



July, 2021

# Towards A Bright Local Industry

**Investment Opportunities**

**RAWAFED PROGRAM**



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**For any further information, you can contact:**

**RAWAFED Program**

**Email: [rawafed@stc.com.sa](mailto:rawafed@stc.com.sa)**

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# INTRODUCTION

In support of the KSA 2030 vision and driving sustainable long term growth in GDP, **stc** through **RAWAFED** program plays a prominent and leading role in ICT localization development which contributes to the success of a diverse future economy in the Kingdom. Local Content is one of the main pillars that will bring real value to the set vision and sustainable goals.

Industry localization is a major part of local content, which entails supporting manufacturing localization and creating a new industry-base in KSA. It also includes supply chain localization, services and operations.

As part of **stc's** efforts in industry localization, **stc** has localized most of Subscriber Identity Module (SIM) cards and Fiber Optics production and operations. These efforts resulted in contractual agreements with 10 strategic partners to develop local content.

This catalogue contains different types of products that proposed to be localized. It helps investors and other stakeholders in understanding the available opportunities. Where possible, listed products are characterized by the average annual usage, expected level of **stc's** projected demand during the next five years, in addition to the availability of local manufacturers.

The expected **stc's** five-year demand for the listed products will exceed SR 6.68 Billion.

## **TELECOM EQUIPMENT**

# Fiber Optics

Fiber optics, or optical fiber, refers to the medium and the technology associated with the transmission of information as light pulses along glass or plastic strand of fiber. FTTx projects have a wide spread fiber deployment.

Fiber plants are normally divided into two categories, that is Inside Plant (ISP) and Outside Plant (OSP).

ISP refers to the cable installed inside the building, normally called Exchange. This includes everything from the patch panel, patch cord, to Optical Distribution Frame (ODF).

OSP is referred to any network infrastructure installed outside of buildings. OSP cables can be underground, direct-buried, or aerial.

This type of solution has medium demand, while the local manufacturers are still limited.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☐ High
- ☒ Medium
- ☐ Low



## Average annual usage

SR 88.26 Million



## Total five-year forecasted

SR 347.77 Million



## HS code

854470000000



# Subscriber Identity Module (SIM)

Subscriber Identity Module (SIM) is an integrated circuit that securely stores the international mobile subscriber identity (IMSI) number and its related key. It is used to identify and authenticate subscribers to a network. The SIM card, which carries a unique serial number, allows subscribers to connect to the cellular network for voice calls, SMS messages or internet services.

The SIM cards demand is expected to be medium during the next five years, while the current local manufacturers are still limited.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☐ High
- ☒ Medium
- ☐ Low



## Average annual usage

SR 20.31 Million



## Total five-year forecasted

SR 45.99 Million



## HS code

852352000002

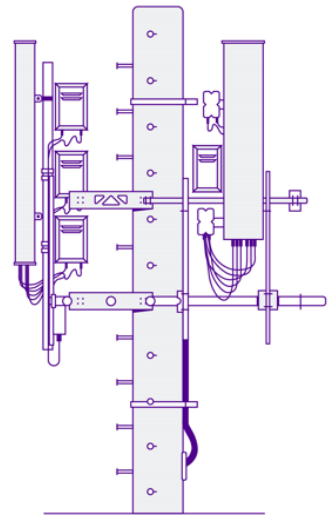
## Remote Radio Unit (RRU)

Remote Radio Units (RRUs) are generally installed on towers and are controlled by a controller placed inside a closed shelter on the ground nearby the tower.

The RRU performs all radio frequency functionality like transmit and receive functions, filtering, and amplification. It also performs analog-to-digital or digital-to-analog conversion and up/down conversion.

The RRU can be configured to communicate with a base-band unit using a physical communication link (e.g. fiber) and can communicate with a wireless mobile device using the network air interface.

The KSA market shows that there are no local manufacturers who can provide this type of equipment. However, the demand is expected to remain high.



### Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



### Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



### Average annual usage

SR 78.19 Million



### Total five-year forecasted

SR 583.18 Million



### HS code

851762600000

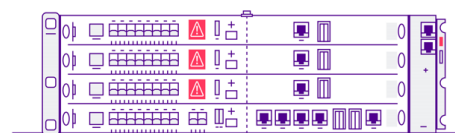
## E-NodeB Baseband Unit (BBU)

A Baseband Unit (BBU) is the part of the network that processes baseband in telecom systems. In a typical telecom network, a wireless station consists of the baseband processing unit and the RF processing unit (Remote Radio Unit - RRU).

BBU is usually placed in the equipment room and connected to the RRU via optical fiber. The BBU facilitates communication through the physical interface. It handles the original unmodulated signals.

The BBU may also be designed to house fully virtualized, embedded Evolved Packet Core (EPC), negating the need to connect to an outside core; thus useful for campus or private networks.

Currently, there are no local manufacturers who can provide this type of equipment in KSA. The demand for BBU is expected to remain high.



### Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



### Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



### Average annual usage

SR 362 Thousand



### Total five-year forecasted

SR 2.21 Million



### HS code

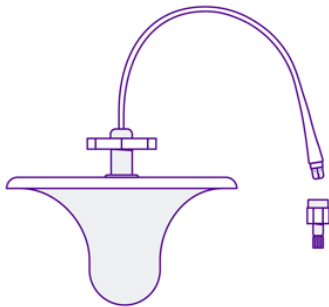
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# Distributed Antenna System (DAS)

A Distributed Antenna System (DAS) is a network of antennas deployed in an area to improve network coverage and capacity. These antennas are connected to a common source.

DAS solutions are usually employed in indoors to provide wireless strong coverage in scenarios such as hotels, hospitals, airports, subways, offices, malls, tunnels, among others.

Demand for DAS equipment is expected to remain high. However, there seems to be no local manufacturers in the KSA market.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 528 Thousand



## Total five-year forecasted

SR 2.84 Million



## HS code

851762600000

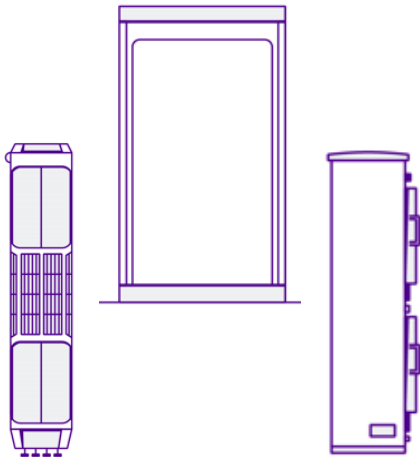
# Active Antenna Unit (AAU)

The Active Antenna Unit (AAU) is integrated radio equipment that combines the antenna, radio, tower mounted amplifier, feeder, and jumper functionalities within one unit.

It can be used for both macro and street macro environments. It can easily be adapted to perform massive antenna processing.

This type of equipment are used in different wireless network generations.

Historically, this type of equipment has always been provided by international manufacturers. The demand for AAU is expected to remain high.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 23.82 Million



## Total five-year forecasted

SR 118.78 Million



## HS code

851762600000

# Optical Transceivers

The optical transceivers modules are used on telecommunications equipment that uses fiber. DWDM Backbone, IP/MPLS, RAN, Mobile Core, FTTH, P2P fiber CPE, datacenter servers, and many other.

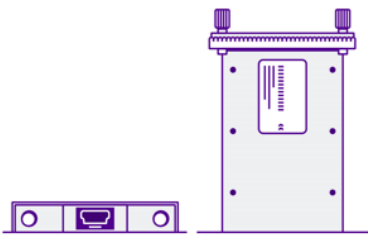
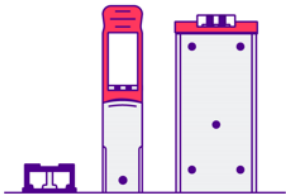
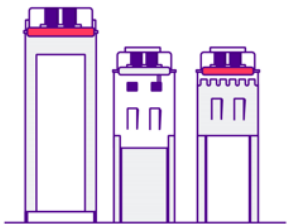
The current list includes the following:

- SFP (small form-factor pluggable)
- XFP
- CFP, CFP2, CFP4
- QSFP, QSFP28, QSFP56
- Other optical Passive components.

Depending on the case, format, and business requirements, this may be more complex or expensive.

Today, this coherent technology is making a big change in the optical networks and the rate of investment is increasing.

Typically, demand for this type of equipment is expected to remain high, while the current manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 171.40 Million



## Total five-year forecasted

SR 790.95 Million



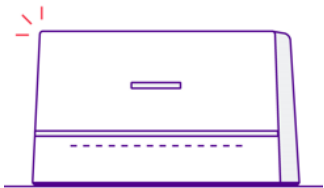
## HS code

851762600000

# Optical Network Terminal (ONT)

Gigabit Passive Optical Network - Optical Network Terminal (GPON-ONTs) are fiber termination customer premises devices. They provide multiple services to enterprise and home customers.

The KSA market shows that there are no local manufacturers who can provide these types of equipment. However, demand is expected to remain high for the foreseeable future.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 173.17 Million



## Total five-year forecasted

SR 772.09 Million



## HS code

851762200003

## Multi-Dwelling Unit (MDU)

Gigabit/10Gigabit Passive Optical Network-Multi-Dwelling Units (GPON/XGPON-MDU) are fiber termination customer premises devices with more physical capacity as compared to ONTs. They are used to provide services to large enterprises and mobile backhaul services for Wireless Networks (2G, 3G, 4G ..etc).

The KSA market shows that there are no local manufacturers who can provide these types of equipment. However, demand is expected to remain high for the next five years.



### Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



### Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



### Average annual usage

SR 20.91 Million



### Total five-year forecasted

SR 147.78 Million



### HS code

851762600000

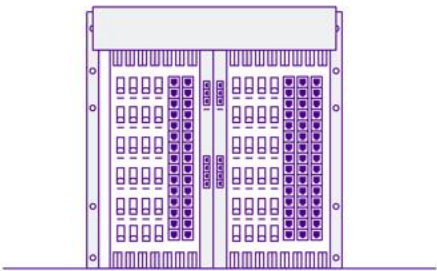


# Optical Line Terminal (OLT)

Optical Line Terminal (OLT) is a device which serves as the service provider endpoint of a passive optical network. On the down side, OLT connects the end user fiber devices (ONTs, MDUs) via a passive optical network. On the up side, OLT connects to service provider MPLS network through different Agg/edge routers.

OLT is the backbone for the FTTx network. The primary function of the OLT is to convert, frame, and transmit signals for the PON network and to coordinate the optical network terminals multiplexing for the shared upstream transmission.

Demand for OLTs is expected to remain high, while the current manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 32.49 Million



## Total five-year forecasted

SR 140.90 Million



## HS code

851762600000

# MUX, DEMUX and Patch Cords

Passive optical equipment included in the title are major components in many other products.

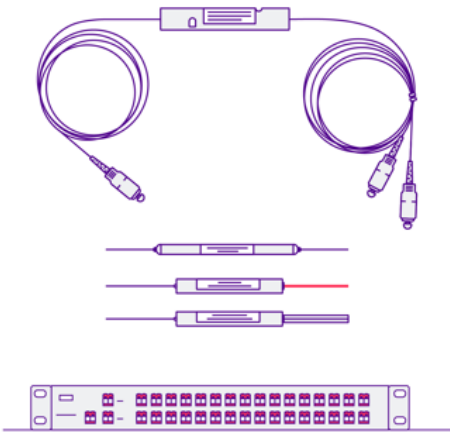
The list includes the following:

- C/DWDM MUX/DMUX and OADM
- Optical Splitters
- Optical Attenuators
- Optical Patch Cords
- Optical Circulators
- Optical Filters
- Other optical Passive components.

Depending on the case and format, this may be more complex or expensive, depending on the business requirements.

This technology is mainly based on PLC (Planar Waveguide Circuit) that requires high precision for high performance.

This industry has high demand, and the manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 7.44 Million



## Total five-year forecasted

SR 35.85 Million



## HS code

854470000000

# OSP Optical Distribution Network (ODN)

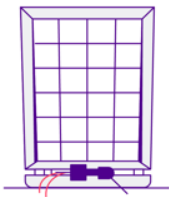
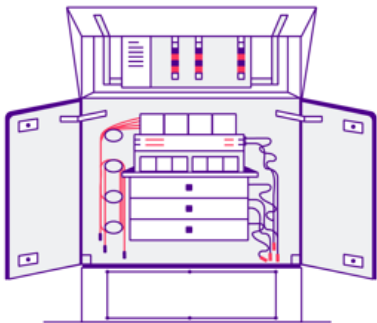
Outside Plant - Optical Distribution Network (OSP-ODN) has many passive elements beside fiber. This includes passive splitters of different types, fiber distribution cabinets, optical splitter boxes, closures, termination boxes. These are some of the main passive equipment.

ODN is an integral part of the PON system, which provides the optical transmission medium for the physical connectivity of the ONUs to the OLTs.

The ODN specifically has five segments: feeder fiber, optical distribution point, distribution fiber, optical access point, and drop fiber.

In addition, the ODN is the path essential for PON data transmission. Its quality directly affects the performance, reliability, and scalability of the PON system.

This type of solution has medium demand, while the local manufacturers are still limited.



### Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



### Demand characteristics during the next five years

- ☐ High
- ☒ Medium
- ☐ Low



### Average annual usage

SR 120.53 Million



### Total five-year forecasted

SR 391.81 Million



### HS code

854470000000

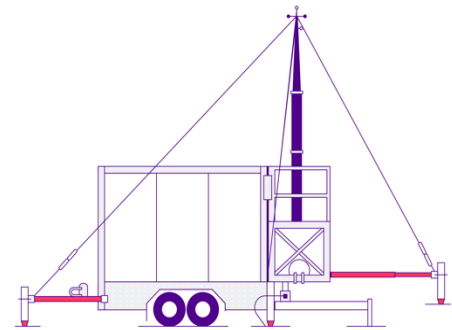
# Cell on Wheels (CoWs)

A cell on wheels (CoWs) is a mobile cell site that consists of a cellular antenna tower and electronic radio transceiver equipment in a container, designed to be part of a cellular network.

The CoWs are mobile radio base stations transportable on trucks or trailers.

They are useful for strategic and rapid expansion of cellular network to quickly provide capacity or extend coverage.

This type of solution has medium demand, while the manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☐ High
- ☒ Medium
- ☐ Low



## Average annual usage

SR 35.79 Million



## Total five-year forecasted

SR 129.94 Million



## HS code

851762600000

# Home Access Gateway (HAG)

Home Access Gateway/residential gateway is a small consumer-grade router which provides network access between local area network (LAN) hosts to a wide area network (WAN) (like the Internet) via a modem.

The demand on this type of equipment is expected to remain high and the manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 33.72 Million



## Total five-year forecasted

SR 176.71 Million



## HS code

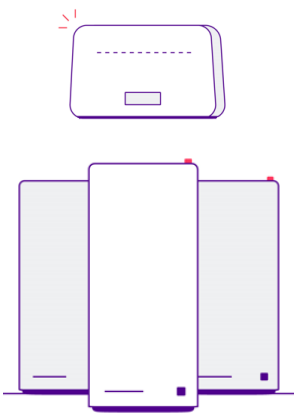
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# Wi-Fi Mesh

Wi-Fi Mesh constitutes multiple Access Points to extend Wi-Fi coverage in large premises.

A Wi-Fi Mesh provides band steering and roaming functions to offer smooth and seamless service experience.

The demand on Wi-Fi Mesh solutions is expected to remain high and the manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 3.65 Million



## Total five-year forecasted

SR 19.62 Million



## HS code

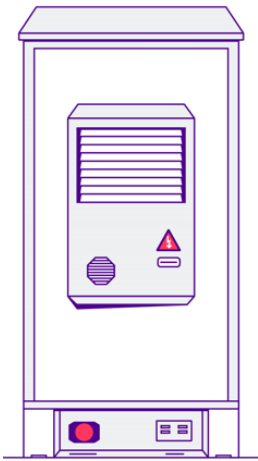
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# Telecom Outdoor Unit (ODU)

The Telecom Outdoor Unit (ODU) has the following specifications :

- Outdoor Cabinet IP55
- Dimensions : 90 x 90 x 2250 (WxDxH)
- Double-layer
- Insulation type: PIR 30 mm

The demand is expected to remain high, while the current local manufacturers are still limited.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 33.1 Million



## Total five-year forecasted

SR 185.32 Million



## HS code

851762600000

**USER EQUIPMENT/TERMINAL**



# Laptops

Laptops is a small portable personal computer. It is being used heavily in **stc** instead of desktop PCs.

The demand for laptops is expected to remain high, while the current manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 11.86 Million



## Total five-year forecasted

SR 70.95 Million



## HS code

8471300000

# **HVAC AND MECHANICAL**

# Air Cooled Chillers

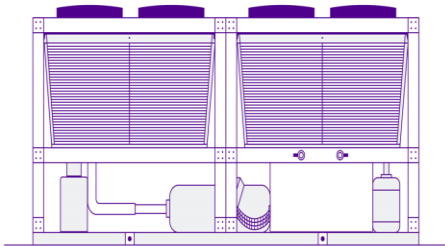
The Chiller is a cooling system used to remove heat from one element and deposit it into another element.

Chillers are used by facilities to cool the water used in their heating, ventilation and air-conditioning (HVAC) units, to maintain the needed indoor environment condition.

Chillers have the bulky CAPEX in HVAC implementation projects and rehabilitation programs.

Chillers industry has medium opportunities for localization and already some manufacturer started investing heavily in KSA market in this field.

The demand on Air Cooled Chillers is expected to remain high during the next five years.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 19.35 Million



## Total five-year forecasted

SR 103.18 Million



## HS code

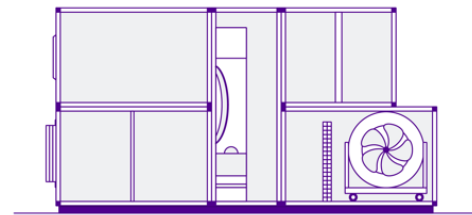
8415

## Air Handling Unit (AHU)

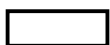
The Air Handling Unit is the second bulky part in HVAC system after Chillers. AHU's deliver the cool / hot air into the space to maintain the needed indoor environment condition.

AHU is a simple equipment which consists mainly of two parts: a fan and a coil. These parts have high opportunity to be manufactured locally.

Current AHU industry in KSA is in need of more local manufacturers, due to the high demand for such equipment.



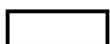
### Availability of local manufacturers



Many



Limited



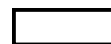
Rare/None



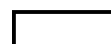
### Demand characteristics during the next five years



High



Medium



Low



### Average annual usage

SR 914 Thousand



### Total five-year forecasted

SR 4.57 Million



### HS code

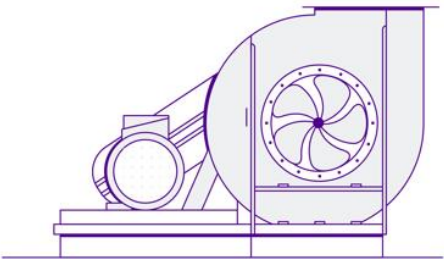
8415

# Fans

Fans are used in many application in **stc** facilities such as ventilation fans, extraction fans, cooling fans, etc.

Fans are also part of HVAC systems and have good opportunity to be localized.

Fans local industry is currently limited, while demand will obviously remain high during the next five years.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 127 Thousand



## Total five-year forecasted

SR 1.11 Million



## HS code

84145

**POWER AND ELECTRICAL**

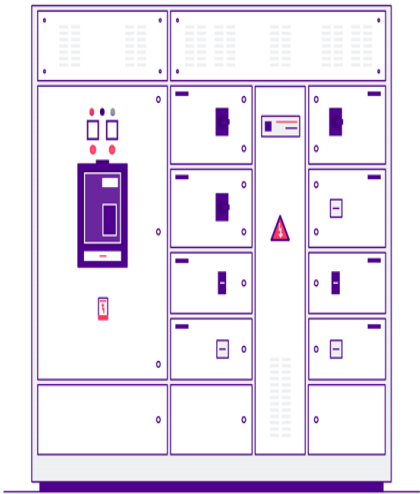


# Electrical Panel

The Electrical Panel (Distribution Board) is a component of an electricity supply system.

It divides electrical power feed into subsidiary circuits and paths to supply the electrical power to downstream systems and equipment, in order to operate facility's applications and services.

Electrical panels have high CAPEX cost in new projects and existing renovations. however, there is high demand to justify localizing this type of product, given that existing local manufacturers are currently limited.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 44.65 Million



## Total five-year forecasted

SR 234.01 Million



## HS code

850490000000

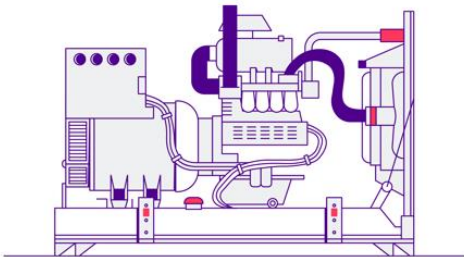
# Diesel Generator

A Diesel Generator is combination set of a diesel engine and an electric generator (Alternator), to generate electrical power (Energy).

This set can be used as main power supply if utility power was not available or as an emergency in case of failure of main power utility.

**stc** has high annual demand for diesel generators as diesel generators are installed in all type of **stc** facilities (Data centers, exchanges, telco containers, satellite stations, admin buildings, warehouses, etc.).

Currently, limited generator components of few brands are manufactured locally. This can be enhanced due to high demand for generators in KSA market.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 172.07 Million



## Total five-year forecasted

SR 880.21 Million



## HS code

8502



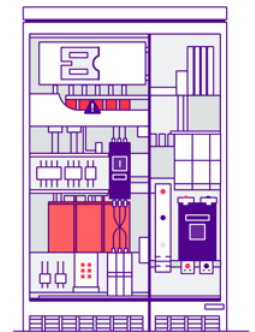
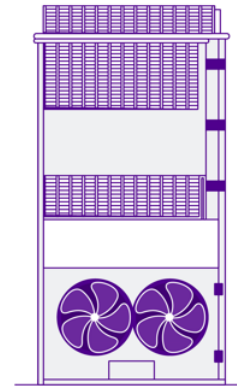
## UPS & Rectifiers

UPS and Rectifier Systems are the most crucial components in critical power infrastructure and play the main role for IT and telco equipment stability and availability.

As **stc** core business involves critical services (Telecom, DC, enterprise services, Colo & Cloud services, Etc.), the UPS and rectifier functionality is used to protect the business and minimize the downtime, reducing its cost and impact.

Currently, UPS and rectifier systems are imported from outside of KSA. The coming five years are expected to have more demand on these types of systems. There need to be clear and strong planning to localize the industry of such critical systems.

As an example : DC converter from normal AC power supply 220V/380V-3Ph To -48V DC for telecom load 2KW up 36KW.



### Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



### Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



### Average annual usage

SR 153.61 Million



### Total five-year forecasted

SR 785.90 Million



### HS code

850440

# Batteries

Batteries are the heart of UPS and rectifier plant. They are used for storing the electrical energy in case of failure, to protect the critical services. There are two main types of batteries used for UPS & rectifier plant in **stc** critical facilities:

- Valve Regulated Lead Acid (VRLA)
- Flooded Cell or VLA batteries.

Rehabilitation program has high annual demand for batteries replacement, as the batteries are considered to be consumables and need to be replaced every 4-10 years, in a large number of critical facilities and telco containers.

- The following are some examples of required batteries:
- Lead Acid Batteries VRLA gel type, high temperature 12V 150AH up to 200AH.
  - Lithium Batteries LFP type 100AH -48V up 200AH -48V.
  - Lead Acid Batteries VRLA 2V 300AH up to 600AH.
  - Lead Acid Batteries VRLA OPZV gel type 2V 600AH up to 2000AH.

Batteries local industry is currently limited, while demand will remain very high during the next five years.



## Availability of local manufacturers

- Many
- Limited
- Rare/None



## Demand characteristics during the next five years

- High
- Medium
- Low



## Average annual usage

SR 133.92 Million



## Total five-year forecasted

SR 662.05 Million



## HS code

8507

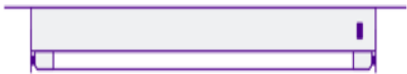
# Lighting

Lighting systems are installed everywhere inside **stc** facilities. They can be considered as consumable items. Lighting items need to be frequently replaced.

Huge amount of lighting systems and fixtures are used in **stc** facilities.

There is high opportunity for lighting production to be locally enhanced in the near future.

Due to high demand, lighting systems have a huge opportunity to be localized.



## Availability of local manufacturers

- ☐ Many
- ☒ Limited
- ☐ Rare/None



## Demand characteristics during the next five years

- ☒ High
- ☐ Medium
- ☐ Low



## Average annual usage

SR 5.43 Million



## Total five-year forecasted

SR 29.24 Million



## HS code

851310

**SAFETY**

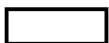
## Fire/Smoke Detector

Fire/Smoke detectors of fire alarm system are electronic devices that sensing the source of danger in case of fire including heat/smoke and triggering the fire alarm panel to activate the fire system and warn people.

This type of equipment has always been provided by international manufacturers and the demand is expected to remain high.



### Availability of local manufacturers



Many



Limited



Rare/None



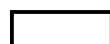
### Demand characteristics during the next five years



High



Medium



Low



### Average annual usage

SR 4.00 Million



### Total five-year forecasted

SR 20.34 Million



### HS code

853110000002

# Pull Station of Fire Alarm

Pull station is a manually activated component of a fire alarm system and usually mounted on a wall.

The demand is expected to be medium during the next five years, while the manufacturers are still international.



## Availability of local manufacturers

- ☐ Many
- ☐ Limited
- ☒ Rare/None



## Demand characteristics during the next five years

- ☐ High
- ☒ Medium
- ☐ Low



## Average annual usage

SR 1.11 Million



## Total five-year forecasted

SR 3.88 Million



## HS code

853110000002



Moving the World  
**for**  **ward**

**stc**