**85.17 - Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network), other than transmission or reception apparatus of heading 84.43, 85.25, 85.27 or 85.28 (+).**

- Telephone sets, including telephones for cellular networks or for other wireless networks :

8517.11 - - Line telephone sets with cordless handsets

8517.12 - - Telephones for cellular networks or for other wireless networks

8517.18 - - Other

- Other apparatus for transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network) :

8517.61 - - Base stations

8517.62 - - Machines for the reception, conversion and transmission or regeneration of voice, images or other data, including switching and routing apparatus

8517.69 - - Other

8517.70 - Parts

This heading covers apparatus for the transmission or reception of speech or other sounds, images or other data between two points by variation of an electric current or optical wave flowing in a wired network or by electro-magnetic waves in a wireless network. The signal may be analogue or digital. The networks, which may be interconnected, include telephony, telegraphy, radio-telephony, radio-telegraphy, local and wide area networks.

## (I) TELEPHONE SETS, INCLUDING TELEPHONES FOR CELLULARNETWORKS OR FOR OTHER WIRELESS NETWORKS

This group includes :

(A) **Line telephone sets.**

Line telephone sets are communication apparatus that convert voice into signals for transmission to another device. Upon receipt of a signal, a line telephone set will convert the signal back to voice. They consist of :

(1) The **transmitter**, a microphone which converts sound waves into a modulated current.

(2) The **receiver** (headphone or earphone), which reconverts the modulated current into sound waves. In most cases, the transmitter and receiver are incorporated in a single moulding known as a hand-set. In other cases the transmitter and receiver are a combined headphone and microphone, designed to be worn on the user's head.

(3) The **anti-sidetone circuit**, which prevents sound introduced in the transmitter from being reproduced in the receiver of the same hand-set.

(4) The **ringer**, which gives warning of a call. These may be tone ringers which produce their sound electronically or mechanical ringers such as a bell or a buzzer. Some telephone sets incorporate a light or lamp which operates in conjunction with the ringer to provide a visual signal indicating an incoming call.

(5) The **switching device** or "**switchhook**", which interrupts or permits the flow of current from the network. It is usually operated by the hand-set being removed from or returned to a cradle.

(6) The **dialling selector**, which enables the caller to obtain a connection. The selector may be of the push-button or keypad (tone) type or of the drum or rotary (pulse) type.

When separately presented, microphones and receivers (whether or not combined as hand-sets), and loudspeakers are classified in **heading 85.18** while bells and buzzers are classified in **heading 85.31**.

Telephone sets may incorporate or have fitted : a memory for storing and recalling telephone numbers; a visual display for showing the number dialled, incoming caller's number, date and time, and duration of a call; an extra loudspeaker and microphone to enable communication without using the hand-set; devices for automatically answering calls, transmitting a recorded message, recording incoming messages and playing back the recorded message on command; devices for holding a connection on line while communicating with a person on another telephone. Telephone sets incorporating these devices may also have keys or push-buttons which enable their operation, including a switching key which enables the telephone to be operated without removing the hand-set from the cradle. Many of these devices utilise a microprocessor or digital integrated circuits for their operation.

The heading covers all kinds of telephone sets including :

(i) Cordless telephone sets which comprise a battery powered radio frequency transceiver hand-set which incorporates a dialling selector, switching key and a radio frequency transceiver base unit which is connected by line to the telephone network (other cordless telephone sets may not have hand-set but comprise a combined headphone and microphone which is connected to a portable combined battery powered radio frequency transceiver, dialling selector and switching key).

(ii) Telephone sets which comprise a combined dialling selector and switching key unit (which is connected by line to the telephone network) and a combined headphone and microphone, presented together.

(B) **Telephones for cellular networks or for other wireless networks.**

This group covers telephones for use on any wireless network. Such telephones receive and emit radio waves which are received and retransmitted, e.g., by base stations or satellites.

These include, *inter alia* :

(1) Cellular phones or mobile phones.

(2) Satellite phones.

## (II) OTHER APPARATUS FOR TRANSMISSION OR RECEPTION OF VOICE, IMAGES OR OTHER DATA, INCLUDING APPARATUS FOR COMMUNICATION IN A WIRED OR WIRELESS NETWORK (SUCH AS A LOCAL OR WIDE AREA NETWORK)

(A) **Base stations.**

The most common types of base stations are those for cellular networks, which receive and transmit radio waves to and from cellular telephones or to other wired or wireless networks. Each base station covers a geographical area (a cell). If the user moves from one cell to another while telephoning, the call is automatically transferred from one cell to another without interruption.

(B) **Entry-phone systems.**

These systems usually consist of a telephone handset and keypad or a loudspeaker, a microphone and keys. These systems are usually mounted at the entrance of buildings housing a number of tenants. With these systems, visitors can call certain tenants, by pressing the appropriate keys and talk to them.

(C) **Videophones.**

Videophones for buildings, which are a combination consisting principally of a telephone set for line telephony, a television camera and a television receiver (transmission by line).

(D) **Apparatus for telegraphic communication other than facsimile machines of heading 84.43.**

These apparatus are essentially designed for converting characters, graphics, images or other data into appropriate electrical impulses, for transmitting those impulses, and at the receiving end, receiving these impulses and converting them either into conventional symbols or indications representing the characters, graphics, images or other data or into the characters, graphics, images or other data themselves.

Examples are :

(1) **Apparatus for transmitting messages**, such as dial or keyboard transmitters and automatic transmitters (e.g., teleprinter or teletypewriter transmitters).

(2) **Apparatus for receiving messages** (e.g., teletypewriter receivers). In some cases the receiver and the transmitter apparatus are combined into one receiver-transmitter.

(3) **Picture telegraphic apparatus**. The ancillary photographic equipment used with this apparatus (e.g., developing equipment) falls in **Chapter 90**.

(E) **Telephonic or Telegraphic Switching Apparatus.**

(1) **Automatic switchboards and exchanges.**

These are of many types. The key feature of a switching system is the ability to provide, in response to coded signals, an automatic connection between users. Automatic switchboards and exchanges may operate by means of circuit switching, message switching or packet switching which utilize microprocessors to connect users by electronic means. Many automatic switchboards and exchanges incorporate analogue to digital converters, digital to analogue converters, data compression/decompression devices (codecs), modems, multiplexors, automatic data processing machines and other devices that permit the simultaneous transmission of both analogue and digital signals over the network, which enables the integrated transmission of speech, other sounds, characters, graphics, images or other data.

Some types of automatic switchboards and exchanges consist essentially of **selectors**, which select the line corresponding to the impulses received from the calling sets and establish the connection. They are operated automatically, either directly by the impulses from the calling set or via auxiliary apparatus such as **directors**.

The different types of selectors (pre-selectors, intermediate selectors, final selectors) and, where used, the directors, are often assembled in series and in groups of the same type on chassis which are then incorporated into the exchange on metal racks. Particularly in smaller-sized installations they may, however, all be mounted on a single rack to form a self-contained automatic exchange.

Automatic switchboards and exchanges may also incorporate such facilities as abbreviated dialling, call waiting, call forwarding, multi-party calling, voice mail, etc. These facilities are accessed from the user's telephone set through the telephone network.

They are used for the public network or for private networks that utilise a private branch exchange (PBX) which is connected to the public network. Automatic switchboards and exchanges may also be equipped with consoles similar to telephone sets for when intervention or service by an operator is required.

(2) **Non-automatic switchboards and exchanges.**

These consist of a frame on which are mounted the various manual switching devices. They require an operator to manually connect each call received by the switchboard or exchange. They comprise "call" or "clear" indicators for signalling that a call is being made or is completed; operators' telephone sets (sometimes specially mounted); switching devices (mounted jacks or sockets and plugs connected to a cord); and key switches electrically connected to the plugs and cords to enable the operator to answer the caller, supervise the progress of the call and note its completion.

(F) **Transmitting and receiving apparatus for radio-telephony and radio-telegraphy.**

This group includes :

(1) Fixed apparatus for radio-telephony and radio-telegraphy (transmitters, receivers and transmitter-receivers). Certain types, used mainly in large installations, include special devices such as secrecy devices (e.g., spectrum inverters), multiplex devices (used for sending more than two messages simultaneously) and certain receivers, termed "diversity receivers", using multiple receiver technique to overcome fading.

(2) Radio transmitters and radio receivers for simultaneous interpretation at multilingual conferences.

(3) Automatic transmitters and special receivers for distress signals from ships, aircraft, etc.

(4) Transmitters, receivers or transmitter/receivers of telemetric signals.

(5) Radio-telephony apparatus, including radio-telephony receivers, for motor vehicles, ships, aircraft, trains, etc.

(6) Portable receivers, usually battery operated, for example, portable receivers for calling, alerting or paging.

(G) **Other communication apparatus.**

This group includes apparatus which allows for the connection to a wired or wireless communication network or the transmission or reception of speech or other sounds, images or other data within such a network.

Communication networks include, *inter alia*, carrier-current line systems, digital-line systems and combinations thereof. They may be configured, for example, as public switched telephone networks, Local Area Networks (LAN), Metropolitan Area Networks (MAN) and Wide Area Networks (WAN), whether proprietary or open architecture.

This group includes :

(1) Network interface cards (e.g., Ethernet interface cards).

(2) Modems (combined modulators-demodulators).

(3) Routers, bridges, hubs, repeaters and channel to channel adaptors.

(4) Multiplexers and related line equipment (e.g., transmitters, receivers or electro-optical converters).

(5) Codecs (data compressors/decompressors) which have the capability of transmission and reception of digital information.

(6) Pulse to tone converters which convert pulse dialled signals to tone signals.

## PARTS

**Subject** to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), parts of the apparatus of this heading are also classified here.

*
* *

The heading also **excludes** :

(a) Facsimile machines (**heading 84.43**).

(b) Perforating machines, whether or not electric, used to perforate paper bands ready for use in automatic telegraphic apparatus (**heading 84.72**).

(c) Induction coils for insertion in telephone or telegraph line circuits (**heading 85.04**).

(d) Cells, batteries and accumulators (**heading 85.06** or **85.07**).

(e) Telephone answering machines designed to operate with a telephone set but not forming an integral part of the set (**heading 85.19**).

(f) Apparatus for the transmission or reception of radio-broadcasting or television signals (**headings 85.25, 85.27 or 85.28**).

(g) Electric bells or indicators (e.g., luminous indicators operated by the dial of a telephone) (**heading 85.31**).

(h) Relays and switching equipment, such as selectors for automatic telephone exchanges, of **heading 85.36**.

(ij) Insulated electric wire, cable, etc., as well as optical fibre cables, made up of individually sheathed fibres, whether or not fitted with connectors, including cords with plugs for switchboards (**heading 85.44**).

(k) Telecommunication satellites (**heading 88.02**).

(l) Telephone call registers and counters (**Chapter 90**).

(m) Carrier-current and other transmitters and receivers which form a single unit with analogue or digital telemetering instruments or apparatus, or which, together with the latter, constitute a functional unit within the meaning of Note 3 to Chapter 90 (**Chapter 90**).

(n) Calculographs (time recorders) (**heading 91.06**).

(o) Monopods, bipods, tripods and similar articles (**heading 96.20**).

°
° °

**Subheading Explanatory Note.**

**Subheading 8517.62**

This subheading includes cordless handsets or base units, when presented separately.