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Saurabh Pathak				
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MOP of GPS Antenna Fault on Huawei Site

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Activity Description

This activity is for E2E troubleshooting and alarm clearance of GPS Antenna Fault of the GPS antenna abnormal.

Attached is the details to be followed. As this need to be followed as guideline.

Alarm Name	1. GPS Antenna Fault 2. GPS Clock Output Unavailable 3. GPS Maintenance Link Failure 4. GPS Receiver Antenna Fault 5. GPS Receiver Hardware Fault.
Alarm Description	The base station fails to synchronize to the GPS clock. The system clock may be unusable if the base station does not obtain the clock reference for a long time. As a result, the quality of services of the base station decreases, resulting in handover failure and call drop. In certain cases, the base station cannot provide services.
Possible Causes	1. The GPS feeder is damaged, waterlogged, or improperly connected. 2. The GPS surge protector fails. 3. The jumper between the GPS receiver and the GPS port of the board is damaged. 4. The GPS satellite card hardware is faulty.

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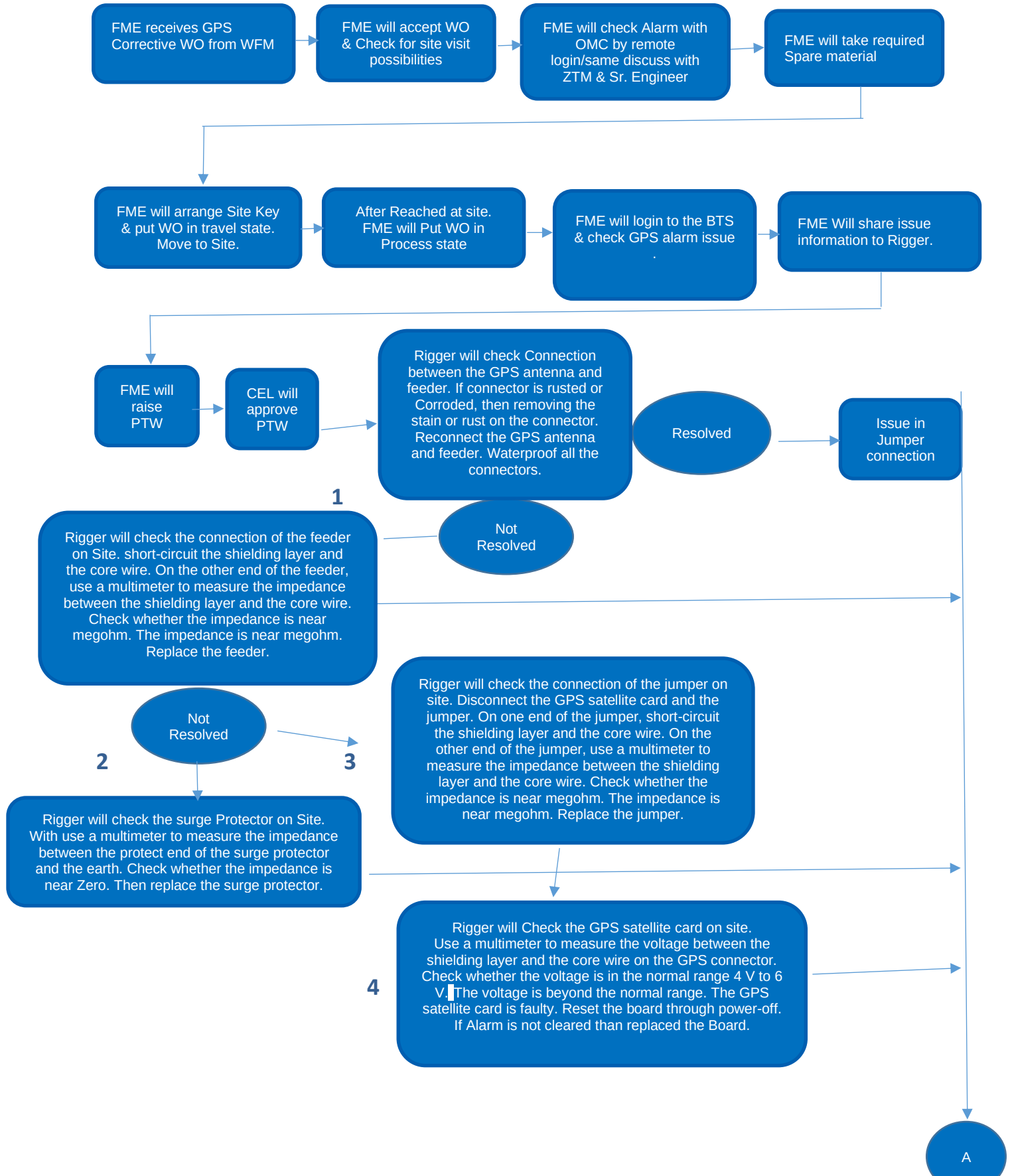
Flow Chart



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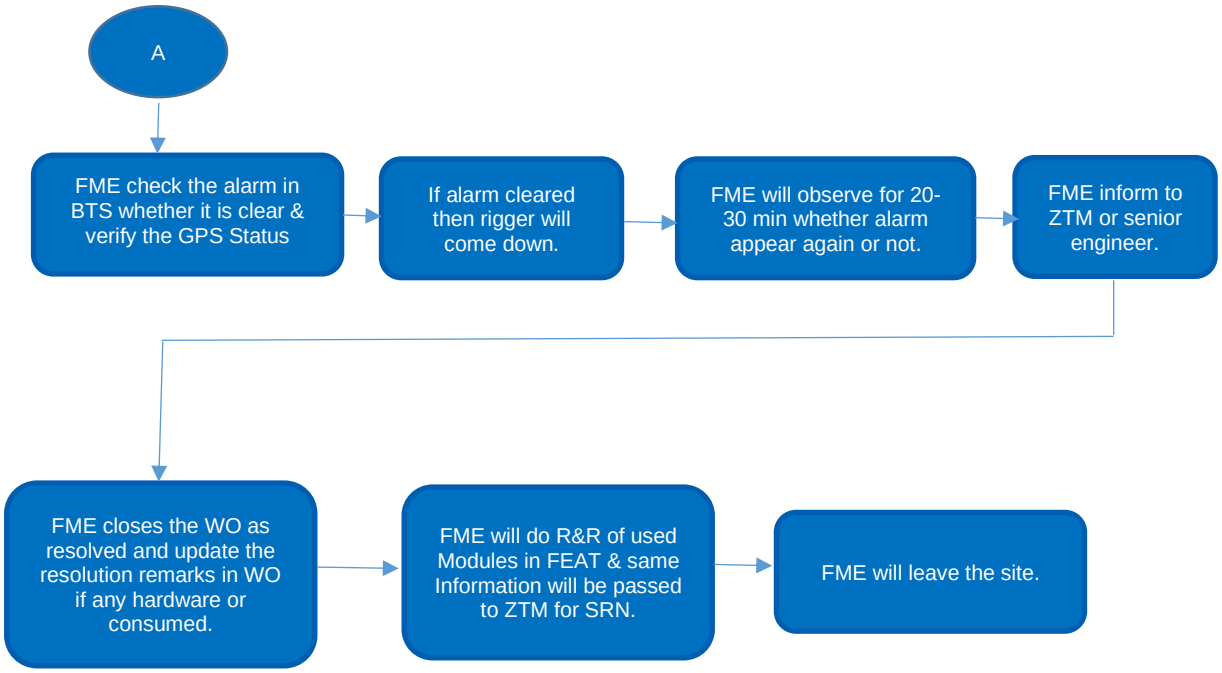

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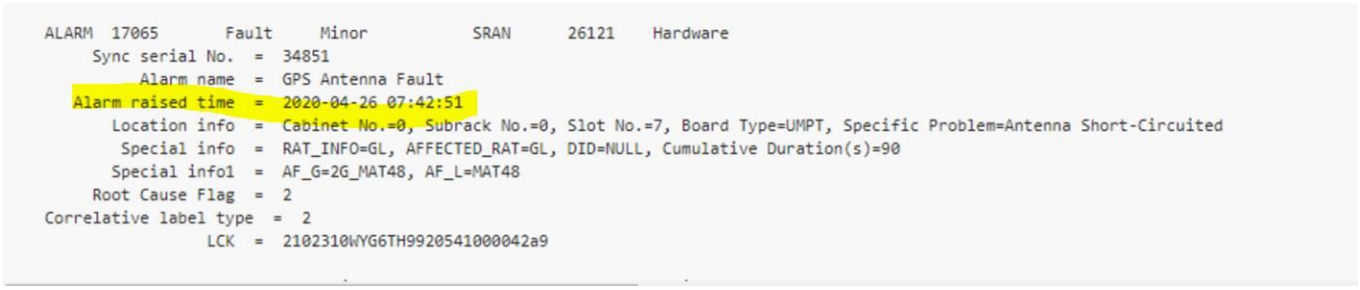
Activity Details

GPS Alarm Information & Checking for corrective action

1. FME receive work order in WFM of GPS alarm as a corrective work order
2. FME accept WO as received/WO acceptance time should be below then 15 Min after get the same.
3. FME check the alarm with help of OMC by remote login of BTS and discuss with ZTM and senior engineer about resolution…



```
ALARM  17065       Fault     Minor          SRAN      26121    Hardware
     Sync serial No.  =  34851
          Alarm name  =  GPS Antenna Fault
   Alarm raised time  =  2020-04-26 07:42:51
       Location info  =  Cabinet No.=0, Subrack No.=0, Slot No.=7, Board Type=UMPT, Specific Problem=Antenna Short-Circuited
        Special info  =  RAT_INFO=GL, AFFECTED_RAT=GL, DID=NULL, Cumulative Duration(s)=90
       Special info1  =  AF_G=2G_MAT48, AF_L=MAT48
     Root Cause Flag  =  2
Correlative label type  =  2
                 LCK  =  2102310WYG6TH9920541000042a9
```

4. If possible FME visit site on same day otherwise will plan on next day (Need to verification Required Rigger can access Tower after reached site as per OHS Rules).

Site Movement & Spare Arrangement

1. FME arrange key of site from respective Infra partner.
2. FME take required materials to resolve the alarm (As per Remote Login Observation).
3. Now FME move to site and put WO in Travel state.

Alarm issue Identification & Rectification

1. When FME reached at site, he put WO in progress state.
2. FME will login to the BTS & check GPS alarm issue.
3. FME will share same information to rigger.
4. FME will ensure the PPE kit, work at height certificate, medical certificate, present healthy physical condition, site condition including hygiene.
5. Raise PTW request
6. ZTM check the PTW and approve it.
7. Rigger will climb the tower and check below Points for actual issue identification.

    A. Rigger will check Connection between the GPS antenna and feeder. If connector is rusted or Corroded, then removing the stain or rust on the connector. Reconnect the GPS antenna and feeder. Waterproof all the connectors. If not resolved, then will follow below step

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B. Rigger will check the connection of the feeder on Site. short-circuit the shielding layer and the core wire. On the other end of the feeder, use a multimeter to measure the impedance between the shielding layer and the core wire. Check whether the impedance is near megohm. The impedance is near megohm. Replace the feeder. If alarm not swapped. Then will follow below step

C. Rigger will check the surge Protector on Site. With use a multimeter to measure the impedance between the protect end of the surge protector and the earth. Check whether the impedance is near Zero. Then replace the surge protector. If alarm not resolved. Then will follow below step.

D. Rigger will check the connection of the jumper on site. Disconnect the GPS satellite card and the jumper. On one end of the jumper, short-circuit the shielding layer and the core wire. On the other end of the jumper, use a multimeter to measure the impedance between the shielding layer and the core wire. Check whether the impedance is near megohm. The impedance is near megohm. Replace the jumper.

E. Rigger will Check the GPS satellite card on site. Use a multimeter to measure the voltage between the shielding layer and the core wire on the GPS connector. Check whether the voltage is in the normal range 4 V to 6 V. The voltage is beyond the normal range. The GPS satellite card is faulty. Reset the board through power-off. If Alarm is not cleared than replaced the Board.

8. FME check the alarm in BTS whether it is clear & verify GPS Status.

9. If alarm is cleared, then rigger will come down
10. FME will observe for 20-30 min whether alarm appear again or not.
11. If alarm don't appear again it means alarm resolved, then FME inform to ZTM or Senior engineer about the same.
12. FME closes the WO as resolved and update the resolution remarks in WO if any hardware or consumable material used.
13. FME will do R&R of used Modules in FEAT & same Information will pass to ZTM for SRN.
14. FME leave the site.

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Thank You