is active in police communications system design, equipment procurement, and frequency allocations.

The final group of 14 was comprised of personnel from the LEAA regional and SPA offices.

1.3 Questionnaire Administration

A questionnaire pre-test was carried out with five agencies within close proximity of Washington, D.C.

The same approved questionnaire was used for all three groups (police officials, police communication specialists and LEAA personnel). One copy of the questionnaire with a covering letter signed by the Chief of the Law Enforcement Standards Laboratory (see appendix A) was sent to each participant on January 22, 1976. After a period of one month, telephone calls were made to the non-respondents. More than 250 telephone calls were made, which resulted in doubling the responses. Twenty-seven agencies requested a re-mail of the questionnaire.

The highest percentage of return was from the states (90 percent) and the lowest from agencies having 1 to 9 officers (50 percent). Other responses are shown in tables 1 and 2.

1.4 Development and Design of the Questionnaire

During the development of the survey rationale and questionnaire, assistance was received from NILECJ communications equipment experts and behavioral science specialists at NBS.

The questionnaire was designed to provide an indication of how the present documentation is being used and to measure its value. In addition, questions were included on all types of communications equipment to obtain an accurate assessment of the need for future documentation.

2. SURVEY RESULTS

2.1 Advice to Reader

The answers to the questionnaire and deductions drawn from them, which appear in this section, are a direct result of information received from the participants. No effort was made to discuss, challenge, or verify the accuracy of the information given. Not all the questions were answered in every questionnaire; therefore, the sum of the answers to a particular question need not necessarily add up to the total participants within a group. In most cases, and where necessary, each question included a brief presentation of the subject equipment. Therefore the reader should become familiar with the questions before evaluating the data obtained. Questions and tabulated responses are given in the following paragraphs.

2.2 Question by Question Tabulation

2.2.1 Availability and Use of NILECJ Communications Documents

Questions 2 through 5 were designed to find out what the participant knew about LESL, NILECJ and the LESL documents. Also, whether or not the documents had been received and used.

LESL and NILECJ

2.0 Are you aware of the Law Enforcement Equipment Standards Program being conducted by NILECJ?

	Police Officers	Communications Specialists	LEAA
Yes	60	76	9
No	21	9	0

2.1 Did you know that this program is being conducted for NILECJ by the Law Enforcement Standards Laboratory (LESL) of the National Bureau of Standards?

	Police Officers	Communications Specialists	LEAA
Yes	55	71	9
No	26	14	0

LESL Developed Documents

3.0 Did you know that LESL has developed documents on police communications techniques and equipment for NILECJ (See attached listing)?

	Police Officers	Communications Specialists	LEAA
Yes	50	67	9
No	31	17	0

NILECJ Documents

4.0 Have you received any of the NILECJ communications documents?

	Police Officers	Communications Specialists	LEAA
Yes	47	60	8
No	33	25	1

Ordering NILECJ Documents

5.0 Do you know how to order the NILECJ communications documents?

	Police Officers	Communications Specialists	LEAA
Yes	48	59	5
No	26	26	4

Question 6 was designed to obtain information on the availability and use of NILECJ communication documents.

Availability/Use of NILECJ Documents

How would your department utilize communications equipment standards, guidelines and reports?

6.0 As part of procurement specifications
6.1 As reference material
6.2 For use in testing
6.3 Other. Specify

	Police Officers	Communications Specialists	LEAA
6.0	48	47	2
6.1	74	76	9
6.2	21	29	0
6.3	3	10	1

Would you like to have:

6.4 A copy of the communications documents developed by LESL and issued by NILECJ?

	Police Officers	Communications Specialists	LEAA
Yes	69	72	5
No	9	7	3

6.5 An updated list of these publications?

	Police Officers	Communications Specialists	LEAA
Yes	69	73	8
No	5	3	1

2.2.2 Availability and Use of NILECJ Communications Equipment Standards

Questions 7 through 19 are constructed to provide information on how the NILECJ documents have or will be utilized within the agencies.

Standard for Fixed and Base Station FM Transmitters

NILECJ has published a standard for Fixed and Base Station FM Transmitters, NILECJ-STD–0201.00, dated September 1974. This document was distributed during June 1975.

7.0 Did you receive this standard?

	Police Officers	Communications Specialists	LEAA
Yes	34	38	6
No	47	47	3

7.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	32	37	6

7.2 Have you used the standard for reference, system design, procurement or test purposes?

	Police Officers	Communications Specialists	LEAA
Yes	21	25	4

7.3 Please estimate the value or anticipated value of this standard to your department.

	High	Medium	Low	Not Req'd
Police Officers	27	22	10	7
Communications Specialists	14	34	11	4
LEAA	0	5	2	0

7.4 Is your department presently utilizing this type of equipment?

	Police Officers	Communications Specialists	LEAA
Yes	54	72	2
No	11	4	7

7.5 In your department, what procurement priority would this equipment have?

	High	Medium	Low	Not Req'd
Police Officers	29	17	14	4
Communications Specialists	41	21	12	2
LEAA	2	1	—	3

7.6 If your answer to the previous question is none, please give reason below.

	Police Officers	Communications Specialists	LEAA
Budget restrictions	6	4	0
Department too small to justify expense	3	0	0
Other	5	4	4

Standard for Mobile FM Transmitters

NILECJ has published a standard for Mobile FM Transmitters, NILECJ–STD–0202.00 dated October 1974. This document was distributed during May 1975.

8.0 Did you receive this standard?

	Police Officers	Communications Specialists	LEAA
Yes	36	38	8
No	45	47	1

8.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	32	38	8

8.2 Have you used the standard for reference, system design, procurement or test purposes?

	Police Officers	Communications Specialists	LEAA
Yes	19	23	6

8.3 Please estimate the value or anticipated value of this standard to your department.

	High	Medium	Low	Not Req'd
Police Officers	9	27	6	6
Communications Specialists	15	35	13	9
LEAA	2	3	3	0

8.4 Is your department presently utilizing this type of equipment?

	Police Officers	Communications Specialists	LEAA
Yes	46	68	2
No	15	5	5

8.5 In your department, what procurement priority would this equipment have?

	High	Medium	Low	Not Req'd
Police Officers	27	17	10	4
Communications Specialists	39	21	12	3
LEAA	2	1	0	3

8.6 If your answer to the previous question is none, please give reason below.

	Police Officers	Communications Specialists	LEAA
Budget restrictions	6	3	0
Department too small to justify expense	3	0	0
Other	3	7	4

Standard for Personal/Portable FM Transmitters

NILECJ has published a standard for Personal/Portable FM Transmitters, NILECJ–STD–0203.00, dated October 1974. This document was distributed during July 1975.

9.0 Did you receive this standard?

	Police Officers	Communications Specialists	LEAA
Yes	36	38	7
No	44	47	2

9.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	35	38	7

9.2 Have you used the standard for reference, system design, procurement or test purposes?

	Police Officers	Communications Specialists	LEAA
Yes	18	21	5

9.3 Please estimate the value or anticipated value of this standard to your department?

	High	Medium	Low	Not Req'd
Police Officers	15	22	10	6
Communications Officers	23	25	15	3
LEAA	1	3	3	0

9.4 Is your department presently utilizing this type of equipment?

	Police Officers	Communications Specialists	LEAA
Yes	53	73	2
No	8	3	5

9.5 In your department what procurement priority would this equipment have?

	High	Medium	Low	Not Req'd
Police Officers	23	19	9	5
Communications Specialists	41	27	8	1
LEAA	2	1	0	3

9.6 If your answer to the previous question is none, please give reason below.

	Police Officers	Communications Specialists	LEAA
Budget restrictions	6	2	0
Department too small to justify expense	4	0	0
Other	3	1	3

Standard for Mobile Antennas

NILECJ has published a standard for Mobile Antennas, NILECJ–STD–0205.00, dated May 1974. This document was distributed during September 1974.

10.0 Did you receive this standard?

	Police Officers	Communications Specialists	LEAA
Yes	33	30	8
No	47	54	1

10.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	29	27	8

10.2 Have you used the standard for reference, system design, procurement or test purposes?

	Police Officers	Communications Specialists	LEAA
Yes	15	17	5

10.3 Please estimate the value or anticipated value of this standard to your department.

	High	Medium	Low	Not Req'd
Police Officers	11	15	15	6
Communications Specialists	15	22	21	8
LEAA	1	1	5	0

10.4 Is your department presently utilizing this type of equipment?

	Police Officers	Communications Specialists	LEAA
Yes	55	71	2
No	7	5	4

10.5 In your department what procurement priority would this equipment have?

	High	Medium	Low	Not Req'd
Police Officers	24	19	13	6
Communications Specialists	31	34	11	1
LEAA	1	1	1	3

10.6 If your answer to the previous question is none, please give reason below.

	Police Officers	Communications Specialists	LEAA
Budget restrictions	4	3	0
Department too small to justify expense	3	0	0
Other	3	1	3

Standard for Mobile FM Receivers

NILECJ has published a standard for Mobile FM Receivers, NILECJ–STD–0207.00, dated June 1975. This document has not been distributed yet.

11.0 Do you anticipate that you may use this standard?

	Police Officers	Communications Specialists	LEAA
Yes	60	66	7
No	19	17	2

11.1 If yes, for what purpose(s)?

	Police Officers	Communications Specialists	LEAA
Reference	51	60	6
In developing specifications	35	47	3
Test procedures	10	23	1
For procurement documentation	19	22	1
Other	2	2	1

11.2 If not, why not?

	Police Officers	Communications Specialists	LEAA
Too much trouble	2	0	0
Someone else procures your equipment	6	0	0
Don't use this type of equipment	5	3	1
Too expensive	1	0	0
Other	6	6	0

Standard on Batteries for Personal/Portable Transceivers

NILECJ has developed a performance standard on Batteries for Personal/Portable Transceivers, NILECJ–STD–0211.00, dated March 1975. This document has not been distributed yet.

12.0 Do you anticipate that you may use this standard?

	Police Officers	Communications Specialists	LEAA
Yes	63	76	6
No	14	8	3

12.1 If yes, for what purpose(s)?

	Police Officers	Communications Specialists	LEAA
Reference	55	71	5
In developing specifications	35	44	2
Test procedures	15	36	1
For procurement documentation	17	23	0
Other	3	1	2

12.2 If not, why not?

	Police Officers	Communications Specialists	LEAA
Too much trouble	3	0	0
Someone else procures your equipment	4	0	0
Don't use this type of equipment	0	0	1
Too expensive	1	0	0
Other	5	7	0

2.2.3 Need for Design Standards

Standard on RF Coaxial Cable Assemblies

NILECJ has developed a standard on RF Coaxial Cable Assemblies for Mobile Transceivers, NILECJ–STD–0212.00, dated June 1975. This document has not been distributed yet. As opposed to the other standards, which are strictly performance standards, this standard specifies not only the performance of the coaxial cable but also specifies the design of the connectors for the coaxial cable between the mobile transceiver and the car antenna.

13.0 Are standards which specify design parameters of value to you?

	Police Officers	Communications Specialists	LEAA
Yes	47	68	5
No	26	14	3

13.1 What priority would you give this standard?

	High	Medium	Low	Not Req'd
Police Officers	16	27	12	11
Communications Specialists	30	31	19	5
LEAA	3	1	3	0

13.2 For what purpose(s) would you use such a standard?

	Police Officers	Communications Specialists	LEAA
Reference	46	71	6
In developing specifications	31	49	3
Test procedures	7	27	1
For procurement documentation	8	23	1
Other	4	5	1

13.3 What other design standards would you like to see developed?

	Police Officers	Communications Specialists	LEAA
Personal radios (size and weight)	47	54	2
Batteries for personal radios (size, weight and interface with radio)	31	46	2
Microphones	21	34	3
Microphone cables and connectors	16	32	3
Control head switches and switch functions	27	50	3
Control head mounting bracket	27	35	3
Other	21	53	8

2.2.4 Availability and Use of NILECJ Equipment Reports

Report on comparison and performance characteristics of batteries.

NILECJ has published a report on the comparison and performance characteristics of batteries used with law enforcement communications equipment, LESP-RPT-0201.00, dated May 1972. This document was distributed during January 1973.

14.0 Did you receive this report?

	Police Officers	Communications Specialists	LEAA
Yes	23	33	5
No	54	52	3

14.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	21	29	5

14.2 Have you used the report for system design or reference purposes?

	Police Officers	Communications Specialists	LEAA
Yes	10	18	3
No	35	31	0

14.3 Is your department presently using batteries for communication equipment needs?

	Police Officers	Communications Specialists	LEAA
Yes	53	72	2
No	5	8	3

14.4 Whether you have the report or not, estimate its value to your department.

	High	Medium	Low	Not Req'd
Police Officers	17	25	14	5
Communications Specialists	24	27	23	4
LEAA	1	3	2	0

Report on chargers and charging techniques.

NILECJ has published a report on chargers and charging techniques for batteries used with law enforcement communications equipment, LESP–RPT–0202.00, dated June 1973. This document was distributed during February 1974.

15.0 Did you receive this report?

	Police Officers	Communications Specialists	LEAA
Yes	18	20	6
No	59	65	3

15.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	17	20	6

15.2 Have you used the report for system design or reference purposes?

	Police Officers	Communications Specialists	LEAA
Yes	9	13	2
No	37	28	5

15.3 Is your department presently using battery chargers for communication equipment needs?

	Police Officers	Communications Specialists	LEAA
Yes	55	67	2
No	15	2	3

15.4 Whether you have the report or not, estimate its value to your department.

	High	Medium	Low	Not Req'd
Police Officers	20	26	12	7
Communications Specialists	28	30	14	6
LEAA	1	3	2	0

Report on voice privacy equipment.

NILECJ has published a report on voice privacy equipment for law enforcement communication systems, LESP–RPT–0204.00, dated May 1974. This document was distributed during December 1974.

16.0 Did you receive this report?

	Police Officers	Communications Specialists	LEAA
Yes	23	23	7
No	55	61	2

16.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	20	23	7

16.2 Have you used the report for system design or reference purposes?

	Police Officers	Communications Specialists	LEAA
Yes	7	9	3
No	38	33	5

16.3 Is your department presently using voice privacy equipment with your communication system?

	Police Officers	Communications Specialists	LEAA
Yes	11	17	1
No	52	52	5

16.4 Whether you have this report or not, estimate its value to your department.

	High	Medium	Low	Not Req'd
Police Officers	15	23	17	10
Communications Specialists	14	28	22	10
LEAA	1	4	2	0

Report on automatic vehicle location.

NILECJ has published a report on automatic vehicle location techniques for law enforcement use, LESP–RPT–0205.00, dated September 1974. This document was distributed during June 1975.

17.0 Did you receive this report?

	Police Officers	Communications Specialists	LEAA
Yes	23	22	7
No	55	62	1

17.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	22	22	7

17.2 Have you used the report for system design and reference purposes?

	Police Officers	Communications Specialists	LEAA
Yes	4	6	4
No	45	33	5

17.3 Is your department presently using vehicle location equipment?

	Police Officers	Communications Specialists	LEAA
Yes	2	3	1
No	62	67	5

17.4 Whether you have this report or not, estimate its value to your department.

	High	Medium	Low	Not Req'd
Police Officers	13	17	29	16
Communications Specialists	12	29	26	11
LEAA	2	2	3	1

Report on repeaters.

NILECJ has published a report on repeaters for law enforcement communication systems, LESP–RPT–0206.00, dated October 1974. This document was distributed during May 1975.

18.0 Did you receive this report?

	Police Officers	Communications Specialists	LEAA
Yes	26	26	5
No	52	59	4

18.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	24	25	5

18.2 Have you used the report for system design and reference purposes?

	Police Officers	Communications Specialists	LEAA
Yes	7	16	3
No	42	29	5

18.3 Is your department presently using repeaters in its communication system?

	Police Officers	Communications Specialists	LEAA
Yes	37	59	2
No	28	9	5

18.4 Whether you have this report or not, estimate its value to your department.

	High	Medium	Low	Not Req'd
Police Officers	20	27	11	10
Communications Specialists	33	29	11	4
LEAA	1	3	3	0

Report on technical terms and definitions.

NILECJ has published a report on technical terms and definitions used with law enforcement communications equipment (radio antennas, transmitters and receivers), LESP–RPT–0203.00, dated June 1973. This document was distributed during February 1974.

19.0 Did you receive this report?

	Police Officers	Communications Specialists	LEAA
Yes	22	32	6
No	55	53	2

19.1 Did you retain it for future use?

	Police Officers	Communications Specialists	LEAA
Yes	21	32	6

19.2 Have you used the report for system design or reference purposes?

	Police Officers	Communications Specialists	LEAA
Yes	14	32	3
No	32	25	4

19.3 Whether you have this report or not, estimate its value to your department.

	High	Medium	Low	Not Req'd
Police Officers	15	23	23	6
Communications Specialists	24	34	18	4
LEAA	2	3	3	0

2.2.5 Need for Communications Equipment Documents

Questions 20 through 50 were designed to determine what standards and guidelines are needed and what are the priorities.

NEED FOR STANDARDS AND GUIDELINES

Using the designations: 1—Highest Priority
2—Medium Priority
3—Low Priority
4—Do Not Need

Indicate your need for standards and guidelines for law enforcement communications equipment. Use each number as many times as you require.

20.0 Personal FM two-way radios

	High	Medium	Low	Not Req'd
Police Officers	46	17	9	6
Communications Specialists	47	20	11	6
LEAA	6	0	2	1

20.1 Mobile FM radios

	High	Medium	Low	Not Req'd
Police Officers	47	17	3	8
Communications Specialists	34	32	10	8
LEAA	5	1	3	0

20.2 Base station equipment

	High	Medium	Low	Not Req'd
Police Officers	45	18	10	6
Communications Specialists	41	29	7	7
LEAA	5	1	3	0

20.3 Mobile antennas

	High	Medium	Low	Not Req'd
Police Officers	29	26	22	10
Communications Specialists	23	34	23	4
LEAA	3	5	5	1

20.4 Fixed antennas

	High	Medium	Low	Not Req'd
Police Officers	17	25	27	7
Communications Specialists	26	36	16	6
LEAA	2	2	4	1

20.5 Microphones

	High	Medium	Low	Not Req'd
Police Officers	15	29	23	9
Communications Specialists	14	31	26	11
LEAA	0	3	5	1

20.6 Control heads

	High	Medium	Low	Not Req'd
Police Officers	15	27	22	13
Communications Specialists	21	29	22	12
LEAA	1	3	3	2

20.7 Cable and connectors

	High	Medium	Low	Not Req'd
Police Officers	10	22	31	14
Communications Specialists	15	28	31	9
LEAA	2	1	3	3

20.8 Batteries for personal radios

	High	Medium	Low	Not Req'd
Police Officers	32	22	18	10
Communications Specialists	31	28	18	8
LEAA	1	2	4	2

20.9 Scramblers or voice privacy equipment

	High	Medium	Low	Not Req'd
Police Officers	20	23	25	12
Communications Specialists	12	25	31	18
LEAA	3	2	3	1

20.10 Repeaters

	High	Medium	Low	Not Req'd
Police Officers	28	20	17	12
Communications Specialists	37	28	14	5
LEAA	5	1	3	0

Use the same designations: 1—Highest Priority
2—Medium Priority
3—Low Priority
4—Do Not Need
where needed, in answering the rest of the questions.

Digital Terminals

21.0 In some jurisdictions, police use digital terminals in their cars to speed up the transmission of messages to and from the command center. Do you have mobile digital terminals of this type?

	Police Officers	Communications Specialists	LEAA
Yes	6	11	2
No	75	73	5

21.1 If no, do you need them?

	Police Officers	Communications Specialists	LEAA
Yes	33	46	1
No	41	27	5

21.2 What priority do you place on your need for standards, guidelines and reports describing mobile digital terminals (1, 2, 3, or 4)?

	High	Medium	Low	Not Req'd
Police Officers	21	18	20	16
Communications Specialists	36	17	25	6
LEAA	4	1	0	2

Electronic Eavesdropping

22.0 Some jurisdictions use electronic eavesdropping equipment such as body-worn transmitters for evidence gathering purposes and to safeguard their officers. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	32	55	1
No	49	27	6

22.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	26	9	0
No	31	20	5

22.2 What priority do you place on your need for standards, guidelines and reports describing electronic eavesdropping equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	17	21	22	16
Communications Specialists	19	23	27	13
LEAA	2	0	4	1

Evidence Gathering

23.0 Some jurisdictions use electronic evidence gathering equipment such as hidden microphones and small cassette recorders to assist in gathering evidence for use in courtroom trials. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	38	49	1
No	43	31	7

23.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	18	13	1
No	27	22	7

23.2 What priority do you place on your need for standards, guidelines and reports describing evidence gathering equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	19	23	18	15
Communications Specialists	14	25	26	17
LEAA	1	2	2	2

Selective Signaling

24.0 Mobile radio systems make use of tone coding and selective signaling equipment to address and select the officer to be called. Do you use this type of equipment?

	Police Officers	Communications Specialists	LEAA
Yes	20	39	2
No	62	45	5

24.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	21	19	2
No	40	24	5

24.2 What priority do you place on your need for standards, guidelines and reports describing tone coding and selective signaling equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	16	21	20	23
Communications Specialists	18	30	27	9
LEAA	3	2	2	1

Facsimile

25.0 The need to transmit photographs (mug shots) and fingerprints via a radio channel or telephone line using facsimile equipment has been expressed by some departments as a requirement. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	12	20	0
No	69	63	7

25.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	30	29	2
No	41	28	5

25.2 What priority do you place on your need for standards, guidelines and reports describing facsimile equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	11	19	27	24
Communications Specialists	10	20	38	14
LEAA	3	3	1	0

Satellite Receivers

26.0 Satellite receivers, positioned at strategic locations within a jurisdiction, are used to extend the effective transmission and reception area for portable and mobile radio systems. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	33	48	1
No	47	36	6

26.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	16	29	0
No	29	11	6

26.2 What priority do you place on your need for standards, guidelines and reports describing satellite receivers (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	20	16	18	21
Communications Specialists	37	27	15	5
LEAA	2	2	2	1

Voting Comparators

27.0 Some jurisdictions use voting or comparator equipment to examine and select the best incoming signal from two or more satellite receivers. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	29	46	1
No	51	38	6

27.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	12	22	0
No	30	15	6

27.2 What priority do you place on your need for standards, guidelines and reports describing voting and comparator equipment (1, 2, 3, or 4)?

	High	Medium	Low	Not Req'd
Police Officers	14	19	11	26
Communications Specialists	40	24	11	9
LEAA	2	2	2	1

Combination Radios

28.0 Some law enforcement departments use combination mobile/handheld (sometimes called portamobile or jerk and run) radio equipment in their cars. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	26	45	2
No	52	39	5

28.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	10	12	1
No	34	23	5

28.2 What priority do you place on your need for standards, guidelines and reports describing mobile/handheld equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	16	21	25	11
Communications Specialists	23	25	22	11
LEAA	2	2	3	0

Microwave Transmission

29.0 Some jurisdictions use microwave and associated multiplex equipment to replace leased telephone lines and for the transmission of television video or data. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	19	38	1
No	59	46	6

29.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	18	26	1
No	37	15	5

29.2 What priority do you place on your need for standards, guidelines and reports describing microwave and associated multiplex equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	18	15	17	25
Communications Specialists	31	26	16	11
LEAA	2	4	2	0

Battery Chargers

30. Some communications equipment use batteries for power. Battery chargers are then required to replenish the battery power drain. Do you use battery chargers?

	Police Officers	Communications Specialists	LEAA
Yes	71	74	2
No	8	8	5

30.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	3	5	1
No	7	5	5

30.2 What priority do you place on your need for standards, guidelines and reports describing battery charging equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	26	30	14	3
Communications Specialists	24	28	23	6
LEAA	2	1	2	2

Tape Recorders

31.0 Many jurisdictions use recording equipment in their dispatch center to record all incoming and outgoing messages. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	52	74	2
No	28	9	5

31.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	21	8	1
No	8	3	5

31.2 What priority do you place on your need for standards, guidelines and reports describing recording equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	24	26	18	9
Communications Specialists	26	42	10	7
LEAA	3	1	1	2

Intercom and Bull Horn

32.0 Some jurisdictions use intercom and bull horn equipment for getting people's attention and relaying messages. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	65	77	2
No	15	7	5

32.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	9	4	1
No	8	4	5

32.2 What priority do you place on your need for standards, guidelines and reports describing intercom and bull horn equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	9	26	28	10
Communications Specialists	3	32	38	10
LEAA	0	0	2	4

Computer-Aided Dispatch

33.0 A few jurisdictions have, and many are considering computer-aided dispatch (CAD) systems. CAD systems, which interface with local data banks, will not only provide assistance to the dispatcher, but should result in better utilization of resources and improved response time. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	15	19	1
No	65	64	6

33.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	29	45	0
No	33	16	6

33.2 What priority do you place on your need for standards, guidelines and reports describing computer-aided dispatch equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	23	18	20	13
Communications Specialists	40	23	16	16
LEAA	5	1	0	1

Helmet Communications

34.0 Some jurisdictions use helmets with built in radio communications for use in certain tactical situations and hands off operations. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	8	14	0
No	73	70	6

34.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	25	28	0
No	44	29	6

34.2 What priority do you place on your need for standards, guidelines and reports describing communications helmet equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	12	20	21	23
Communications Specialists	7	24	26	26
LEAA	0	2	2	3

Automatic Vehicle Location

35.0 Automatic vehicle location equipment can improve officer safety and allocation of resources by providing a dispatcher with automatic physical location information on his officers and their vehicles. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	0	2	1
No	81	82	6

35.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	40	46	0
No	37	34	6

35.2 If yes, what accuracy (distance error between equipment estimate and actual vehicle location) would you require?

	Police Officers	Communications Specialists	LEAA
50–100 ft	10	15	0
100–250 ft	14	14	3
250–500 ft	5	12	0
500–1000 ft	12	11	0

35.3 What priority do you place on your need for standards, guidelines and reports describing automatic vehicle location equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	19	22	25	15
Communications Specialists	18	20	32	13
LEAA	4	2	0	1

Vehicular Power Generating Equipment

36.0 All vehicles use power generating equipment such as alternators, regulators and batteries. Due to additional loading on this equipment caused by adding communications and other equipment, it is sometimes necessary to specify heavy duty power generating equipment. Have you had to specify this type of heavy duty equipment?

	Police Officers	Communications Specialists	LEAA
Yes	70	63	0
No	11	21	6

36.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	5	5	0
No	11	14	6

36.2 What priority do you place on your need for standards, guidelines and reports describing vehicular power generating equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	27	23	15	10
Communications Specialists	17	26	28	11
LEAA	1	2	3	1

Vehicle Trackers

37.0 Some departments have stated a need for electronic tracking equipment (sometimes called bumper beepers), which enable authorized vehicles, without being detected, to follow cars suspected of being used for criminal purposes. Do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	46	52	1
No	36	30	5

37.1 What priority do you place on your need for standards, guidelines and reports describing electronic tracking equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	13	21	31	16
Communications Specialists	10	28	28	17
LEAA	1	3	3	0

Debugging Equipment

38.0 Debugging equipment is used to detect and locate hidden electronic devices placed in strategic locations to overhear and/or record conversations. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	7	24	0
No	74	59	6

38.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	27	27	1
No	51	29	5

38.2 What priority do you place on your need for standards, guidelines and reports describing debugging equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	6	17	25	32
Communication Specialists	5	20	35	22
LEAA	1	3	2	1

Remote Power Generators

39.0 Some departments use remote area power generating equipment to power communications equipment that has no primary source or is located in relatively inaccessible terrain. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	35	52	1
No	47	31	6

39.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	9	6	0
No	36	26	6

39.2 What priority do you place on your need for standards, guidelines and reports describing remote area power generating equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	12	17	19	24
Communications Specialists	26	20	18	17
LEAA	2	2	2	1

Console Displays

40.0 Many departments use console displays and keyboards at their headquarters to display status and other information being accumulated and distributed. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	25	46	1
No	57	37	6

40.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	27	21	0
No	29	13	6

40.2 What priority do you place on your need for standards, guidelines and reports describing CRT displays and keyboards (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	17	30	16	20
Communications Specialists	22	32	21	9
LEAA	2	2	2	1

Record Retrieval

41.0 Some departments have expressed an interest in centralized record retrieval systems which allow department personnel to access documents from central locations and have them transmitted via telephone lines or radio equipment to their remote location. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	14	36	1
No	66	47	6

41.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	26	27	0
No	38	19	6

41.2 What priority do you place on your need for standards, guidelines and reports describing record retrieval systems (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	17	17	20	20
Communications Specialists	23	32	14	11
LEAA	2	3	1	1

Paging

42.0 Paging equipment is used to contact personnel whose location is not known or who cannot be reached by other means. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	36	60	2
No	46	24	5

42.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	28	16	1
No	19	4	5

42.2 What priority do you place on your need for standards, guidelines and reports describing paging equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	17	26	25	15
Communications Specialists	18	38	23	6
LEAA	1	3	3	0

Test Equipment

43.0 Many departments use communication test equipment such as signal generators, power meters, spectrum analyzers and deviation meters, to service their equipment. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	34	75	2
No	46	8	5

43.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	6	4	1
No	40	5	5

43.2 What priority do you place on your need for standards, guidelines and reports describing communication test equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	18	16	13	30
Communication Specialists	37	28	9	8
LEAA	1	2	3	1

Handheld Digital Terminals

44.0 Some manufacturers are developing handheld digital terminals for access to information on license plates, vehicle registration numbers and other data from computer files. Do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	20	36	1
No	62	48	6

44.1 What priority do you place on your need for standards, guidelines and reports describing handheld digital terminals (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	10	14	28	28
Communications Specialists	9	23	19	28
LEAA	2	3	0	2

Relay and Remote Equipment

45.0 Many departments use relay and remote equipment for control of remote base stations from the dispatch center. Do you use such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	44	77	2
No	36	6	5

45.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	7	2	0
No	29	5	5

45.2 What priority do you place on your need for standards, guidelines and reports describing relay and remote equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	21	21	16	20
Communications Specialists	40	27	8	8
LEAA	1	4	2	0

Telephone Answering

46.0 An interest has been expressed by some departments for telephone answering equipment. This equipment can give out a fixed message to telephone callers. It can also ask the caller to leave name and telephone number information for call back purposes. Do you use such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	10	27	1
No	71	57	6

46.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	10	10	0
No	54	38	6

46.2 What priority do you place on your need for standards, guidelines and reports describing telephone answering equipment (1, 2, 3 or 4)?

	High	Medium	Low	Not Req'd
Police Officers	9	9	16	40
Communications Specialists	2	24	26	29
LEAA	1	1	2	3

Disguised Antennas

47.0 Some departments use disguised antennas on their cars. Do you use such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	45	70	2
No	36	14	5

47.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	16	7	1
No	23	7	5

47.2 What priority do you place on your need for standards, guidelines and reports describing disguised mobile antennas?

	High	Medium	Low	Not Req'd
Police Officers	19	7	29	10
Communications Specialists	20	31	23	11
LEAA	0	4	3	0

Control of Traffic Lights

48.0 It is possible to control traffic lights from a police car (make the traffic lights go green by transmitting a signal from the car.) Do you use such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	0	7	2
No	81	76	5

48.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	18	16	0
No	57	54	5

48.2 What priority do you place on your need for standards, guidelines and reports describing equipment which controls traffic lights from cars?

	High	Medium	Low	Not Req'd
Police Officers	7	7	17	44
Communications Specialists	7	11	20	39
LEAA	1	2	3	1

Portable Tape Recorders

49.0 Some departments issue their officers portable tape recorders so that they can dictate their activities reports in the police car, thereby saving report writing time. Do you have such equipment?

	Police Officers	Communications Specialists	LEAA
Yes	30	38	3
No	51	45	4

49.1 If no, do you need this equipment?

	Police Officers	Communications Specialists	LEAA
Yes	20	22	0
No	32	22	4

49.2 What priority would you place on your need for standards, guidelines and reports describing portable tape recorders?

	High	Medium	Low	Not Req'd
Police Officers	12	23	23	18
Communications Specialists	9	14	29	28
LEAA	0	3	1	3

50. List any other items of communications equipment, in order of priority, for which you feel standards and guidelines should be developed to assist individual jurisdictions in the selection and procurement process.

From the replies to this question the following are considered to have merit:

Automatic line identifiers
Aircraft radios
Vehicle radio identifiers
Data terminals
Subway communications
Mobile repeaters in car
Modems

2.3 Priority Ratings

To determine priorities for future communications equipment documentation, participants were asked to assign priority levels as follows:

1—Highest Priority
2—Medium Priority
3—Low Priority
4—Do Not Need

Each question, where applicable, was then assigned a total score by assigning three points to the highest priority, two points to the medium priority, one point to the low priority and zero points to the "do not need" category. A total for each equipment category was calculated and listed in order of highest priority.

Tables 3, 4 and 5 show the priority ratings for each group of respondees.

2.4 Discussion

The overall rate of return achieved by this survey, 69 percent, is excellent and much higher than in most surveys of law enforcement communications planners and equipment users. The fact that the states returned the highest percentage of usable questionnaires is easily explained, and it is not surprising that, of all the jurisdictions sampled, the smallest cities returned the fewest questionnaires. Both of these results are undoubtedly determined by the availability of personnel qualified to complete the necessary forms.

Over 50 percent of the respondents knew about the LESL program (question 2), while an even larger number, 83 percent, wanted copies of the documents (question 6). Sixty-five percent (question 4) had received one or more NILECJ documents prior to receiving the questionnaire. Not quite half of these would use the documents for procurement, while almost all respondees would use them for reference purposes (question 6). A review of questions 7–10 (see table 6) shows that over 50 percent of the recipients of the first published standards had used them for either reference, system design, procurement or test purposes. The utilization of the initially distributed reports varied substantially, probably due to the subject matter involved. A comparison of the replies to questions 16 and 17 shows that a significantly larger number of respondees used the report on voice privacy equipment, 94 percent, than used the automatic vehicle location techniques report, 27 percent. Questions 11 and 12 (Mobile FM Receivers and Batteries for Personal/Portable Equipment) demonstrated that in more than 75 percent of the police agencies responding, these two documents will be utilized for one or more of the purposes listed. See Table 7.

Between the specific groups, the communications specialists produced higher percentages than the police officials in all categories except the use of documents. Although the police officials had less knowledge of the program, they were more interested in using the documents for procurement and reference purposes than the specialists were.

The first six priority items of equipment listed by police officials have already been the subject of documentation developed by LESL, while 13 of the first 20 priorities (see table 3) have also been covered by LESL documentation, either published or in the process of being published. In contrast, four of the first seven items listed by the communications specialists (see table 4) have not been undertaken by LESL. These will be mentioned later. Overall, however, 12 of the top 20 priority items selected by this group have been, or are, included in the LESL program. Nine of the first 10 SPA and LEAA priority items (see table 5) have already been developed, while 14 of their top twenty are included in the present program.

TABLE 3. *Police Officials' Priorities*

Item	Question	Equipment	Priority Rating
1	20.0	Personal FM two-way radios	181
2	20.2	Base station equipment	181
3	20.1	Mobile FM radios	178
4	20.3	Mobile antennas	161
5	20.8	Batteries for personal radios	158
6	30	Battery chargers	152
7	23	Evidence gathering	151
8	31	Tape recorders	142
9	36	Vehicle power generators	142
10	20.10	Repeaters	141
11	20.9	Voice privacy equipment	131
12	20.4	Fixed antennas	128
13	42	Paging	128
14	40	Console displays	127
15	20.5	Microphones	126
16	35	Automatic vehicle location	126
17	33	Computer-aided dispatch	125
18	20.6	Control heads	121
19	45	Relay and remote equipment	121
20	21	Digital terminals	119
21	22	Electronic eavesdropping	115
22	28	Combination radios	115
23	13	RF coaxial cable assemblies	114
24	19	Report on terms and definitions	114
25	37	Vehicle trackers	112
26	24	Selective signaling	110
27	26	Satellite receivers	110
28	32	Intercom and bull horn	107
29	20.7	Cable and connectors	105
30	41	Record retrieval	105
31	49	Portable tape recorders	105
32	29	Microwave transmission	101
33	47	Disguised antennas	100
34	43	Test equipment	99
35	25	Facsimile	98
36	34	Helmet communications	97
37	27	Voting comparators	91
38	39	Remote power generators	89
39	44	Handheld digital terminals	86
40	38	Debugging equipment	77
41	46	Telephone answering	61
42	48	Control of traffic lights	52

TABLE 4. *Communication specialists' priorities*

Item	Question	Equipment	Priority Rating
1	20.0	Personal FM two-way radios	192
2	20.2	Base station equipment	188
3	33	Computer-aided dispatch	182
4	45	Relay and remote equipment	182
5	20.10	Repeaters	181
6	26	Satellite receivers	180
7	27	Voting comparators	179
8	20.1	Mobile FM radios	176
9	43	Test equipment	176
10	31	Tape recorders	172
11	13	RF coaxial cable assemblies	171
12	20.8	Batteries for personal radios	167
13	21	Digital terminals	167
14	20.4	Fixed antennas	166
15	29	Microwave transmission	161
16	20.3	Mobile antennas	160
17	19	Report on terms and definitions	158
18	42	Paging	153
19	40	Console displays	151
20	30	Battery chargers	151
21	41	Record retrieval	147
22	47	Disguised antennas	145
23	20.6	Control heads	143
24	24	Selective signaling	141
25	28	Combination radios	141
26	39	Remote power generators	136
27	20.7	Cable and connectors	132
28	36	Vehicle power generators	131
29	20.5	Microphones	130
30	22	Electronic eavesdropping	130
31	35	Automatic vehicle location	126
32	23	Evidence gathering	118
33	20.9	Voice privacy equipment	117
34	37	Vehicle trackers	114
35	32	Intercom and bull horns	111
36	25	Facsimile	108
37	34	Helmet communications	95
38	44	Handheld digital terminals	92
39	38	Debugging equipment	90
40	49	Portable tape recorders	84
41	46	Telephone answering	80
42	48	Control of traffic lights	63

TABLE 5. *SPA and LEAA representatives' priorities*

Item	Question	Equipment	Priority Rating
1	20.3	Mobile antennas	24
2	20.0	Personal FM two-way radios	20
3	20.1	Mobile FM radios	20
4	20.2	Base station equipment	20
5	20.10	Repeaters	20
6	20.9	Voice privacy equipment	18
7	33	Computer-aided dispatch	17
8	35	Automatic vehicle location	16
9	25	Facsimile	16
10	19	Report on terms and definitions	15
11	24	Selective signaling	15
12	13	RF coaxial cable assemblies	14
13	20.4	Fixed antennas	14
14	21	Digital terminals	14
15	29	Microwave transmission	14
16	28	Combination radios	13
17	41	Record retrieval	13
18	45	Relay and remote equipment	13
19	20.6	Control heads	12
20	26	Satellite receivers	12
21	27	Voting comparators	12
22	31	Tape recorders	12
23	37	Vehicle trackers	12
24	39	Remote power generators	12
25	40	Console displays	12
26	42	Paging	12
27	44	Handheld digital terminals	12
28	48	Control of traffic lights	12
29	20.5	Microphones	11
30	20.7	Cable and connectors	11
31	20.8	Batteries for personal radios	11
32	38	Debugging equipment	11
33	47	Disguised antennas	11
34	22	Electronic eavesdropping	10
35	30	Battery chargers	10
36	36	Vehicle power generators	10
37	43	Test equipment	10
38	23	Evidence gathering	9
39	46	Telephone answering	7
40	49	Portable tape recorders	7
41	34	Helmet communications	6
42	32	Intercom and bull horn	2

It is of interest to disregard those items of equipment already in the program and determine which items would then receive the highest priorities. This has been done in table 8.

TABLE 6. *Use of standards*

Question	Standard	Received	Used	Percent used
7	Fixed & base station FM transmitters	88	50	57
8	Mobile FM transmitters	82	48	59
9	Personal/portable FM transmitters	81	44	54
10	Mobile antennas	71	37	52

TABLE 7. *Participants that intend to use standards*

		Percentage		
Question	Equipment	Police Officials	Communications Specialists	SPA and LEAA Representatives
11	Mobile FM receivers	76	78	78
12	Batteries for personal/portable transceivers	82	89	67

TABLE 8. *Priorities by category*

	Type of equipment		
Priority rating	Police Officials	Communications Specialists	LEAA and SPA Representatives
1	Evidence gathering	Computer-aided dispatch	Computer-aided dispatch
2	Vehicle power	Relay and remote equipment	Microwave transmission
3	Paging	Satellite receivers	Combination radios
4	Console displays	Voting comparators	Record retrieval
5	Microphones	Test equipment	Relay and remote equipment

It is also of interest to portray the extent of the previous LESL effort in relation to a composite of the highest priority items. This is illustrated in table 9, using 30 of the highest priority items.

TABLE 9. *Priorities vs. documentation*

Question	Equipment	Standard	Report	Guideline
20.0	Personal FM two-way radios	E	NR	D
20.2	Base station equipment	E	NR	D
20.1	Mobile FM radios	E	NR	D
20.3	Mobile antennas	E	NR	D
20.8	Batteries for personal radios	E	NR	D
30	Battery chargers		E	
23	Evidence gathering			
31	Tape recorders	D	E	D
36	Vehicle power generators			
20.10	Repeaters	D	E	D
20.9	Voice privacy equipment		E	E
20.4	Fixed antennas	D	NR	D
42	Paging			
40	Console displays			
20.5	Microphones			
35	Automatic vehicle location		E	
33	Computer-aided dispatch			
20.6	Control heads	D		
45	Relay and remote equipment			
21	Digital terminals	D	D	
22	Electronic eavesdropping	D	E	
26	Satellite receivers			
27	Voting comparators			
43	Test equipment			
13	RF coaxial cable assemblies	E		
29	Microwave transmission			
25	Facsimile			D
24	Selective signaling	D		
28	Combination radios			
41	Record retrieval			

E—Documentation Exists
D—Documentation Being Developed
NR—Documentation Not Required

To illustrate the difference between the needs of large departments and those of smaller departments, the responses to question 21, Digital Terminals, and question 36, Vehicle Power Generating Equipment, were analyzed. As seen in table 10, the average priority rating of digital terminals was calculated and compared with the rating determined for the 50 largest cities, and that determined for cities with 1–9 officers. The reader will see that digital terminals rank high in priority among the 50 largest cities, well above the average rating figure of 1.74, while this important category evokes very little support from the small cities. Conversely, vehicle power generating equipment is an important item for the small cities, but, in the 50 largest cities, this equipment category ranks well below the average.

3. CONCLUSIONS

From the previous discussion it can be concluded that most of the respondents know about the LESL program and want copies of the documents, which they intend to use for reference purposes and, to a lesser extent, for procurement. In fact, over half of the respondents had already used one or more standards for a specific purpose. Many of the reports had also received heavy usage, but at least one report had been used by as few as 27 percent of the recipients.

Although the majority of the respondents knew how to order NILECJ documents, a large percentage still do not know how to do so. It is significant that almost one half of the respondents would use the documents for procurement, if they had them, and approximately 90 percent said they would use the documents for procurement or reference purposes. This illustrates the need for better dissemination of these documents to the potential user.

A large percentage of those items of equipment given the highest priorities by the respondees have already been the subject of documentation by LESL (see table 9). In the case of police officials, 8 of the top 10 items fell in this category. This includes items such as personal radios, base station equipment, mobile radios, antennas, batteries, scramblers and repeaters. Other priority items presently in the LESL program include tape recorders, digital terminals, and electronic eavesdropping equipment. Priority items not in the LESL program are listed in table 8, and include evidence gathering equipment and computer-aided dispatch equipment as the highest priorities. These items of equipment, along with the others in table 8, should be covered in the near future to provide the documentation requested by police officials.

TABLE 10. *Comparison by size of jurisdiction*

Question 21—Digital Terminals

	Police officials		Communications specialists		LEAA and SPA representatives		Total		Average priority rating
	Priority rating	No. of participants	Priority rating	No. of participants	Priority rating	No. of participants	Priority rating	No. of participants	
Average	119	81	167	84	14	7	300	172	1.74
Cities with 1–9 officers	8	9							0.89
50 largest cities	38	15							2.53

Question 36—Vehicle Power Generating Equipment

	Police officials		Communications specialists		LEAA and SPA representatives		Total		Average priority
	Priority rating	No. of participants	Priority rating	No. of participants	Priority rating	No. of participants	Priority rating	No. of participants	
Average	142	81	131	84	10	6	283	171	1.65
Cities with 1–9 officers	23	10							2.30
50 largest cities	22	15							1.47

APPENDIX A

Letter to Police Officials

Dear

The Law Enforcement Standards Laboratory (LESL) was established by the National Bureau of Standards to assist the Law Enforcement Assistance Administration (LEAA) in the development of standards and guidelines for law enforcement equipment. During the almost five years of its existence, LESL has developed a large number of law enforcement equipment standards, guidelines and reports which have been published by LEAA's National Institute of Law Enforcement and Criminal Justice (NILECJ), see attached list. Several of these documents discuss communications equipment and techniques.

It is now necessary to evaluate the effectiveness of these documents. The best way to determine their effectiveness is to ask those who are involved in the use, selection and procurement of law enforcement communications equipment. Your department is one of a group being asked to assist in this evaluation by completing and returning the attached questionnaire. Questionnaire results will also be used to plan a continuing communications equipment standards program. The answers you give will help determine which additional items of communications equipment will be included in this program. Without a response from you, our data base will be incomplete.

Enclosed you will find a copy of the results of a 1972 law enforcement communications equipment survey in which your department participated. A wealth of informative data was obtained from this previous survey, and it is anticipated that similar results will be obtained from the enclosed questionnaire.

If you have any questions concerning either the intent or purpose of this questionnaire, or the content and meaning of any of the questions, please write or call collect:

Marshall Treado (or) Bill Shand
Law Enforcement Standards Laboratory
Bldg. 221, Room B-150
National Bureau of Standards
Washington, D.C. 20234
Phone: (301) 921–3161

Thanks in advance for your assistance in this endeavor. Your help is greatly appreciated.

Sincerely yours,

Jacob J. Diamond, Chief
Law Enforcement Standards Laboratory

Attachments

Dear

The Law Enforcement Standards Laboratory (LESL) was established by the National Bureau of Standards to assist the Law Enforcement Assistance Administration (LEAA) in the development of standards and guidelines for law enforcement equipment. During the almost five years of its existence, LESL has developed a large number of law enforcement equipment standards, guidelines and reports which have been published by LEAA's National Institute of Law Enforcement and Criminal Justice (NILECJ), see attached list. Several of these documents discuss communications equipment and techniques.

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Letter to SPA and LEAA Representatives

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