

Communication Plant Depreciation Tables

BCRI's Communications Depreciation Tables reflect the realities of the rapidly changing communications markets. They capture the loss in economic value due to physical deterioration, functional and technological obsolescence, and other forms of economic/external obsolescence impacting the communications industries. This chapter provides a brief description of the plant accounts for which depreciation tables are provided. A listing of the communication tables is provided below in Table 1, and the full depreciation tables are provided at the end of this chapter and in electronic format on the accompanying CD.

Summary of 2008 Changes

All depreciation tables and factors were updated effective January 1, 2008 to reflect all changes in depreciation and obsolescence levels resulting from passage of time since the last update.

Abnormal obsolescence (e.g. technological substitution) models do not generally change from year to year. These models inherently capture the change in utility of the subject technology over time. A notable exception is when there are overlapping technological substitutions and either an old technology becomes immaterial or a new technology emerges. In this case, the model itself may require updating.

While the underlying obsolescence models generally do not change from year to year, the levels of technological obsolescence will typically change over time. Each year, BCRI updates its economic lives and depreciation tables to reflect changes in the levels of obsolescence.

Physical depreciation and ordinary obsolescence are functions of age and are not materially impacted from one year to the next. History has shown that these forms of depreciation can be reliably modeled using mortality survivor curves. Each year, BCRI verifies the mortality survivor curves used for physical depreciation and ordinary obsolescence and updates them where necessary.

Category Changes

At BCRI we try to maintain stability in our classes of plant and avoid unnecessary changes; however, classification changes may be required to address the emergence of new technologies or the demise of older technologies. Additionally, classification changes may be necessary to reflect classification changes in the industry.

This year a new classification was added to specifically address CATV converters and set-top boxes; and several discontinued wireless classifications were reactivated.

BCRI updated its obsolescence models for wireless communication equipment (i.e., Cellular/PCS eq.). This update was necessary to reflect the impacts of emerging G4

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technology, observed experience, and to reflect changes in how the wireless industry classifies its equipment – specifically, the reclassification of some G3 equipment to G2.5.

For example: when initially introduced, GSM technology was touted as the latest technology and classified as G3. It was anticipated the GSM technology would rapidly displace G2.5 and prior technologies. Recently, however, the industry changed its classification of GSM from G3 to G2.5. Because BCRI's wireless depreciation tables are segmented by generation (Gs), this classification change shifts obsolescence between the generations. BCRI's models were revised to reflect the industry's current generation classification.

This reclassification results in significant differences between the obsolescence levels associated with G2.0 and G2.5 technology. As a result, separate depreciation tables are again provided for G2.0 and G2.5 generations. Previously, these generations were combined into one, G2.x, because the obsolescence levels were very similar. A depreciation table is still provided for G2.x for those instances where it is not practical or possible to separate the equipment.

Table 1 – BCRI's Communication Depreciation Tables

Communication Equipment	
RCatID	Description
5472	Broadcasting: Broadcasting Equipment
5473	Broadcasting: Analog Common Eq.
5471	Broadcasting: Analog Equipment
5467	Broadcasting: Analog Only Equipment
5468	Broadcasting: Digital Equipment
420	Cable - Fiber Cable
419	Cable - Metallic Cable
428	Cable - Metallic Distribution Cable
5466	Cable - Metallic Distribution Cable (Excluding Drops)
426	Cable - Metallic Feeder Cable
5443	Cable - Telecom Metallic Drops
5441	CATV Cable - Coax Trunking Cable
5446	CATV Cable - Coaxial Cable
5469	CATV Cable - Coaxial Cable (Excluding Drops)
5474	CATV Cable - Coaxial Distribution
5475	CATV Cable - Coaxial Distribution (excl. Drops)
5444	CATV Cable - Coaxial Drops
269	CATV Converters, set-top boxes, etc
5436	CATV Head-End Video Equipment
364	Circuit - Analog
365	Circuit - Digital
5433	Circuit - High-Speed Internet Access Equipment
5435	Circuit - Microwave Electronics
366	Circuit - Optical
5458	Circuit - PCS Base Station Equipment (All Generations)
539	Circuit - PCS Base Station Equipment G1.0
5450	Circuit - PCS Base Station Equipment G2.0
547	Circuit - PCS Base Station Equipment G2.5
5452	Circuit - PCS Base Station Equipment G2.x
592	Circuit - PCS Base Station Equipment G3.0
5476	Circuit - PCS Base Station Equipment G4.0
418	Circuit Equipment
4405	Structures - Communication Antennas
540	Structures - Communication Towers
392	Structures - Conduit Systems

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Communication Equipment	
RCatID	Description
5447	Structures - Microwave Dishes
5448	Structures - Microwave Dishes & Electronics
373	Structures - Poles
423	Switches - Circuit Switching
422	Switches - Packet Switching
536	Switches - PCS Circuit Switching
359	Switches - Software
400	Telecom - Large PBX Eq.
410	Telecom - Network Buildings
348	Telecom - Official Communication Eq.
535	Telecom - Power Equipment
402	Telecom - Public Telephone Terminal Equipment
562	Telecom - Station Apparatus
434	Telecom - Tools & Other Work Equipment
393	Capital Leases & Leasehold Improvements

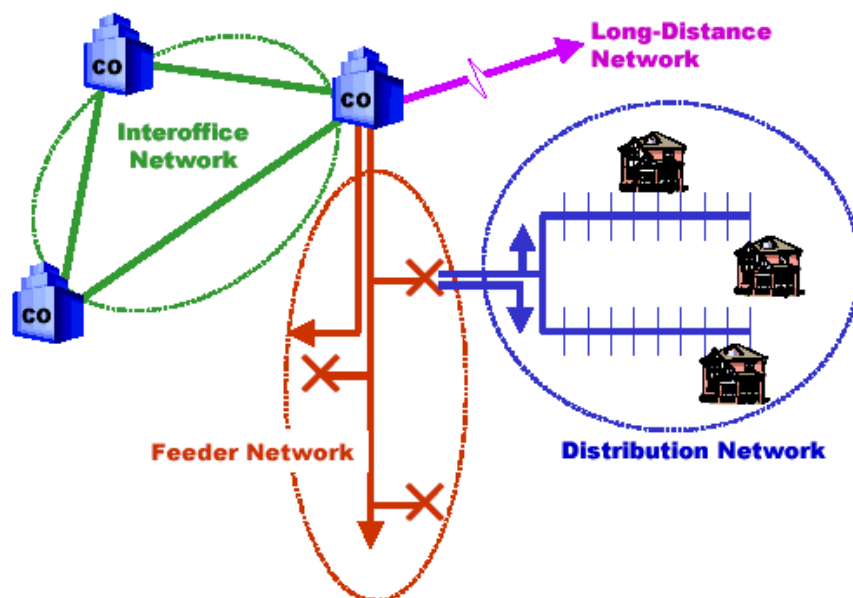
Description of Major Network Segments

Communication networks consist of an integrated collection of sub-networks, each providing a different functionally and in some cases, a different physical environment. These differences, especially functional differences, result in different depreciation and useful life characteristics between the various network segments. To appreciate the applicability of the various depreciation tables, it is necessary to have a basic understanding of the major network segments. A brief description of the major network segments is provided below.

Telephony Cable Networks

Telephony networks are subdivided into four network segments: Long-distance, Interoffice, Feeder, and Distribution networks. (See Exhibit 1.) Each of these segments is physically distinct and each has a unique functional purpose. Prior to 1975, all telecommunications cabling was metallic twisted-pair cable. In the late 1970s, fiber cable was introduced in the Long-distance network; and over time fiber's reach extended to all network segments.

Exhibit 1 - Telecom Cable Network



Long-Distance Network

Long-distance cables interconnect Central Offices (COs) in different areas. Cable routes are typically very long, often exceeding a hundred miles. Communications traffic is high and highly concentrated in Long-distance routes. Telephone companies began deploying fiber cables in the late 1970s; and today, virtually all Long-distance cables are fiber.

Interoffice Network

Interoffice cables link Central Offices or switching centers together. The Interoffice network is the backbone of the public switched network. Interoffice cable lengths average between 10 and 20 miles. The majority of interoffice cable investment is underground cable; however, a significant portion of the interoffice network utilizes aerial and buried cable. Long cable lengths and high concentrations of communication traffic characterize the interoffice network. Today, over 98% of the Interoffice cables are fiber.

Feeder Network

Feeder cables provide the main arteries that feed the distribution (local loop) network. They extend from the telephone Central Office toward the consumer and terminate at a distribution facility where they interconnect with the distribution network. They can be either metallic or fiber. Today, most feeder cables are metallic; however, most communication traffic is carried over fiber cables. Fiber cable penetration is significant and growing very rapidly.

In metro-areas, commercial buildings are often served directly from the Central Office. Some telephone companies classify these cables as distribution cables, not feeder cables. Because the physical mortality and functional obsolescence characteristics are very similar to that of feeder cables, for analysis purposes, such cables are classified as feeder cables. All types of cable, aerial, buried and underground, are used in the feeder network.

Distribution Network

Distribution cables represent the cabling that blankets the neighborhood and directly connects the consumer to the network. Distribution cable lengths are typically limited to the last 300 to 3000 feet to the home. The cables typically terminate in small terminal boxes near the house or office. The final connection is made using a drop-wire, which connects the home or small office to the terminal box. For life analysis purposes, the drop-wire is generally considered an extension of the distribution cable. Distribution cables are predominately aerial and buried cables.

CATV Cable Network

The CATV network refers to the communication network used and maintained by traditional cable television providers. In recent years, CATV providers began upgrading their traditional all coaxial cable-based CATV networks to a robust fiber-based architecture. Both the traditional and new architecture are described below.

Traditional Coaxial Architecture

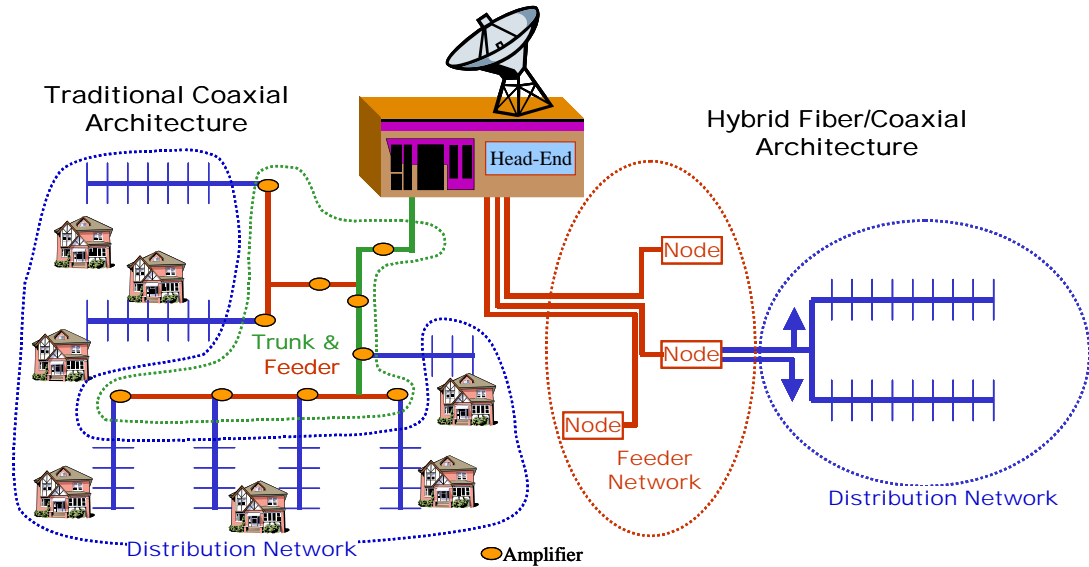
The traditional CATV network is an all coaxial cable network. See the left side of Exhibit 2. The Head-end receives the TV signal typically from satellite, microwave, or fiber optic feeds. The TV signal is then broadcast to the consumer via a tree and branch coaxial cable architecture. CATV cables are predominately aerial and buried cables. The traditional coaxial architecture is a one-way network and not suited for voice and data communication services.

In the traditional architecture, Trunk cables carry the TV signal from the Head-end to branch points where the signal is amplified and routed to either feeder cables or directly to distribution cables. Additionally, Trunk cables may carry the feed to nodes (not shown) where it is then distributed. Feeder cables receive the signal from Trunk cables and carry the signal deeper into the community where it is transferred to the distribution cables, which blanket the neighborhood and connect to consumer.

Hybrid Fiber/Coaxial Architecture

As noted above, the traditional CATV network restricted its use to one-way broadcasting of TV and video signals. As CATV companies began expanding into telephony, data, and Internet access services, they began transitioning their traditional networks to a Hybrid-Fiber/Coaxial architecture, commonly called an HFC network. A typical layout of an HFC network is provided on the right side of Exhibit 2.

Exhibit 2 CATV Cable Network



HFC networks use fiber cables from the Head-end to feed nodes. The node serves as an equipment location and the interface point with the distribution network. Here the optical signal is converted to an electrical signal for transmission to the home via ordinary coaxial cables. To minimize, if not eliminate, repeaters on the coaxial cables and to provide telephony and Internet access services, the node sizes must be kept relatively small – typically under 1000 households (In the traditional architecture, node sizes averaged 2000 homes but could be many times that size). As adoption of Internet access services increases, fiber-fed node sizes must be further reduced to minimize electrical interference on the remaining coaxial cables.

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HFC networks are robust 2-way networks that can accommodate both data and voice-telephony services in addition to traditional CATV and video services.

Wireless (And Cellular) Networks

As one might expect, wireless networks do not normally contain significant investment in cable plant. Generally, those wireless carriers that do have significant investment in cable plant are generally a division or subsidiary of a telephone carrier.

Communication Plant Accounts

BCRI's communication depreciation/life tables consist of numerous uniquely developed tables addressing the network plant accounts likely to be reported by a typical communications carrier. They are applicable to all telecommunications industries, including Local Exchange Carriers (ILECs & CLECs), Competitive Access Providers (CAPs), Wireless/PCS/Cellular Carriers, Cable TV Providers, and over-air Broadcasting Companies.

BCRI's telecom tables are reasonably consistent with the Uniform System of Accounts (USOA), Part-32; prescribed by the Federal Communications Commission (FCC) for telecommunications companies. In many instances, however, our plant accounts provide more specific classifications. A complete description of the FCC's plant accounts is provided on the CD accompanying your subscription. Additional information regarding the FCC's USOA and other telecom information can be obtained from the FCC's web site at www.fcc.gov.

The remainder of this section provides a brief description of BCRI's Communication family of depreciation/life tables. Questions regarding the tables or their application may be addressed to DeprTables@bcri.com.

Broadcasting Equipment

Broadcasting: Analog **5471**

This composite plant account is intended to include all non-digital equipment. This account is provided for those instances when the broadcaster separately reports the digital equipment and lumps all of the other broadcasting equipment together.

Broadcasting: Digital Equipment **5468**

This plant account is applicable to the new digital television and radio broadcasting equipment currently being deployed by most over air broadcasters.

Broadcasting: Analog Only Equipment **5467**

This plant account is applicable to the traditional (non-digital) radio & TV broadcasting equipment utilized by all over air broadcasters. Considerable obsolescence has been added to account for the ongoing adoption of DTV and Digital Radio and the mandates imposed by the FCC.

Broadcasting: Analog Common **5473**

This plant account is intended to include equipment that is common to both analog and digital standards. Not all of a broadcaster's analog equipment is displaced by the new digital standards equipment; much of the equipment is common to both. This account is intended to be used for this type of common equipment.

Broadcasting: Broadcasting Equipment **5472**

This composite plant account includes all broadcasting equipment; both analog and digital.

Cable Plant

CATV Cable – Coaxial Cable **5446**

This plant account is a composite account that includes all CATV coaxial cable¹. It is intended to be used when the subject coaxial cable cannot be classified to a more specific plant account.

CATV Cable – Coaxial Trunk **5441**

This plant account includes CATV Coaxial Cable used for trunking purposes. Today, most CATV providers have replaced trunking cables between head-end locations with fiber cables. The remaining coaxial trunking cables typically extend from the head-end location to the various node locations, i.e., feeder cables.

CATV Cable – Coaxial Distribution **5474**

This plant account includes CATV coaxial cable used for distribution purposes. These cables typically extend from the remote nodes throughout the neighborhood. The vast majority of these cables are equipped to handle two way communications.

CATV Cable – Coaxial Drops **5444**

This plant account includes coaxial drops typically used in a CATV network. Drops typically extend from the CATV terminal directly connected to the distribution cable outside the home to the network interface typically found on the outside or just inside the house or building. The drop cable and the network interface are the property of the CATV carrier. The cabling and terminal equipment on the customer side of the network interface is typically the property of the customer.

CATV Cable – Coaxial Cable (Excluding Drops) **5469**

This plant account is the same as account 5446, Cable-Coaxial Cable, but with drops excluded.

Cable – Fiber Cable **420**

This plant account includes all fiber cable, passive splitters, drops, block wire, and other associated materials.

Cable – Metallic Cable **419**

This plant account includes all metallic cable, drops², block wire, and other associated materials. This account reflects a composite of all metallic cable used in both the feeder and distribution networks of a typical telecom provider.

Cable – Metallic Distribution **428**

This plant account includes all metallic cable, drops², block wire, and other associated materials placed in the Distribution network. This account reflects a composite of all metallic cable used in the Distribution networks. The Distribution network for a telephone company consists of the plant facilities from the remote terminal or cross-connect location to the customers premise.

Cable – Metallic Distribution (Excluding Drops) **5466**

Same as account 428, Cable-Metallic Distribution, but excluding drops.

Cable – Telecom Metallic Drops² **5443**

This plant account includes metallic drops typically used in a landline telecom network. Drops typically extend from a terminal directly connected to the distribution cable outside the home to the network interface on side of the house or just inside the house. The drop cable and the network interface are the property of the carrier. The cabling and terminal equipment on the customer side of the network interface is typically the property of the customer.

¹ All of BCRI's Coaxial Cable Plant Accounts include the repeaters, amplifiers, and other line conditioning equipment directly connected to the cable.

² While metallic drops have their own plant account, drops are also included in all Distribution metallic cable plant accounts, unless indicated otherwise. Metallic drops are typically reported with the cable, and do exhibit substantially similar physical life characteristics. A separate account is provided to accommodate instances where they are separately reported.

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Cable – Metallic Feeder Network **426**

This plant account includes all metallic cable, block wire, and other associated materials placed in the Feeder network. This account reflects a composite of all metallic cable used in the Feeder networks. The Feeder network for a telephone company consists of the plant facilities from the Central Office to the remote terminal or cross-connect location.

Transport Electronics (Circuit Eq.)

In general, *circuit* equipment consists of electronic communication equipment that is used to transmit or receive communications signals, or to condition the signal in some form. Circuit equipment includes equipment that provides for simultaneous use of a number of communications channels on a single transmission path; equipment that is used for the amplification, modulation, regeneration, circuit patching, balancing or control of transmitted signals; equipment which is utilized for inter-equipment messaging, signaling, or control. Circuit equipment may be located in central offices, in manholes, on poles, in cabinets or huts or at other locations.

The plant classifications for PCS base station equipment have been modified to reflect the current state of the technologies and, as noted earlier, to reflect the industry's reclassification of some G3 technology to G2.5.

Circuit Equipment **418**

This plant account represents a weighted composite of the major circuit equipment plant accounts. As such, it may be used when the subject property consists of various types of Circuit equipment or when the subject property does not readily fit any of the more specific circuit plant accounts. It is weighted based on a mix of plant typical of a telecommunications carrier. This plant account does not include switching equipment or structures such as pole, towers, or conduit. This account also includes the equipment housing and related supports.

Circuit – Analog **364**

This plant account includes Circuit equipment that is analog in nature. It includes analog Pair-Gain equipment and may be used for analog line-conditioning³ equipment on metallic cables. This plant account may also be used for CATV analog equipment that is not includible in other plant accounts specific to CATV networks.

Circuit – Digital **365**

This plant account includes electronic circuit equipment that is digital in nature, excluding switching equipment and optical circuit equipment. This plant account is generally applicable to most digital electronic transport equipment, excluding fiber cable multiplexers and switching equipment.

CATV Head-End Video Equipment **5436**

This plant account includes video electronic equipment, typically found at a CATV Head-End location; but may sometimes be found at a CATV node location. It does not include multiplexing or other transport equipment, nor does it include high-speed internet access or telephony access equipment – such equipment is generally better classified to other circuit plant account.

CATV Converters, Set-top-boxes, etc. **269**

This plant accounts includes CATV converters or set-top-boxes typically found on the customer's premise.

³ Line-conditioning equipment is typically reported separately as analog circuit equipment by traditional telecommunication carriers, whereas CATV providers typically include line-conditioning equipment, repeaters, and amplifiers with the associated cabling.

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Circuit – High-Speed Internet Access Equipment **5433**

This plant account includes equipment used to provide Internet Access services. It includes Digital Subscriber Line Access Multiplexers (DSLAM), Cable Modems, Digital Subscriber Line (xDSL) equipment, and related computer equipment and servers. Note: some communication providers report such equipment as computer equipment.

Circuit – Microwave Electronics **5435**

This plant account includes electronic circuit equipment directly associated with microwave systems. This equipment is sometimes referred to as microwave radio frequency RF equipment.

Circuit – Optical **366**

This plant account includes electronic transport equipment that is directly associated with or connected to fiber optic cables. It includes optical multiplexers (including WDM, DWDM, UWDM, and variations thereof), regeneration and amplification equipment, and related equipment.

Circuit – PCS Base Station Equipment G1 **539**

This plant account includes 1st Generation (Analog Cellular or G1.0) Base Station Equipment⁴ typically found at wireless carrier base stations or cell-sites.

Circuit – PCS Base Station Equipment G2.0 **5450**

This plant account includes 2nd Generation Base Station Equipment⁵ (also, the first generation of digital PCS equipment) typically found at wireless carrier base stations or cell-sites.

Circuit – PCS Base Station Equipment G2.5 **547**

This plant account includes improved 2nd Generation Base Station Equipment⁶ typically found at wireless carrier base stations or cell-sites.

Circuit – PCS Base Station Equipment G2.x **5452**

This plant account is a composite account that includes all pre 3rd generation Base Station Equipment⁷.

Circuit – PCS Base Station Equipment G3 **592**

This plant account includes all 3rd Generation Base Station Equipment⁸.

Circuit – PCS Base Station Equipment G4 **5476**

This plant account includes all 4th Generation Base Station Equipment⁹. Very early versions of this equipment may be placed in 2008; however, full commercial deployment is not expected until late 2009 or 2010. These early versions of G4, may be better classified as G3 equipment at this time.

Circuit – PCS Base Station Equipment (All Generations) **5458**

This plant account is a composite plant account and includes a weighting of all generations of Base Station Equipment¹⁰.

⁴ Base Station Equipment includes both Base Station Transceiver (BST) and Base Station Controller (BSC) equipment (BSC). It includes the equipment that amplifies, modulates, regenerates, and/or converts the communications signal in any way; as well as the equipment that manages the radio resources of the base station equipment including handoff and traffic management. Base Station Equipment does not include switching equipment at the switching office. It should be noted that many wireless carriers refer to their BSC equipment as “switching” equipment at the cell-site – for depreciation and valuation purposes this equipment should be treated as BSC equipment, not switching equipment.

⁵ ibid

⁶ ibid

⁷ ibid

⁸ ibid

⁹ ibid

¹⁰ ibid

Switching Equipment

Switches – Circuit Switching **423**

This plant account includes stored program control (SPC) switches that utilize circuit-switched voice channel architecture and associated equipment. It includes switches commonly termed Analog or Digital switches. This plant account includes host, remote, and tandem circuit switches. While there are very few Electromechanical (EM) switches still in service, we expect the remaining EM switches to be replaced consistent with other circuit switches, therefore this account may be used for EM switches.

Switches – Packet Switching **422**

This plant account includes Packet-Data switches as well as Packet-Voice/Data switches, and associated equipment. This plant account includes host, remote and tandem packet switches.

Switches – PCS Circuit Switching **536**

This plant account includes stored program control (SPC) switches that utilize circuit-switched voice channel architecture, and associated equipment. It includes switches commonly termed Analog or Digital switches. This plant account includes host, remote and tandem circuit switches. This plant account is applicable to wireless/PCS communications networks only. This account should also be used for Base Station Controller (BSC) equipment of a Wireless/PCS network. PCS providers often do not report BSC equipment as switching equipment; however, this equipment provides traditional switching functionality and therefore exhibits similar depreciation and value characteristics.

Switches – Software **359**

This plant account includes all switching software, regardless of switch type. This account may also be used for software for other computerized telecommunications equipment.

Communication Structures

Structures – Communication Antennas **4405**

This plant account includes antennas used in wireless communication systems. This account does not include the associated electronic equipment typically located in the base station or cell-site.

Structures – Conduit Systems **392**

This plant account includes conduit ducts/pipes, whether underground, in tunnels or on bridges, which is reusable in place; including associated manholes and hand-holes. Generally, isolated short sections of duct/pipe, such as may be found under a roadway, are reported as part of the cable account; and not considered as Conduit.

Structures – Microwave Dishes **5447**

This plant account includes microwave dishes used for microwave communications. This plant account may also be used for satellite dishes.

Structures – Microwave Dishes & Electronics **5448**

This plant account is a composite account that includes microwave dishes and digital electronics. It is intended for plant where the provider does not separate the two. It is weighted based on investment weighting provided by wireless carriers.

Structures – Poles **373**

This plant account includes poles, cross-arms, guys, and other material used in the construction of pole lines. This account may also include antenna & towers when not associated with a building and not separately reported.

Structures – Communication Towers **540**

This plant account includes towers and similar structures; along with associated guys and other supports. This account may also be used for large freestanding structures used to support antennas, dishes or other radio equipment (i.e. poles used as towers). This account does not

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include the equipment mounted on the tower or the electrical or electronic equipment associated with the equipment mounted on the tower.

Miscellaneous Communications Equipment

Telecom – Power Equipment **535**

This plant account includes power supply and backup equipment directly associated with communication equipment. It may include backup batteries, generators, and power supplies dedicated to electronic communication equipment. It does not include general use commercial power supply or electrical equipment.

Telecom – Public Telephone Equipment **402**

This plant account includes coin-less, coin-operated, credit card, and other pay telephones or Internet access ports installed for use by the public/semi-public, and related equipment and enclosures.

Telecom – Tools & Other Work Equipment **434**

This plant account includes tools and other work equipment typically used to maintain communication equipment; and typically found in a garage or work center. This plant account may also be used for communication equipment that can not be classified elsewhere.

Telecom – Official Communication Equipment **348**

Communication equipment that is used for internal communication purposes by the telecommunication carrier. This equipment is not generally installed for customer use.

Telecom – Large PBX Equipment **400**

This account includes large private branch exchange (PBX) equipment. It corresponds with FCC account No.4341, which includes private branch exchanges and dial system private branch exchanges of types designed to accommodate 100 or more lines or which can normally be expanded to 100 or more lines, installed for customers' use. PBX equipment for company official use falls under BCRI account 348.

Telecom – Network Buildings **410**

This account includes outside equipment cabinets, equipment huts, or other small structures used mainly to house communications and related equipment.

Telecom – Station Apparatus **562**

This account includes station apparatus, telephone, small private branch exchanges, and miscellaneous equipment, installed for customer's use. This account corresponds to FCC account No.2311.

Capital Leases & Leasehold Improvements **393**

Includes equipment acquired under capital leases or leasehold improvements. Note, generally it is better to classify such equipment to a specific equipment account; for example a long-term leased equipment hut is better classified under Network Buildings, account 410.