

Memorandum 6M-3189-5

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Division 6 - Lincoln Laboratory  
Massachusetts Institute of Technology  
Lexington 73, Massachusetts

SUBJECT: SUMMARY OF LINCOLN LABORATORY TECHNICAL INFORMATION RELEASES  
PERTAINING TO THE SAGE SYSTEM ISSUED BY THE PRODUCTION COORDIN-  
ATION OFFICE (CUMULATIVE LIST THROUGH 31 DECEMBER 1955)

To: T.I.R. Distribution List

From: E. D. Lundberg

Date: 31 December 1955

Approved: *B. E. Morriss*  
B. E. Morriss

Abstract: The summary is a cataloged listing of Technical Information Releases pertaining to the SAGE System that have been issued to date and indicates present status. The Production Coordination Office is an office established by the Lincoln Director's Office to serve as the contact point at Lincoln in connection with the SAGE System, and to formally release Lincoln documents covering system specifications and requirements.

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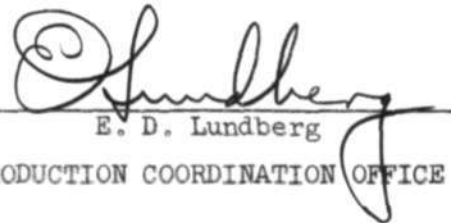
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The Lincoln Production Coordination Office (PCO) was established by the Director's Office of Lincoln Laboratory to serve as the contact point at Lincoln for outside agencies on production matters relating to the SAGE System and to facilitate coordination of such matters within the Laboratory. Information and data to be issued as official Lincoln Laboratory documents are processed: (1) to coordinate and obtain approval from all interested Lincoln groups and/or divisions, (2) to obtain concurrence from the interested organizations outside Lincoln, and (3) subsequently to be formally issued with a Technical Information Release (T.I.R.). The T.I.R. form also briefly summarizes the background, indicates extent of coordination, action to be taken, and qualifications regarding the use of the data being released. When changes are made to information which has been previously released by a Lincoln T.I.R., the changed information is processed in the same manner as the original release, and a new T.I.R. is released superseding the previous T.I.R.(s).

The attached Summary of Series 1 Technical Information Releases, Appendix A, provides an up-to-date listing of active T.I.R.'s pertaining to the SAGE System. T.I.R.'s of other series do not apply to the SAGE System. Items are grouped into categories according to subject matter.

In order to insure widespread dissemination of the status of the SAGE System T.I.R.'s outstanding, a summarized review of all issued Series 1 T.I.R.'s shall be prepared periodically by the PCO. This summary will be distributed to those persons and agencies receiving Technical Information Releases pertaining to the SAGE System.

SIGNED:



E. D. Lundberg

PRODUCTION COORDINATION OFFICE

EDL:ero

Attachments: Appendix A  
Distribution List

APPENDIX A

Summary of Active Technical Information Releases Pertaining to SAGE System

(Cumulative Listing Through 31 December 1955)

	<u>T.I.R. #</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
I. Building Reqm'ts.	1-1	7/16/54	Prime Power Requirements- D.C. (M-2871)	
	1-7	7/29/54	Comments on W.E. Memo 7/16/54 on Bldg. Require- ments (M-2937)	
	1-11	8/16/54	Prime Power Requirements- D.C. (M-2960)	
	1-23	9/17/54	Prime Power Dist. System D.C. (M-3031)	
	1-29	10/1/54	Prime Power Requirements- D.C. (6M-2960-Adden.#1)	
	1-30	10/1/54	Comments on Burns and Roe Dwgs. of D.C. Building and Power House (6M-3044)	
	1-39	11/12/54	Comments on Burns and Roe Dwgs. of D.C. Building and Power House (6M-3153)	
	1-72	5/23/55	Power Generation and Dist. for SAGE System Direction Centers, Fifth and Subse- quent Sites (6M-3378)	

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APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

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	<u>T.I.R. #</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
I. Building Reqm'ts. (Cont.)	1-74	5/23/55	Annunciator System for Monitoring Air Flow in SAGE Direction Centers and Combat Centers (6M-3501)	
	1-80	6/30/55	Study of a Modified Combat Center For Use as a Permanent Rand and Air Training Command Facility (6M-2769, Supplement #1)	
	1-83	7/19/55	Space Requirements for Non-Lincoln Personnel Associated With Operation of the Experimental Subsector (office space) (6M-3575-1, Supp. 1)	
	1-86	8/10/55	Master Reference List of Requirements for D.C. Buildings (6M-3147-3)	This supersedes information previously released on TIR's 1-2, 1-3, 1-4, 1-5, 1-6, 1-12, 1-13, 1-14, 1-15, 1-21, 1-22, 1-24, 1-25, 1-26, 1-27, 1-32, 1-40, 1-54, 1-63, 1-65, and 1-71.
	1-89	7/27/55	Reqm'ts. for Separate Rand-Air Training Command Direction Center Facility (6M-3772)	

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APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

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	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
I. Building Reqm'ts. (Cont.)	1-94	9/30/55	Equipment Cooling Loads For a Direction Center (6M-3692, 6M-3790)	
	[1-107	10/10/55	SAGE Growth and Flexibility Recommendations for Bldg. Planning (6M-3907)	
	[1-108	10/18/55	Mimic Panel for Maintenance and Programming Area AN/FSQ-7 (6M-3682)	
	[1-111	11/15/55	Master Reference List of Requirements for Combined CC-DC Bldgs. (5M-3198-2)	This supersedes in- formation previously released on TIR's 1-53, 1-60, 1-64, and 1-74.
II. Combat Center and Direction Center Equip.	1-49	12/3/54	Summary Equipment List for SAGE System Combined Combat-Direction Centers (6M-3166)	
	1-50	12/7/54	AN/FSQ-7 Spare Parts Policy (IBM Memo dated 8/19/54, revised 10/6/54)	
	1-57	2/4/55	AN/FSQ-7 Specifications (6M-3291, 6M-3292, 6M-3293, 6M-3297, 6M-3298, 6M-3299, 6M-3300, 6M-3301, 6M-3309)	This supersedes in- formation previously released on TIR's 1-33, 1-34, 1-35, 1-36, 1-37, 1-38, 1-43, 1-44, and 1-55

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APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

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	<u>T. I. R. #</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
II. Combat Center and Direction Center Equip. (Cont.)	1-59	2/28/55	Evaluation of AN/FSQ-7 and AN/FSQ-7 Components	
	1-66	3/10/55	Supplements to AN/FSQ-7 Specifications (6M-3291, Supp. 1; 6M-3292, Supp.1)	
	1-73	5/6/55	Summary Equipment List for SAGE System Direction Centers (6M-3159-1)	This supersedes in- formation previously released on TIR's 1-20 and 1-45.
	1-75	5/25/55	Ferrite Memory Core Specifications	
	1-78	7/7/55	Supplements to AN/FSQ-7 Specifications (6M-3291, Supp.2; 6M-3293, supp.1; 6M-3297, supp.1; 6M-3298, supp.1; 6M-3299, supp.1; 6M-3300, supp.1; 6M-3301, supp.1; 6M-3309, supp.1.)	
	1-82	7/15/55	AN/FSQ-7 Display Console Equipment and Label Lay- out (6M-3632 and supp.1, 6M-3633 and supp.1, 6M-3635 and supp.1, 6M-3636 and supp.1)	This supersedes in- formation previously released on TIR #1-67

APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
II. Combat Center and Direction Center Equip. (Cont.)	1-85	7/21/55	AN/FSQ-7 (XD-1) Display Console Equipment and Label Layouts (6M-3583, 6M-3583-1, 6M-3584, 6M-3584-1, 6M-3585, 6M-3585-1, 6M-3586, 6M-3586-1, 6M-3587, 6M-3587-1)	This supersedes information previously released on TIR #1-9.
	1-90	7/27/55	AN/FSQ-8 Display Console Equipment and Label Layouts (6M-3732)	
	1-91	8/16/55	AN/FSQ-7 Display Consoles (6M-3754, 6M-3756, 6M-3757 and sup. 1, 6M-3758, 6M-3765 and correction 1)	
	1-92	8/16/55	AN/FSQ-7 (XD-1) Display Consoles (6M-3753, 6M-3755, 6M-3758, 6M-3765 and correc.1)	
	1-93	8/24/55	Supplements to AN/FSQ-7 Specifications (6M-3291, supp.3; 6M-3292, supp.2; 6M-3293, supp.2; 6M-3297, supp.2; 6M-3298, supp.2; 6M-3299, supp.2; 6M-3300, supp.2; 6M-3301, supp.2)	

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APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

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	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
II. Combat Center and Direction Center Equip. (Cont.)	1-95	8/24/55	AN/FSQ-7 and AN/FSQ-7 (XD-1) Display Consoles (6M-3399-1, 6M-3728, 6M-3818)	
	1-96	8/24/55	AN/FSQ-7 (XD-1) Specifications (6M-3439-2, 6M-3660, 6M-3842)	
	1-98	9/8/55	Corrections to AN/FSQ-7 (XD-1) Display Console and Equipment Layout Totals (6M-3583-2)	
	1-99	9/6/55	Punch Cards (IBM Memo P-193, D-13)	
	[1-100	8/20/55	AN/FSQ-7 and AN/FSQ-7 (XD-1) Standby Console Equipment Totals, (6M-3882)	
	[1-102	12/28/55	Standby Console Equipment	
	[1-106	10/3/55	Specifications for Utilizing the Kelvin and Hughes Rapid Processing Photographic Pro- jector System in SAGE System Command Posts, (6M-3913)	
	[1-113	11/23/55	LRI Monitor Consoles for XD-1 (IBM document P-233)	



## APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
II. Combat Center and Direction Center Equip. (Cont.)	[1-114	12/12/55	Supplements to AN/FSQ-7 Specifications (6M-3291, supp.4;6M-3292, supp.3; 6M-3293, supp.3; 6M-3298, supp.3; 6M-3299, supp.3; 6M-3300, supp.3; 6M-3301, supp.3; and 6M-3309, supp.2)	
	[1-118	12/9/55	P-14 Phosphor for Charactron Tubes	
	[1-123	12/15/55	Master Reference List AN/FSQ-7 (XD-1) Specifi- cations (6M-3851 and supp.1)	This supersedes in- formation previously released by TIR's 1-8, 1-16, 1-46, 1-52, and 1-101
	[1-124	12/27/55	Master Reference List AN/FSQ-7 Specifications (6M-3884-1)	This supersedes in- formation previously released by TIR's 1-48 and 1-97.
	[1-126	12/22/55	Specifications for Util- izing the Kelvin and Hughes Rapid Processing Photograph- ic Projector System in the XD-1 Command Post (6M-4017)	

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APPENDIX A (Cont.)Summary of Active Technical Information Releases Pertaining to SAGE System

	<u>T. I. R. #</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
III. Commun- ications	1-17	9/2/54	Proposal for Communication Between AN/FSQ-7 and F-99 Bases (M-2848-1)	
	1-31	10/8/54	Proposed Program for DDR and DDT (XD-1) (6M-2924)	
	1-41	11/26/54	Tactical Telephone System (XD-1) (6M-3000)	
	1-61	3/1/55	Communications: Texas Tower to Shore via Tropospheric Scatter (Group Report 36-3)	
	1-68	3/29/55	Ground-to-Ground Outputs from the SAGE System (6M-3266)	
	1-70	3/31/55	Number of Active Data Circuits from a Long Range Radar Site (6M-3396)	
	1-84	7/18/55	External Communications, Combat Center AN/FSQ-8 (ADES manual)	
	1-87	7/22/55	SAGE Ground-to-Air Radio (Group Report 311-3)	
	1-88	7/22/55	Alternate Routing of Point-to Point Communications for Texas Towers (Group Report 311-4)	

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APPENDIX A (Cont.)Summary of Active Technical Information Releases Pertaining to SAGE System

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	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
III. Communi- cations (Cont.)	1-103	9/26/55	Ground-to-Air Data Link Sub- channel Selector Switch (6M-3873)	
	[1-109	10/14/55	Internal Communications, Combat Center (ADES Manual)	
	[1-117	12/9/55	Internal and External Commu- nications, D.C. (ADES Manual)	
	[1-125	12/20/55	Digital Data Transmitters and Receivers for SAGE Equip. (6M-3996 and LLDR's 144, 291, and 421)	
IV. Inputs and Outputs	1-18	9/7/54	SAGE Equipment at Heavy Radar Sites (Group Report 20-1)	
	1-19	9/7/54	Pre-SAGE Equipment at Heavy Radar Sites (Group Rep. 20-2)	
	1-47	12/2/54	Compatibility of 6 $\mu$ sec Pulse With SAGE System	
	1-51	12/17/54	Principles to be Followed for Selecting Radars for Each Sub- sector Direction Center (6M-3162-1)	
	1-56	2/1/55	Recommended Quantities of Input and Output Equipment for the First and Second AN/FSQ-7's (6M-3267-2)	

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APPENDIX A (Cont.)Summary of Active Technical Information Releases Pertaining to SAGE System

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	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
IV. Inputs and Outputs (Cont.)	1-58	2/23/55	SAGE Equipment List for a Combined Heavy Radar and Radio Site (Group Report 20-3) (revised)	This supersedes information previously released on TIR 1-42.
	1-62	2/24/55	SAGE Equipment List for A Surveillance Radar Station (Group Report 20-4)	
	1-76	5/27/55	Data Input Specifications to AN/FST-2 Coordinate Data Transmitting Set (Group Report M 24-48)	
	1-81	7/6/55	Location and Orientation of Radar Sites (Group Report 22-5)	
	1-104	9/26/55	Procedure for Orientation of AN/FST-1 Azimuth Markers for the SAGE System (Group Rep. 22-6)	
	1-105	9/27/55	Proposed Site and Equipment Locations in the Experimental Subsector (6M-3515-2)	
	[1-110	10/27/55	Procedure for Orientation of AN/FST-2 Azimuth Markers for the SAGE System (Group Rep. 22-7)	
	[1-112	11/8/55	Radar Performance for the SAGE System (Group Report 21-1)	

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APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
V. Operations	1-79	6/30/55	Radar Data Capacity of AN/FSQ-7 (6M-2769, supp.1)	
	[1-116	12/8/55	Operational Specification for Track Detection and Initiation in the SAGE System (6M-3766-1 and correction 1)	
	[1-119	12/15/55	Operational Specifications for the Manual Data-Input Function in the SAGE System (6M-3814-1)	
	[1-120	12/15/55	Use and Presentation of Weather Data in the SAGE System (6M-3778-1)	
	[1-121	12/15/55	Operational Specifications for Raid Forming in a SAGE Direction Center (6M-3720-1)	
	[1-122	12/15/55	Operational Specifications for Subsector Command Post in the SAGE System (6M-3795-1)	
VI. Personnel	1-10	8/6/54	Training Program for A.F. Personnel (M-2902 and M-2947)	
	1-28	10/1/54	Training Program for A.F. Personnel (M-2947, supp.1 and 2)	

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APPENDIX A (Cont.)

Summary of Active Technical Information Releases Pertaining to SAGE System

	<u>T.I.R.#</u>	<u>Date</u>	<u>Material Released</u>	<u>Remarks</u>
VI. Personnel (Cont.)	1-77	5/31/55	Air Force Personnel Re- quired for the Experimental Subsector (6M-3570 and supplement 1)	
VII. Test Planning	[1-115	12/2/55	Test Equipment List for SAGE Subsystems (LLDR-527)	

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NOTE: T.I.R.'s released since last issue of this summary are preceded by a bracket ( [ ] ).

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