

TELEPHONE PROGRAM PUBLICATIONS

Section A Bulletins
 Section B Telephone Engineering and Construction Manual
 Section C Telephone Operations Manual
 Section D Specification - Bulletin Numerical Cross Reference
 Section E Specifications Codified in the Code of Federal Regulations

Unless otherwise indicated, all publications expire 8/93.

* Incorporated by reference in the Code of Federal Regulations.

For sale by the Superintendent of Documents.

SECTION A
BULLETINS

Number	Issued	Expires	Title
300-2	10/88		Rural Electrification Act of 1936 With Amendments to October 1, 1988 (LAPAS) (1-3)
<i>IP</i> 300-4#	8/90 8/91	1990	Annual Statistical Report - Rural Telephone Borrowers (AISD)
300-5	8/69 10/87		General Funds (TLMS) File With
301-1	8/69		Guiding Statement of REA Policy Concerning Its Relationship with Borrowers (2-1) (ASD)
302-1	7/55		Proceedings Before and Discussions with Regulatory Bodies and Officials (LAPAS) (3-1)
305-1	3/54 6/59 6/61 2/72		Joint Use of Facilities for Telephone and Electric Service (TSD/ESD) (5-1) Supplement Supplement Supplement
320-2	5/72		Extension of Payments of Principal and Interest (TLMS/ESD) (20-5)
320-5	5/72		Headquarters Facilities for Telephone Borrowers (TLMS)

Number	Issued	Expires	Title
320-9	3/65		Organization and Capital Structure of Telephone Borrowers (TLMS)
320-12	9/82		Loan Payments and Statements (FAD) (20-9)
	9/88		Supplement
320-15	7/70		Equal Employment Opportunity in Construction Financed with REA Loans (EOCRS) (20-15)
320-19	7/78		Nondiscrimination Among Beneficiaries of REA Program (EOCRS) (20-19)
320-22	2/75		Guarantee of Loans for Telephone Facilities (TSD)
	9/75		Supplement
321-2	9/75		Loan Security Requirements for Telephone Loans (TSD)
322-2	4/67		Rural Area Coverage - Telephone Loans (TSD)
344-3	7/55		"Buy American" Requirement (ESD) (43-9)
50-18*#	6/87		REA Specification for Wood Poles, Stubs and Anchor Logs (ESD)
50-24*	6/87		REA Specification for Quality Control and Inspection of Timber Products (ESD)
345-3	10/81		Acceptance of Standards, Specifications, Equipment Contract Forms, Manual Sections, Drawings Materials and Equipment for the Telephone Program (TSD)
345-6*	1/78	N/A	REA Standards for Splicing Plastic Insulated Cables (TSD)
345-13*	1/83	N/A	REA Specification for Aerial and Underground Cable (TSD)
345-22*	1/89	N/A	REA Specification for Voice Frequency Loading Coils (TSD)
345-29*	2/82	N/A	REA Specification for Self-Supporting Cable (TSD)

Number	Issued	Expires	Title
345-36	1/83		REA Specification for Parallel Conductor Drop Wire (TSD)
345-39*	8/85	N/A	REA Specification for Telephone Station Protectors (TSD)
345-50*	9/79	N/A	REA Specification for Trunk Carrier Systems (TSD)
345-52*	1/80	N/A	REA Standard for Service Entrance and Station Protector Installation (TSD)
345-54*	12/71 8/72	N/A	REA Specification for Telephone Cable Splicing Connectors (TSD) Revised Pages
345-55*	12/73	N/A	REA Specification for Central Office Loop Extenders & Loop Extenders Voice Frequency Repeater Combinations (TSD)
345-57	5/82		REA Specification for Microwave Radio Equipment (TSD)
345-63*	5/76	N/A	REA Standard for Acceptance Tests and Measurements of Telephone Plant (TSD)
345-65*	3/85	N/A	REA Specification for Shield Bonding Connectors (TSD)
345-66*	9/79 8/80	N/A	REA Specification for Subscriber Carrier Systems (TSD) Pen and Ink Revision
345-67*	1/87	N/A	REA Specification for Filled Telephone Cables (TSD)
345-69*	1/78 10/82	N/A	REA Specification for Two-Wire Voice Frequency Repeater Equipment (TSD) Addendum No. 1
345-72*	10/85	N/A	REA Specification for Filled Splice Closures (TSD)
345-75*	1/77	N/A	REA Specification for Electronic Trunk Circuits (TSD)
345-76	5/77		REA Specification for Spring Action Bonding Connectors Within Buried Plant Housings (TSD)

Number	Issued	Expires	Title
345-78*	2/80 7/80	N/A	REA Specification for Carbon Arrestor Assemblies for Use in Protectors (TSD) Supplement
345-83	7/79 10/82		REA Specification for Gas Tube Surge Arresters (TSD) Supplement
345-86*	10/82	N/A	REA Specification for Filled Buried Service Wire (TSD)
345-87*	12/83	N/A	REA Specification for Terminating (TIP) Cable (TSD)
345-89*	10/85	N/A	REA Specification for Filled Telephone Cable with Expanded Insulation (TSD)
345-90*	5/86	N/A	Totally Filled Fiber Optic Cable (TSD)
345-150*#	7/89	N/A	Specifications and Drawings for Construction of Direct Buried Plant (TSD) Form 515a
345-151*	7/89	N/A	Specifications and Drawings for Conduit and Manhole Construction (TSD) Form 515c
345-152*	7/89	N/A	Specifications and Drawings for Underground Cable Installation (TSD) Form 515d
345-153*	7/89	N/A	Specifications and Drawings for Construction of Pole Lines, Aerial Cables and Wires (TSD) Form 515f
345-154*	7/89	N/A	Specifications and Drawings for Service Entrance and Station Protector Installation (TSD) Form 515g
345-165*	2/89	N/A	REA General Specification for Digital, Stored Program Controlled Central Office Equipment (TSD) Form 522
345-168*	10/77	N/A	REA Specification for Equipment for Direct Distance Dialing (TSD) Form 538
345-180*	1/63	N/A	Specifications for Voice Frequency Repeaters and Voice Frequency Repeated Trunks (TSD) Form 397a
345-181	10/80		Design Specifications for Trunk Carrier System (TSD) Form 397b

Number	Issued	Expires	Title
345-182	10/80		Design Specifications for Subscriber Carrier Systems (TSD) Form 397c
345-183*	6/70	N/A	Design Specification for Point-to-Point Microwave Radio Systems (TSD) Form 397d
345-184*	5/71	N/A	Mobile and Fixed Dial Radio Telephone Specification (TSD) Form 397e
345-185*	7/85	N/A	REA Performance Specification for Line Concentrators (TSD) Form 397g
361-8	6/80		Audio-Frequency Interference and Inductive Coordination of Electric and Communication Facilities (TSD/ESD) (61-8)
380-1	7/56 4/66 1/77		Right-of-Way and Title Procedures - Telephone (TLMS) Supplement 1 to Appendix A Supplement
385-1	12/62		Preloan Procedures and Requirements for Two-Way Radiotelephone Service (TLMS)
385-5	4/66		Loans to Finance Radio Equipment for Subscriber Service (TLMS)
385-6	12/75		Preloan Procedures and Requirements for Radio Paging Service (TLMS)
387-4	9/81		Presentation of Building Plans and Specifications (TSD/ESD) (86-4)
400-2	4/60		Selection of an Attorney by an REA Borrower (TLMS) (100-1)
400-3	6/62		Agreements for the Operation and Management of Borrowers' Systems (TLMS/ESD) (100-5)
400-4	12/65 5/74		Payment of Legal Fees From Loan and Equity Funds (TLMS) Pen and Ink Change
400-5	1/64		Operating Conditions Endangering Loan Security (TLMS)
401-2	6/54		Responsibilities of a Telephone Co-op Director (TLMS)

Number	Issued	Expires	Title
401-3	11/75		Annual Meeting Guide for Rural Electric and Telephone Borrowers (LAPAS)(101-4)
402-1	12/62		Mortgage Restrictions on Dividends and Other Distributions - Telephone Borrowers (TLMS)
	2/72		Supplement
	10/75		Supplement
	2/78		Supplement
402-2	11/60		Partial Waiver of Security Instrument Provisions Relating to Distribution of Capital by Cooperatives (TLMS)
	10/77		Supplement
402-3	3/64		Capital Credits - Consumer Benefits (AAM)(102-1)
	12/73		Supplement
	8/74		Appendix B
403-3	10/59		Minutes of Meetings of Directors, Stockholders, or Members (Telephone) (TLMS)
	9/77		Supplement
403-4	10/77		5 Percent Treasury Certificates of Indebtedness - REA Series and 2 Percent Treasury Bonds - REA Series (FAD)(103-9)
405-1	7/62		Financial Planning by Telephone Borrowers (TLMS)
407-1	2/79		Data Processing Systems (ESD)(107-1)
409-1	5/72		Selection of a Manager by Telephone Borrowers (TLMS)
409-2	1/78		Application of the Fair Labor Standards Act (AAM)(109-3)
	7/78		Supplement
409-7	6/86		Expanding Manpower Resources Through Cooperative Education (EOCRS)(109-7)
411-1	6/61		Extended Area Service (EAS) (TSD)
415-1	8/60		Sale of Property by Telephone Borrowers (TSD)
	6/66		Supplement
	10/77		Supplement
	7/79		Supplement

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441-2	11/80		Brush Control in Right-of-Way Maintenance (ESD) (161-17)
447-3	5/75		Safety (AAM) (168-7)
460-2	4/71		Selection of Depositories for Funds of REA Borrowers (BAD) (180-6)
460-3	12/71		ABC's of Accounting and Interpretation of Financial Statements (BAD)
462-1	1/65		Evaluation and Enforcement of Internal Control of Borrowers' Enterprises (BAD)
464-1	2/59		Accounting for Damages Resulting from Delayed Completion of Construction (BAD)
464-2	6/65		Accounting and Reporting Procedures Covering Large Investments in Special Communications Facilities (BAD)
800-1	2/90		A Brief History of the Rural Electric and Telephone Programs (LAPAS)
800-2	4/90		Report of the Administrator (LAPAS)
1751H-403	7/91		Digital Transmission Fundamentals (TSD)
1751H-501	4/91		Fundamentals of ISDN (TSD)
1751H-601	5/91		Lightwave Fundamentals, Systems, and Application (TSD)
1751H-703	9/91		BETRS Radio Systems
1755I-100 (LIST)	1/91		List of Materials Acceptable for Use on Telephone Systems of REA Borrowers (TSD)
	3/91		Supplement No. 1
	5/91		Supplement No. 2
	7/91		Supplement No. 3

SECTION B
TELECOMMUNICATIONS ENGINEERING AND CONSTRUCTION MANUAL

(All TE&CM's expire 8/93)

Section Number	Issue Number	Issued	Title
101	3	12/62	Objectives and Scope of REA Telephone Engineering and Construction Manual
102	74	8/91	Numerical Index
105	1	10/79	Summary of REA Construction Procedures
116	1	12/65 3/66	Plant Engineering and Record Systems Addendum No. 1
118	1	5/78	Plant Records System Serving Area Value Engineering for Rural Systems
128	1	5/55	Cutsheet
141	2	6/66	Fire Alarm Service (Community Dial Systems)
157	4	5/67	Customer Toll Dialing
201	5	11/83	Introduction to Objectives to Rural Telephone System Designs
203	1	4/71	Existing Plant Considerations for a Telephone System Design
204	1	4/71	Telephone System Design
205	5	5/71	Assembly and Arrangement of an Area Coverage Design
207	1	7/74	Design Criteria for Plant Reinforcement Upgrading from Four-Party to All One-Party
210	8	7/74	Telephone System Design - Sizing Criteria
218	4	2/87	Plant Annual Cost Data for System Design Purposes
219	1	1/78	Present Worth of Annual Charge Studies for System Design

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230	2	2/86	General Principles of Feeder-Distribution Cable Engineering (SAVE)
231	2	2/86	Design Techniques of Feeder-Distribution Cable Engineering (SAVE)
232	2	2/86	Transmission Design Cost Consideration of Feeder-Distribution Cable Engineering (SAVE)
301	3	12/76	Central Office Buildings
302	6	4/89	Power Requirements for Community Dial Central Office Equipment
304	1	2/79	Central Office Replacement Economic Studies Guidelines
306	1	9/85	Earthquake Bracing for Central Office Equipment
319	4	10/78	Interoffice Trunking and Signaling
320	5	6/90	Emergency Generating and Charging Equipment
322	3	2/90	Application for the Preparation of Detailed Digital Central Office Equipment Requirements (Part III of REA Form 522)
323	1	9/79	Fundamentals of Digital Techniques and Switching
324	1	4/80	Digital Terminology
327	4	1/78	Application Guide for the Preparation of Detailed Equipment Requirements for Direct Distance Dailing Equipment
332	1	8/69	Guide for Utilization of Central Office Loop Extenders
340	2	1/79	Subscriber Line Concentrators
341	2	10/84	Application Guide for the Preparation of Detailed Line Concentrator Requirements
401	1	12/80	Subscriber Loop Electronic Systems

Section Number	Issue Number	Issued	Title
406	3	8/77	Transmission Facility Data
407	1	3/59	How to Make Insertion Loss Measurements
415	5	6/90	Transmission Objectives
424	4	7/88	Design Guidelines for Telecommunications Subscriber Loop Plant
426	2	12/77	Subscriber Loop Computations - Design-By-Loss Method
427	3	3/82	Application of Voice Frequency Repeaters for Subscriber Loops and Two-Wire Trunk Circuits
428	1	10/65	Applications and Use of Bridge Tap Isolators (BTI) for Subscriber Loops
429	2	1/79	Automatic Gain Control Repeaters and Their Application to Common Mode Operation
431	2	10/62 4/75	Voice Frequency Loading for Trunk Cables Addendum No. 1
432	1	2/68	Acceptance Tests for Loaded Subscriber Loop Plant - "One-Man" Structural Return Loss Method from the Central Office
435	1	1/79	Cable Capacitance Measurements
445	2	1/65	How to Make Structural Return Loss Measurements
451	2	9/79 9/81	Telephone Noise Measurement and Mitigation Addendum No. 1
451.1	1	9/79	Noise Isolation
451.2	2	4/84	Shield Continuity
451.3	1	9/79	Cable Balance
451.4	1	9/79	Longitudinal Chokes

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451.5	1	9/79	Neutralizing Transformers
451.6	1	9/79	High Voltage Direct Current (HVDC)
451.7	1	2/81	Grounding for Reduction of Power Influence
451.8	1	2/81	Improved Cable Pair Balance by Conductor Reversal
452	1	12/80	Specialized Telephone Noise Measurements and Investigation
452.1	1	12/80	Telephone Cable Pair Harmonic Analysis
452.2	1	12/80	Exploring Coil Measurements
452.3	1	12/80	Probe Wire Measurements
602	4	5/62 9/63	Clearance Addendum No. 1
605	4	1/79	Right-of-Way Clearing and Trimming Assembly Units - Aerial Plant
610	3	1/79	Poles
611	3	3/60 10/66	Design of Pole Lines Addendum No. 3
617	1	4/54 9/69	Railroad Crossing Specification Addendum No.1
626	2	6/62	Staking of Aerial Plant
628	2	1/68	Plastic-Insulated Cable Plant Layout
629	3	1/77	Cable Plant Layout - Serving Area Value Engineering for Rural Systems
630	3	3/62 10/66 1/79	Design of Aerial Cable Plant Addendum No. 2 Addendum No. 3
635	3	2/62 10/66 3/79 8/79	Construction of Aerial Cable Plant Addendum 2 Addendum 3 Addendum 4
636	1	8/61	Aerial Cable Plant Assembly Units

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640	4	5/73	Design of Buried Plant Physical Considerations
		6/67	Memo Supplement - Design and Construction of Joint Buried Plant
		1/79	Addendum No. 1
641	4	4/73	Construction of Buried Plant
642	1	12/67	Staking of Buried Plant
643	2	9/69	Underground Conduit and Manhole Design and Construction (Physical Plant)
644	3	4/83	Design and Construction of Underground Cable
645	1	5/79	Locating Underground Rock Obstacles by Electronics
646	1	12/60	Design and Constructon of Cable Pressurization
648	1	1/77	Serving Area Value Engineering (Physical Plant)
650	4	2/60	Guys and Anchors on Wire and Cable Lines
		10/66	Addendum No. 1
		4/67	Addendum No. 2
670	2	1/82	Corrosion Consideration in Telecommunications Outside Plant
690	1	6/53	Joint Use of Poles
		5/54	Addendum No. 1
		6/59	Addendum No. 2
		6/62	Addendum No. 5
801	4	10/82	Electrical Protection Fundamentals
802	2	9/84	Electrical Protection Grounding Fundamentals
805	8	8/80	Electrical Protection at Subscriber Stations
810	6	9/83	Electrical Protection of Electronic Analog and Digital Central Office Equipment
		9/84	Addendum No. 1

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815	4	4/69	Electrical Protection of Aerial Cable
816	3	7/69 1/71 12/72	Electrical Protection of Buried Plant Addendum No. 1 Addendum No. 2
817	1	3/80	Electrical Protection by Effective Grounding of Cable Shields
822	5	9/81	Electrical Protection of Carrier Equipment
823	3	8/80	Electrical Protection by Use of Gas Tube Arresters
825	3	9/73	Situations Requiring Special Protection
830	5	4/71	Electrical Protection Assembly Units
901	3	9/83	Fundamentals of Carrier Transmission
903	3	1/81	Applications Guide for Subscriber Carrier Specifications, REA Form 397c
904	3	1/81	Application Guide for Trunk Carrier Specifications, REA Form 397b
905	1	10/63	Cable Carrier Systems and Carrier Frequency Transmission Through Cables
909	1	12/67	Impedance Matching for Carrier Multiplex Systems
911	2	9/71 5/80	Station Carrier Application Addendum No. 1
912	1	4/71 5/80	Station Carrier Equipment Addendum No. 1
921	1	11/76	Testing Cables for Carrier Application
925	2	5/85	Transmission Measurements Involving Carrier Multiplex Equipment
930	3	8/79	Use of Point-to-Point Radio (Microwave) in Telephony
931	1	4/67	Microwave Propagation and Path Surveys

Section Number	Issue Number	Issued	Title
932	1	3/70	Microwave System Preparation Guide for Federal Communications Commission and Federal Aviation Administration Requirements
933	2	4/70	Application Guide for Point-to-Point Microwave Radio Systems Specification, REA Form 397d
940	2	4/63	Use of Mobile and Fixed Radiotelephone for Subscriber Service and for Operation and Maintenance
943	2	5/71	Application Guide for Mobile and Fixed Dial Radiotelephone Specifications, REA Form 397e
945	1	7/66	IMTS - Improved Mobile Telephone System
954	2	4/89	Digital Terminals and Multiplexers
956	1	12/82	Digital Span Lines
958	1	9/88	Digital Cross-Connect and Drop and Insert System
961	1	6/90	Application Guide for Digital Lightwave Transmission System Specifications, REA Form 397h

NOTE:

1. Bulletin 1751H-403 replaces TE&CM Section 950, Digital Transmission Systems, and Section 951, Digital Transmission Terminology. See Section A, Bulletins.
2. Bulletin 1751H-601 replaces TE&CM Section 970, Fundamentals of Lightwave Transmission; Section 971, Lightwave Terminology; Section 974, Lightwave Terminal Equipment; and Section 976, Lightwave System Application Guidelines. See Section A, Bulletins.
3. Bulletin 1751H-703 replaces TE&CM Section 948, Basic Exchange Telecommunications Radio Service, and Section 949, BETRS Radio Application Guidelines. See Section A, Bulletins.

**SECTION C
TELEPHONE OPERATIONS MANUAL**

(All TOM's expire 8/93)

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1001	2	5/65	Scope and Use of the Telephone Operations
1002	23	8/91	Numerical Index
1031	2	11/73	Data Processing Systems (Factors to Consider in Conversion)
1032	1	12/77	Data Processing for Telephone Systems
1036	1	10/71	Federal Excise Tax Adjustments for Cooperatives
1050	1	7/60	Restoration of Service in Case of Disaster
1070	5	12/75	Short-Range Planning
1071	2	12/60	What Your Financial Reports Tell You
1081	1	12/76	Long-Range System and Financial Planning
1089.1	1	10/75	Quality of Service Evaluation - Guide for an Appraisal
1090	2	7/70	Improving Management of Telephone Systems
1099	1	6/76	Telephone Marketing Handbook
1101	1	6/68	Model Bylaws for Telephone Cooperatives
COMMERCIAL			
1440	2	1/66	Service Order Procedure
1490	1	9/54	Public Relations
1510	2	1/80	Telephone Tariff

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1530	1	8/56	Service Results - Community Dial Office
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1605	1	8/65	Traffic Operation
1630	1	9/65	Management of Automatic Toll Ticketing Systems
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1800	1	12/88	Instructions for Preparation of Financial and and Statistical Reports for Telephone Systems Financed by the REA
1855	2	4/68	Material and Supplies Accounting
1860	2	3/68	Suggested Work Order Procedure
1870	1	12/54	Continuing Property Records
1870.1	1	12/60	Guide for Establishing Continuing Property Records
1870.2	1	6/70	A Suggested List of Property Record Units for Telephone Borrowers
1951	2	7/64	Procedures for Computing and Recording Capital Credits
1970	1	5/55	Accounting Exhibit - Rate Adjustments
1971	1	8/64	Accounting for Travel and Incidental Expenses
1990	2	9/69	Accounting Guidelines for Telephone Borrowers
		12/76	Addendum A

SECTION D
TELEPHONE SPECIFICATIONS AND BULLETINS
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SECTION E
TELEPHONE SPECIFICATIONS CODIFIED
IN THE CODE OF FEDERAL REGULATIONS

Section	Title
1755.370	REA Specification for Seven Wire Galvanized Steel Strand
1755.397(h)	REA Form 397h, REA Design Specifications for Digital Lightwave Transmission Systems