

**COMMUNITY ANTENNA TELEVISION (CATV)
DISTRIBUTION SYSTEMS
TEST CENTER PROCEDURES**

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1. GENERAL

1.01 This section describes the equipment, facilities, and procedures required for administering a Community Antenna Television (CATV) Distribution System. Included are definitions of terms which are peculiar to this type of service, a description of the Identification Plan to be used in conjunction with a CATV system, and the Test Center records and procedures required for handling trouble reports on the system.

2. DESCRIPTION

2.01 Community Antenna Television (CATV) Distributing Systems are furnished for one-way transmission of television (combined video and audio) program material over a distribution network from an input point selected by the "customer" (the owner of the CATV Company) to buildings where the customer's "users" are located.

2.02 CATV channels will transmit standard television broadcast (video) signals. This will include channels 2 through 13. Also transmitted are color signals and standard FM radio signals at frequencies in the standard VHF television broadcast band and in the standard FM radio band.

2.03 CATV channels are furnished to customers who use them for the transmission of program material received off the air from standard television or FM broadcasting stations. Program material may also be transmitted to the customer's input point by intercity microwave circuits provided by the Telephone Company or by others.

3. DEFINITIONS

3.01 Following are definitions of some of the terms which are used in connection with CATV systems.

Customer — The company which sells, as a service to the general public, a high-grade television signal delivered to a home or business. This company contracts with the Telephone Company for distribution facilities to provide this service.

User — The user contracts with our customers for CATV service.

Head End — This is the input point of a CATV system. TV signals are picked up at this point either off the air by antenna or microwave. The equipment at this location accepts the signals received by the antenna or microwave and conditions them for transmission over the Telephone Company's distribution network.

Coaxial Cable — Cable made up of a single solid center conductor surrounded by a tube of electrically conducting material which are separated by either solid or air dielectric.

Feeder System — That part of the Telephone Company facilities which carries the signal from the “head end” to the area in which it will be distributed. Air dielectric coaxial cable is usually used in this part of the system because of its lower loss characteristics, and is called “feeder cable.” The CATV drop wires are never connected to this part of the system.

Distribution System — That part of the Telephone Company facilities used in the transmission of the signal from the “feeder system” to the user’s location. Solid dielectric coaxial cable is used in this portion of the system and is called “distribution cable.”

Line Amplifier — A broadband amplifier which is used on the feeder cable for amplifying the signal level to distribution amplifiers or other line amplifiers.

Distribution Amplifier — A high-gain power amplifier used for amplifying and providing the signal to one or more distribution cable legs.

Line Extension Amplifier — An amplifier used in the distribution cable legs for extending the effective length of the cable.

Power Supply — A unit usually placed at an amplifier location and used to power amplifiers in both directions from the power supply location. The power travels over the coaxial cable to the amplifiers that are to receive it.

Splitter or Directional Coupler — A passive device which is used to divide the signal from one cable and send it out on two cables without providing amplification.

Multiple Tap Device — A multiple output directional coupler which splits or divides the signal from the distribution cable to feed from one to four CATV drops.

Tap — One of the outputs of a multiple tap device which supplies the physical connection between the CATV drop wire and the distribution cable.

CATV Drop Wire — A coaxial wire installed between the distribution cable and the user’s premises. It is connected to a tap at the distribution cable and is terminated on a grounding block on the user’s premises.

Interface (Demarcation Point) — This point is the dividing line between those parts of the system for which the Telephone Company is responsible and the parts of the system for which the customer is responsible. The “interface” at the head end is at the point where the customer delivers the signals to the Telephone Company. The other interface is on the user’s premises. It will be at the grounding block in those cases where the customer provides the inside wiring, or at a small transformer near the user’s television set when the Telephone Company provides the inside wiring.

4. SPECIAL SERVICE SYSTEM IDENTIFICATION

4.01 Each CATV system shall be identified by a **Special Service System Identification number**, in order to administer billing procedures within an Accounting area. This is particularly necessary when the same locality is served by more than one system. The systems shall be identified as outlined in Section 682-000-012. The Special Service System Identification number will take the form, 66CV1. This number is *not* the same as the CATV system number assigned by engineering and shown on the line amplifier and distribution amplifier record cards (Exhibits I and II).

5. CATV DROP WIRE OR USER IDENTIFICATION

5.01 A numbering plan has been designed for identifying the various Outside Plant components of the CATV system. This plan provides for Engineering to number all amplifiers, distribution cable legs, and other pieces of hardware, such as multiple tap devices, splitters, etc. Through a systematic use of these numbers, each CATV drop wire terminated at a grounding block will be identified within a system by a nine-digit identification number. When the Telephone Company provides the CATV inside wire, each user will be identified by a ten-digit identification number. This is accomplished by using the identifying numbers of the components directly involved in providing the signal to a specific user's premises.

5.02 Use of this plan for numbering and identifying CATV drop wires will:

- (a) Provide a number, without duplication, for every drop wire or user in the area to be served by a CATV system.
- (b) Provide a means whereby all drops or users associated with a particular amplifier or amplifier leg may be identified for maintenance analysis and whereby out-of-service credits may be computed when required.
- (c) Allow locating of a CATV drop or user on a cable location record by means of the amplifiers and cable legs involved.

5.03 In a CATV system where the interface on the user's premises is at the grounding block, the *Drop Wire Identification number* is made up of nine digits written as XXX-YYY-ZZZ. The significance of each digit or group of digits is as follows:

First Group of three digits (XXX) — This is the three-digit number assigned to the *line amplifier* most directly associated with the drop wire to be identified. The first digit of this group may be used, when it is desirable, to indicate sections or phases of a large system, e.g., 1XX indicates a line amplifier

in the first section, 2XX indicates a line amplifier in the second section, etc.

Second Group of three digits (YYY) — This group of digits pertains to the *distribution portion* of the facilities involved with a particular drop wire. The first digit of this group is the number of the distribution amplifier associated with the line amplifier in the preceding group of digits, e.g., 105-1YY-ZZZ tells us we are talking about distribution amplifier 1, associated with line amplifier 105.

The second digit is the number of the *cable leg* fed by the distribution amplifier, e.g., 105-13Y-ZZZ indicates that the drop wire is on leg 3 of distribution amplifier 1, associated with line amplifier 105.

The third digit is the number of the last *line extension amplifier* on the distribution cable leg before the drop wire to be identified. If the drop wire works out of the cable between the distribution amplifier and the first line extension amplifier, the digit 0 is used. If a drop wire works out of the cable between line extension amplifiers 1 and 2, the identification number takes the form, 105-131-ZZZ.

Third Group of three digits (ZZZ) — This group of digits pertains to the multiple tap device from which the drop wire is served.

The first and second digits comprise the number of the multiple tap device. The numbers start at a distribution or line extension amplifier and increase as the cable extends away from the amplifier. The numbering process is repeated after each distribution or line extension amplifier. The significance of these two digits is as follows:

multiple tap devices with numbers 20 through 39 are in transmission zone 1

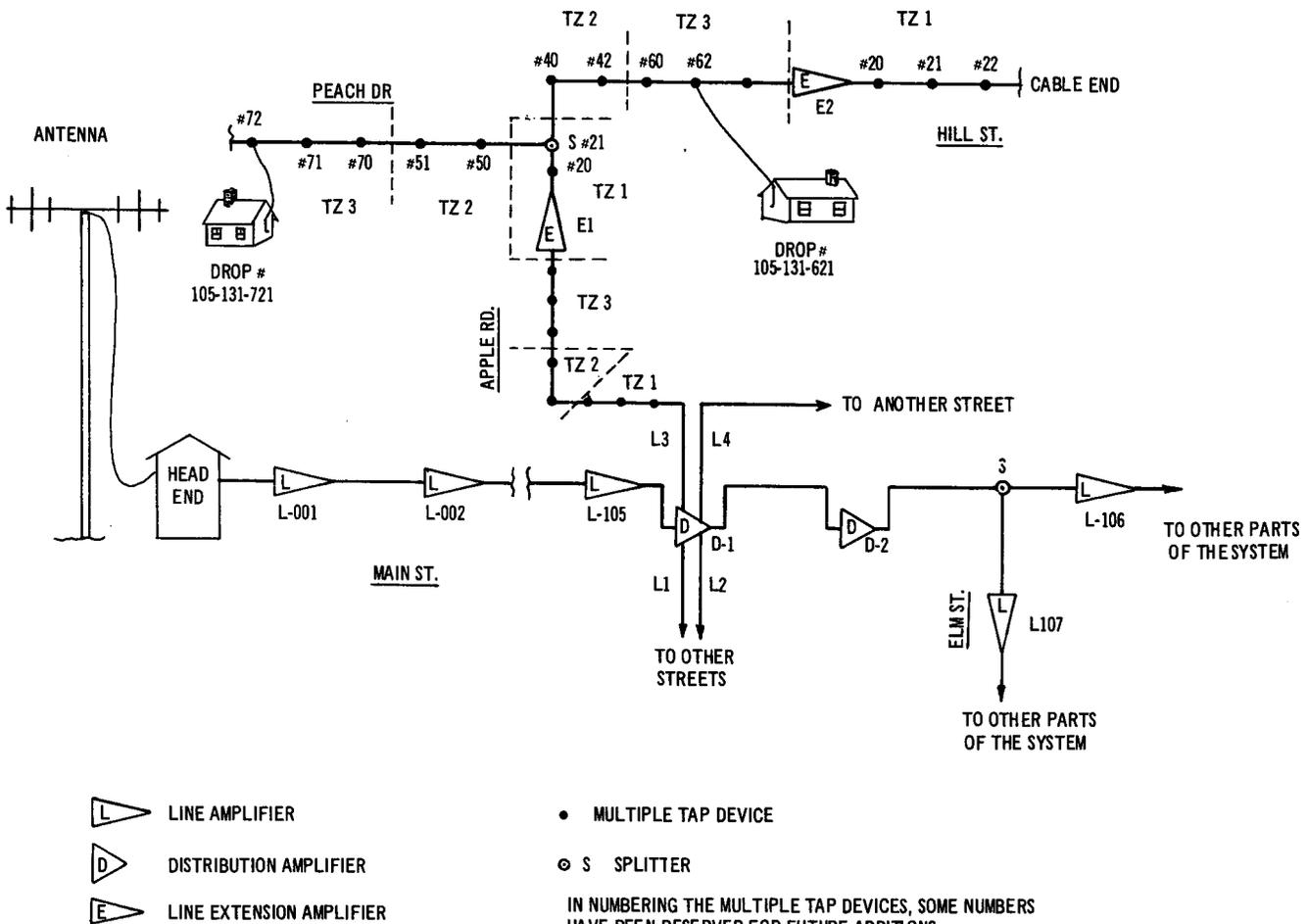
multiple tap devices with numbers 40 through 59 are in transmission zone 2

multiple tap devices with numbers 60 through 79 are in transmission zone 3

The last digit in the group (ZZZ) is the tap number (1, 2, 3, or 4) in the multiple tap device to which the drop is connected.

The following simplified drawing illustrates the application of this numbering plan.

Simplified CATV System Drawing



STANDARD SYMBOLS WERE NOT USED IN ORDER TO SIMPLIFY THIS DRAWING

Fig. 1

5.04 If the CATV drop wire carries the identification number 105-131-621, the number is interpreted as follows:

- 105 — The cable feeding the drop wire is directly controlled by line amplifier 105.
- 1 — The cable feeding the drop wire is fed from distribution amplifier 1 associated with the above line amplifier.
- 3 — The cable feeding the drop wire is distribution leg 3, fed out of the above distribution amplifier.

- 1 — The cable feeding the drop wire is also controlled by line extension amplifier 1 on the above cable distribution leg.
- 62 — The drop wire works out of multiple tap device 62 (in transmission zone 3) of the above line extension amplifier.
- 1 — The drop is connected to tap number 1 in the above multiple tap device.

5.05 In a CATV system where the Telephone Company provides the CATV inside wire, a *User Identification number* is required since

it may be desirable to feed more than one user in a multiple dwelling from the same CATV drop wire. Since we have identified only the drop wire with the nine-digit number, a tenth digit is required to identify each user connected to the drop. This tenth digit is the number of the user being fed by the drop wire. The number 105-131-6212 would identify the second user connected to the drop wire described in 5.04.

6. TEST CENTER RECORDS

6.01 The basic Test Center records for the maintenance of a CATV system will be:

- (a) Line Amplifier Record cards, Form E-5430.
- (b) Distribution Amplifier Record cards, Form E-5431.
- (c) Copies of the Geographical Index Map and its associated Cable Plats.
- (d) Amplifier Maintenance card, Form E-5429.

Items (a), (b), and (c) above will be provided by Engineering. The Amplifier Maintenance card will be made up in the Test Center.

6.02 The *Line Amplifier Record card*, Form E-5430, (Exhibit I) will describe and locate all pieces of CATV hardware, such as amplifiers, splitters, thermal equalizers, etc, installed in the feeder cable. The card will also show the insertion loss of each item, as well as the cable lengths between items. An *original* card or set of cards will be provided for each line amplifier and will include all items installed up to the next line amplifier. No *distribution* facilities other than the distribution amplifier itself will be listed on these cards, since this is basically a feeder cable record. In case of changes and additions to this part of the system that require an Engineering work order, Engineering will provide revised or additional cards as required. Changes made without a work order will require the updating of these cards by the Test Center.

6.03 The *Distribution Amplifier Record card*, Form E-5431, (Exhibit II) will describe and locate all pieces of CATV hardware, such as amplifiers, splitters, directional couplers, multiple tap devices, etc, installed in the distribution cable. The card will also show the insertion loss of each item, as well as the cable lengths between items. An *original* card or set of cards

will be provided for each distribution amplifier and will include entries for its associated distribution facilities. Minor changes for which an Engineering work order will *not* be issued (such as the adding of a multiple tap device to existing cable) require the updating of this record by the Test Center. In most cases, the notification of a multiple tap device added will come from the Assignment Center. When additions or changes are made to the distribution facilities and a work order is issued by Engineering, they will also provide new cards or revised prints of the original cards for updating by the Test Center.

6.04 The Line Amplifier and Distribution Amplifier Record cards can be used to derive the *design* signal level at any particular item of hardware. This is accomplished by summarizing the losses between the item concerned and the preceding amplifier.

For example, to derive the design signal level at the multiple tap device that feeds drop wire number 105-131-621 (Fig. 1 and Exhibit II), total all the insertion losses on the preceding lines up to and including line extension amplifier number 105-131. The total is 8.0 db. Next total all the section lengths on the same lines (505 feet), divide by 100, and multiply by 1.86.

$$\frac{505}{100} \times 1.86 = 9.4 \text{ db}$$

The side loss of the multiple tap device is 10.0 db (line 19, column 15). The total loss is 8.0 + 9.4 + 10.0, or 27.4 db. Subtracting this from the output level of the line extension amplifier (40.0) gives a design level of 12.6 db at the multiple tap device.

To find the design level at the grounding block, the length of the drop and the type of tap added must be taken into consideration.

6.05 The copies of the *Geographical Index Map*, which will indicate the routing of the CATV cables and the *Cable Plats* on which the CATV cables are shown, should be filed in the normal manner. The Cable Plats will show all feeder cables and distribution cable legs, along with the regular telephone cables. They will include by pole number or manhole location all

- (a) line amplifiers
- (b) distribution amplifiers
- (c) line extension amplifiers

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- (d) power points
- (e) cable ends

These items will be indicated on the Cable Plats by symbols, as outlined in Section 620-040-015. The assigned identification numbers of the cables and of items (a), (b), and (c) will also be shown.

6.06 An *Amplifier Maintenance card*, Form E-5429 (Exhibit III) will be required in the Test Center for each line amplifier, distribution amplifier, and line extension amplifier in a CATV system. The cards should be made up in the Test Center from the information listed on the Line Amplifier Record and Distribution Amplifier Record cards. The entries to be made on the cards are:

- 1 Enter the assigned Special Service System number.
- 2 Enter the amplifier number.
 - (a) A line amplifier is shown by a three-digit number, e.g., 105.
 - (b) A distribution amplifier is shown by a four-digit number (the three digits from the associated line amplifier plus the one-digit designation of the distribution amplifier, e.g., 105-1).
 - (c) A line extension amplifier is shown by a six-digit number (three digits from the associated line amplifier, one digit from the associated distribution amplifier, one digit from the cable leg on which the amplifier is installed, and the last digit from the assigned number of the line extension amplifier, e.g., 105-131).
- 3 Place a check or an X in the box to indicate the type of amplifier being described.
- 4 Enter the card number.
- 5 Enter the pole or manhole location of the amplifier.
- 6 Enter the pole location of the power supply unit that feeds this amplifier.

- 7 Enter the number of the previous amplifier from which the signal is received.
- 8 List *all* amplifiers to which the signal is being delivered. If there are none, enter the word "NONE." This entry will be useful when associating amplifiers involved in an out-of-service condition.
- 9 Enter the feet of cable under direct control of the amplifier. This will include cable footages up to (but not beyond) the subsequent amplifiers.
- 10 Enter the signal level readings actually taken by the line-up group in the field.
- 11 Enter any miscellaneous information that is pertinent to the amplifier. An example would be the type of plug-in splitter used with a distribution amplifier.
- 12 Enter the CATV system number assigned by engineering. This number will be found on the index tabs of the line amplifier and distribution amplifier cards (Exhibits I and II).
- 13 The remaining spaces on the card (front and back) will be used to enter trouble reports, cause of trouble, and work done on the amplifier. It is anticipated that the trouble record will be used for analyzation and will provide background information for current trouble reports.

Examples of maintenance cards for line amplifiers, distribution amplifiers, and line extension amplifiers are shown on Exhibits IV, V, and VI.

7. FILING EQUIPMENT AND ARRANGEMENTS

7.01 The Line Amplifier Record and Distribution Amplifier Record cards should be filed either in a cabinet with sliding trays or in a two-column book designed for this purpose. The cards are equipped with metal hinges. They slide onto hangers and lie flat in the tray or book. The first card overlaps the next card and so on, leaving the index portion of each card visible.

7.02 The cards should be filed in numerical sequence, with the Distribution Amplifier Record cards following immediately after their associated Line Amplifier Record cards.

7.03 The Amplifier Maintenance cards should be filed in the same type of filing equipment as Telephone Subscriber Line cards. They should be filed in numerical sequence, with each Line Amplifier card being followed by its associated Distribution and Line Extension Amplifier cards.

8. TROUBLE REPORTING AND CLEARING PROCEDURES

8.01 In administering a CATV system, the most efficient method of trouble reporting is to designate the Plant Test Center in which the head end equipment is located as the control center for the CATV system. This way, the customer will refer all his trouble reports to one Test Center, which will be responsible for handling and clearing the troubles.

8.02 CATV trouble reports should be taken only from the customer after he has verified that the trouble is in the Telephone Company's distribution facilities, rather than in his own or his user's equipment. Multiple reports caused by a failure of common distribution facilities may be taken without customer verification. In reporting troubles, the customer shall give the user's address and the Drop Wire or User Identification Number.

8.03 Users who call Telephone Repair Service to report CATV troubles shall be courteously referred to the CATV operator.

8.04 The Marketing Department is responsible for advising the customer of the above trouble reporting procedures. Constant deviation from these procedures by the customer shall be referred to the Marketing Department for action.

8.05 CATV trouble reports shall be recorded and summarized as outlined in the Customer Trouble Reporting Analysis Plan, with the following exceptions:

- (a) A line card is not required and, therefore, cannot be date-stamped.

- (b) The Test Center *shall not* contact the user to verify his name and address or to discuss trouble. All contacts on trouble reports shall be made with the customer. Local arrangements shall be made to report to the customer a trouble cleared.

- (c) When the customer reports a common failure, a report shall be taken for each "User" report he has received up to the time that the trouble is reported to the Telephone Company.

- (d) The cleared CATV trouble reports on Form E-4732 will be filed separately by identification number in numerically ascending sequence. All reports for the current and previous report period will be kept in this current file. Reports previous to these periods shall be removed from the current file and filed with the other trouble report tickets in the "year" file.

- (e) When the customer reports a CATV trouble, the employee taking the report shall check the current file for repeated trouble reports. If there is a previous trouble report in the file, it shall be attached to the current report and forwarded to the dispatcher.

8.06 The dispatcher, in handling a case of trouble, shall advise the repairman of:

- (a) The identification number of the drop or user involved.

- (b) The user's address.

- (c) The trouble reported.

- (d) The last amplifier that serves the drop. This will be a line extension amplifier or distribution amplifier, depending on the location of the drop. He should give all required information shown on the Amplifier Maintenance card, including any previous trouble reports that may have a bearing on the current trouble.

- (e) Any pertinent information supplied by the customer at the time the trouble report was taken.

8.07 Dispatchers should be trained to aid the repairman by being able to read and interpret:

- (a) The Line Amplifier Record cards, Form E-5430.

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- (b) The Distribution Amplifier Record cards, Form E-5431.
- (c) The Geographical Index Map and associated Cable Plats.

8.08 Credit rebates to the CATV operator for out-of-service conditions due to trouble in Telephone Company facilities are normally outlined in each associated Company's tariff. These rebates are based on the billable items involved in the out-of-service condition and may be any or all of the following:

- (a) One or more individual channels.
- (b) Street or route mileage.
- (c) Block charges.
- (d) Drop wires and inside wires, where applicable.

8.09 When an out-of-service condition exists that requires rebating of part of the monthly charges for any of the above items, the Test Center may be required to inform the Departments concerned of the number of these items involved and the length of time that the out-of-service condition existed.

8.10 Sources of information for the items listed in 8.08 are as follows:

- (a) Channels — The number of channels actually out of service.
- (b) Street or route miles — This item may be obtained by summarizing the cable footages listed on the Amplifier Maintenance cards. Care should be taken to ensure that all affected cables are included. In most cases only the distribution cables are involved, but some rate structures call for mileage charges on feeder cables as well.

(c) Blocks — Where block charges apply, the number of blocks involved in an out-of-service condition should be available from the Outside Plant Index Map and/or from the associated Cable Plats.

(d) Drops and Inside Wires — The drop wires and, where applicable, the inside wires can be found by their identification number. For instance, if line amplifier 227 was out of service and this amplifier controlled line amplifiers 228 and 229, all drop wires or inside wires with identification numbers starting with 227, 228, and 229 would be affected. Where possible, procedures should be established to allow Accounting, by machine process, to summarize the drops affected. This method would require the Test Center to advise Accounting of only the amplifier numbers involved.

9. ORDERING INFORMATION

9.01 The form outlined in this section to be established by the Test Center is:

- (a) Form E-5429, Amplifier Maintenance Card

These forms are provided in packages of 100 and should be ordered in multiples of the package unit as follows:

Quantity Form E-5429.

9.02 All other Test Center records will be provided by Engineering.

9.03 Ordering details for the tray cabinets and two-column books mentioned in Part 7 are contained in the Supplies Catalogue.

10. EXHIBITS

10.01 The following exhibits explain the records which will be used for CATV system maintenance.

NOTES ON EXHIBIT I

(Entries on Exhibit I coincide with drawing in Fig. 1)

- A Name and state or area of Telephone Company.
- B Type of amplifier ("L" indicates a line amplifier; "L-D" indicates a combined line and distribution amplifier).
- C Location of amplifier.
- D & E Input level to and output level from the amplifier expressed in db.
- F & G Type and location of the power supply that feeds the amplifier.
- H Identification number of the previous amplifier. This is the amplifier that feeds the amplifier being described.
- I The line amplifier numbers (three-digit) as they appear in the feeder section being described.
- J The distribution amplifier numbers (one-digit) as they appear in the feeder section being described.
- K The two-digit identification number of the hardware item.
- L The type of hardware (S = splitter, DC = direction coupler, EQ = equalizer, AGC = automatic gain control, D = distribution amplifier, L = line amplifier) and the manufacturer's model number.
- M The location of the item of hardware.
- N The insertion loss of the item of hardware.
- O The length of cable between the item on the same line and the item on the next line.
- P The loss in level per 100 feet of cable.
- Q The Cable Location Plat number which will show the feeder section being described.
- R & S When a branch feeder cable is required, a splitter or directional coupler is inserted into the feeder cable. When this occurs, the line describing the item of hardware from which the branch feeder originates must carry a reference to the line and card on which the preceding piece of equipment is described.
- T The CATV system number assigned by Engineering.
- U The number of the line amplifier that controls the feeder section being described.
- V The numbers of the line amplifiers that are being fed by the feeder section being described.
- W The number of the card used to describe the feeder section. Where more than one card is used, the cards are numbered consecutively.
- X The name of the city or exchange in which the CATV system operates.

(AREA NAME) (A) AREA

(CO. NAME) (A) TEL. CO.

E-5430L

CATV LINE AMPLIFIER RECORD

ISSUE DATE

TYPE AMP. L-D-SA1 (B) LOCATION P2137 MAIN (C) LEVEL (DB) - INPUT 13 (D) OUTPUT 32 (E)

POWER SUPPLY - TYPE SPS-12 (F) LOCATION P2015 MAIN (G) PREVIOUS AMP. NO. L-104 (H)

LINE NO.	LINE AMP. NO.	DIST. AMP. NO.	HARDWARE			CABLE			CABLE PLAT	REFERENCE		LINE NO.
			NO.	TYPE	LOCATION	Insert Loss	Section Length	Loss/100 ft.		LINE	CARD	
1	105	-	-	L-D-SA1	P2137 MAIN	-	-	-	2A1	-	-	1
2	-	1	-	L-D-SA1	P2137 MAIN	1.0	500	1.1	"	-	-	2
3	-	2	-	D-SAS	P2179 MAIN	1.0	300	1.1	"	-	-	3
4	-	-	11	S-SHS2	P2203 MAIN	3.5	210	1.1	"	-	-	4
5	106	-	-	L-SA4	P2219 MAIN	-	-	-	"	-	-	5
6												6
7												7
8	105	2	11	S-SHS2	P2203 MAIN	3.5	320	1.1	2A1	3	1	8
9	107	-	-	L-SA4	P22 ELM	-	-	-	"	-	-	9
10												10
11												11
12												12
13	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	13
14												14
15												15
16												16
17												17
18												18
19												19
20		(T)	(U)	(V)	(W)	(X)						20
21												21

CATV SYSTEM NO.	Line Amp. No.	To	Line Amp. No.	Cable No.	City
1	105	X	106 107	1	(NAME)

NOTES ON EXHIBIT II

(Entries on Exhibit II coincide with drawing in Fig. 1)

- 1 Name and state or area of Telephone Company.
- 2 Type of amplifier ("D" indicates an intermediate distribution amplifier; "L-D" indicates a combined line and distribution amplifier).
- 3 Location of amplifier.
- 4 & 5 Input level to and output level from the amplifier expressed in db.
- 6 & 7 Type and location of the power supply that feeds the amplifier.
- 8 Identification number of the previous amplifier. This is the amplifier that feeds the amplifier being described.
- 9 The number of the distribution leg being described.
- 10 The number of the line extension amplifier on the leg being described.
- 11 The identification number of the item of hardware.
- 12 The type of hardware (S = splitter, DC = directional coupler, MT = multiple tap device, PT = pressure tap, E = line extension amplifier) and the manufacturer's model number.
- 13 The location of the item of hardware.
- 14 The insertion loss of the item of hardware.
- 15 The side loss of the item of hardware. This is used only in the case of a multiple tap device and does not include the loss caused by the tap adding equipment.
- 16 & 17 The input and output levels of the extension amplifiers.
- 18 The length of cable between the item on the same line and the item on the next line.
- 19 The loss in level per 100 feet of cable.
- 20 The Cable Location Plat number which will show the distribution section being described.
- 21 & 22 When a branch distribution leg is required, a splitter or directional coupler is inserted into the distribution cable. When this occurs, the line describing the item of hardware from which the branch leg originates must carry a reference to the line and card on which the preceding piece of equipment is described.
- 23 The CATV system number assigned by Engineering.
- 24 The number of the line amplifier with which the distribution amplifier is associated.
- 25 The number of the distribution amplifier that feeds the facilities being described.
- 26 The number of the card used to describe the facilities. Where more than one card is used, the cards are numbered consecutively.
- 27 The name of the city or exchange in which the CATV system operates.

(AREA NAME) ①		AREA		(CO. NAME) ①		TEL. CO.		E-5431L								
CATV DISTRIBUTION AMPLIFIER RECORD										ISSUE DATE _____						
TYPE AMP. L-D-5A1 ②		LOCATION P2137 MAIN ④				LEVEL (DB) - INPUT 32 ④		OUTPUT 48 ⑤								
POWER SUPPLY - TYPE SPS-12 ⑥		LOCATION P2105 MAIN ⑦				PREVIOUS AMP. NO. L-105 ⑧										
LINE NO.	DIST. LEG	LINE EXT. AMP	HARDWARE						EXT. AMP.		CABLE		CABLE LOCATION PLAT.	REF		LINE NO.
			NO.	TYPE	LOCATION	Insert Loss	Side Loss	In	Out	Section Length	Loss/100 ft.	LINE		CARD		
1	3	0	20	S-304	P 2137 MAIN ST	6.5	-	-	-	100	1.86	2A1				1
2			21	MT-422	P 2129	1.0	22.0	-	-	85						2
3			22	MT-422	P 2121	1.0	22.0	-	-	110						3
4			23	MT-422	P 2113	1.0	22.0	-	-	100						4
5			40	MT-416	P 2105	1.0	16.0	-	-	95						5
6			41	MT-416	P 8 APPLE RD.	1.0	16.0	-	-	100						6
7			42	MT-416	P 16	1.0	16.0	-	-	110						7
8			60	MT-410	P 24	1.5	10.0	-	-	90						8
9			61	MT-410	P 32	1.5	10.0	-	-	100						9
10			63	MT-410	P 40	1.5	10.0	-	-	100						10
11	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒		11
12																12
13	3	1	-	E-SX-1	P 48 APPLE RD	-	-	18	40	1	1.86	2A1				13
14			20	MT-422	P 48	1.0	22.0	-	-	99						14
15			21	S-SHS 2	P 56	3.5	-	-	-	95						15
16			40	MT-416	P 64	1.0	16.0	-	-	100						16
17			42	MT-416	P 9 HILL ST	2.0	16.0	-	-	110						17
18			60	MT-410	P 17	1.5	10.0	-	-	100						18
19			62	MT-410	P 25	2.5	10.0	-	-	90						19
20																20
21	3	1	21	S-SHS 2	P 56 APPLE RD	3.5	-	-	-	100	1.86	2A1	14	4		21
CATV SYSTEM NO.		Line Amp. No.	Dist. Amp. No.	Card No.	City											
1		105	1	41	(NAME)											
⑳		㉔	㉕	㉖	㉗											

EXHIBIT II

