

## Attachment summary

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**Company:** Huawei Technologies Ltd

**Department attached:** AMS Fiber Maintenance

**Supervisor:** Arnold Warinda

**Attachment Period:** January 2017 to March 2017

**Duties and responsibilities:**



### 1. Fiber network support and maintenance

Carrying out of emergence maintenance, corrective and preventive maintenance as required by SFC NOC and Huawei NMC.

Under the guidance of SFC NOC and our NMC, I had to respond to the following network failure:

- SFC SDC fiber network
- FTTS
- FTTB
- FTTH and
- Fiber to the small cell.
- NPS CCTV network

Troubleshooting outcome:

- Fiber cut due to various factors
- Poor power transmission and reception i.e. power under the required threshold attributed to various factors e.g. high losses, cable bend/kink etc.
- Transmission/ reception equipment failure.

Action taken:

- Re-splicing on points of cut
- Fiber core swap
- Replacement of entire OFC

Creation of both temporary and permanent fix in order to restore the fiber network link within the agreed timeline, SLA.

- Temporary fix included places that are still under construction.

### 2. New network link creation/provision:

Provisioning of additional new fiber network links on the already existing live fiber network as requested. These included;

- FTTH
- FTTB
- FTTS

Steps followed:

- Fiber network route identification using KMZ file and As Built also the design
- Testing to identify free cores
- Splicing on various manholes/joints. At some point, we had to introduce joining boxes/enclosures.
- Testing to ensure continuity and for traces documenting.

### **3. Fiber Network designing:**

Plotting of the various projects and those already implemented as dictated by the rules of maintenance. All the networks, both new and permanent fix had to be duly designed using AutoCAD. This assisted for purposes of reference and indicated core utilization.

### **4. Optical Fiber Network Acceptance:**

Acceptance of both new and maintained Network (permanent fix);

- FTTS
- FTTH
- FTTB
- SDC fiber network

Inspection:

- Quality of manhole, phase 1 had to contain brackets and hooks for proper lock and phase 2 had to lock using manhole key.
- Quality of trench had to follow SFC standards;
  - Normal soil: Depth 1.2m, Width 0.4m
  - Hard soil: Depth 1.2m, Width 0.4m
  - Soft rock: Depth 0.6m, Width 0.4m
  - Hard rock: Depth 0.6m, Width 0.4m
  - Both soft and hard rock trenches require a HDPE conduit.
  - Placement of warning tape during backfilling.
  - Quality of the splicing on all the installed joining boxes
  - Installation of and termination of ODFs where applicable
  - Provision of traces to confirm fiber network continuity

## **5. Survey for TKL Project**

Response to TKL request to use SFC fiber network for transmission of mobile technology packets to their aggregation sites;

- Identification of sites, both SFC and TKL sites and if co-located or in close proximity.
- Presence of either PTN or ATN on SFC sites.
- Presence of free ports on the said transmission equipment (whether optical or Ethernet).
- Distance from the above equipment to TKL BBU.

## **6. Equipment/tools used:**

To facilitate the above duties and responsibilities, the following machines/ tools were always with me and without them, nothing much can be done;

- OTDR, Optical Time Dimension Reflectometer for;
  - Showing fiber trace
  - Test continuity of the optical fiber
  - Length of the installed cable
  - Loss identification in dB.
  - Identification of fiber cut.
- VFL, Visual Fault Locator for identification of fiber or cuts by sending of laser light from one end.
- Optical power meter to measure power in dBm.
- Measuring wheel to collect distance measurement during acceptance and when undertaking new surveys for design purposes.
- Splicing Kit which among other machines hosted the Fusion Splicing Machine.